460234

Thirty-fourth Annual Report

DISTRIBUTION OF WATERS OF THE GILA RIVER

BY THE

GILA WATER COMMISSIONER

TO THE
UNITED STATES DISTRICT COURT
In and For The District of Arizona

1969

THIRTY-FOURTH ANNUAL REPORT

DISTRIBUTION OF WATERS OF THE GILA RIVER

by the

GILA WATER COMMISSIONER

to the

UNITED STATES DISTRICT COURT

1969

Safford, Arizona
June 12, 1970

Honorable James A. Walsh, Judge
United States District Court
Tucson, Arizona.

No. E-59 Globe
Re: United States of America
vs.
Gila Valley Irrigation District, et al.

Dear Sir:

I submit herewith the Thirty-Fourth Annual Report in the above cause on distribution of waters of the Gila River, tabulation of hydrometric data, and analysis of expenditures and collections for the calendar year 1969.

Very truly yours,

/S/ George E. Greiner
Acting Gila Water Commissioner

STATE OF ARIZONA)
) ss:
COUNTY OF GRAHAM)

I, George E. Greiner, Acting Gila Water Commissioner, hereby certify that the following is a true and correct record of distribution of waters of the Gila River for the calendar year 1969 to the best of my knowledge and belief. Furthermore, that the Financial Statement submitted herein is a true and accurate record of all receipts and disbursements for the calendar year 1969.

/S/ George E. Greiner

Subscribed and sworn to before me this 12th day of June, 1970.

/S/ Martin C. Allred

My Commission Expires: September 5, 1971.

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No.

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54 Daily Rainfall, Coolidge Dam

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57 Daily Rainfall near Safford, Arizona

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PERSONNEL

George E. Greiner, Acting Gila Water Commissioner	Safford, Arizona
A. C. Lewis, Assistant (to 12-15-69)	Safford, Arizona
Virgil G. Hubbard, Assistant (from 5-15-69)	Thatcher, Arizona
Robert R. McKinney, Assistant (3-1-69 to 4-30-69)	Safford, Arizona

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Stream flow of the Gila River and tributaries and San Carlos Reservoir data were furnished by the United States Geological Survey, Water Resources Division, under the direction of H. M. Babcock, District Hydrologist. M. W. Edington was in charge of the Safford Office.

Graphs and records of diversions of water on the San Carlos Project were furnished by the United States Indian Irrigation Service under the direction of Marvin D. Young, Project Engineer, Coolidge, Arizona, with C. C. Nolan, Hydrographer and George R. Dempster, Superintendent, at Coolidge Dam assisting.

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ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The Tables of Diversions give a statement in regard to the general accuracy of the records. "Excellent" indicates that, in general, the daily records are accurate within 5 per cent; "Good" within 10 per cent; "Fair" within 15 per cent; and "Poor" within 20 or higher per cent.

GEOGRAPHICAL DIVISIONS

Administration of the Decree, by necessity, follows the natural geographical divisions of the Gila Valley. Decreed acreage for each are as follows: Duncan-Virden division, known as "Duncan Valley" covering certain lands in the Hidalgo County, New Mexico, and Greenlee County, Arizona, to the extent of 8,061.35 acres of which water was issued for 6,300.1 acres; Safford Valley covering lands in Graham County, Arizona, outside of the San Carlos Indian Reservation, to the extent of 32,512.4 acres, water being issued for the entire acreage; San Carlos Agency, above the reservoir flow line, with 1,000 acres of rights; Winkelman Valley, in the Gila and Pinal Counties, Arizona, 1,335.16 acres; of which 440.43 acres have diversion rights from the Gila River and 894.73 acres of rights designated as pumping rights for industrial and municipal uses; the U. S. I. I. S. in Pinal County, Arizona, with water rights in the name of the United States of America aggregating 102,090.5 acres as follows:

San Carlos Project	Acres
San Carlos Irrigation and Drainage District	50,000
Indian Lands	50,000
Natural Flow Lands	1,544.5
Federal Agencies	546
	102.090.5

the Gila Crossing District under the Pima Indian Agency at Sacaton, Arizona with return flow rights for 2,992.5 acres. The total acreage under the Decree amounts to 147,991.91 acres.

DISTRIBUTION OF WATERS

On January 1, 1969 the stored water in San Carlos Reservoir amounted to about 40 per cent of total capacity. December 31, 1969 there was 195,627 acre-feet available stored water, amounting to about 17 per cent of total capacity.

There was apportioned to the "Upper Valleys" for the year 1969 a total of 6.0 acre-feet of water for each acre.

On the San Carlos Project there was apportioned a total of 3.00 acre-feet per acre of pumped and stored water. The total gravity diversions of both natural flow and stored water are shown on Plate 30.

The total water diverted from Gila River under the Decree for the year amounted to 428,795 acre-feet.

A summary of all diversions from the Gila River together with the duty for each canal or pump is shown on Plate 5.

Mean Daily diversions of apportioned and priority water for each canal in the Duncan, Safford, and Winkelman Valleys are shown on Plates 8 to 28.

Determination of when priority water was available is shown on Plate 31.

WATER SUPPLY

The flow of the Gila River, as recorded at the head of the Safford Valley, (Gila-Solomon) was 122,255 acre-feet. The inflow into San Carlos Reservoir from the Gila and San Carlos Rivers during the year amounted to 70,834 acre-feet.

Tabulation showing (1) Natural Flow of Gila River; (2) Inflow to the San Carlos Reservoir; (3) Gila River below Coolidge Dam; (4) Contents in Storage in San Carlos Reservoir; (5) Water diverted from Gila River, are shown on the following tables; (Quantities in acre-feet). Based on Provisional records of the United States Geological Survey.

(1)

NATURAL FLOW FROM GILA RIVER AND TRIBUTARIES	1969
Gila River below Blue Creek	62,053
San Francisco River at Clifton	64,597
Eagle & Bonita Creeks & intermediate tributaries	7,523
San Simon Creek near Solomon	2,908
San Carlos River near Peridot	15,249
Gain from Gila below Coolidge Dam to Gila Kelvin	25,361
TOTAL	177,691

(2)

INFLOW, SAN CARLOS RESERVOIR	
Gila River, Calva, plus San Carlos River, Peridot	70,834

(3)

GILA RIVER BELOW COOLIDGE DAM	
	315,333

(4)

CONTENTS IN STORAGE, SAN CARLOS RESERVOIR	
Available contents January 1, 1969	464,978
Available contents December 31, 1969	195,627

(5)

WATER DIVERTED FROM GILA RIVER	
Duncan-Virden Valley Canal Diversions	15,192
Safford Valley Canal Diversions	89,249
San Carlos Apache Agency	461
Winkelman Valley Diversions	None
Winkelman Valley Industrial Pumps	15,175
San Carlos Project:	
Natural Flow-Ashurst-Hayden Dam	67,584
Stored Water-Ashurst-Hayden Dam	238,185
Natural Flow-Sacaton Dam	None
Gila Crossing District - pumped	2,949
TOTAL	428,795

CONSUMPTIVE USE

The acre-foot consumptive use of apportioned water for the "Upper Valleys" as determined by the methods set forth in Article VIII of the Decree is as follows:

1969	Gila River below Blue Creek	San Fran. River Clifton	Total	Gila at Calva	Consumptive Use	Accum. Consump. Use
Jan.	7,630	6,050	13,680	13,355	325	325
Feb.	7,222	5,613	12,835	10,491	2,344	2,669
Mar.	6,597	6,403	13,000	3,420	9,580	12,249
April	8,460	8,832	17,292	2,652	14,640	26,889
May	3,608	4,810	8,418	1,801	6,617	33,506
June	1,361	2,210	3,571	636	2,935	36,441
July	1,897	3,505	5,402	1,098	4,304	40,745
Aug.	2,949	4,126	7,075	1,398	5,677	46,422
Sept.	10,546	8,688	19,234	9,219	10,015	56,437
Oct.	2,130	4,264	6,394	1,519	4,875	61,312
Nov.	4,034	4,669	8,703	4,151	4,552	65,864
Dec.	5,619	5,427	11,046	5,845	5,201	71,065
Total	62,053	64,597	126,650	55,585	71,065	71,065

SAN CARLOS RESERVOIR

On January 1, 1969 the available stored water in the San Carlos Reservoir amounted to 464,978 acre-feet. The high point in storage for the year was reached on February 7 when 486,600 acre-feet were available (Plate 51).

Small flows recorded at Gila River below Coolidge Dam (Plate 42), when no water was being released were disregarded and are not shown on Determination of Priority (Plate 31), Natural Flow Release (Plate 43), and Stored Water Releases (Plate 44).

The computed evaporation from the surface of the lake is shown on Plate 52; Rainfall on the lake computed from rainfall records amounted to 8,921 acre-feet (Plate 53). The bank release and bank storage is shown on Plate 47.

A new capacity table for the San Carlos Reservoir was prepared by the U.S. Geological Survey and was put into use on January 1, 1969.

STREAM FLOW RECORDS

Daily discharge of the river stations as submitted by the United States Geological Survey are shown on Plates 35 through 46.

RAINFALL

Rainfall at Coolidge Dam is shown on Plates 54 and 55. Rainfall at Safford is shown on Plates 56, 57, and 58. Rainfall at Duncan is shown on Plate 59. Rainfall at Casa Grande Monument is shown on Plates 60 and 61.

TRANSFERS

No permits were issued during 1969 to transfer carrying rights or water rights.

PHELPS DODGE CORPORATION DEVELOPMENT AT MORENCI

Records of the pumped flow from the Black River and Double Circle Wells by the Phelps Dodge Corporation as compiled by the United States Geological Survey Provisional Records show the following information with quantities given in acre-feet:

Month 1969	Black River Water and Double Circle Wells at Morenci Pumping Plant on Eagle Creek	Pumpage to Clifton-Morenci from San Francisco and Eagle Basins
Jan.	106	1,072
Feb.	225	1,026
Mar.	539	1,130
Apr.	961	981
May	980	1,012
June	992	1,026
July	1,040	1,181
Aug.	878	882
Sept.	885	1,014
Oct.	1,480	1,301
Nov.	1,170	1,208
Dec.	786	1,044
Totals	10,042	12,877

This shows that 2,835 acre-feet of water in excess of that brought in from Black River and Upper Eagle Creek Wells was pumped by the Phelps Dodge Corporation during the year 1969 from tributary drainage of the Gila River.

Pumpage figures shown in the right hand column include San Francisco River and Eagle Creek pumping Stations only.

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF ARIZONA

THE UNITED STATES OF AMERICA, Plaintiff, vs. GILA VALLEY IRRIGATION DISTRICT, et al., Defendants.	No. E-59 Globe DECREE

The issues formed by the Order to Show Cause heretofore directed against George E. Greiner, Acting Water Commissioner, and the response thereto of said Acting Water Commissioner and the Intervener-Defendants having been heretofore tried by the court, and the court having now made and entered its Findings of Fact and Conclusions of Law herein,

IT IS ORDERED, ADJUDGED, AND DECREED:

1. The respondent Acting Water Commissioner shall forthwith cease his prior practice of allowing parties to the 1935 Decree, or their successors in interest, to divert water pursuant to so-called "rights" or "priorities" designated "Immem.^{o}" or "c"; and the parties defendant herein are restrained and enjoined from making such diversions; and respondent Acting Water Commissioner is restrained and enjoined, in his administration of the 1935 Decree, from permitting water, other than apportioned water, to be diverted as against the water rights of plaintiffs except in strict accordance with the priority schedule set forth in Article V of the Decree.

2. In computing the volume of water consumptively used in the Duncan-Virden and Safford Valleys pursuant to Article VIII of said 1935 Decree, the respondent shall immediately cease and desist from the practice of deducting the priority water diverted by users in said Valleys pursuant to their rights as listed in Article V of said Decree. In computing the 120,000 acre-feet limitation contained in Article VIII, the respondent shall use only the formula for computing consumptive use expressly set forth in said Article VIII.

3. The respondent, in his administration of Article V of the 1935 Decree, shall immediately cease and desist from permitting at any time, including periods of sudden freshets or more plentiful natural flow, the diversion of water by water users above the San Carlos Reservoir at a rate greater than 1/80th of a cubic foot per second per acre so long as at the same time the storage and diversion water rights of all users as set forth in Article V are not being satisfied.

4. This Decree is entered as an exercise by the court of its continuing jurisdiction over the original Decree entered in this matter on June 29, 1935, and is to be deemed henceforth a part of that Decree, and binding on all signatory parties thereto, and their successors in interest, with this court reserving to itself and continuing to have such jurisdiction over this matter as was originally retained by it at the time of the original entry of the 1935 Decree.

DATED October 14, 1969

Signed James A. Walsh

United States District Judge

FINANCIAL STATEMENT FOR 1969
WATER COMMISSIONER'S ACCOUNT

Receipts

Plaintiffs (United States)			
San Carlos Project	$29,606.24		
San Carlos Agency	290.00		
Pima Agency	867.82		
		$30,764.06	
Defendants			
Gila Valley Irrigation District	$ 8,076.62		
Franklin Irrigation District	1,184.09		
Sunset Canal Company	608.48		
New Model Canal Company	106.55		
Kennecott Copper Corporation	431.84		
York Canal	79.11		
Laura Short	9.12		
M. L. Eaton	6.58		
John W. Galbreath Development Corp.	25.43		
Colvin-Jones Canal	55.52		
T. D. Burton	10.08		
		$10,593.42	
Miscellaneous Receipts		54.00	
Total Receipts 1969			$41,411.48
Balance forward 1968			7,782.58
			$49,194.06

Disbursements

Personnel (Salaries)			
George E. Greiner, Water Commissioner	$10,800.00		
A. C. Lewis, Assistant	4,500.00		
Virgil G. Hubbard, Assistant	4,012.50		
Robert R. McKinney, Assistant	1,050.00		
F. I. C. A.	833.40		
		$21,195.90	
Travel			
George E. Greiner	$ 788.13		
A. C. Lewis	573.80		
Virgil G. Hubbard	632.90		
Robert R. McKinney	68.80		
		$ 2,063.63	
Expenses			
Communications	$ 479.94		
Office Equipment	53.50		
Printing, Binding, Office Supplies	362.43		
Rent & Utilities	1,152.51		
Stream Flow Records	4,200.00		
Workmen's Compensation	680.89		
Miscellaneous	191.00		
		$ 7,120.27	
Total Disbursements			$30,379.80
Balance on hand 1-1-70			18,814.26
			$49,194.06

FINANCIAL STATEMENT FOR 1969

RECORDER ACCOUNT

Accounts	Credit from 1968	Deposit in 1969	Total Credit	Charges for 1969	Balance Forward
Brown Canal Company	$ 20.00		$ 20.00	$ 13.70	$ 6.30
Colvin-Jones Canal Co.	10.34	$ 9.66	20.00	13.69	6.31
Curtis Canal Co.	20.00		20.00	9.38	10.62
Dodge-Nevada Canal Co.	20.00		20.00	9.69	10.31
Duncan Canal Co.	10.57	13.67	24.24	9.69	14.55
Ft. Thomas Canal Co.	40.00		40.00	29.38	10.62
Fourness Canal Co.	10.33	9.67	20.00	9.70	10.30
Graham Canal Co.	20.00		20.00	13.70	6.30
Highline Canal Co.	60.00		60.00	33.09	26.91
Montezuma Canal Co.	20.00		20.00	13.69	6.31
New Model Canal Co.	20.00		20.00	9.69	10.31
San Jose Canal Co.	80.00		80.00	42.80	37.20
Sunset Canal Co.	6.33	13.67	20.00	9.69	10.31
Sexton Canal Co.*	23.95		23.95		23.95
R. Sexton Canal Co.*	3.64		3.64		3.64
Smithville Canal Co.	6.33	13.67	20.00	9.70	10.30
T. D. Burton	10.34	9.66	20.00	13.69	6.31
Tidwell Canal Co.	20.00		20.00	13.69	6.31
Union Canal Co.	20.00		20.00	13.70	6.30
Valley Canal Co.	20.00		20.00	9.69	10.31
Don Curtis	10.33	9.67	20.00	13.70	6.30
W. Foote	10.33	9.67	20.00	13.70	6.30
A. Grijalva		20.00	20.00	13.69	6.31
Total	$462.49	$109.34	$571.83	$319.45	$252.38

*Discontinued

RECAPITULATION

Credit Balance January 1, 1969	$462.49	Supplies, Equipment & repairs in 1969	$319.45
Deposit 1969	109.34	Cr. Balance 1-1-70	252.38
	$571.83		$571.83

INVENTORY OF OFFICE AND FIELD EQUIPMENT, JANUARY, 1970

OFFICE EQUIPMENT

1 - Shaw Walker metal desk, Serial #371, with attached swing type shelf
2 - Shaw Waler metal desks, type 6034
1 - General Fireproofing Co. metal desk #1660FCL w/ typewriter shelf
1 - Wooden desk, size 3' x 4' 6" x 2'6"; 1 - Royal metal swivel chair
1 - General Fireproofing Co. metal swivel chair, #3327
2 - Shaw Walker metal swivel chairs, #8311 and #8315 (posture)
1 - Harter Engineer's metal swivel chair, posture
4 - Haywood Wakefield natural oak chairs, #28000
1 - Haywood Wakefield natural oak chair, #28000 AXY, armless swivel
1 - Taylor natural oak swivel desk chair with arms
2 - Wooden bookcases, size 1' x 4' x 50"
1 - Gen. Fireproofing Co. metal file #1104 VCL, legal size 4 dr. w/lock
2 - Shaw Walker 3 dr. metal file #374-1 legal size, 1 letter size w/lk.
1 - Shaw Walker 4 drawer metal fire file #694025 w/lock
2 - State Jr. metal transfer files, legal size, 4 drawer
1 - Corrian metal file, legal - 4 drawer
1 - Asco metal file size 9 1/2"x 7" x 16", 1 drawer
1 - Shaw Walker wood card file, size 5 1/2"x 6" x 9"
35- Paper storage files, size 15" x 10 1/4" x 24"
2 - Royal typewriters, 11", #KMM 2410645 & 12", #HHE 13-5854684 w/std.
1 - Royal typewriter, 18" #KHN 18-1995053 - Tiffany metal table
1 - Thermo-fax "Secretary" copying machine, #17H, Serial 17583
1 - Burroughs Adding Machine, #A103301; 1 - Monroe Calculator,#1A 160X-209755 (electric); 2 pair scissors - 10"
2 - Staplers; 1 - Nevaclog paper stapler; 1 - Speedfastner stapler
1 - American numbering machine, Model 110
1 - K & E LeRoy lettering set, #N3245-10
3 - Metal Waste baskets; 1 - three section desk basket (metal)
2 - Pencil Sharpeners; 1 Clipboard, size 7" x 11"
1 - Electric Fan; 1 - Single wire desk basket
1 - K & E "Planimeter" #2411, Serial #2424
1 - A. B. Dick Mimeograph, Model #416 (with cover)
1 - Bruning Engineer's Rule #2061, scale 10/50, flat ivory edge
1 - Bruning Engineer's Rule #2063, scale 20/40, flat ivory edge
1 - Bruning Architect's Rule #2012; scale various, flat ivory edge
1 - K. & E Engineer's Rule #1631W, scale 10/60, triangle ivory edge
3 - K & E Ship's curves, #1864-36; -39; -42
1 - Faultless Stalock binder, #3070 with loose leaves
1 - Hadley dead storage binder, size 11" x 14" with loose leaves
2 - Art Specialty "Flexo" desk lamps; 1 Dazor Model 2324 desk lamp
1 - Triumph eyelet punch and setter

FIELD EQUIPMENT

1 - Gurley current meter with heads, #431843 & 17781
1 - Clausen-Pierce Hydraulic Rule
1 - Lufkin leader steel tape, 25' @0250
1 - Steel square, size 16" x 24"
1 - Stevens Recorder #8196-43
1 - Metallic tape, 50'
2 - Stop watches

BOOKS

1 - Collegiate Dictionary, 1950 Edition, Webster
1 - Natural Trigonometric Functions, Benson
1 - Design of Masonry Structures, Williams
1 - Public Water Supplies, Tureaure & Russell
1 - Hydraulic Table, Williams & Hazen
1 - Hydraulics, Schoder & Dawson
1 - Design of Dams, Hanna & Kennedy
1 - Operation & Maintenance of Irrigation Systems, Harding
1 - Stream Gaging, Liddell
1 - Water Rights for Irrigation, Harding
1 - Selected Problems in the Law of Water Rights, Hutchins
1 - Hydraulics of Steady Flow in Open Channels, Woodward & Posey
1 - Hydrology, Wiser & Brater

APPORTIONMENTS MADE DURING 1969

The following apportionment was made to the "Upper Valleys" under authority contained in Article VIII of the Decree, and to the Winkelman Valley under authority contained in Articles IX and X of the Decree.

Number	Date	Acre-feet	Acre-feet per Acre	Accumulated Apportionment
1	Jan. 1	243,442.5	6.0	6.0

WATER APPORTIONED ON SAN CARLOS PROJECT, 1969

Number	Date	Acre-feet per Acre	Accumulated Apportionment
1	Jan. 23	2.50	2.50
2	July 28	.50	3.00

TABLE SHOWING ACREAGES AND SEASON DIVERSIONS FOR GILA RIVER CANALS
FOR CALENDAR YEAR 1969

DUNCAN VALLEY	Acres	Ac-ft.,Div.	Duty,a/f/a
Sunset	2,749.9	10,297	3.74
New Model	2,163.0	3,088	1.43
Valley	1,387.2	1,807	1.30
Duncan	296.35	None	None
Black & McCleskey	268.2	None	None
Colmenero	441.0	None	None
Sexton	137.9	None	None
R. Sexton	144.1	None	None
York Canal	315.1	None	None
Albert	8.8	None	None
F. E. Ross	11.6	None	None
Mrs. M. L. Eaton	26.3	None	None
J. H. Brown	25.6	None	None
York Cattle Company	49.8	None	None
Laura Short	36.5	None	None
Water issued for 6,300.1 Acres			
TOTALS	8,061.35	15,192	1.88
SAFFORD VALLEY			
Brown	874.4	2,205	2.52
Tidwell	452.5	976	2.16
Fourness	210.7	379	1.80
San Jose	4,060.1	12,930	3.18
Montezuma	4,952.12	14,507	2.93
Union	7,408.37	23,430	3.16
Graham	4,195.58	8,312	1.98
Smithville	2,451.33	7,822	3.19
Dodge-Nevada	2,574.0	5,451	2.12
Curtis	1,971.7	6,376	3.23
Ft. Thomas	3,155.7	6,200	1.96
Colvin Jones	165.6	427	2.58
T. D. Burton	40.3	234	5.81
TOTALS	32,512.4	89,249	2.75
SAN CARLOS INDIAN RESERVATION			
Irrigated 1969		461	
WINKELMAN VALLEY			
Industrial and Municipal	894.73	15,175	
Farmlands	440.43	None	
TOTALS	1,335.16	15,175	
UNITED STATES OF AMERICA*			
Decreed Acreage	102,090.5		
Indian Lands (Allotted & Tribal)	50,000 Nat. Flow	32,871	.66
Federal Agencies	546 Stored	72,139	1.43
	50,546	105,010	2.09
White Lands			
San Carlos I. & D. D.	50,000 Nat. Flow	21,087	.42
	Stored	140,744	2.81
		161,831	3.23
Natural Flow Lands	1,544.5	909	.59
TOTALS	102,090.5	267,750	2.62
	102,090.5 Nat.Flow	54,867	.54
	100,546.0 Stored	212,883	2.12

Acre feet shown is water diverted to parts of the Project-District and Indian, and not to the lands.

GILA CROSSING DISTRICT 2,949 (wells) Acre-feet

*Data furnished by U.S.I.I.S.

TABULATION SHOWING MONTHLY RIVER FLOWS & DIVERSIONS, GILA RIVER SYSTEM, 1969

Quantities in Acre-feet
Based on Provisional Records of U. S. G. S.

STATIONS	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Gila-Blue	7630	7222	6597	8460	3608	1361	1897	2949	10546	2130	4034	5619	62053
Duncan Valley Diversion	101	1264	1668	2787	1349	784	842	909	1949	1209	1318	1012	15192
Gila-Clifton	7349	6135	4709	4114	1692	1125	2682	3725	9630	1609	2914	4451	50135
San Francisco-Clifton	6050	5613	6403	8832	4810	2210	3505	4126	8688	4264	4669	5427	64597
Gila Solomon	12996	12972	10943	15300	6179	2799	6867	6783	21618	5956	8120	11722	122255
San Simon							1119	1085	704				2908
Safford Valley Diversion	5514	8775	13669	13804	6451	2367	6346	7527	10261	3590	3084	7861	89249
Gain Safford Valley	+5873	+6294	+6146	+1156	+2073	+204	-542	+1057	-2842	-847	-885	+1984	+19671
Gila-Calva	13355	10491	3420	2652	1801	636	1098	1398	9219	1519	4151	5845	55585
San Carlos Peridot	8686	1047	1357	659	570	78	134	297	405	471	712	833	15249
Stored Water	485600	478800	446200	411400	372200	322600	272600	229500	210500	199500	200200	195600	
Gila below Coolidge Dam	320	17314	37192	36065	40665	44922	47714	41619	24867	9999	3286	11370	315333
Gila-Winkelman	3376	17163	35702	34500	38650	43559	47278	40965	24698	10316	5165	10794	312166
Winkelman Diversion	1357	1230	1360	1353	1335	1154	1231	1279	1251	1263	1175	1187	15175
Gila-Kelvin	15098	17818	37041	35306	38902	41669	50662	50297	27763	9945	6438	9755	340694
A-H Diversions	6877	18659	36857	33753	35417	38069	42230	41375	26329	8888	6210	11105	305769
A-H Spilled	932										28		960
A-H Sluiced	700						184	220			36		1140
A-H Total	8509	18659	36857	33753	35417	38069	42414	41595	26329	8888	6274	11105	307869
Loss Kelvin to A-H	-6589	+841	-184	-1553	-3485	-3600	-8248	-8702	-1434	-1057	-164	+1350	-32825
Sacaton Diversion													

Plate 6

TABULATION SHOWING YEARLY RIVER FLOWS & DIVERSIONS, GILA RIVER SYSTEM, 1936-1969

Quantities to Closest Thousand Acre-Feet. Based on Records of U. S. G. S.

Year	Gila Blue	Duncan Valley Divers.	Gila-Clifton	San Francis-Clifton	Gila Sol. & Brown	San Simon	Saff. Val. Diver.	Gain Saff. Val.	Gila-Calva	San Carlos Perid.	Max. Stored Water	Gila below Coold. Dam	Gila Wink-elman	Gila-Kelvin	A-H Divers.	A-H Spilled-Sluiced	A-H Total	Loss Kelvin to A-H	Sacaton Diversion
1936	90	39	76	98	*217	14	132	51	150	45	193	237	#	306	244	#	#	#	4.6
1937	206	40	180	181	*419	3	161	60	321	46	269	298	#	375	302	24	326	49	2.5
1938	87	23	78	71	*164	5	98	23	94	15	90	152	#	193	156	9	165	28	1.5
1939	94	34	87	70	*172	6	79	16	115	19	30	123	#	176	134	22	156	20	1.3
1940	146	40	131	134	*303	11	100	6	220	52	113	143	#	268	155	49	204	64	2.5
1941	435	34	407	382	918	13	151	120	900	172	775	240	#	458	295	125	420	38	1.4
1942	111	36	99	101	222	8	172	83	141	21	819	373	374	396	372	12	384	12	.2
1943	71	32	69	57	151	15	122	49	93	29	563	357	360	418	357	34	391	27	.7
1944	80	27	74	54	151	17	128	57	97	13	284	294	303	339	287	17	304	35	.6
1945	109	28	101	90	220	11	149	36	118	16	124	193	196	241	200	19	219	22	.8
1946	53	14	49	52	116	3	70	5	54	16	29	62	71	103	84	8	92	11	.8
1947	45	10	#	41	100	4	52	-13	39	11	19	54	59	82	68	7	75	7	.5
1948	86	9	#	69	148	5	40	-33	80	10	15	65	61	87	71	6	77	10	.1
1949	303	25	269	255	569	15	168	- 5	411	22	260	277	275	317	260	24	284	33	.1
1950	49	13	40	34	87	6	69	6	30	6	94	123	123	156	116	11	127	29	.1
1951	33	3	32	36	79	7	26	-18	42	17	8	41	53	76	47	10	57	19	.1
1952	140	20	100	185	324	5	129	-11	189	73	164	228	237	270	226	18	244	26	.4
1953	46	8	35	40	83	6	39	-11	39	8	18	45	44	69	53	2	55	14	.1
1954	89	13	80	77	190	28	80	-16	122	43	74	103	127	220	121	97	218	2	1.0
1955	67	13	87	73	170	27	86	21	132	27	109	94	107	226	113	118	231	+5	.2
1956	24	8	18	26	49	1	43	0	7	12	78	79	79	89	73	2	75	14	.0
1957	121	11	94	108	225	20	70	-37	138	11	82	74	81	95	78	4	82	13	.1
1958	205	19	184	260	473	17	147	-41	302	52	228	243	252	314	264	25	289	25	.0
1959	74	11	66	92	179	10	80	- 7	102	32	112	135	149	207	154	31	185	22	.0
1960	138	15	110	143	285	2	111	-13	163	33	223	252	259	290	241	26	267	23	.0
1961	73	8	56	98	160	20	36	-34	110	21	70	41	60	88	61	8	69	19	.0
1962	211	21	173	208	410	4	135	-37	242	22	169	228	237	253	220	7	227	26	.0
1963	130	20	108	138	273	3	101	- 8	167	31	132	167	178	226	186	19	205	21	.0
1964	69	12	54	69	142	10	70	- 4	78	11	66	91	97	157	120	19	139	18	.0
1965	161	18	137	222	395	8	93	-50	260	110	253	117	134	240	137	163	300	+60	.0
1966	209	23	191	205	433	4	133	67	371	21	504	251	283	348	298	29	327	21	.0
1967	115	16	107	158	259	12	90	9	190	38	324	249	273	380	260	88	348	32	.0
1968	314	26	277	309	656	4	152	23	531	38	679	282	294	345	316	15	331	14	.0
1969	62	15	50	65	122	3	89	20	56	15	487	315	312	341	306	2	308	33	.0

*-Gila below Bonita # No Record

DUNCAN VALLEY 8061.35 Acres. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	26.3p		47.1	24.7	15.5	17.4	4.1	13.0	29.9	9.2	28.1	15.7p	
2	15.9p		39.3	26.1	13.9	20.6	3.7	14.4	33.2	17.1	30.0	15.5p	
3	5.8p		27.9	35.1	12.4	20.1	3.2	13.9	32.6	16.7	29.3	17.6p	
4	2.7p		26.3	52.0	12.4	18.9	3.2	9.5	35.1	16.3	27.7	20.0p	
5			25.8	53.6	13.6	16.6	2.7	7.7	30.9	15.5	26.5	17.0p	
6			25.2	57.6	13.3	21.9	1.8	11.5	27.9	15.5	27.8	14.7p	
7			25.0	61.4	15.0	19.8	1.7	15.7	30.0	15.2	28.7	13.0p	
8			24.0	62.5	27.1	18.4	5.5	13.9	33.8	16.5	30.0	12.3p	
9		1.5p	24.4	66.8	39.7	17.6	6.0	23.7	35.5	15.8	19.1p	12.4p	
10		7.2	25.9	68.9	52.1	15.2	9.6	24.7	39.3	15.5	5.2	12.1p	
11		11.2	28.2	68.3	53.8	11.8	14.9	13.0	44.2	15.2	10.0p	12.3	
12		13.8	28.4	67.4	39.1	11.3	11.9	12.7	47.2	15.2	13.1p	12.6	
13		14.8	29.0	64.8	13.3	12.7	12.7	12.1	37.7	15.8	11.2	13.5	
14		17.7	27.9	58.4	13.0	10.9	11.2	15.2	36.9	17.2	11.6	12.4	
15		19.8	28.0	61.0	12.7	8.5	11.5	25.0	5.1/30.3p	13.6	11.1p	9.0	
16		19.3	28.0	65.1	12.4	8.2	12.8	21.0	4.6/29.2p	12.4	13.9p	5.1	
17		29.4	27.4	64.3	12.7	9.2	17.2	13.3	38.2	16.2	19.6p	8.6	
18		39.0	26.6	61.2	12.7	11.4	16.5	13.3	51.9	16.2	26.4p	11.8	
19		42.9	24.3	60.9	13.3	16.8	16.5	12.7	69.9	15.5	31.5p	20.1	
20		46.7	24.1	61.6	13.0	16.3	16.2	12.7	70.6	15.5	40.7p	23.1	
21		47.6	24.0	58.1	19.7	15.6	14.3	12.7	58.4	16.8p	34.6p	22.4	
22		47.2	23.4	39.2	30.3	13.5	17.1	12.7	33.5	17.2	21.4p	27.2	
23		46.7	24.1	23.1	28.3	13.2	28.7	12.7	19.3	15.8	15.7p	24.6	
24		46.6	24.6	22.4	28.9	11.1	34.3	13.9	12.0	22.5	14.7p	19.3	
25		46.3	27.6	23.0	28.1	7.9	28.7	14.0	11.2	30.8	21.6p	18.5	
26		45.6	25.2	23.2	27.1	6.7	26.4	12.4	12.4	31.5p	31.1p	19.5	
27		46.9	25.8	23.2	23.7	7.2	25.1	13.0	12.7	33.0	31.4p	20.9	
28		47.3	24.7	20.5	22.3	6.0	16.9	13.0	12.4	34.0	22.9	19.1	
29			25.3	15.5	23.4	5.4	18.7	13.3	9.8	34.3	14.6	19.4	
30			26.8	15.2	18.9	4.9	17.2	19.5	6.7	37.2	15.0p	19.7	
31			27.1		18.6		14.4	21.8		30.2		20.8p	
Total	50.7	637.5	841.4	1405.1	680.3	395.1	424.7	458.0	982.4	609.4	664.5	510.2	7659.3
Acre-feet	101	1264	1668	2787	1349	784	842	909	1949	1209	1318	1012	15192
Prior. Div.	101	3							118	96	736	340	1394
Apport. Div.		1261	1668	2787	1349	784	842	909	1831	1113	582	672	13798
Ac. Ap. Div.		1261	2929	5716	7065	7849	8691	9600	11431	12544	13126	13798	13798
Apport.	48368	48368	48368	48368	48368	48368	48368	48368	48368	48368	48368	48368	48368
Duty	.01	.16	.21	.34	.17	.10	.10	.11	.25	.15	.16	.12	1.88

MASS DIAGRAM OF DUNCAN VALLEY, DIVERSIONS, APPORTIONMENTS & RIVER FLOWS, 1969

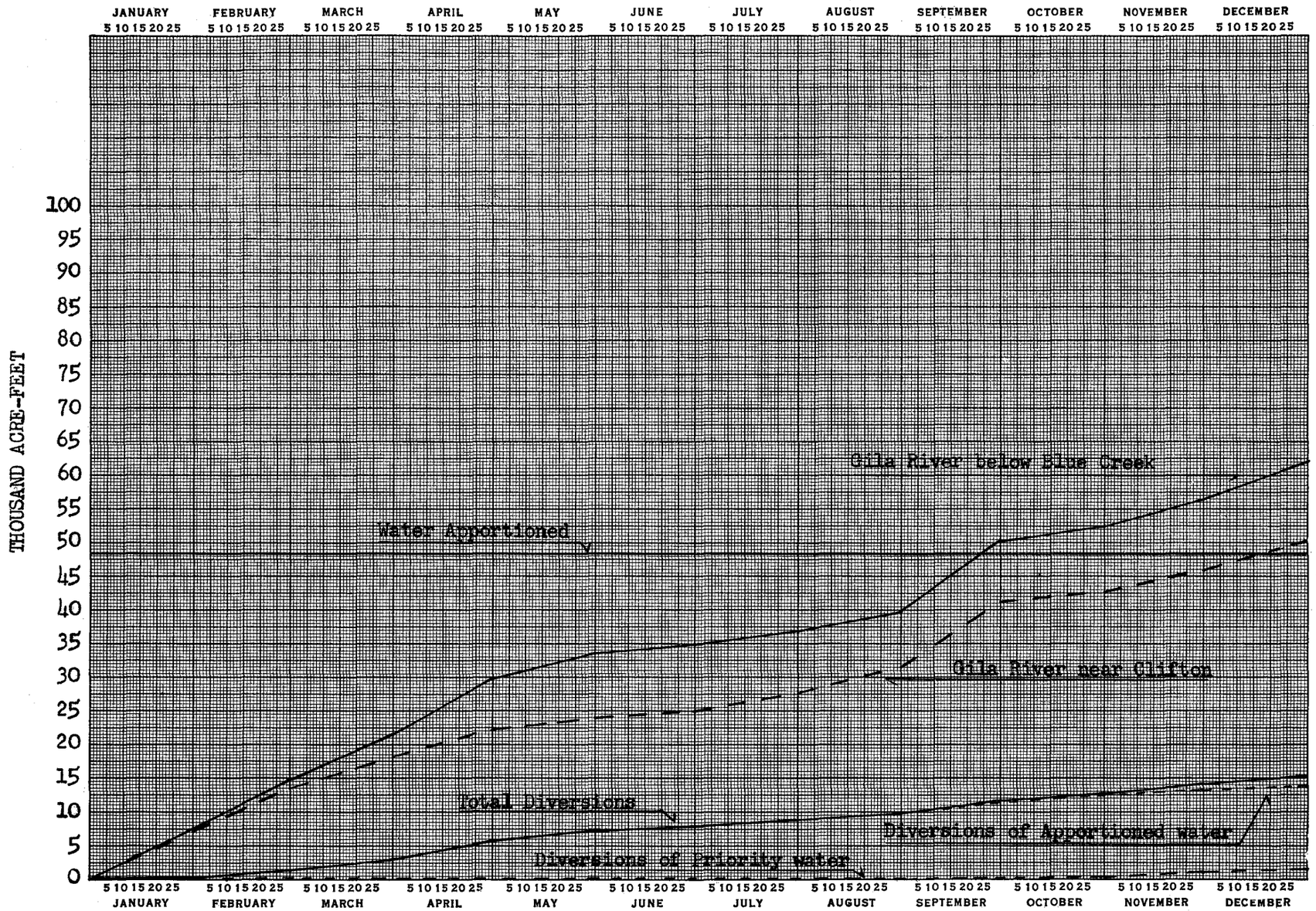

Plate 9

Diversion on North side of Gila River in SW¼ NW¼, Section 21, Township 19South, Range 20 West, NMPM, Water stage recorder and 6 ft. Parshall flume located in SE¼ NW¼ Section 17, Township 19 South, Range 20 West. (Record Good)

SUNSET CANAL, 2749.9 Acres. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	26.3p		20.7	15.8	15.5	15.5	4.1	11.8	27.9	8.8	20.7	9.2p	
2	15.9p		19.2	15.8	13.9	16.5	3.7	13.7	32.5	16.2	21.0	9.0p	
3	5.8p		15.8	17.8	12.4	15.5	3.2	13.9	32.6	15.8	19.5	11.1p	
4	2.7p		16.2	20.3	12.4	15.8	3.2	9.5	35.1	16.2	20.3	13.0p	
5			16.2	21.0	13.6	14.8	2.7	7.7	30.9	15.5	20.3	8.8p	
6			16.2	23.6	13.3	16.5	1.8	11.5	27.9	15.5	20.3	6.5p	
7			16.2	23.6	14.2	15.8	1.7	13.0	30.0	15.2	19.2	6.5p	
8			15.8	24.4	18.1	15.8	5.5	13.9	33.8	16.5	17.8	6.7p	
9			15.8	27.1	24.4	16.2	6.0	17.5	32.9	15.8	5.4p	7.0p	
10			16.5	27.9	24.0	14.2	9.6	16.1	34.2	15.5		6.7p	
11			17.5	28.4	23.6	10.9	14.9	13.0	34.7	15.2	5.1p	7.4	
12			17.2	27.9	19.5	10.9	11.9	12.7	34.7	15.2	8.2p	7.7	
13			17.5	26.7	13.3	12.7	12.7	12.1	31.2	15.8	6.0	7.7	
14			17.5	26.7	13.0	10.9	11.2	14.5	33.0	17.2	4.9	7.7	
15			17.5	27.5	12.7	8.5	11.5	16.2	5.1/29.2p	13.6	4.9p	5.3	
16			16.8	27.9	12.4	8.2	12.8	14.2	4.6/29.2p	12.4	4.9p		
17		10.8	16.5	27.1	12.7	9.2	17.2	13.3	33.8	16.2	13.5p	4.3	
18		19.9	16.2	26.7	12.7	10.9	16.5	13.3	33.4	16.2	17.8p	6.2	
19		19.9	15.8	26.7	13.3	13.6	16.5	12.7	33.0	15.5	25.1p	15.2	
20		19.9	15.8	26.3	13.0	14.5	16.2	12.7	33.8	15.5	31.7p	17.3	
21		20.3	15.8	22.9	13.7	15.2	14.3	12.7	33.8	16.8p	26.7p	14.2	
22		19.6	15.8	15.8	16.8	13.3	17.1	12.7	19.9	17.2	13.2p	20.0	
23		19.9	15.5	15.8	16.2	13.0	20.2	12.7	14.5	15.8	8.5p	18.8	
24		19.9	14.8	15.8	16.8	10.9	14.5	13.9	11.5	17.8	8.5p	14.9	
25		19.9	17.5	16.2	16.5	7.9	13.9	14.0	11.2	19.9	16.7p	16.2	
26		19.9	17.2	16.2	16.2	6.7	20.7	12.4	12.4	20.3p	26.7p	17.2	
27		20.3	17.8	15.8	15.6	7.2	19.4	13.0	12.7	21.8	27.9p	18.9	
28		20.7	17.5	15.5	16.8	6.0	15.3	13.0	12.4	20.7	18.7	17.5	
29			17.5	15.5	16.2	5.4	16.5	13.3	9.8	20.7	9.0	16.5	
30			17.5	15.2	14.5	4.9	15.8	16.5	6.7	20.7	9.2p	15.8	
31			17.2		14.9		13.6	17.2		20.7		16.8p	
Total	50.7	231.0	521.0	653.9	482.2	357.4	364.2	414.7	798.4	516.2	451.7	350.1	5191.5
Acre-feet	101	458	1033	1297	956	709	722	823	1584	1024	896	694	10297
Prior. Div.	101								116	74	504	201	996
Apport. Div.		458	1033	1297	956	709	722	823	1468	950	392	493	9301
Ac. Ap. Div.		458	1491	2788	3744	4453	5175	5998	7466	8416	8808	9301	9301
Apport.	16499	16499	16499	16499	16499	16499	16499	16499	16499	16499	16499	16499	16499
Duty	.04	.16	.38	.47	.35	.26	.26	.30	.57	.38	.32	.25	3.74

Diversion on South side of Gila River in NW¼ SE¼, Section 11, Township 19 South, Range 21 West, NMPM. Water stage recorder and 6 foot Parshall flume located in NE¼ NE¼, Section 10, Township 19 South, Range 21 West. (Record Good)

NEW MODEL CANAL, 2163.0 Acres. Mean Daily Diversions, Cubic Feet Per Second

1969

Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1			15.8	2.7		.6			2.0	.4	7.4	6.5p	
2			9.7	3.3		1.3			.7	.9	9.0	6.5p	
3			3.1	7.2		.5				.9	9.8	6.5p	
4			2.4	17.2		.8				.1	7.4	7.0p	
5			2.7	17.5		1.3					6.2	8.2p	
6			2.5	18.5		.3					5.4	8.2p	
7			2.6	22.5	.5	.5		2.7			5.4	6.5p	
8			2.0	23.6	2.0						7.7	5.6p	
9		1.5p	2.4	24.8	2.9			3.7			12.2p	5.4p	
10		5.7	2.4	24.8	18.6			3.2			5.2	5.4p	
11		8.0	3.5	24.4	21.2				.7		4.9p	4.9	
12		10.3	3.5	24.0	12.7				.4		4.9p	4.9	
13		11.5	4.3	22.9							5.2	5.8	
14		14.5	3.7	24.0				.7			6.7	4.7	
15		16.8	3.5	24.4				4.0			6.2p	3.7	
16		16.5	3.5	24.8				1.3			9.0p	5.1	
17		16.2	3.7	23.6					1.4		6.1p	4.3	
18		16.8	3.2	22.1					12.6		8.6p	5.6	
19		17.5	1.5	23.6					27.5		6.4p	4.9	
20		17.8	1.8	25.2					25.6		9.0p	5.8	
21		17.8	2.6	24.8	2.4				12.5		7.9p	8.2	
22		17.8	2.7	13.9	5.3						8.2p	7.2	
23		17.8	3.0	1.2	4.4		8.5				7.2p	5.8	
24		17.5	2.7	1.2	4.4		19.6			4.7	6.2p	4.4	
25		17.2	3.9	1.4	4.9		13.9			10.9	4.9p	2.3	
26		16.5	2.4	1.6	4.9		3.3			11.2p	4.4p	2.3	
27		16.2	2.6	1.4	4.7					11.2	3.5p	2.0	
28		16.2	2.5	1.1	4.5					13.3	4.2	1.6	
29			2.4		3.6		1.0			13.6	5.6	2.9	
30			2.6		1.8		.6	2.0		16.5	5.8p	3.9	
31			2.7		1.1			4.0		9.5		4.0p	
Total		290.1	107.9	447.7	99.9	5.3	46.9	21.6	83.4	93.2	200.6	160.1	1556.7
Acre-feet		575	214	888	198	11	93	43	165	185	398	318	3088
Prior. Div.		3								22	229	139	393
Apport. Div.		572	214	888	198	11	93	43	165	163	169	179	2695
Ac. Ap. Div.		572	786	1674	1872	1883	1976	2019	2184	2347	2516	2695	2695
Apport.	12978	12978	12978	12978	12978	12978	12978	12978	12978	12978	12978	12978	12978
Duty		.27	.09	.42	.09		.04	.02	.08	.09	.18	.15	1.43

Diversion on the North side of Gila River in NE¼ NW¼, Section 4, Township 19S, Range 21, Section 34, Township 85, Range 32E. (Record Good)

VALLEY CANAL 1387.2 Acres. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1			10.6	6.2		1.3		1.2					
2			10.4	7.0		2.8		.7					
3			9.0	10.1		4.1							
4			7.7	14.5		2.3							
5			6.9	15.1		.5							
6			6.5	15.5		5.1					2.1		
7			6.2	15.3	.3	3.5					4.1		
8			6.2	14.5	7.0	2.6					4.5		
9			6.2	14.9	12.4	1.4		2.5	2.6		1.5p		
10		1.5	7.0	16.2	9.5	1.0		5.4	5.1				
11		3.2	7.2	15.5	9.0	.9			8.8				
12		3.5	7.7	15.5	6.9	.4			12.1				
13		3.3	7.2	15.2					6.5				
14		3.2	6.7	7.7					3.9				
15		3.0	7.0	9.1				4.8	1.1p				
16		2.8	7.7	12.4				5.5					
17		2.4	7.2	13.6					3.0				
18		2.3	7.2	12.4		.5			5.9				
19		5.5	7.0	10.6		3.2			9.4				
20		9.0	6.5	10.1		1.8			11.2				
21		9.5	5.6	10.4	3.6	.4			12.1				
22		9.8	4.9	9.5	8.2	.2			13.6				
23		9.0	5.6	6.1	7.7	.2			4.8				
24		9.2	7.1	5.4	7.7	.2	.2		.5				
25		9.2	6.2	5.4	6.7		.9						
26		9.2	5.6	5.4	6.0		2.4						
27		10.4	5.4	6.0	3.4		5.7						
28		10.4	4.7	3.9	1.0		1.6						
29			5.4		3.6		1.2						
30			6.7		2.6		.8	1.0					
31			7.2		2.6		.8	.6					
Total		116.4	212.5	303.5	98.2	32.4	13.6	21.7	100.6		12.2		911.1
Acre-feet		231	421	602	195	64	27	43	200		24		1807
Prior. Div.									2		3		5
Apport. Div.		231	421	602	195	64	27	43	198		21		1802
Ac. Ap. Div.		231	652	1254	1449	1513	1540	1583	1781	1781	1802	1802	1802
Apport.	8323	8323	8323	8323	8323	8323	8323	8323	8323	8323	8323	8323	8323
Duty		.17	.30	.43	.14	.05	.02	.03	.15		.01		1.30

Plate 12

SAFFORD VALLEY 32,512.4 Acres. Mean Daily Diversions, Cubic Feet per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	126.9p	110.0	233.2	196.3	158.6	48.3	17.6	119.9	317.6	53.4	42.3	59.4p	
2	121.2p	111.7p	216.7	207.7	137.1	46.1	17.1	168.0	321.7	63.6	41.5	98.7p	
3	95.2p	108.9p	209.7	227.7	120.2	44.0	16.0	152.2	312.3	64.1	47.0	123.9p	
4	74.3p	109.5p	230.2	160.0	128.0	56.6	20.2	108.4	291.0	59.4	53.9	134.0p	
5	79.3p	130.0p	238.6	268.3	136.6	54.3	16.8	94.5	281.8	59.8	51.5	131.3p	
6	89.6p	142.8p	237.1	280.0	138.1	54.9	15.5	90.1	251.7	60.5	50.4	106.1p	
7	69.0p	138.9p	237.9	280.8	146.8	44.6	16.9	100.4	189.4	57.6	55.1	91.6p	
8	85.9p	120.2	238.8	290.0	143.8	42.1	16.0	150.3	189.7	58.6	59.2	81.1p	
9	95.6p	109.1p	230.1	302.9	147.9	45.2	14.6	193.8	222.1	57.0	65.5p	80.6p	
10	91.3p	121.5	229.5	306.9	138.7	48.4	20.0	131.8	258.9	53.5	69.6	83.2p	
11	85.0p	136.1	234.7	298.6	136.2	51.3	84.8	94.9	259.3	54.1	68.1p	78.0	
12	73.9p	135.1	225.2	277.7	124.0	49.7	48.8	85.0	224.0	58.0	65.7p	67.4	
13	109.4p	139.5	224.0	270.3	121.1	51.3	59.5	98.1	119.8	60.4	70.8	74.3	
14	132.6p	138.3	227.7	264.9	123.5	50.0	43.6	195.3	84.6	54.1	75.8	86.6	
15	122.8p	136.9	232.6	263.4	116.2	41.5	135.5	223.4	0.5/123.6p	54.7	82.3p	98.3	
16	110.3p	138.5	230.9	265.6	120.5	35.4	124.8	156.0	143.6p	59.0	81.5p	98.8	
17	87.1p	137.6	228.0	258.7	113.9	30.3	185.9	129.1	181.2	57.5	84.7p	128.7	
18	50.2p	154.6	204.7	247.1	100.2	31.7	302.3	107.9	201.8	53.4	84.1p	146.3	
19	44.1p	175.0	204.4	248.3	85.1	35.4	187.4	100.0	181.8	54.6	68.4p	161.0	
20	73.8p	186.9	204.3	235.9	82.6	39.1	137.0	93.0	171.4	51.9	54.6p	165.4	
21	74.9p	197.2	197.6	195.1	85.5	35.1	107.7	91.7	120.9	33.4p	33.3p	167.7	
22	79.1p	182.6	204.7	176.8	83.8	34.0	151.4	81.4	105.0	36.4	43.3p	168.2	
23	102.9p	170.6	201.5	183.1	70.9	32.9	175.0	78.6	94.3	59.9	22.4p	162.0	
24	103.2p	205.1	208.0	177.1	64.5	28.3	115.7	75.1	93.4	75.8	23.8p	155.3	
25	93.9p	235.1	229.9	178.9	67.5	29.3	125.6	71.8	86.6	85.1	33.8p	161.0	
26	59.8p	247.7	228.9	175.6	66.3	27.1	206.8	83.1	91.3	84.3p	25.0p	168.8	
27	69.2p	259.2	230.1	169.9	62.4	28.2	201.3	97.7	72.6	74.9	30.0p	160.2	
28	79.1p	246.4	234.2	150.5	60.8	30.8	165.6	103.4	64.0	67.0	24.6	160.3	
29	92.3p		223.6	148.4	58.1	26.7	179.8	142.7	60.0	55.6	22.9	179.9	
30	97.3p		212.5	153.5	57.2	20.5	163.1	176.8	57.2	50.0	23.5p	191.6	
31	111.3		202.1		56.3		127.6	201.1		43.0		193.5p	
Total	2780.5	4425.0	6891.4	6960.0	3252.4	1193.1	3199.9	3795.5	5173.1	1810.6	1554.6	3963.2	44999.3
Acre-feet	5514	8775	13669	13804	6451	2367	6346	7527	10261	3590	3084	7861	89249
Prior. Div.	5514	1687							530	233	1764	2347	12075
Apport. Div.		7088	13669	13804	6451	2367	6346	7527	9731	3357	1320	5514	77174
Ac. Ap. Div.		7088	20757	34561	41012	43379	49725	57252	66983	70340	71660	77174	77174
Apport.	195074	195074	195074	195074	195074	195074	195074	195074	195074	195074	195074	195074	195074
Duty	.17	.27	.42	.42	.20	.08	.19	.23	.32	.11	.09	.25	2.75

Plate 13

MASS DIAGRAM OF SAFFORD VALLEY, DIVERSIONS, APPORTIONMENTS & RIVER FLOWS, 1969

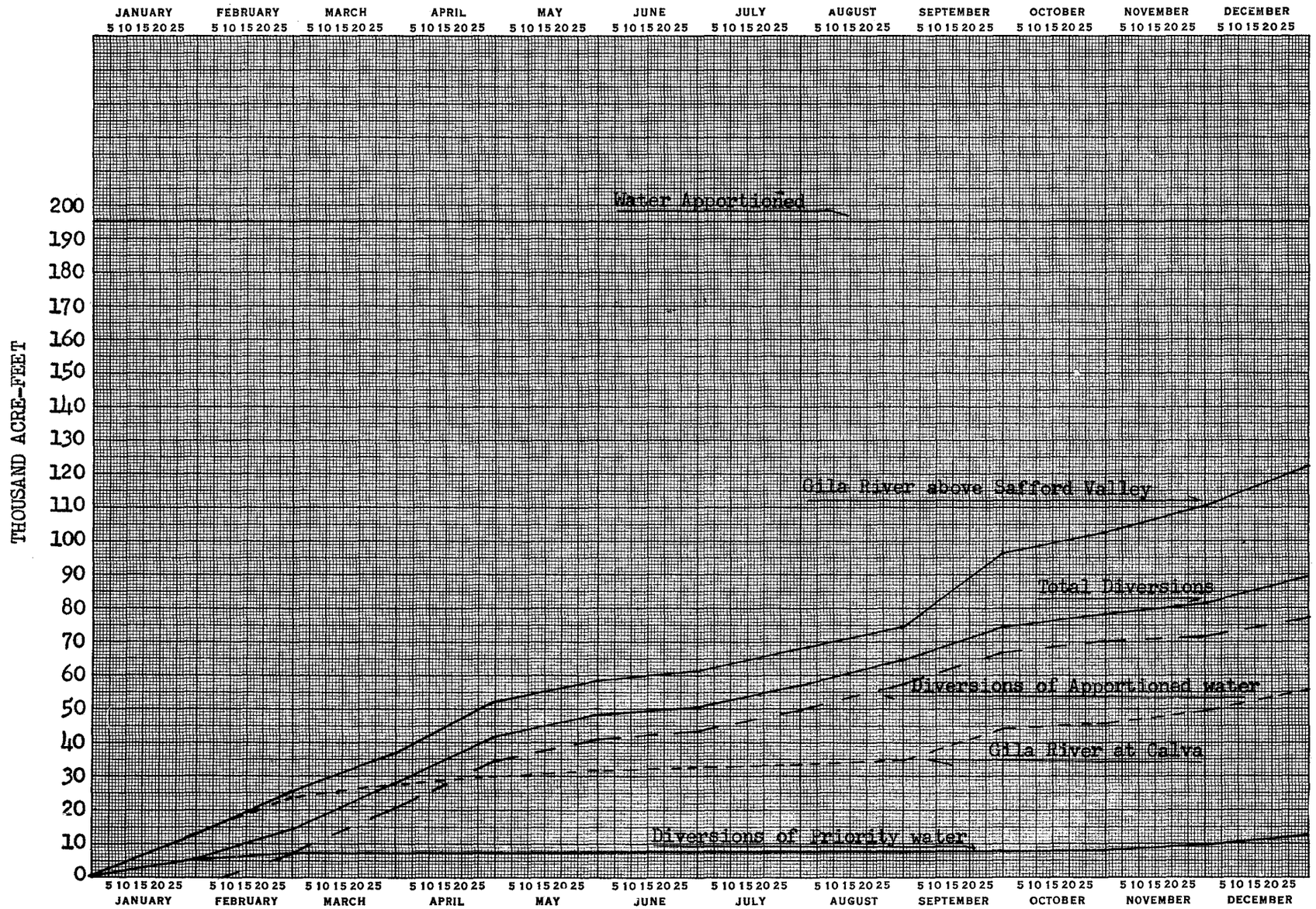

Plate 14

Diversion from North side of Gila River in SE¼ SE¼, Section 30, Township 6S, Range 28E. Water stage recorder and 3 ft. Parshall flume located in NE¼ NE¼, Section 31, Township 6S, Range 28E. (Record Good)

BROWN CANAL 874.4 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Set.	Oct.	Nov.	Dec.	Total
1	1.4p	7.2	7.5	4.4	2.3	.5		1.4	7.6	.4			
2		7.5p	5.8	3.3	2.3	.1		3.4	10.2	.5			
3		7.5p	4.3	6.9	2.2			2.7	10.7	.4			
4		7.5p	5.2	9.8	1.3			1.3	10.5	.4			
5		7.3p	6.7	9.6				1.1	8.9	.7			
6		7.2p	6.9	9.5				.9	9.0	.6			
7		6.9p	6.9	9.5	1.8			1.3	8.7	.6			
8		6.9	6.9	10.0	6.6			4.0	9.6	.4	.2		
9		4.6p	6.9	10.4	9.1			8.3	9.1	.4	2.9p		
10		3.6	6.7	10.2	9.0			3.9	10.7	.4	3.7		
11		3.7	7.7	10.2	8.8			1.7	11.5	.4	6.7p		
12		3.0	8.1	10.2	4.7			1.0	11.6	.4	7.1p		
13		2.4	8.1	9.8	2.6		.8	1.0	9.3	.5	2.1		
14		2.3	8.0	9.6	2.2		.5	2.4	7.0	.6	.4		
15		6.1	8.1	9.5	2.1		4.6	6.3	2.3p	.5	6.0p		
16		8.0	8.1	9.3	2.1		3.8	5.8	3.2p	.4	8.3p		
17		8.0	8.1	9.3	2.0		5.6	2.2	2.8	.4	6.3p		
18		8.1	6.2	9.1	1.6		9.3	1.3	2.2	.4			
19		8.1	5.2	9.1	1.0		7.6	1.2	3.0	.2			
20		8.0	4.9	9.1	1.0		3.2	1.0	6.6				
21		8.0	4.3	7.9	1.0		1.0	.8	4.8			2.2	
22		5.9	4.3	3.9	.9		5.1	.7	2.0	3.0		3.1	
23		2.3	4.4	3.9	.7		6.8	.7	1.9	4.6		5.4	
24		3.6	5.3	3.7	.5		3.0	.3	1.6	4.2		4.3	
25		3.6	7.5	3.6	.5		1.5		1.3	4.0		3.8	
26		5.9	7.6	3.4	.5		7.7	.4	1.1	2.9p		3.9	
27	3.1p	7.6	7.6	3.2	.5		5.0	.8	1.0			4.0	
28	3.9p	7.5	7.5	3.2	.4		2.5	1.1	.6			4.2	
29	3.2p		7.2	1.5	.4		3.7	1.3	.6			4.3	
30	4.8p		7.0	1.8	.5		4.7	2.3	.5			5.1	
31	5.2p		7.0		.5		3.4	3.9				6.0p	
Total	21.1	168.3	206.0	214.9	69.1	.6	79.8	64.5	169.9	27.3	43.7	46.3	1111.5
Acre-Feet	42	334	409	426	137	1	158	128	337	54	87	92	2205
Prior. Div.	42	96							11	6	74	12	241
Apport. Div.		238	409	426	137	1	158	128	326	48	13	80	1964
Ac. Ap. Div.		238	647	1073	1210	1211	1369	1497	1823	1871	1884	1964	1964
Apport.	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246
Duty	.05	.38	.47	.48	.16		.18	.15	.39	.06	.10	.10	2.52

Diversion from North side of Gila River in SW¼ SW¼, Section 31, Township 6S, Range 28 E. Water stage recorder and 3 ft. Parshall flume located in NE¼ SE¼, Section 35, Township 6 S, Range 27 E. (Record Good)

TIDWELL CANAL 452.5 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1				4.0	3.9	.8	1.6	3.6	2.5				
2				4.4	3.4	1.0	1.5	3.7	2.1				
3				4.2	3.1	.9	1.6	3.3	3.1				
4				2.5	1.3	1.7	1.5	3.3	4.2				
5				4.1	2.9	1.9	1.6	3.2	2.3				
6				5.7	3.6	1.8	1.7	3.0	.6				
7				5.4	2.0	1.7	1.7	2.5	.5				
8				4.8	3.5	1.7	1.6	2.3	.3				
9				5.1	5.7	1.7	1.6	2.2	.3				
10				4.5	4.5	1.7	1.8	1.9	.2				
11				3.9	4.4	1.7	1.6	1.9	.1				
12				2.5	4.4	1.7	1.6	2.1	.1				
13			1.9	1.9	3.6	1.7	2.8	3.5					
14			2.9	3.1	2.9	1.7	3.6	4.6					
15			4.0	5.0	2.3	1.8	4.3	4.7					
16			4.0	4.1	3.1	1.8	4.4	4.2					
17			4.0	3.5	2.6	1.8	3.9	4.3					
18			4.0	4.8	2.0	1.8	2.9	4.3					
19			5.4	4.4	1.6	1.9	2.4	4.3					
20			5.4	4.3	1.2	1.9	2.3	4.2					
21			3.9	3.7	.8	1.8	2.3	4.2					
22			3.9	2.4	.7	1.8	1.8	4.0					
23			4.0	1.5	.6	1.8	.7	4.2					
24			3.7	1.0	.4	1.8	1.0	4.2					
25			4.3	1.7	.4	1.8	.8	3.7					
26			4.2	2.9	.4	1.7	.2	3.4					
27			4.2	4.3	.4	1.7		3.4					
28			4.2	4.0	.4	1.6	2.8	3.3					
29			4.3	3.1	.4	1.6	3.8	3.3					
30			4.2	2.7	.5	1.7	3.7	3.2					
31			3.7		.4		2.8	3.1					
Total			76.2	109.5	67.4	50.0	65.9	107.1	16.3				492.4
Acre-feet			151	217	134	99	131	212	32				976
Prior. Div.													
Apport. Div.			151	217	134	99	131	212	32				976
Ac. Ap. Div.			151	368	502	601	732	944	976	976	976	976	976
Apport.	2715	2715	2715	2715	2715	2715	2715	2715	2715	2715	2715	2715	2715
Duty			.33	.48	.30	.22	.29	.47	.07				2.16

Diversion from South side of Gila River through San Jose-Montezuma Canal in SW¼ SW¼, Section 36, Township 6S, Range 27E. Water stage recorder and 3 ft. Parshall flume located in Section 2, Township 7S, Range 27E. (Record Good) 7)

FOURNESS CANAL 210.7 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	4.8p			1.5				.2	2.0		.4		
2	4.7p							.2	2.8		.4		
3	3.0p			1.4				.1	3.6		.4		
4				2.8					3.1		.3		
5				2.8					3.6		.2		
6				2.8					3.2		.2		
7				2.8					.8		.4		
8				2.8	1.7						.4		
9			2.8	2.8	2.3						.6p		
10			2.9	2.8	2.0						.4		
11				2.8	.8						.4p		
12		1.6	1.4	2.1							.6p		
13		4.9	2.1	2.1									
14		3.6	1.7	1.9									
15		2.0	2.8	2.0				1.0					
16			3.7	2.8				2.0					
17		1.4	3.3	3.1				.5					
18		1.3	1.3	3.1		.4							
19		2.0		3.3		.3							
20				3.3		.3							
21				3.1						.2p			
22				2.9			1.3	.3	.1	.2			
23							1.6	.2	.1	1.0			
24	1.5p		1.0				.1	.2		1.4			
25	4.3p		3.4				.5	.1		1.3			
26	3.8p		3.2				.8	.1		1.0p			
27	1.4p		2.8				1.5			.9			
28	.2p		2.5				.7			.8			
29			2.6				.5	.2		.6			
30			2.9				.4	.1		.5			
31			2.9				.2	.3		.4			
Total	23.7	16.8	43.3	55.0	6.8	1.0	7.6	5.5	19.3	8.3	4.7		192.0
Acre-feet	47	33	86	109	13	2	15	11	38	16	9		379
Prior. Div.	47									2	3		52
Apport. Div.		33	86	109	13	2	15	11	38	14	6		327
Ac. Ap. Div.		33	119	228	241	243	258	269	307	321	327	327	327
Apport.	1264	1264	1264	1264	1264	1264	1264	1264	1264	1264	1264	1264	1264
Duty	.22	.16	.41	.52	.06	.01	.07	.05	.18	.08	.04		1.80

Diversion from South side of Gila River in SW¼ SW¼, Section 36, Township 6S, Range 27E. Water stage recorder and 12 ft. Parshall flume located in NW¼ NE¼, Sec. 10, Township 7S, Range 27E, which measures combined flow of San Jose and Montezuma Canal. (Segregation made by Water master) (Record Good)

SAN JOSE CANAL, 4060.1 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	4.8p	5.7	30.2	25.9	24.2	12.6	2.7	26.4	44.2	16.9			
2		7.3p	29.5	25.6	23.9	12.6	2.1	28.2	42.3	19.1			
3		8.0p	28.6	26.8	23.1	11.7	2.7	23.6	43.1	18.5			
4		8.0p	29.3	30.0	24.3	13.5	2.6	20.7	42.5	18.1			
5	8.9p	13.5p	28.9	31.9	23.6	14.4	2.9	19.5	43.1	17.8			
6	13.4p	23.5p	29.2	32.4	23.2	14.3	3.7	18.9	41.7	17.8			
7	13.4p	25.3p	29.2	32.0	23.7	11.7	3.0	19.4	29.4	17.5			
8	14.1p	14.2	27.4	34.3	28.1	11.2	2.2	24.3	21.3	17.7			
9	14.6p	14.2p	24.0	37.1	30.5	13.2	3.5	27.6	28.0	17.5	3.6p		
10	23.4p	14.2	24.0	41.6	30.4	14.6	5.7	24.8	35.0	17.5	8.3		
11	27.5p	14.2	27.9	41.4	29.8	12.3	9.5	19.8	41.3	16.5			
12	12.7p	13.6	27.9	36.0	25.6	13.3	11.1	18.3	31.4	17.5			
13	19.8p	13.6	27.9	31.9	23.9	12.8	15.7	19.6	.8	18.6			
14	27.0p	17.8	27.9	31.7	23.2	13.2	11.6	25.3	.8	17.1	1.3		
15	25.6p	16.1	27.9	31.7	22.7	11.9	21.6	28.0	32.4p	16.0	7.8p		
16	18.5p	16.7	27.9	31.9	22.9	10.3	19.4	25.9	41.2p	16.0			
17	14.2p	25.7	27.3	33.8	22.5	8.6	31.9	25.9	41.7	17.3		10.8	
18	3.4p	20.6	26.2	33.6	21.0	9.8	48.0	22.8	32.9	15.9	3.7p	16.1	
19		17.2	26.4	34.5	20.4	11.1	27.1	21.0	28.2	16.7	12.9p	24.0	
20		22.2	28.6	35.6	19.2	13.1	22.2	20.4	22.2	18.1	4.3p	28.0	
21		21.6	28.5	32.2	19.3	10.0	20.0	20.1	24.6	17.1p		28.0	
22		25.8	29.4	26.7	17.4	8.6	25.9	18.6	17.6	14.4	4.9p	28.2	
23	11.6p	29.4	28.7	26.7	15.9	9.1	26.8	17.7	17.4	3.8	6.9p	27.7	
24	13.9p	28.2	29.7	26.5	15.9	8.2	19.9	17.9	16.8		3.6p	26.6	
25	12.5p	29.0	30.7	26.3	16.3	8.0	23.5	17.7	18.0		14.4p	26.2	
26	12.0p	31.0	29.5	25.9	16.3	7.4	30.9	19.7	20.7		14.4p	25.6	
27	4.9p	29.9	27.9	25.9	15.2	7.4	28.2	20.9	18.8		14.4p	24.7	
28		29.8	27.4	24.7	15.2	6.9	26.2	21.4	16.3		2.2	24.7	
29			26.7	24.4	16.7	4.5	25.3	24.4	15.7			25.9	
30	1.2p		26.7	23.8	15.4	4.1	25.8	28.5	17.6			27.2	
31	4.4p		26.6		13.3		24.9	27.9				28.1p	
Total	301.8	536.3	868.0	922.8	663.1	320.4	526.6	695.2	827.0	383.4	102.7	371.8	6519.1
Acre-feet	599	1064	1722	1830	1315	636	1044	1379	1640	760	204	737	12930
Prior. Div.	599	198							146	34	180	56	1213
Apport. Div.		866	1722	1830	1315	636	1044	1379	1494	726	24	681	11717
Ac. Ap. Div.		866	2588	4418	5733	6369	7413	8792	10286	11012	11036	11717	11717
Apport.	24361	24361	24361	24361	24361	24361	24361	24361	24361	24361	24361	24361	24361
Duty	.15	.26	.42	.45	.33	.15	.26	.34	.41	.18	.05	.18	3.18

MONTEZUMA CANAL 4952.12ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969

Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	27.3p	12.0	34.1	26.5	23.4	16.4	3.2	23.7	51.6	21.5	12.5		
2	27.3p	12.9p	30.6	27.8	23.5	16.6	2.6	25.4	60.7	23.5	12.0		
3	10.4p	13.9p	27.9	26.6	22.0	15.3	4.1	24.7	63.7	21.8	12.0		
4		13.9p	28.3	30.9	24.5	18.1	4.0	22.6	63.1	20.0	12.5		
5		12.9p	28.8	36.0	23.9	18.9	2.7	22.8	59.0	20.9	12.5		
6		12.5p	28.8	37.3	23.1	18.9	3.2	21.9	36.4	21.1	12.5		
7		12.5p	28.8	39.6	24.2	14.7	4.6	21.9	16.5	20.6	12.5		
8	20.1p	12.5	28.6	45.6	29.2	14.3	3.9	25.2	12.5	21.0	12.9		
9	26.9p	12.5p	26.5	47.6	31.8	16.3	3.3	28.2	12.5	19.3	12.8p		
10	26.4p	12.5	27.6	48.8	30.1	17.0	6.5	24.3	12.5	17.4	13.1		
11	26.3p	12.5	28.5	48.4	30.7	16.3	10.4	22.0	25.1	19.3	10.5p		
12	27.0p	12.5	27.9	44.8	27.8	16.3	12.9	21.7	20.7	21.7	12.9p		
13	37.2p	12.5	29.6	40.9	25.7	15.9	15.3	22.2		22.5	13.4		
14	40.2p	12.5	28.8	40.4	23.8	15.4	12.5	25.4		18.2	15.1	3.7	
15	27.5p	12.5	28.1	38.1	23.4	13.7	20.2	29.6	20.6p	18.1	13.1p	15.3	
16	24.5p	12.5	28.1	38.4	23.3	11.4	18.0	26.0	26.8p	20.3	13.9p	14.9	
17	26.6p	12.5	28.2	41.0	22.8	9.5	39.0	24.9	27.2	21.6	9.0p	14.1	
18	16.5p	12.5	28.1	41.1	22.9	9.8	51.1	24.1	36.0	20.2	.7p	21.5	
19	13.4p	12.5	28.1	41.5	23.6	12.2	30.3	23.3	22.6	21.0		25.0	
20	14.9p	19.8	27.3	40.2	22.1	14.8	23.8	23.6	13.0	22.3	5.7p	25.0	
21	6.7p	31.6	26.4	35.3	22.1	11.6	21.0	25.1	9.5	11.3p	3.9p	25.0	
22		35.8	27.3	26.9	22.1	9.9	30.4	21.7	10.5		12.8p	32.8	
23		35.2	27.0	27.2	21.3	10.0	27.7	22.2	10.7		4.2p	31.0	
24		33.9	28.2	27.6	21.3	8.7	23.9	21.4	19.0			27.2	
25		34.1	28.8	27.2	21.0	9.3	24.0	21.5	20.2	8.5		26.8	
26		33.6	29.4	26.5	21.4	9.3	36.6	23.6	23.2	12.5p		26.6	
27	8.6p	33.4	29.6	26.5	20.6	9.2	31.4	23.5	22.2	12.9		25.9	
28	13.4p	32.6	29.1	24.6	20.5	9.0	24.2	23.3	20.3	19.7		25.9	
29	12.9p		28.3	23.3	20.8	8.3	24.6	25.8	20.1	23.6		26.3	
30	12.9p		28.5	23.0	21.0	7.0	25.2	27.3	21.0	16.1		26.6	
31	12.5p		28.7		18.5		24.0	32.5		12.5		27.3p	
Total	459.5	530.6	884.0	1049.6	732.4	394.1	564.6	751.4	757.2	529.4	240.5	420.9	7314.2
Acre-feet	911	1052	1753	2082	1453	782	1120	1490	1502	1050	477	835	14507
Prior. Div.	911	180							94	47	197	54	1483
Apport. Div.		872	1753	2082	1453	782	1120	1490	1408	1003	280	781	13024
Ac. Ap. Div.		872	2625	4707	6160	6942	8062	9552	10960	11963	12243	13024	13024
Apport.	29713	29713	29713	29713	29713	29713	29713	29713	29713	29713	29713	29713	29713
Duty	.18	.22	.35	.42	.29	.16	.23	.30	.30	.21	.10	.17	2.93

Diversion from South side of Gila River in SW¼ NE¼, Section 18, Township 7S, Range 27E. Water stage recorder and 10 ft. Parshall flume located in NE¼ SE¼, Section 14, Township 7S, Range 26E. (Record Good)

UNION CANAL 7408.37 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	38.7p	13.9	74.6	62.6	44.0	8.8	5.8	29.5	81.0	10.2		10.2p	
2	29.6p	10.6p	68.7	64.2	41.5	5.8	5.5	52.9	84.6	11.1		13.4p	
3	19.5p	10.5p	61.1	66.2	33.7	8.4	5.8	47.7	82.9	18.4		22.0p	
4	15.7p	14.8p	63.4	73.9	33.1	12.1	9.0	27.9	77.0	18.4		17.0p	
5	16.6p	8.4p	66.5	72.1	33.7	12.1	5.8	19.5	70.5	18.2		12.6p	
6	26.2p		66.5	71.3	33.7	12.2	3.8	19.0	58.9	18.0		12.2p	
7	27.3p		66.5	72.1	26.6	11.4	6.0	20.9	55.2	18.0		12.2p	
8	38.1p		65.7	72.1	11.0	10.2	5.8	46.6	60.4	18.0		13.0p	
9	40.6p		65.0	72.9	25.4	9.6	4.3	55.7	59.6	18.0		13.0p	
10	29.1p	4.7	67.1	74.6	38.1	9.6	4.8	38.0	61.9	18.0		15.3p	
11	20.9p	22.0	72.1	74.6	36.2	11.0	6.3	24.4	51.5	16.3	5.3p	24.6	
12	27.3p	23.0	71.3	74.6	31.9	9.6	9.2	18.5	40.0	15.6	7.0p	22.5	
13	39.4p	23.0	68.0	74.6	31.9	9.6	17.0	19.9	13.0	17.1	13.7	22.5	
14	47.4p	22.5	66.3	75.4	32.5	9.6	8.3	45.9		17.8	19.0	22.0	
15	49.4p	22.0	72.1	74.6	30.8	8.4	50.4	62.4	6.4p	16.9	17.0p	22.0	
16	46.0p	24.7	72.1	74.6	32.5	8.1	34.5	39.0	17.5p	18.2	17.5p	22.0	
17	32.0p	42.2	69.7	74.6	35.6	7.1	41.1	33.7	31.3	16.7	18.0p	30.9	
18	20.9p	58.9	65.0	72.9	30.1	6.8	83.4	29.6	47.4	16.7	18.0p	32.5	
19	25.0p	71.3	65.0	72.1	19.3	8.1	69.9	26.8	51.3	16.7	16.6p	31.4	
20	38.1p	76.2	64.2	70.5	19.4	7.4	42.9	23.0	59.6	10.8	16.6p	31.8	
21	44.0p	76.2	62.6	64.2	25.7	8.8	28.5	20.9	49.8	1.3p	16.1p	41.8	
22	50.8p	64.9	62.6	58.9	23.0	7.8	44.5	20.4	39.3	.7	12.6p	50.8	
23	61.1p	53.5	64.2	56.6	15.2	6.8	50.8	19.0	35.6	13.2	11.0p	53.0	
24	53.7p	74.6	62.6	57.4	13.0	6.4	37.1	18.5	30.8	20.9	11.0p	53.7	
25	36.0p	74.6	66.5	57.4	15.3	6.4	34.4	17.5	25.1	22.0	11.0p	53.7	
26		74.6	67.3	54.4	17.5	6.4	58.0	19.9	19.0	15.1p	10.6p	55.9	
27		75.4	67.3	50.8	16.6	6.4	58.0	24.6	17.0	9.5	10.2p	48.7	
28		74.6	67.3	50.1	16.1	7.4	41.3	25.7	16.1	9.5	10.6	48.0	
29			67.3	45.3	13.9	8.1	40.6	34.8	15.7	4.9	10.2	49.4	
30			67.3	45.3	11.4	5.0	40.6	54.4	13.5		10.2p	49.4	
31	12.0p		65.6		13.1		32.1	61.9				49.4p	
Total	885.4	1017.1	2071.5	1980.9	801.8	255.4	885.5	998.5	1271.9	426.2	262.2	956.9	11813.3
Acre-feet	1756	2017	4109	3929	1590	507	1756	1980	2523	845	520	1898	23430
Prior. Div.	1756	88							47	32	414	377	2714
Apport. Div.		1929	4109	3929	1590	507	1756	1980	2476	813	106	1521	20716
Ac. Ap. Div.		1929	6038	9967	11557	12064	13820	15800	18276	19089	19195	20716	20716
Apport.	44450	44450	44450	44450	44450	44450	44450	44450	44450	44450	44450	44450	44450
Duty	.24	.27	.55	.53	.22	.07	.23	.27	.34	.12	.07	.25	3.16

Diversion from North side of Gila River in NW¼ NE¼, Section 9, Township 7S, Range 26E. Water stage recorder and 8 ft. Parshall flume located in SW¼ SW¼, Section 4, Township 7S, Range 26E. (Record Good)

GRAHAM CANAL 4195.58 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	18.1p	24.2	20.1	13.3	5.9	1.4		5.6	40.2			24.4p	
2	19.3p	25.6p	13.3	13.0	5.6	1.7		9.9	42.9			37.0p	
3	18.5p	29.0p	13.3	19.4	5.4	1.9		8.5	41.8			41.8p	
4	20.1p	29.0p	15.2	24.6	5.1	1.7		5.4	38.4			48.8p	
5	20.1p	30.0p	17.6	26.1	5.4	1.2		3.2	24.0			48.2p	
6	15.4p	31.5p	18.5	27.0	5.4	1.6		3.2	19.3			32.3p	
7	13.3p	30.0p	18.0	26.1	7.0	1.7		4.1	7.5			23.8p	
8	13.0p	25.8	18.0	27.5	9.5	1.9		3.2	1.2	.3		21.5p	
9	13.0p	21.9p	18.0	29.5	9.5	1.2		1.0	35.3	1.0		21.0p	
10	11.9p	27.1	18.0	31.0	9.2	.5		2.7	38.4			21.0p	
11	9.9p	25.0	21.0	31.0	8.6	3.4		3.4	33.2			12.8	
12	6.5p	27.5	22.8	29.7	5.7	2.3		2.8	35.5			8.7	
13	12.6p	29.5	21.0	27.5	5.7	.9		3.2	36.9				
14	13.0p	32.0	20.6	27.5	5.7	.2		25.5	23.3				
15	8.4p	32.0	19.3	27.5	5.1		8.2	25.3	27.4p				
16	6.9p	31.5	20.1	27.5	5.1		1.2	11.2	29.5p			.7	
17	7.3p	2.3	20.1	27.5	4.9		11.9	4.6	30.0		7.9p	15.8	
18	5.9p	8.3	13.7	26.5	4.9		13.4	4.5	32.0		35.7p	17.5	
19	5.7p	10.9	13.7	26.5	3.8		3.9	5.1	36.2		29.5p	16.8	
20	20.8p	9.8	12.2	22.7	3.0		6.5	3.9	34.1		28.0p	18.5	
21	24.2p	8.6	12.6	14.9	2.8		6.4	3.7	16.8		13.3p	12.0	
22	23.3p	2.1	13.0	11.9	2.8	1.0	11.4	2.8	6.8		13.0p	13.0	
23	22.8p		13.7	11.5	1.9	.8	12.6	2.6	5.9		.3p	14.8	
24	23.3p	12.8	14.0	10.9	1.9	.8	7.8	3.0	5.1			8.6	
25	23.3p	24.2	19.3	11.2	1.9		6.2	2.6	4.6			3.7	
26	23.3p	23.3	19.3	11.5	1.7		19.6	3.3	5.1			10.9	
27	35.7p	22.0	19.7	11.5	1.7	.1	13.9	3.2	4.0			11.5	
28	35.7p	23.7	19.7	8.7	1.6	.8	7.0	5.1	2.6			11.9	
29	33.6p		19.7	6.5	1.7	.1	10.9	5.4	2.6			15.6	
30	32.5p		19.7	6.5	1.9		10.5	11.4	1.2		1.2p	17.2	
31	30.5p		16.4		1.7		7.0	19.7				18.0p	
Total	567.9	599.6	541.6	616.5	142.1	25.2	158.4	199.1	661.8	1.3	128.9	547.8	4190.2
Acre-feet	1126	1189	1074	1223	282	50	314	395	1313	3	256	1087	8312
Prior. Div.	1126	391							113		256	670	2556
Appert. Div.		798	1074	1223	282	50	314	395	1200	3		417	5756
Ac. Ap. Div.		798	1872	3095	3377	3427	3741	4136	5336	5339	5339	5756	5756
Appert.	25173	25173	25173	25173	25173	25173	25173	25173	25173	25173	25173	25173	25173
Duty	.27	.28	.26	.29	.07	.01	.07	.10	.31		.06	.26	1.98

Diversion from South side of Gila River in NE¼ NW¼, Section 1, Township 7S, Range 25E. Water stage recorder and 6 ft. Parshall flume located in NW¼ SW¼, Section 36, Township 6S, Range 25E. (Record Good)

SMITHVILLE CANAL 2451.33 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	31.3p	21.0	14.9	18.9	13.9			12.1	15.5		22.9	16.5p	
2	31.3p	21.8p	18.5	18.5	13.6			12.5	15.2		22.9	19.6p	
3	30.4p	21.4p	18.9	19.2	13.0			11.8	13.9		25.2	17.5p	
4	24.8p	20.7p	18.5	20.7	12.7			13.0	14.2		19.6	19.2p	
5	20.3p	17.5p	18.9	21.0	13.0		.5	10.8	17.5	1.3	16.8	18.2p	
6	19.9p	15.8p	19.2	21.4	13.3		.6	9.8	20.3	2.6	16.2	18.5p	
7	6.6p	15.5p	19.2	21.8	13.9			10.9	19.9	.2	20.7	18.5p	
8		13.3	19.2	21.8	17.5		.4	12.1	25.1	.2	21.8	18.2p	
9		19.6	19.6	21.8	17.8			12.1	28.4	.6	21.8p	18.2p	
10		12.4p	19.4	21.4	8.9			10.6	30.4	.1	23.4	18.2p	
11		5.7	18.2	21.8	3.9			10.4	30.0		26.7p	17.5	
12			17.5	21.4	4.5	.2		10.1	19.2		24.0p	17.5	
13			18.2	21.4	9.0	1.8	1.9	11.5	2.8		22.9	17.8	
14			18.9	20.8	11.7	1.3	1.4	10.4	.2		22.1	18.2	
15			19.6	20.8	12.1	2.2	8.1	11.5			24.0p	18.9	
16			19.2	20.9	12.7	2.1	11.5	10.6			25.9p	19.9	
17			19.2	15.6	9.4		16.9	9.8			26.7p	17.0	
18			19.6		4.4		21.8	8.8			15.2p	19.5	
19			18.9		6.0		16.6	10.4				23.2	
20			18.2	.2	9.1		15.0	9.8				22.5	
21			18.9	1.6	3.4		12.7	9.1		.2p		22.9	
22	5.0p		18.2	12.9	1.2		16.4	7.0	9.9	7.9		15.4	
23	7.4p		18.5	16.5	2.6		16.8	8.2	13.3	9.5		11.1	
24	7.4p	4.7	18.9	17.5	3.9		11.8	8.2	12.7	10.1		16.5	
25	7.4p	21.1	19.2	17.2	3.8		12.7	6.8	12.4	10.9		18.2	
26	7.4p	21.4	19.9	17.2	.2		16.7	7.4	10.6	12.4p		17.5	
27	3.1p	20.7	20.3	16.8		.7	17.7	10.1	5.9	12.7	5.4p	17.2	
28	13.8p	17.8	20.3	13.6		1.3	16.2	11.5	6.5	12.4	11.8	17.5	
29	20.3p		19.6	14.9		.4	15.5	13.0	3.7	21.8	12.7	18.9	
30	20.7p		19.2	14.2		.2	14.2	13.6	1.1	26.3	12.1p	19.9	
31	20.7p		19.2				14.5	14.5		23.6		19.6p	
Total	277.8	263.2	586.0	491.8	235.5	10.2	259.9	328.4	328.7	152.8	440.8	569.3	3944.4
Acre-feet	551	522	1162	975	467	20	516	651	652	303	874	1129	7822
Prior. Div.	551	248								25	360	401	1585
Apport. Div.		274	1162	975	467	20	516	651	652	278	514	728	6237
Ac. Ap. Div.		274	1436	2411	2878	2898	3414	4065	4717	4995	5509	6237	6237
Apport.	14708	14708	14708	14708	14708	14708	14708	14708	14708	14708	14708	14708	14708
Duty	.22	.22	.47	.40	.19	.01	.21	.26	.27	.12	.36	.46	3.19

Plate 22

Diversion from South side of Gila River in SE¼ SW¼, Section 21, Township 6S, Range 25E. Water stage recorder and 6 ft. Parshall flume located in SE¼ NE¼, Section 20, Township 6S, Range 25E. (Record Good)

DODGE-NEVADA 2574.0 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1		12.7	14.9	12.7	8.5	3.1	2.3	5.6	6.9	1.8		8.3p	
2	8.6p	13.0p	13.0	13.0	2.5	3.2	1.4	11.0	3.7	2.5		19.6p	
3	13.0p	13.0p	12.4	13.6		2.8	1.4	10.0	2.5	2.2		19.6p	
4	13.3p	13.0p	13.9	10.2	1.6	4.3	1.6	4.9	4.8	1.6		19.6p	
5	13.0p	19.0p	14.9	3.1	4.5	2.6	2.4	5.1	11.6	.2		17.1p	
6	5.8p	21.8p	13.9	14.5		2.8	2.4	4.3	15.2			11.5p	
7		20.4p	13.9	14.9	4.9	2.8	1.6	5.3	16.5			8.7p	
8		19.9	13.9	15.5	8.4	2.8	2.1	11.7	18.8				
9		18.7p	13.6	15.8		3.2	.8	15.2	17.9				
10		15.2	13.9	16.2		3.0	.6	10.7	19.9				
11		14.9	14.2	16.2	1.5	3.7	19.3	5.0	19.2				
12		14.9	14.5	16.5	7.5	3.7	7.0	4.4	7.7				
13		15.4	14.9	16.5	5.8	4.1	2.5	6.4				8.2	
14		10.6	15.2	15.8	6.0	2.4	1.1	11.5	2.4			13.3	
15	5.2p	10.4	14.5	16.1	7.0	1.8	8.4	13.6	10.9p			13.3	
16	7.4p	10.6	13.9	15.7	9.2	1.7	8.2	9.3	12.7p			13.6	
17		10.6	14.3	15.6	5.6	3.3	8.1	6.2	21.0	1.2		13.3	
18		10.9	13.6	17.2	4.7	3.1	15.4	4.5	22.5	.2		12.7	
19		14.5	13.9	16.6	3.7	1.8	6.0	4.5	19.2			12.4	
20		15.2	13.6	15.5	3.2	1.6	7.6	3.2	17.7	.7		12.4	
21		14.9	12.7	11.2	4.2	2.3	5.4	6.1	7.5	3.3p		12.1	
22		15.8	12.4	8.6	3.8	2.7	7.2	5.1	7.7			11.7	
23		17.2	11.8	10.1	4.2	3.5	13.5	3.3	5.8	1.9		10.4	
24	3.4p	15.8	12.5	11.1	4.5	2.4	6.1	1.3	4.5	17.2	9.2p	7.3	
25	10.4p	15.2	14.9	11.5	4.6	3.8	7.9	.8	3.6	15.2	8.4p	10.1	
26	13.3p	15.2	14.9	11.3	3.7	2.3	8.8	2.0	6.7	16.2p		10.4	
27	12.4p	15.0	15.5	9.9	3.7	2.4	12.9	5.2	2.5	15.8		10.1	
28	12.1p	14.9	17.5	7.7	4.1	3.8	7.9	6.2	1.1	10.8		10.4	
29	12.7p		15.8	9.0	3.2	3.7	10.1	7.4	.2			11.5	
30	12.7p		13.9	9.0	3.1	2.5	10.6	10.9	.1			12.1	
31	12.7p		13.0		3.7		7.2	13.5				12.1p	
Total	156.0	418.7	435.8	390.6	127.4	87.2	197.8	214.2	290.8	90.8	17.6	321.8	2748.7
Acre-feet	309	830	864	775	253	173	392	425	577	180	35	638	5451
Prior. Div.	309	236							47	39	35	231	897
Apport. Div.		594	864	775	253	173	392	425	530	141		407	4554
Ac. Ap. Div.		594	1458	2233	2486	2659	3051	3476	4006	4147	4147	4554	4554
Apport.	15444	15444	15444	15444	15444	15444	15444	15444	15444	15444	15444	15444	15444
Duty	.12	.32	.34	.30	.10	.06	.16	.16	.23	.07	.01	.25	2.12

Diversion from North side of Gila River in SW¼ SW¼, Section 7, Township 6S, Range 25E. Water stage recorder and 6 ft. Parshall flume located in NW¼ SE¼, Section 12, Township 6S, Range 24E. (Record Good)

CURTIS CANAL 1971.7 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	.5p	13.3	14.2	18.4	15.2	1.4	.6	1.7	28.5	2.0			
2	.4p	13.0p	18.5	22.5	11.8	1.2	3.0		20.6	3.3			
3	.4p	5.6p	21.0	19.3	13.0	1.7	.4		22.1	2.8	2.9	11.5p	
4	.4p	2.6p	21.4	21.0	15.5	5.2	1.5	3.0	19.3	.9	15.8	17.2p	
5	.4p	4.1p	19.2	20.3	13.9	1.2	.9	2.8	20.0	.7	15.8	19.2p	
6	8.9p	4.9p	19.6	18.5	13.6	1.3	.1	2.5	21.8	.4	15.8	13.1p	
7	8.4p	4.1p	19.9	17.1	15.5	.1		.2	17.7	.5	16.6	10.4p	
8	.6p	4.3	20.7	20.0	16.5			9.7	24.2	.6	20.7	10.4p	
9	.5p	1.5p	19.6	20.3	15.8		1.1	22.1	18.4	.2	20.3p	10.4p	
10	.5p	8.5	19.2	18.9	6.5	.2	.6	7.0	23.9	.1	17.7	11.1p	
11	.4p	15.3	18.9	18.5	11.5	.5	18.3	1.3	21.0	1.6	14.9p	5.1	
12	.4p	16.2	19.9	18.5	10.4	.2	2.9	2.4	22.9	2.8	9.0p	.2	
13	.4p	15.8	22.5	18.5	6.2	1.5	.9	5.3	18.7	1.7	14.8	8.2	
14	5.0p	15.5	20.9	19.8	6.0	3.2	1.7	18.3	15.0	.4	14.9	11.8	
15	6.7p	15.2	19.6	19.2	6.7	.2	6.3	24.8	12.5p	.2	10.9p	11.2	
16	7.0p	15.2	18.2	16.9	7.9		7.5	13.1	11.8p	.1	11.5p	10.9	
17	7.0p	15.2	13.4	16.2	6.0		11.7	10.1	18.1		7.0p	10.4	
18	3.5p	15.2	15.4	20.3	8.4		26.4	3.6	21.0			10.1	
19		18.1	16.8	18.9	4.1		6.8	2.1	19.4			12.6	
20		19.2	17.8	13.3	1.6		5.2	1.2	17.5			13.1	
21		21.4	18.9	8.1	.7	.6	6.5	1.0	7.6			12.2	
22		19.1	20.3	7.9	1.7	2.2	6.6	.8	10.1			3.2	
23		20.7	18.2	9.8	1.2	.9	8.6	.5	3.3	7.5			
24		18.9	19.2	9.8	.4		.4	.1	2.9	13.2		2.9	
25		18.5	19.2	12.5	1.3		11.9		1.4	18.2		12.3	
26		19.6	20.7	10.3			15.0	.4	4.9	18.2p		12.1	
27		19.6	21.8	9.0	1.1	.3	12.9	4.2	1.2	17.5		13.0	
28		17.2	19.6	5.6	1.2		21.5	4.3	.5	9.1		12.6	
29	9.6p		16.2	7.9	.8		19.0	9.5	.5			14.3	
30	13.0p		14.5	14.2	.9		14.0	17.2	.5			18.9	
31	13.3p		11.5		1.8		8.1	17.8				18.5p	
Total	87.3	377.8	576.8	471.5	217.2	21.9	220.4	187.0	427.3	102.0	208.6	316.9	3214.7
Acre-feet	173	749	1144	935	431	43	437	371	848	202	414	629	6376
Prior. Div.	173	71							48	36	146	242	716
Apport. Div.		678	1144	935	431	43	437	371	800	166	268	387	5660
Ac. Ap. Div.		678	1822	2757	3188	3231	3668	4039	4839	5005	5273	5660	5660
Apport.	11830	11830	11830	11830	11830	11830	11830	11830	11830	11830	11830	11830	11830
Duty	.09	.38	.58	.47	.22	.02	.22	.19	.43	.10	.21	.32	3.23

Diversion from South side of Gila River in NE¼ NW¼, Section 4, Township 6S, Range 24E. Water stage recorder and 8 ft. Parshall flume located in NE¼ NE¼, Section 31, Township 5S, Range 24E. (Record Good)

FT. THOMAS CANAL 3155.7 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1			20.1	5.1	16.1			10.1	35.5	.6	6.5		
2			16.2	13.2	9.0	.6		19.5	34.3	3.6	6.2	9.1p	
3			21.0	23.0	4.7	.4		14.7	21.1		6.5	11.5p	
4			35.0	32.8	8.6			2.4	10.1		5.7	12.2p	
5		17.3p	37.1	41.3	15.7			3.3	18.3		6.2	16.0p	
6		25.6p	34.5	39.6	22.2			3.3	20.7		5.7	18.5p	
7		24.2p	35.5	39.5	27.2	.5		10.8	14.7	.2	4.9	18.0p	
8		23.3	38.4	35.6	11.8			8.6	15.5	.4	3.2	18.0p	
9		23.3p	34.1	39.6				19.6	10.1		3.5p	18.0p	
10		23.3	30.7	36.9				5.6	23.6		3.0	17.6p	
11		22.8	26.2	29.8			16.5	2.2	24.0		3.6p	18.0	
12		22.8	13.9	21.4	.2			3.0	32.5		5.1p	18.5	
13		22.4	9.8	25.2	3.9	.6		5.5	36.2		3.9	17.6	
14		21.5	16.5	18.9	6.9	.6	1.1	22.8	33.6		3.0	17.6	
15		20.6	16.0	18.9	1.4	.1	3.4	10.5	9.0p	3.0	3.5p	17.6	
16		19.3	15.6	22.6	1.0		13.6	4.9		4.0	4.4p	16.8	
17		19.7	19.1	15.7	2.5		11.6	1.4	9.1	.3	9.8p	16.4	
18		17.6	9.0	15.7	.2		25.3		7.8		10.8p	16.4	
19		17.6	8.4	19.3			12.1		1.9		9.4p	15.6	
20		14.1	9.5	21.2			5.0		.7			14.1	
21		12.6	7.2	12.9	2.7		2.7		.3			11.5	
22		10.9	11.8	13.8	7.9		.8		1.0	10.2		10.0	
23		9.5	7.2	19.3	4.9		9.1		.3	18.4		8.6	
24		11.2	7.8	11.6	.2		4.6			8.8		8.2	
25		14.8	11.4	8.1			2.2			5.0		6.2	
26		21.7	8.7	9.6	1.3		12.5	1.4		6.0p		5.9	
27		32.5	9.0	12.0	.2		18.5	1.0		5.6		5.1	
28		25.3	14.2	7.5	.2		11.4	1.5		4.7		5.1	
29			10.9	9.2	.2		23.2	14.8		4.7		13.7	
30			5.0	9.7			10.9	2.7		7.1		15.2	
31			4.5				3.1	3.0		6.5		14.5p	
Total		473.9	544.3	629.0	149.0	2.8	187.6	172.6	360.3	89.1	104.9	411.5	3125.0
Acre-feet		940	1080	1248	296	6	372	342	715	177	208	816	6200
Prior. Div.		179							18	12	99	304	612
Apport. Div.		761	1080	1248	296	6	372	342	697	165	109	512	5588
Ac. Ap. Div.		761	1841	3089	3385	3391	3763	4105	4802	4967	5076	5588	5588
Apport.	18934	18934	18934	18934	18934	18934	18934	18934	18934	18934	18934	18934	18934
Duty	—	.30	.34	.40	.09		.12	.11	.22	.06	.07	.25	1.96

Diversion from North side of Gila River in SW¼ SW¼, Section 36, Township 4S, Range 23E. Water stage recorder and 3 ft. Parshall flume located in SE¼ SW¼, Section 2, Township 4S, Range 23E. (Record Good)

COLVIN-JONES CANAL 165.6 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1			2.6						2.1				
2			2.6						2.3				
3			1.2					1.8	3.8				
4								.6	3.8				
5						2.0			3.0				
6						2.0			4.6				
7								.9	2.0				
8								2.6	.8				
9								1.8	2.5				
10								.9	2.4				
11							1.5		2.4				
12					1.3		1.7		2.4				
13					2.8				2.1				
14					2.6			3.2	2.3				
15			.6		2.6			5.7	0.5/2.1p				
16				.9	.7		1.3	2.9	.9p				
17			1.3	2.8			4.2	2.2					
18		1.2	2.6	2.8			5.3	1.7					
19		2.8	2.6	2.1	1.6		4.7						
20		2.4	2.6		2.8		3.3						
21		2.3	1.6		2.8		1.2						
22		2.3	1.5		2.3								
23		2.8	2.5		2.4								
24		1.4	2.5		2.5								
25			2.4		2.4			1.1					
26		1.4	2.3		2.4			1.5					
27		3.1	2.1		.6		1.3	.8					
28		3.0	2.2				2.5						
29			2.4				2.6	2.8	.9				
30			1.3				2.5	5.2	1.7				
31							.3	3.0					
Total		22.7	36.9	8.6	29.8	4.0	32.4	38.7	42.6				215.7
Acre-feet		45	73	17	59	8	64	77	84				427
Prior. Div.									6				6
Apport. Div.		45	73	17	59	8	64	77	78				421
Ac. Apport. Div.		45	118	135	194	202	266	343	421	421	421	421	421
Apport.	994	994	994	994	994	994	994	994	994	994	994	994	994
Duty		.27	.44	.11	.35	.05	.39	.46	.51				2.58

Diversion from North side of Gila River in SE¼ SW¼, Section 26, Township 4S, Range 23E. Water stage recorder and 2 ft. Parshall flume located in SE¼ SW¼, Section 26, Township 4S, Range 23E. (Record Good)

T. D. BURTON CANAL, 40.3 ACRES. Mean Daily Diversions, Cubic Feet Per Second

1969 Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1				3.0	1.2	3.3	1.4						
2				2.2		3.3	1.0	1.3					
3				1.1		.9		3.3					
4				.8				3.3					
5								3.2					
6								2.2					
7													
8													
9													
10						1.8		1.4					
11						2.4	1.4	2.8					
12						2.4	2.4	.7					
13						2.4	2.6						
14						2.4	1.8						
15						1.4							
16							1.4	1.1					
17								3.3					
18								2.7					
19								1.3					
20								2.7					
21								.7					
22													
23			1.3										
24			2.6										
25			2.3	2.2									
26			1.9	2.6	.9								
27			2.3		1.8								
28			2.7	.8	1.1		1.4						
29			2.6	3.3									
30			2.3	3.3	2.5								
31			3.0		3.3								
Total			21.0	19.3	10.8	20.3	13.4	33.3					118.1
Acre-feet			42	38	21	40	27	66					234
Prior. Div.													
Apport. Div.			42	38	21	40	27	66					234
Ac. Ap. Div.			42	80	101	141	168	234	234	234	234	234	234
Apport.	242	242	242	242	242	242	242	242	242	242	242	242	242
Duty			1.04	.95	.52	.99	.67	1.64					5.81

Plate 27

KENNECOTT COPPER CORPORATION

Pumping for Industrial, Municipal, Domestic and related beneficial purposes.

Month	Total Gallons Pumped During Month	Equivalent Acre-feet
January	442,155,000	1,357
February	400,756,000	1,230
March	443,256,000	1,360
April	440,915,000	1,353
May	434,994,000	1,335
June	375,896,000	1,154
July	401,119,000	1,231
August	416,839,000	1,279
September	407,487,000	1,251
October	411,629,000	1,263
November	382,984,000	1,175
December	386,868,000	1,187
Total for Year 1969	4,944,898,000	15,175

(Compiled from pumping records submitted by Kennecott Copper Corp.)

MASS DIAGRAM OF SAN CARLOS PROJECT, WATER DIVERTED AT ASHURST-HAYDEN DAM, 1969

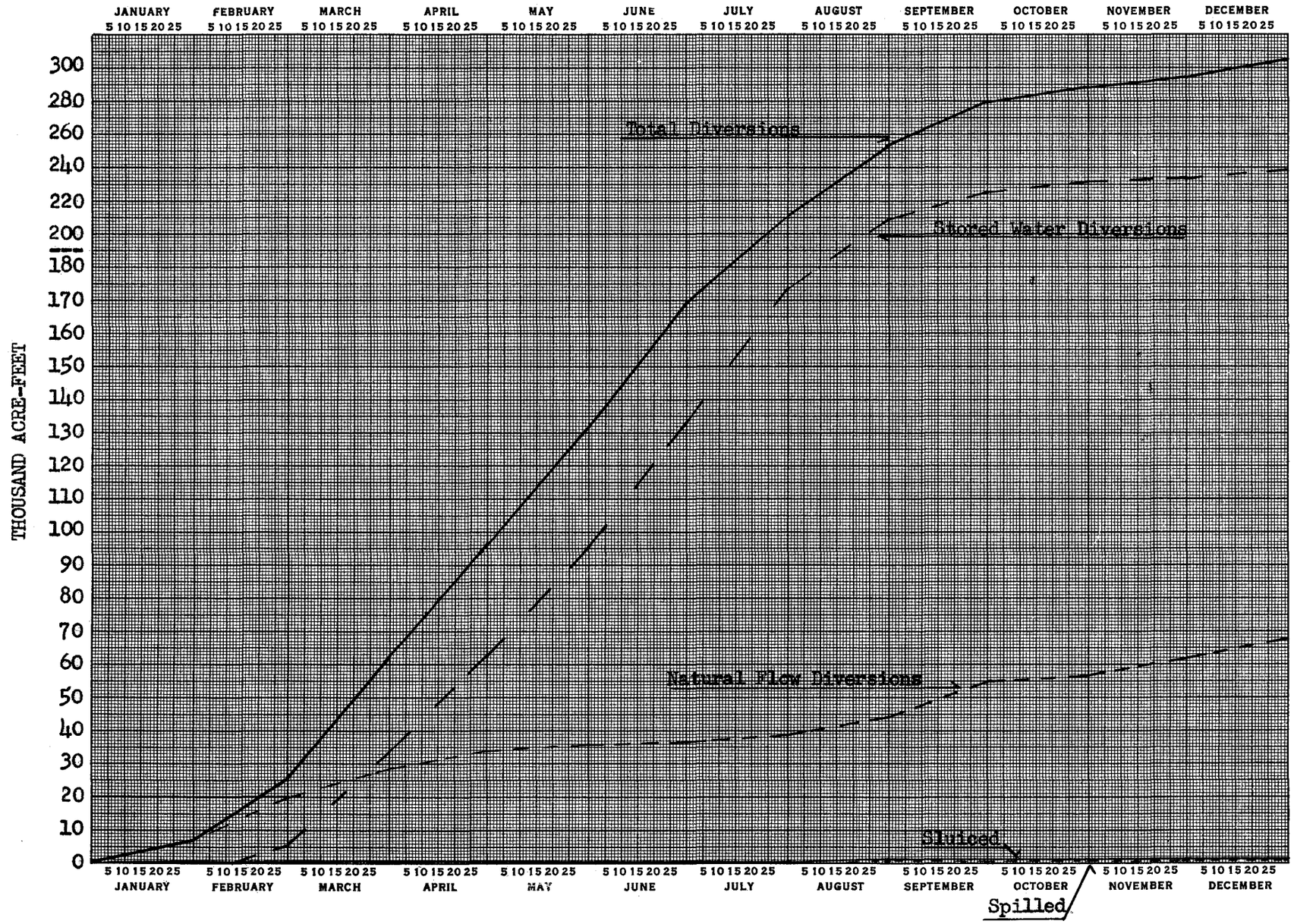

Plate 29

TABLE SHOWING DIVERSION BY U. S. I. I. S. AT ASHURST-HAYDEN DAM, 102,090.5 ACRES (Water passing Dam estimated) Diversions from South side of river at A-H Dam in Sec. 8, T. 4S, R. 11E, 10 miles N. E. of Florence, Arizona. Measurements by 30 ft. Parshall Flume near China Wash, 3 miles below A-H Dam.

	JANUARY					FEBRUARY					MARCH				
1969	DIVERTED		PASSING DAM			DIVERTED		PASSING DAM			DIVERTED		PASSING DAM		
Day	Nat. Fl.	Strd.	Total	Spld.	Slcd.	Nat. Fl.	Strd.	Total	Spld	Slcd.	Nat. Fl.	Strd.	Total	Spld.	Slcd.
1	138		138			92		92			177	267	444		
2	109		109			102		102			156	279	435		
3	95		95			160		160			137	289	426		
4	89		89			168		168			129	297	426		
5	84		84			177		177			144	315	459		
6	79		79			207		207			138	337	475		
7	78		78			235		235			139	367	506		
8	76		76			274		274			126	382	508		
9	76		76			281		281			162	384	546		
10	72		72			274		274			158	449	607		
11	70		70			289		289			217	481	698		
12	67		67			322	27	349			250	514	764		
13	42		42		50	280	77	357			188	530	718		
14					68	267	93	360			177	530	707		
15					76	258	96	354			164	527	691		
16					97	251	109	360			159	525	684		
17	43		43		43	243	117	360			154	526	680		
18	160		160			235	125	360			152	525	677		
19	126		126			245	138	383			147	526	673		
20	108		108			238	182	420			142	527	669		
21	97		97			239	220	459			139	530	669		
22	391		391	470	19	241	243	484			143	534	677		
23	270		270			256	257	513			153	531	684		
24	171		171			266	263	529			143	544	687		
25	140		140			232	268	500			94	555	649		
26	202		202			217	239	456			81	502	583		
27	209		209			219	232	451			108	448	556		
28	148		148			206	247	453			123	443	566		
29	122		122								112	451	563		
30	108		108								114	465	579		
31	97		97								98	478	576		
Total	3467		3467	470	353	6474	2933	9407			4524	14058	18582		
Acre-feet	6877		6877	932	700	12841	5818	18659			8973	27884	36857		
Acc. Total	6877		6877	932	700	19718	5818	25536	932	700	28691	33702	62393	932	700

Plate 30-1

TABLE SHOWING DIVERSIONS BY U. S. I. I. S. AT ASHURST-HAYDEN DAM, 102,090.5 ACRES
(Water Passing Dam Estimated)

1969	APRIL					MAY					JUNE				
	DIVERTED			PASSING DAM		DIVERTED			PASSING DAM		DIVERTED			PASSING DAM	
Day	Nat. Fl.	Strd.	Total	Spld.	Slcd.	Nat. Fl.	Strd.	Total	Spld.	Slcd.	Nat. Fl.	Strd.	Total	Spld.	Slcd.
1	139	480	619			48	528	576			3	540	543		
2	127	541	668			44	529	573				543	543		
3	102	568	670			48	531	579			15	544	559		
4	103	556	659			71	553	624			5	574	579		
5	92	535	627			74	578	652				576	576		
6	101	548	649			87	572	659				579	579		
7	114	524	638			85	564	649				579	579		
8	100	517	617			73	565	638				593	593		
9	68	502	570			48	565	613				613	613		
10	109	441	550			19	544	563				613	613		
11	114	446	560			61	489	550				617	617		
12	128	452	580			56	490	546				624	624		
13	94	466	560			49	491	540				621	621		
14	103	447	550			28	480	508				621	621		
15	91	449	540			63	454	517			11	627	638		
16	87	453	540			50	490	540				645	645		
17	84	456	540			25	512	537			20	653	673		
18	83	457	540			35	515	550			21	673	694		
19	83	457	540			29	544	573			2	685	687		
20	55	445	500			16	560	576			11	673	684		
21	64	436	500			15	561	576			10	674	684		
22	55	435	490			16	563	579			16	671	687		
23	54	436	490			11	565	576			16	671	687		
24	55	435	490			14	562	576			17	667	684		
25	71	439	510			14	562	576			23	664	687		
26	62	478	540			11	565	576			30	668	698		
27	56	494	550			10	566	576			26	679	705		
28	56	524	580			5	568	573			33	676	709		
29	46	534	580			7	569	576			24	663	687		
30	36	534	570				563	563			27	657	684		
31							546	546							
Total	2532	14485	17017			1112	16744	17856			310	18883	19193		
Acre-feet	5022	28731	33753			2206	33211	35417			615	37454	38069		
Acc. Total	33713	62433	96146	932	700	35919	95644	131563	932	700	36534	133098	169632	932	700

Plate 30-2

TABLE SHOWING DIVERSIONS BY U. S. I. I. S. AT ASHURST-HAYDEN DAM, 102,090.5 ACRES
(Water Passing Dam Estimated)

1969	JULY					AUGUST					SEPTEMBER				
	DIVERTED			PASSING DAM		DIVERTED			PASSING DAM		DIVERTED			PASSING DAM	
Day	Nat. Fl.	Strd.	Total	Spld.	Slcd.	Nat. Fl.	Strd.	Total	Spld.	Slcd.	Nat. Fl.	Strd.	Total	Spld.	Slcd.
1	19	661	680			93	613	706		15	184	553	737		
2		638	638			80	627	707			61	582	643		
3	16	619	635			43	614	657			105	521	626		
4	5	619	624			51	603	654			374	245	619		
5	14	607	621			39	598	637			424	231	655		
6		607	607			77	549	626			233	401	634		
7		600	600			85	601	686			127	485	612		
8		610	610			112	617	729		12	218	405	623		
9		641	641			224	627	851			158	461	619		
10		645	645			136	630	766			92	500	592		
11		651	651			94	635	729			107	458	565		
12		640	640			76	635	711			283	461	744		
13		666	666			83	624	707			359	337	696		
14		666	666			107	593	700			327	233	560		
15		673	673			178	580	758		19	545		545		
16		677	677			132	522	654			491		491		
17		688	688			139	490	629			352	101	453		
18		704	704			79	530	609			200	156	356		
19	6	701	707			72	533	605			201	122	323		
20	50	672	722			52	546	598			120	146	266		
21	140	585	725			34	561	595			94	150	244		
22	111	622	733			28	570	598			62	142	204		
23	1	695	696		63	39	580	619			62	135	197		
24	65	686	751			28	595	623			46	145	191		
25	48	703	751			24	591	615			38	148	186		
26	54	686	740			32	580	612			36	152	188		
27	63	667	730			98	585	683		15	30	154	184		
28	137	657	794		9	193	562	755			24	153	177		
29	84	660	744			163	543	706		30	14	157	171		
30	158	634	792		21	111	573	684		20	15	158	173		
31	125	615	740			139	512	651							
Total	1096	20195	21291		93	2841	18019	20860		111	5382	7892	13274		
Acre-feet	2174	40056	42230		184	5635	35740	41375		220	10675	15654	26329		
Acc. Total	38708	173154	211862	932	884	44343	208894	253237	932	1104	55018	224548	279566	932	1104

TABLE SHOWING DIVERSIONS BY U. S.I.I. S. AT ASHURST-HAYDEN DAM, 102,090.5 ACRES
(Water Passing Dam Estimated)

Day	OCTOBER DIVERTED Nat. Fl..	OCTOBER DIVERTED Stored	OCTOBER DIVERTED Total	OCTOBER PASSING DAM Spld.	OCTOBER PASSING DAM Slcd.	NOVEMBER DIVERTED Nat. Fl.	NOVEMBER DIVERTED Stored	NOVEMBER DIVERTED Total	NOVEMBER PASSING DAM Spld.	NOVEMBER PASSING DAM Slcd.	DECEMBER DIVERTED Nat. Fl.	DECEMBER DIVERTED Stored	DECEMBER DIVERTED Total	DECEMBER PASSING DAM Spld.	DECEMBER PASSING DAM Slcd.
1	18	153	171			51	44	95			67		67		
2	12	154	166			65	28	93			68		68		
3	9	157	166			59	36	95			68		68		
4	6	162	168			54	39	93			82		82		
5	3	163	166			58	42	100			82		82		
6	9	157	166			61	32	93			82		82		
7	7	157	164			60	35	95			78		78		
8	3	163	166			65	32	97			74		74		
9	4	137	141			80	35	115			78		78		
10	10	123	133			96	35	131			82		82		
11	15	120	135			85	40	125			82		82		
12	15	120	135			85	36	121			81		81		
13	11	118	129			88		88			121		121		
14	15	116	131			80		80			144	12	156		
15	19	118	137			76		76			147	15	162		
16	16	123	139			89	2	91			159	17	176		
17	10	127	137			420		420	14	10	173	35	208		
18	7	124	131			397		397		8	141	89	230		
19	9	122	131			129		129			128	114	242		
20	7	122	129			78		78			119	152	271		
21	24	121	145			59		59			96	183	279		
22	33	120	153			51		51			81	198	279		
23	55	96	151			47		47			75	204	279		
24	37	110	147			43		43			81	201	282		
25	111	34	145			37		37			72	207	279		
26	92	49	141			34		34			65	214	279		
27	59	80	139			59		59			58	221	279		
28	44	95	139			63		63			75	222	297		
29	39	100	139			61		61			79	223	302		
30	32	101	133			65		65			80	220	300		
31	38	70	108								54	200	254		
Total	769	3712	4481			2695	436	3131	14	18	2872	2727	5599		
Ac-ft.	1525	7363	8888			5345	865	6210	28	36	5696	5409	11105		
Acc. Total	56543	231911	288454	932	1104	61888	232776	294664	960	1140	67584	238185	305769	960	1140

Plate 30-4

TABLE SHOWING DETERMINATION OF PRIORITY WATER, JANUARY 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

1969 Day	River Inflow	SAN CARLOS RESERVOIR RELEASES Total	Nat. Flow	Stored	STORAGE (b) Inflow Minus Outflow	Ac. ft. Change S.C.Res.	Jan.	ASHURST-HAYDEN DAM Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	(a) Nat.Fl. Avail. to Project	Priority Year
Dec. 30	266				+ 266	+ 500	1		138		138	138		1924(b)
31	217				+ 217	+ 500	2		109		109	109		"
Jan. 1	204				+ 204	+ 300	3		95		95	95		"
2	204				+ 204	+ 400	4		89		89	89		"
3	197				+ 197	+ 400	5		84		84	84		"
4	206				+ 206	+ 200	6		79		79	79		"
5	226				+ 226	+ 400	7		78		78	78		"
6	212				+ 212	+ 400	8		76		76	76		"
7	202				+ 202	+ 400	9		76		76	76		"
8	243				+ 243	+ 400	10		72		72	72		"
9	230				+ 230	+ 500	11		70		70	70		"
10	204				+ 204	+ 700	12		67		67	67		"
11	210				+ 210	+ 100	13	50	42		42	92		"
12	208				+ 208	+ 300	14	68				68		"
13	216				+ 216	+ 500	15	76				76		"
14	222				+ 222	+1000	16	97				97		"
15	555				+ 555	+ 900	17	43	43		43	86		"
16	523				+ 523	+ 800	18		160		160	160		"
17	361				+ 361	+ 700	19		126		126	126		"
18	339				+ 339	+ 600	20		108		108	108		"
19	341				+ 341	+ 500	21		97		97	97		"
20	315				+ 315	+ 500	22	489	391		391	880		"
21	280				+ 280	+ 700	23		270		270	270		"
22	1772				+1772	+2600	24		171		171	171		"
23	494				+ 494	+1000	25		140		140	140		"
24	346				+ 346	+ 700	26		202		202	202		"
25	312				+ 312	+ 800	27		209		209	209		"
26	485				+ 485	+ 900	28		148		148	148		"
27	439				+ 439	+ 700	29		122		122	122		"
28	400				+ 400	+ 600	30		108		108	108		"
29	410				+ 410	+ 700	31		97		97	97		"
30	383				+ 383	+ 700								
31-	373	55	55		+ 318	-+1200								

48- hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924.

Plate 31-1

TABLE SHOWING DETERMINATION OF PRIORITY WATER, FEBRUARY 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM					
		RELEASES			STORAGE (b)							(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac. ft. Change S.C.Res.	Feb.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Jan. 30	383				+383	+ 700	1		92		92	+ 92	433	Immem.
31	373	55	55		+318	+1200	2		102		102	+ 47	385	1924(b)
Feb. 1	344	106	106		+238	- 200	3		160		160	+ 54	372	"
2	309	122	122		+187	+ 400	4		168		168	+ 46	334	"
3	305	124	124		+181	+ 100	5		177		177	+ 53	338	"
4	300	153	153		+147	+ 300	6		207		207	+ 54	338	"
5	266	173	173		+ 93	+ 200	7		235		235	+ 62	318	"
6	274	206	206		+ 68		8		274		274	+ 68	335	Immem.
7	270	225	225		+ 45	+ 200	9		281		281	+ 56	321	1924(b)
8	242	225	225		+ 17	- 200	10		274		274	+ 49	289	Immem.
9	246	225	225		+ 21		11		289		289	+ 64	308	"
10	252	282	252	30	- 30	- 100	12		349	27	322	+ 70	322	"
11	238	324	238	86	- 86	- 100	13		357	77	280	+ 42	280	"
12	220	324	220	104	-104	- 200	14		360	93	267	+ 47	267	"
13	219	327	219	108	-108	- 200	15		354	96	258	+ 39	258	"
14	209	332	209	123	-123	- 400	16		360	109	251	+ 42	251	"
15	198	330	198	132	-132	- 200	17		360	117	243	+ 45	243	"
16	190	330	190	140	-140	- 400	18		360	125	235	+ 45	235	"
17	175	330	175	155	-155	- 300	19		383	138	245	+ 70	245	"
18	179	383	179	204	-204	- 500	20		420	182	238	+ 59	238	"
19	169	416	169	247	-247	- 300	21		459	220	239	+ 70	239	"
20	162	435	162	273	-273	- 200	22		484	243	241	+ 79	241	"
21	146	435	146	289	-289	-1000	23		513	257	256	+110	256	"
22	139	435	139	296	-296	- 500	24		529	263	266	+127	266	"
23	134	435	134	301	-301	- 600	25		500	268	232	+ 98	232	"
24	153	422	153	269	-269	- 600	26		456	239	217	+ 64	217	"
25	142	403	142	261	-261	- 400	27		451	232	219	+ 77	219	"
26	132	409	132	277	-277	- 600	28		453	247	206	+ 74	206	"
27	109	409	109	300	-300	- 600								
28	95	409	95	314	-314	- 400								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 11%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, MARCH 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM						
			RELEASES		STORAGE (b)								(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	Mar.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Feb. 27	109	409	109	300	-300	- 600	1		444	267	177	+ 68	177	Immem.
28	95	409	95	314	-314	- 400	2		435	279	156	+ 61	156	"
Mar. 1	87	412	87	325	-325	-1100	3		426	289	137	+ 50	137	"
2	80	414	80	334	-334	- 700	4		426	297	129	+ 49	129	"
3	75	429	75	354	-354	- 500	5		459	315	144	+ 69	144	"
4	80	459	80	379	-379	-1100	6		475	337	138	+ 58	138	"
5	81	493	81	412	-412	- 800	7		506	367	139	+ 58	139	"
6	80	509	80	429	-429	-1000	8		508	382	126	+ 46	126	"
7	87	519	87	432	-432	- 700	9		546	384	162	+ 75	162	"
8	80	584	80	504	-504	-1000	10		607	449	158	+ 78	158	"
9	84	625	84	541	-541	-1000	11		698	481	217	+133	217	"
10	79	656	79	577	-577	- 800	12		764	514	250	+171	250	"
11	83	678	83	595	-595	-1200	13		718	530	188	+105	188	"
12	83	678	83	595	-595	-1200	14		707	530	177	+ 94	177	"
13	86	678	86	592	-592	-1000	15		691	527	164	+ 78	164	"
14	88	678	88	590	-590	-1300	16		684	525	159	+ 71	159	"
15	87	678	87	591	-591	-1100	17		680	526	154	+ 67	154	"
16	88	678	88	590	-590	-1100	18		677	525	152	+ 64	152	"
17	87	678	87	591	-591	-1300	19		673	526	147	+ 60	147	"
18	82	674	82	592	-592	-1100	20		669	527	142	+ 60	142	"
19	78	674	78	596	-596	-1200	21		669	530	139	+ 61	139	"
20	74	674	74	600	-600	-1200	22		677	534	143	+ 69	143	"
21	77	674	77	597	-597	-1200	23		684	531	153	+ 76	153	"
22	78	689	78	611	-611	-1500	24		687	544	143	+ 65	143	"
23	77	701	77	624	-624	-1100	25		649	555	94	+ 17	94	"
24	74	638	74	564	-564	-1200	26		583	502	81	+ 7	81	"
25	67	570	67	503	-503	- 900	27		556	448	108	+ 41	108	"
26	69	567	69	498	-498	-1000	28		566	443	123	+ 54	123	"
27	67	574	67	507	-507	-1000	29		563	451	112	+ 45	112	"
28	64	587	64	523	-523	-1100	30		579	465	114	+ 50	114	"
29	67	604	67	537	-537	- 900	31		576	478	98	+ 31	98	"
30	60	605	60	545	-545	-1500								
31	59	674	59	615	-615	-1200								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water lost in transit 11%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, APRIL 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR			STORAGE (b)			ASHURST-HAYDEN DAM					(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	April	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Mar. 30	60	605	60	545	-545	-1500	1		619	480	139	+79	139	Immem.
31	59	674	59	615	-615	-1200	2		668	541	127	+68	127	"
Apr. 1	59	705	59	646	-646	-1500	3		670	568	102	+43	102	"
2	54	686	54	632	-632	-1300	4		659	556	103	+49	103	"
3	59	667	59	608	-608	-1400	5		627	535	92	+33	92	"
4	55	678	55	623	-623	- 900	6		649	548	101	+46	101	"
5	61	656	61	595	-595	-1400	7		638	524	114	+53	114	"
6	68	656	68	588	-588	-1300	8		617	517	100	+32	100	"
7	68	638	68	570	-570	-1400	9		570	502	68		68	"
8	64	565	64	501	-501	-1000	10		550	441	109	+45	109	"
9	63	570	63	507	-507	-1000	11		560	446	114	+51	114	"
10	66	580	66	514	-514	-1100	12		580	452	128	+62	128	"
11	64	594	64	530	-530	-1000	13		560	466	94	+30	94	"
12	66	574	66	508	-508	- 900	14		550	447	103	+37	103	"
13	64	574	64	510	-510	-1000	15		540	449	91	+27	91	"
14	59	574	59	515	-515	-1100	16		540	453	87	+28	87	"
15	56	574	56	518	-518	-1300	17		540	456	84	+28	84	"
16	55	574	55	519	-519	-1100	18		540	457	83	+28	83	"
17	55	574	55	519	-519	-1100	19		540	457	83	+28	83	"
18	51	557	51	506	-506	-1300	20		500	445	55	+ 4	55	"
19	53	548	53	495	-495	- 900	21		500	436	64	+11	64	"
20	54	548	54	494	-494	- 900	22		490	435	55	+ 1	55	"
21	53	548	53	495	-495	- 900	23		490	436	54	+ 1	54	"
22	50	544	50	494	-494	-1100	24		490	435	55	+ 5	55	"
23	49	548	49	499	-499	-1100	25		510	439	71	+22	71	"
24	47	590	47	543	-543	-1300	26		540	478	62	+15	62	"
25	50	611	50	561	-561	-1100	27		550	494	56	+ 6	56	"
26	47	642	47	595	-595	-1400	28		580	524	56	+ 9	56	"
27	45	652	45	607	-607	-1100	29		580	534	46	+ 1	46	"
28	45	652	45	607	-607	-1300	30		570	534	36	- 9	36	
29	45	652	45	607	-607	-1300								
30	44	652	44	608	-608	-1300								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 12%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, MAY 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM					
			RELEASES		STORAGE (b)							(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus OUTFLOW	Ac-ft. Change S.C.Res.	May	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Apr. 29	45	652	45	607	-607	-1300	1		576	528	48	+ 3	48	Immem.
30	44	652	44	608	-608	-1300	2		573	529	44		44	"
May 1	42	652	42	610	-610	-1200	3		579	531	48	+ 6	48	"
2	42	678	42	636	-636	-1300	4		624	553	71	+29	71	"
3	41	705	41	664	-664	-1600	5		652	578	74	+33	74	"
4	43	701	43	658	-658	-1000	6		659	572	87	+44	87	"
5	53	701	53	648	-648	- 800	7		649	564	85	+32	85	"
6	52	701	52	649	-649	-1200	8		638	565	73	+21	73	"
7	52	701	52	649	-649	-1000	9		613	565	48	- 4	48	"
8	53	678	53	625	-625	-1400	10		563	544	19	-34	19	"
9	59	621	59	562	-562	-1000	11		550	489	61	+ 2	61	"
10	58	621	58	563	-563	-1100	12		546	490	56	- 2	56	"
11	57	621	57	564	-564	-1200	13		540	491	49	- 8	49	"
12	55	607	55	552	-552	-1100	14		508	480	28	-27	28	"
13	48	570	48	522	-522	-1200	15		517	454	63	+15	63	"
14	41	604	41	563	-563	-1100	16		540	490	50	+ 9	50	"
15	40	628	40	588	-588	-1600	17		537	512	25	-15	25	"
16	36	628	36	592	-592	-1000	18		550	515	35	- 1	35	"
17	35	660	35	625	-625	-1300	19		573	544	29	- 6	29	"
18	34	678	34	644	-644	-1400	20		576	560	16	-18	16	"
19	33	678	33	645	-645	-1500	21		576	561	15	-18	15	"
20	31	678	31	647	-647	-1200	22		579	563	16	-15	16	"
21	29	678	29	649	-649	-1300	23		576	565	11	-18	11	"
22	32	678	32	646	-646	-1300	24		576	562	14	-18	14	"
23	32	678	32	646	-646	-1400	25		576	562	14	-18	14	"
24	29	678	29	649	-649	-1400	26		576	565	11	-18	11	"
25	27	678	27	651	-651	-1300	27		576	566	10	-17	10	"
26	25	678	25	653	-653	-1200	28		573	568	5	-20	5	"
27	24	678	24	654	-654	-1600	29		576	569	7	-17	7	"
28	24	678	24	654	-654	-1300	30		563	563		-24		"
29	25	663	25	638	-638	-1200	31		546	546		-25		"
30	24	652	24	628	-628	-1600								
31	20	652	20	632	-632	-1400								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 13%

Plate 31-5

TABLE SHOWING DETERMINATION OF PRIORITY WATER, JUNE 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM						
		RELEASES			STORAGE (b)								(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	June	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
May 30	24	652	24	628	-628	-1600	1		543	540	3	-21	3	Immem.
31	20	652	20	632	-632	-1400	2		543	543		-20		"
June 1	19	652	19	633	-633	-1400	3		559	544	15	- 4	15	"
2	18	685	18	667	-667	-1600	4		579	574	5	-13	5	"
3	19	701	19	682	-682	-1500	5		576	576		-19		"
4	17	701	17	684	-684	-1200	6		579	579		-17		"
5	16	701	16	685	-685	-1500	7		579	579		-16		"
6	16	701	16	685	-685	-1600	8		593	593		-16		"
7	15	732	15	717	-717	-1600	9		613	613		-15		"
8	14	744	14	730	-730	-1500	10		613	613		-14		"
9	14	744	14	730	-730	-1900	11		617	617		-14		"
10	12	744	12	732	-732	-1800	12		624	624		-12		"
11	13	744	13	731	-731	-1400	13		621	621		-13		"
12	12	740	12	728	-728	-1600	14		621	621		-12		"
13	11	740	11	729	-729	-1500	15		638	627	11		11	"
14	11	761	11	750	-750	-1600	16		645	645		-11		"
15	10	769	10	759	-759	-1700	17		673	653	20	+10	20	"
16	11	794	11	783	-783	-1800	18		694	673	21	+10	21	"
17	11	807	11	796	-796	-1800	19		687	685	2	- 9	2	"
18	11	794	11	783	-783	-1600	20		684	673	11		11	"
19	10	794	10	784	-784	-1700	21		684	674	10		10	"
20	10	790	10	780	-780	-1700	22		687	671	16	+ 6	16	"
21	10	790	10	780	-780	-2000	23		687	671	16	+ 6	16	"
22	10	786	10	776	-776	-2100	24		684	667	17	+ 7	17	"
23	9	781	9	772	-772	-1700	25		687	664	23	+14	23	"
24	9	786	9	777	-777	-1800	26		698	668	30	+21	30	"
25	8	798	8	790	-790	-1800	27		705	679	26	+18	26	"
26	8	794	8	786	-786	-1700	28		709	676	33	+25	33	"
27	10	781	10	771	-771	-1600	29		687	663	24	+14	24	"
28	9	773	9	764	-764	-1700	30		684	657	27	+18	27	"
29	9	769	9	760	-760	-1700								
30	8	752	8	744	-744	-1500								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 14%

Plate 31-6

TABLE SHOWING DETERMINATION OF PRIORITY WATER, JULY 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM					
		RELEASES			STORAGE (b)								
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	July	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	(a) Nat.Fl. Avail. to Project	Priority Year
June 29	9	769	9	760	-760	-1700	1		680	661	19	+ 10	19	Immem.
30	8	752	8	744	-744	-1500	2		638	638		- 8		"
July 1	8	720	8	712	-712	-1300	3		635	619	16	+ 8	16	"
2	8	720	8	712	-712	-1600	4		624	619	5	- 3	5	"
3	7	705	7	698	-698	-1600	5		621	607	14	+ 7	14	"
4	7	720	7	713	-713	-1700	6		607	607		- 7		"
5	6	720	6	714	-714	-1600	7		600	600		- 6		"
6	5	720	5	715	-715	-1900	8		610	610		- 5		"
7	5	744	5	739	-739	-1400	9		641	641		- 5		"
8	5	773	5	768	-768	-1700	10		645	645		- 5		"
9	5	781	5	776	-776	-1800	11		651	651		- 5		"
10	5	786	5	781	-781	-1500	12		640	640		- 5		"
11	5	798	5	793	-793	-1700	13		666	666		- 5		"
12	23	823	23	800	-800	-1700	14		666	666		- 23		"
13	12	823	12	811	-811	-1600	15		673	673		- 12		"
14	8	823	8	815	-815	-1900	16		677	677		- 8		"
15	8	823	8	815	-815	-1700	17		688	688		- 8		"
16	9	823	9	814	-814	-1800	18		704	704		- 9		"
17	13	819	13	806	-806	-1700	19		707	701	6	- 7	6	"
18	21	793	21	772	-772	-1700	20		722	672	50	+ 29	50	"
19	147	819	147	672	-672	-1300	21		725	585	140	- 7	140	"
20	108	823	108	715	-715	-1300	22		733	622	111	+ 3	111	"
21	20	819	20	799	-799	-1700	23	63	696	695	1	+ 44	64	"
22	16	804	16	788	-788	-1700	24		751	686	65	+ 49	65	"
23	15	823	15	808	-808	-1700	25		751	703	48	+ 33	48	"
24	14	802	14	788	-788	-1700	26		740	686	54	+ 40	54	"
25	14	781	14	767	-767	-1600	27		730	667	63	+ 49	63	"
26	14	769	14	755	-755	-1900	28	9	794	657	137	+132	146	"
27	14	773	14	759	-759	-1500	29		744	660	84	+ 70	84	"
28	28	757	28	729	-729	-1500	30	21	792	634	158	+151	179	"
29	17	724	17	707	-707	-1500	31		740	615	125	+108	125	"
30	35	724	35	689	-689	-1500								
31	19	724	19	705	-705	-1200								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 13%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, AUGUST 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM						
		RELEASES			STORAGE (b)								(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	Aug.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
July 30	35	724	35	689	-689	-1500	1	15	706	613	93	+ 73	108	Immem.
31	19	724	19	705	-705	-1200	2		707	627	80	+ 61	80	"
Aug. 1	15	705	15	690	-690	-1700	3		657	614	43	+ 28	43	"
2	15	693	15	678	-678	-1400	4		654	603	51	+ 36	51	"
3	21	693	21	672	-672	-1400	5		637	598	39	+ 18	39	"
4	18	635	18	617	-617	-1400	6		626	549	77	+ 59	77	"
5	18	693	18	675	-675	-1500	7		686	601	85	+ 67	85	"
6	17	710	17	693	-693	-1400	8	12	729	617	112	+107	124	"
7	12	716	12	704	-704	-1400	9		851	627	224	+212	224	"
8	12	720	12	708	-708	-1600	10		766	630	136	+124	136	"
9	10	724	10	714	-714	-1600	11		729	635	94	+ 84	94	"
10	10	724	10	714	-714	-1500	12		711	635	76	+ 66	76	"
11	8	709	8	701	-701	-1700	13		707	624	83	+ 75	83	"
12	8	674	8	666	-666-	-1300	14		700	593	107	+ 99	107	"
13	11	663	11	652	-652	- 700	15	19	758	580	178	+186	197	"
14	63	649	63	586	-586	-1200	16		654	522	132	+ 69	132	"
15	98	649	98	551	-551	-1300	17		629	490	139	+ 41	139	"
16	53	649	53	596	-596	-1400	18		609	530	79	+ 26	79	"
17	50	649	50	599	-599	-1400	19		605	533	72	+ 22	72	"
18	36	649	36	613	-613	-1400	20		598	546	52	+ 16	52	"
19	19	649	19	630	-630	-1500	21		595	561	34	+ 15	34	"
20	9	649	9	640	-640	-1400	22		598	570	28	+ 19	28	"
21	8	660	8	652	-652	-1300	23		619	580	39	+ 31	39	"
22	9	678	9	669	-669	-1600	24		623	595	28	+ 19	28	"
23	10	674	10	664	-664	-1500	25		615	591	24	+ 14	24	"
24	10	662	10	652	-652	-1300	26		612	580	32	+ 22	32	"
25	17	674	17	657	-657	-1300	27	15	683	585	98	+ 96	113	"
26	43	674	43	631	-631	-1400	28		755	562	193	+150	193	"
27	64	674	64	610	-610	-1200	29	30	706	543	163	+129	193	"
28	19	663	19	644	-644	-1400	30	20	684	573	111	+112	131	"
29	99	674	99	575	-575	-1200	31		651	512	139	+ 40	139	"
30	53	674	53	621	-621	-1400								
31	20	674	20	654	-654	-1300								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 11%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, SEPTEMBER 1969
Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM						
		RELEASES			STORAGE (b)								(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	Sept.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Aug. 30	53	674	53	621	-621	-1400	1		737	553	184	+131	184	Immem.
31	20	674	20	654	-654	-1300	2		643	582	61	+ 41	61	"
Sept. 1	86	671	86	585	-585	-1600	3		626	521	105	+ 19	105	"
2	396	671	396	275	-275	- 800	4		619	245	374	- 22	374	"
3	400	660	400	260	-260	- 800	5		655	231	424	+ 24	424	"
4	187	638	187	451	-451	-1200	6		634	401	233	+ 46	233	"
5	104	649	104	545-	-545	-1100	7		612	485	127	+ 23	127	"
6	190	645	190	455	-455	-1000	8		623	405	218	+ 28	218	"
7	127	645	127	518	-518	-1200	9		619	461	158	+ 31	158	"
8	83	645	83	562	-562	-1200	10		592	500	92	+ 9	92	"
9	113	628	113	515	-515	-1200	11		565	458	107	- 6	107	"
10	83	601	83	518	-518	-1000	12		744	461	283	+200	283	"
11	215	594	215	379	-379	- 600	13		696	337	359	+144	359	"
12	315	577	315	262	-262	- 600	14		560	233	327	+ 12	327	"
13	677	544	544		+133	- 200	15		545		545	+ 1	663	1915(a)
14	616	483	483		+133	- 100	16		491		491	+ 8	609	1915(a)
15	330	444	330	114	-114	- 100	17		453	101	352	+ 22	352	Immem.
16	200	375	200	175	-175	- 400	18		356	156	200		200	"
17	184	321	184	137	-137	- 400	19		323	122	201	+ 17	201	"
18	118	282	118	164	-164	- 400	20		266	146	120	+ 2	120	"
19	78	247	78	169	-169	- 400	21		244	150	94	+ 16	94	"
20	60	220	60	160	-160	- 500	22		204	142	62	+ 2	62	"
21	45	197	45	152	-152	- 500	23		197	135	62	+ 17	62	"
22	37	200	37	163	-163	- 400	24		191	145	46	+ 9	46	"
23	34	200	34	166	-166	- 400	25		186	148	38	+ 4	38	"
24	29	200	29	171	-171	- 500	26		188	152	36	+ 7	36	"
25	27	200	27	173	-173	- 500	27		184	154	30	+ 3	30	"
26	28	200	28	172	-172	- 400	28		177	153	24	- 4	24	"
27	24	200	24	176	-176	- 400	29		171	157	14	- 10	14	"
28	23	200	23	177	-177	- 500	30		173	158	15	- 8	15	"
29	22	200	22	178	-178	- 500								
30	21	200	21	179	-179	- 100								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 11%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, OCTOBER 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM						
		RELEASES			STORAGE (b)								(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	Oct.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Sept. 29	22	200	22	178	-178	-500	1		171	153	18	- 4	18	Immem.
30	21	200	21	179	-179	-100	2		166	154	12	- 9	12	"
Oct. 1	18	200	18	182	-182	-900	3		166	157	9	- 9	9	"
2	18	206	18	188	-188	-600	4		168	162	6	-12	6	"
3	17	206	17	189	-189	-600	5		166	163	3	-14	3	"
4	17	200	17	183	-183	-600	6		166	157	9	- 8	9	"
5	17	200	17	183	-183	-500	7		164	157	7	-10	7	"
6	17	206	17	189	-189	-500	8		166	163	3	-14	3	"
7	17	176	17	159	-159	-400	9		141	137	4	-13	4	"
8	19	162	19	143	-143	-300	10		133	123	10	- 9	10	"
9	18	158	18	140	-140	-500	11		135	120	15	- 3	15	"
10	17	156	17	139	-139	-400	12		135	120	15	- 2	15	"
11	17	154	17	137	-137	-600	13		129	118	11	- 6	11	"
12	19	154	19	135	-135	-500	14		131	116	15	- 4	15	"
13	19	156	19	137	-137	-300	15		137	118	19		19	"
14	17	160	17	143	-143	-500	16		139	123	16	- 1	16	"
15	17	165	17	148	-148	-400	17		137	127	10	- 7	10	"
16	16	160	16	144	-144	-300	18		131	124	7	- 9	7	"
17	16	158	16	142	-142	-400	19		131	122	9	- 7	9	"
18	16	158	16	142	-142	-500	20		129	122	7	- 9	7	"
19	17	158	17	141	-141	-400	21		145	121	24	+ 7	24	1924(b)
20	18	158	18	140	-140	-300	22		153	120	33	+15	33	Immem.
21	46	158	46	112	-112	+600	23		151	96	55	+ 9	55	"
22	30	158	30	128	-128	-200	24		147	110	37	+ 7	37	"
23	119	158	119	39	- 39	-200	25		145	34	111	- 8	111	"
24	101	158	101	57	- 57	-100	26		141	49	92	- 9	92	1924(b)
25	65	158	65	93	- 93	-600	27		139	80	59	- 6	59	Immem.
26	48	158	48	110	-110	+100	28		139	95	44	- 4	44	"
27	42	158	42	116	-116	-300	29		139	100	39	- 3	39	"
28	40	158	40	118	-118	-300	30		133	101	32	- 8	32	"
29	47	128	47	81	- 81	-300	31		108	70	38	- 9	38	"
30	50	99	50	49	- 49	-100								
31	67	99	67	32	- 32	-100								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 14%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, NOVEMBER 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM					
		RELEASES			STORAGE (b)								
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	Nov.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	(a) Nat.Fl. Avail. to Project	Priority Year
Oct. 30	50	99	50	49	- 49	-100	1		95	44	51	+ 1	51	Immem.
31	67	99	67	32	- 32	-100	2		93	28	65	- 2	65	"
Nov. 1	58	99	58	41	- 41	-300	3		95	36	59	+ 1	59	"
2	58	102	58	44	- 44	-200	4		93	39	54	- 4	54	"
3	55	102	55	47	- 47	-300	5		100	42	58	+ 3	58	"
4	61	97	61	36	- 36	-100	6		93	32	61		61	"
5	56	95	56	39	- 39	-200	7		95	35	60	+ 4	60	"
6	59	95	59	36	- 36	-100	8		97	32	65	+ 6	65	"
7	56	95	56	39	- 39	-100	9		115	35	80	+ 24	80	1924(b)
8	56	95	56	39	- 39	-200	10		131	35	96	+ 40	96	Immem.
9	52	97	52	45	- 45	+100	11		125	40	85	+ 33	85	1924(b)
10	59	100	59	41	- 41		12		121	36	85	+ 26	85	"
11	50	49	49		+ 1	+400	13		88		88	+ 39	89	Immem.
12	49	49	49				14		80		80	+ 31	80	"
13	51	49	49		+ 2	-100	15		76		76	+ 27	78	1924(b)
14	48	50	48	2	- 2		16		91	2	89	+ 41	89	"
15	45	44	44		+ 1	+100	17	24	420		420	+376	445	"
16	53	44	44		+ 9	+500	18	8	397		397	+353	413	"
17	107	31	31		+ 76	+200	19		129		129	+ 98	197	"
18	75				+ 75	+100	20		78		78	+ 78	145	"
19	116				+116	+100	21		59		59	+ 59	162	"
20	120				+120	+100	22		51		51	+ 51	158	"
21	118				+118		23		47		47	+ 47	152	"
22	126				+126	+200	24		43		43	+ 43	155	"
23	118				+118	+200	25		37		37	+ 37	142	"
24	124	24	24		+100	+200	26		34		34	+ 10	123	"
25	124	50	50		+ 74		27		59		59	+ 9	125	"
26	112	50	50		+ 62	+100	28		63		63	+ 13	118	Immem.
27	112	53	53		+ 59	+400	29		61		61	+ 8	114	"
28	110	57	57		+ 53	-300	30		65		65	+ 8	112	1924(b)
29	112	58	58		+ 54	-100								
30	112	58	58		+ 54									

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 11%

TABLE SHOWING DETERMINATION OF PRIORITY WATER, DECEMBER 1969

Provisional Stream flow Records from U.S.G.S. - Quantities in second feet

		SAN CARLOS RESERVOIR						ASHURST-HAYDEN DAM					
		RELEASES			STORAGE (b)							(a)	
Day	River Inflow	Total	Nat. Flow	Stored	Inflow Minus Outflow	Ac-ft. Change S.C.Res.	Dec.	Sluiced and/or Spilled	Div.	Stored	Nat. Flow	Gain or Loss on Nat. flow	Nat.Fl. Avail. to Project	Priority Year
Nov. 29	112	58	58		+ 54	-100	1		67		67	+ 9	115	1924(b)
30	112	58	58		+ 54		2		68		68	+10	116	"
Dec. 1	131	58	58		+ 73	+100	3		68		68	+10	133	"
2	113	60	60		+ 53		4		82		82	+22	129	"
3	106	61	61		+ 45	+200	5		82		82	+21	122	"
4	81	61	61		+ 20		6		82		82	+21	100	"
5	94	63	63		+ 31	+200	7		78		78	+15	106	"
6	109	63	63		+ 46		8		74		74	+11	115	"
7	157	64	64		+ 93	+200	9		78		78	+14	161	"
8	162	66	66		+ 96	+200	10		82		82	+16	167	"
9	157	67	67		+ 90	+100	11		82		82	+15	162	Immem.
10	162	68	68		+ 94	+200	12		81		81	+13	165	"
11	149	118	118		+ 31	-100	13		121		121	+ 3	149	"
12	153	167	153	14	- 14		14		156	12	144	- 9	144	"
13	158	175	158	17	- 17		15		162	15	147	-11	147	"
14	156	175	156	19	- 19	-100	16		176	17	159	+ 3	159	"
15	164	203	164	39	- 39	-100	17		208	35	173	+ 9	173	"
16	143	243	143	100	-100	-200	18		230	89	141	- 2	141	"
17	123	251	123	128	-128	-200	19		242	114	128	+ 5	128	"
18	109	280	109	171	-171	-400	20		271	152	119	+10	119	"
19	97	303	97	206	-206	-400	21		279	183	96	- 1	96	"
20	80	303	80	223	-223	-400	22		279	198	81	+ 1	81	"
21	74	303	74	229	-229	-400	23		279	204	75	+ 1	75	"
22	77	303	77	226	-226	-500	24		282	201	81	+ 4	81	"
23	73	306	73	233	-233	-400	25		279	207	72	- 1	72	"
24	65	306	65	241	-241	-500	26		279	214	65	-	65	"
25	60	308	60	248	-248	-500	27		279	221	58	- 2	58	"
26	58	308	58	250	-250	-400	28		297	222	75	+17	75	"
27	57	308	57	251	-251	-400	29		302	223	79	+22	79	"
28	61	308	61	247	-247	-400	30		300	220	80	+19	80	"
29	82	307	82	225	-225	-400	31		254	200	54	-28	54	1924(b)
30	82	123	82	41	- 41	-100								
31	74				+ 74	+100								

48-hour lag allowed between Coolidge and Ashurst-Hayden. (a) indicates basis for priority on quantity available to Project; (b) by lake elevation indicating storage of water under right of 1924. Stored water loss in transit 11%

RELATIVE DIVERSION RIGHTS BASED ON A DIVERSION
RIGHT OF ONE CUBIC FOOT PER SECOND FOR EACH EIGHTY ACRES

(Revised to January, 1970)

Year of Prior.	Duncan Valley	Safford Valley	Total Upper Valleys	San Carlos Indian Reservation	Winkelman Valley Ind.*	Agr.	U.S.A.	Total
Immem.	Rights						437.5	437.5
1846				12.5				450.0
1868							449.5	462.0
1869							460.2	472.7
1872		.4	.4				467.7	480.6
1873		1.0	1.0				469.7	483.2
1874	6.3	7.9	14.2				469.9	496.6
1875		16.5	22.8				473.8	509.1
1876		24.3	30.6				479.5	522.6
1877		35.4	41.7			.4	481.5	536.1
1878		43.8	50.1		.8		481.8	545.6
1879		51.2	57.5		2.0		484.5	556.9
1880		62.2	68.5		3.6	2.5	484.9	572.0
1881	12.1	72.7	84.8					588.3
1882	13.2	85.6	98.8					602.3
1883		104.8	118.0					621.5
1884	13.7	126.1	139.8		5.7	3.7	485.3	647.0
1885	19.2	142.0	161.2		6.4		486.6	670.4
1886	22.2	160.8	183.0				486.9	692.5
1887	22.9	170.9	193.8		7.2	4.2		704.6
1888	30.5	179.2	209.7					720.5
1889	31.8	191.3	223.1				489.5	736.5
1890		202.8	234.6		7.3		491.3	749.9
1891	32.3	215.6	247.9				503.5	775.4
1892	33.5	221.2	254.7				508.5	787.2
1893	34.5	228.0	262.5				512.5	799.0
1894	37.7	230.3	268.0				514.9	806.9
1895	42.0	235.5	277.5		7.8		524.2	826.2
1896	45.7	246.0	291.7				528.1	844.3
1897	59.8	249.7	309.5					862.1
1898	69.9	253.0	322.9				528.5	875.9
1899		260.3	330.2				528.6	883.3
1900	75.2	270.7	345.9					899.0
1901	75.9	277.7	353.6				529.1	907.2
1902	78.0	283.3	361.3					914.9
1903	79.1	288.6	367.7					921.3
1904	81.2	318.5	399.7				529.7	953.9
1905	82.4	321.4	403.8					958.0
1906	83.4	325.9	409.3		8.0			963.7
1907	85.1	350.5	435.6					990.0
1908	89.1	354.4	443.5		9.9	5.3	535.0	1006.2
1909	90.4	358.5	448.9		22.22		538.4	1027.32
1910	91.2	365.8	457.0				540.1	1037.12
1911	92.1	366.8	458.9				542.1	1041.02
1912	92.2	372.6	464.8				543.8	1048.62
1913	92.3	380.6	472.9				558.9	1071.82
1914	92.9	383.8	476.7				569.3	1086.02
1915	93.4	390.4	483.8					1093.12
1916	93.5	392.3	485.8			6.2	775.0	1301.72
1917	98.5	397.4	495.9					1311.82
1918	99.6	399.2	498.8					1314.72
1919	99.9	404.4	504.3					1320.22
1920	100.1	406.3	506.4			6.5		1322.62
1921	100.2		506.5					1322.72
1924							1256.5	1804.22
1926	100.3		506.6			6.8		1804.62
1929	100.7		507.0					1805.02
Total	100.8	406.4	507.2	12.5	22.22	6.8	1256.5	1805.22

*Industrial and Municipal Use

RELATIVE DIVERSION RIGHTS FOR DUNCAN VALLEY
Based on one cubic foot per second for each eighty acres
Revised to January 1970

Year	Sunset	New Model	Valley	Duncan	Black & McCleskey	Colmenero	Sexton	R. Sexton	York	F. E. Ross	York Cattle	J. H. Brown	M. L. Eaton	Laura Short	Albert	Total
1874	6.3															6.3
1881	12.1															12.1
1882	13.2															13.2
1884				.5												13.7
1885	15.5		1.0	2.1									.12	.46		19.2
1886		1.6	2.0	2.5												22.2
1887	16.1			2.6												22.9
1888			7.2	2.8	2.2											30.5
1889		2.7			2.4											31.8
1891	16.5			2.9												32.3
1892	17.7															33.5
1893		3.7														34.5
1894		5.9	8.2													37.7
1895	19.7	6.8	9.6													42.0
1896	20.8	9.0			2.8											45.7
1897	21.0	17.9	13.7			.9										59.8
1898	24.3	24.0	14.4													69.9
1900	27.4	24.8	14.6	3.1		1.1		.8								75.2
1901						1.2	.6									75.9
1902						1.6	1.3		1.0							78.0
1903						2.4			1.3							79.1
1904	28.4		15.1			3.0										81.2
1905		25.5	15.2			3.4										82.4

Note: For blank spaces use first figure above

Plate 33-1

RELATIVE DIVERSIONS RIGHTS FOR DUNCAN VALLEY
Based on one cubic foot per second for each eighty acres
Revised to January 1970

Year	Sunset	New Model	Valley	Duncan	Black & McCleskey	Colmenero	Sexton	R. Sexton	York	F. E. Ross	York Cattle	J. H. Brown	M. L. Eaton	Laura Short	Albert	Total
1906		25.7							2.1							83.4
1907				3.2		5.0										85.1
1908		26.0	16.6	3.5	3.0	5.3			3.6				.18			89.1
1909								1.4		.14	.57					90.4
1910		26.2					1.4		3.7			.32				91.2
1911	29.0							1.7								92.1
1912				3.6												92.2
1913		26.3														92.3
1914	29.2				3.3										.11	92.9
1915			17.0			5.4										93.4
1916			17.1								.62					93.5
1917	33.5	26.5	17.2			5.5			3.8				.33			98.5
1918	34.3		17.3					1.8	3.9							99.6
1919							1.7									99.9
1920				3.7	3.4											100.1
1921		26.6														100.2
1926	34.4															100.3
1929		27.0														100.7
Totals	34.4	27.0	17.3	3.7	3.4	5.5	1.7	1.8	3.9	.14	.62	.32	.33	.46	.11	100.8

Note: For blank spaces use first figure above

Plate 33-2

RELATIVE DIVERSION RIGHTS FOR SAFFORD VALLEY
Based on one cubic foot per second for each eighty acres
Revised to January 1970

Year	Brown	Tidwell	Fourness	San Jose	Monte-zuma	Union Sun-flower	Graham	Smith-ville	Dodge-Nevada	Curtis	Ft. Thomas	Colvin-Jones	T. D. Burton	Total
1872					.4									.4
1873					1.0									1.0
1874		.5		1.2	2.8	3.4								7.9
1875		1.0		3.8	6.5	4.8	.4							16.5
1876		1.2		7.5	8.0	6.5	.6				.5			24.3
1877	.2	1.9		10.0	12.5	8.0	.8		.9		1.1			35.4
1878	.3	2.2		11.2	15.0	12.1	.9		1.0					43.8
1879	.5	2.5		13.8	18.8	12.2	1.1		1.2					51.2
1880	.6	3.0		15.0	19.9	14.5	1.8	4.4	1.9					62.2
1881	.8	3.2		16.2	20.2	17.4	2.1	8.1	3.2	.4				72.7
1882	1.0	3.8		18.8	21.4	18.7	3.3	11.2	4.4	1.4	1.6			85.6
1883	1.3	3.9		20.0	22.0	26.2	5.0	13.1	5.5	4.8	3.0			104.8
1884	1.9	4.0		22.5	22.5	31.9	5.1	14.1	6.6	12.9	4.6			126.1
1885	2.4			23.8	23.0	39.2	6.5	15.2	7.8	15.5				142.0
1886	2.8				25.0	47.6	9.9	16.2	8.9	16.8	5.8			160.8
1887	4.1	4.2				51.8	10.9	17.1	10.0	18.2				170.9
1888	4.3			25.0	25.5	53.9	11.6	18.8	11.1	18.8	6.0			179.2
1889	4.4			25.6	26.2	59.9	13.4		12.2	20.0	6.6			191.3
1890	5.1				27.0	66.0	14.5	20.0	13.4	20.4				202.8
1891	7.1	4.4	2.6	26.7	27.8	68.6	17.4		14.0					215.6
1892	7.7				28.5	70.2	19.4	20.3	14.4					221.2
1893	8.6	4.5		27.9	29.5	70.6	20.0				9.2			228.0
1894		4.6			30.0	71.6	20.4	20.6						230.3
1895				28.6	30.5	72.2	22.9				9.7	.4		235.5
1896	9.8	5.0		29.8	32.0	72.3	24.0	21.4	14.7		13.6			246.0
1897				29.9	33.3	72.4	24.6	21.7			14.9			249.7
1898					34.4		25.4				16.3			253.0
1899		5.6		30.4	36.8	72.5	26.3		14.9	20.5	18.8			260.3

Note: For blank spaces use first figure above

Plate 34-1

RELATIVE DIVERSION RIGHTS FOR SAFFORD VALLEY
Based on one cubic foot per second for each eighty acres
Revised to January 1970

Year	Brown	Tidwell	Fourness	San Jose	Monte-zuma	Union Sun-flower	Graham	Smith-ville	Dodge-Nevada	Curtis	Ft. Thomas	Colvin-Jones	T. D. Burton	Total
1900				31.7	40.7		27.1	22.4			22.5			270.7
1901	10.2	5.7		33.0	41.8	72.6	27.6		15.6		25.3			277.7
1902				34.2	45.5	72.8	28.1							283.3
1903				35.5	46.6	72.9	29.7				26.5			288.6
1904				38.9	47.8	73.1	32.0	22.8	16.5	20.6	26.6			297.2
1904				40.4	59.9	74.1	34.5	23.7		23.3	27.2			318.5
1905				41.5		74.3	35.7		16.7	23.4	27.3			321.4
1906				42.4	60.0	75.1	37.5				28.2			325.9
1907				47.7	60.1	88.3	38.5	27.3		23.8	28.7	.9		350.5
1908				47.8			40.9				30.1			354.4
1909				48.7		88.4	41.4	28.5			31.0	1.4		358.5
1910				49.3	60.5	89.1	41.9	29.5	18.6	24.0	32.8	1.6		365.8
1911				49.9							33.2			366.8
1912						90.6	45.7				33.5	1.8		372.6
1913						91.1	46.0		25.0		34.0	2.1		380.6
1914	10.4					91.3	47.2		25.7		34.9			383.8
1915				50.4	60.6	91.4	48.6	29.7	28.5		36.4			390.4
1916					60.7	91.6	48.8	29.8	29.4		36.8			392.3
1917	10.6				61.0	92.2	50.3		30.2	24.5	37.5		.5	397.4
1918						92.3	51.3	30.1	30.3		37.8			399.2
1919	10.9			50.8	61.8	92.5	52.3	30.6	31.3	24.6	38.7			404.4
1920					61.9	92.6	52.4		32.2		39.4			406.3
Totals	10.9	5.7	2.6	50.8	61.9	92.6	52.4	30.6	32.2	24.6	39.4	2.1	.5	406.4

Note: For blank spaces use first figure above

Plate 34-2

GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, N. M.
Mean daily discharge, cubic feet per second
U.S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	107	158	108	130	75	45	7.8	21	146	40	53	81
2	108	154	104	155	70	42	7.3	18	465	36	57	79
3	106	150	108	179	67	38	6.5	16	247	32	54	77
4	107	147	108	188	57	38	6.8	16	197	28	47	91
5	107	145	110	185	60	36	6.0	12	161	26	46	99
6	107	142	110	185	72	36	5.8	21	143	25	46	109
7	104	141	110	190	81	31	5.3	35	147	24	45	100
8	106	135	109	185	78	30	6.5	43	188	25	49	99
9	106	135	110	190	77	30	7.3	50	332	24	52	99
10	106	131	108	188	75	30	8.1	45	422	24	47	99
11	108	129	107	178	67	30	11	41	508	24	46	97
12	109	129	106	179	68	20	12	32	535	23	44	104
13	109	129	108	173	61	20	13	20	264	23	45	104
14	111	128	109	168	60	20	12	47	198	23	49	99
15	112	128	109	157	55	20	15	37	146	22	48	92
16	113	124	104	148	55	20	17	30	145	22	55	94
17	127	125	103	143	53	20	103	30	137	25	59	92
18	128	125	106	134	53	20	49	40	127	26	146	87
19	128	125	100	142	50	20	43	30	115	23	129	86
20	129	124	100	123	50	20	98	30	102	23	106	84
21	128	127	99	127	50	20	66	20	94	32	90	85
22	128	124	97	123	50	20	70	20	88	52	88	82
23	128	122	104	106	50	10	70	20	78	51	85	82
24	129	119	119	97	50	10	55	20	62	56	78	84
25	133	116	121	99	50	10	50	28	50	53	81	92
26	134	111	116	91	50	10	45	20	50	50	85	96
27	148	109	117	77	50	10	40	28	50	52	76	96
28	153	109	104	77	50	10	35	30	40	52	76	85
29	173		102	75	45	10	30	20	40	52	72	88
30	176		110	73	45	10	30	315	40	53	80	86
31	179		100		45		25	352		53		85
Total	3847	3641	3326	4265	1819	686	956.4	1487	5317	1074	2034	2833
Ac-ft.	7630	7222	6597	8460	3608	1361	1897	2949	10546	2130	4034	5619

Total for year 62,053 Acre-feet
Drainage area, 3,203 sq. mi., excluding Animas River basin

GILA RIVER NEAR CLIFTON, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100	161	74	46	37	20	15	50	510	20	31	60
2	106	154	75	51	34	20	13	50	676	21	33	60
3	109	145	77	70	33	20	13	36	204	21	32	60
4	108	141	84	84	33	19	12	35	173	21	36	59
5	111	138	87	91	33	19	12	58	384	21	35	74
6	112	135	88	95	31	20	12	43	105	20	30	76
7	111	133	91	95	32	20	12	46	186	20	27	82
8	112	130	91	97	38	20	12	60	153	20	32	82
9	110	127	91	98	37	20	13	49	134	20	48	81
10	109	123	91	95	32	19	13	46	184	20	41	82
11	109	116	88	96	30	19	15	45	468	20	36	79
12	109	114	87	89	26	20	20	45	640	19	35	77
13	109	112	88	85	26	20	30	43	204	20	46	83
14	113	109	87	86	28	20	20	88	128	20	83	87
15	116	105	89	87	29	20	150	74	100	20	66	85
16	113	104	88	78	26	20	20	66	90	20	61	80
17	114	103	83	70	26	21	140	63	85	21	60	81
18	121	98	79	66	25	20	100	46	70	22	61	79
19	125	93	78	60	25	21	50	23	53	22	57	71
20	126	89	76	54	25	20	40	25	35	25	53	65
21	126	85	69	50	24	19	30	23	28	72	49	60
22	125	87	66	49	24	19	130	21	26	35	50	62
23	123	86	65	56	24	19	40	21	27	31	53	61
24	119	87	61	59	23	18	30	19	36	41	54	58
25	122	85	70	53	23	18	60	20	36	39	60	66
26	124	80	74	48	22	16	130	25	29	34	60	70
27	124	78	68	48	22	15	30	25	26	30	60	73
28	130	75	61	41	22	15	50	27	25	30	60	76
29	147		54	38	21	15	70	98	20	29	60	72
30	158		48	39	21	15	50	86	20	28	60	71
31	164		46		21		20	522		29		72
Total	3705	3093	2374	2074	853	567	1352	1878	4855	811	1469	2244
Ac-ft.	7349	6135	4709	4114	1692	1125	2682	3725	9630	1609	2914	4451

Total for year 50,135 Acre-feet
Drainage area 4,010 square miles

SAN FRANCISCO RIVER AT CLIFTON, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	78	120	93	166	90	35	18	55	302	44	59	69
2	78	117	105	178	86	37	21	53	196	44	59	70
3	80	113	105	188	83	43	21	52	156	41	59	78
4	81	109	105	191	81	49	24	42	178	44	57	99
5	81	105	105	203	95	48	25	53	133	47	60	138
6	83	101	105	197	131	43	22	52	124	47	60	138
7	81	103	103	194	122	37	24	52	133	47	60	124
8	76	107	99	197	107	45	24	145	107	47	60	99
9	75	103	93	186	97	47	25	57	399	45	62	95
10	76	103	99	168	88	45	29	48	267	44	60	88
11	78	101	103	166	88	44	29	44	173	44	59	86
12	81	101	105	166	88	43	90	41	162	44	57	83
13	81	103	99	168	92	43	34	74	285	35	56	81
14	86	103	97	156	90	39	28	94	275	34	57	78
15	99	95	97	158	92	34	27	72	196	34	62	78
16	113	95	97	156	88	29	70	66	197	39	68	78
17	107	99	90	153	83	36	84	59	163	35	218	81
18	99	99	85	146	81	41	74	56	136	35	150	80
19	92	99	81	136	75	39	75	50	113	36	111	80
20	88	103	80	129	70	35	56	48	101	43	100	80
21	85	103	80	122	62	33	48	43	93	251	100	78
22	95	99	95	115	55	33	43	39	81	326	90	78
23	122	97	122	115	56	32	53	39	72	117	90	78
24	113	101	126	103	45	33	120	39	60	95	80	75
25	107	105	120	105	56	33	120	43	60	85	80	75
26	113	95	113	99	63	34	97	50	56	75	80	76
27	163	81	126	101	60	33	117	49	49	70	80	81
28	146	70	109	101	57	30	186	62	47	85	80	85
29	140		115	97	53	25	78	75	36	85	70	107
30	129		138	93	53	16	56	134	30	69	70	100
31	124		138		38		49	294		63		100
Total	3050	2830	3228	4453	2425	1114	1767	2080	4380	2150	2354	2736
Ac-ft.	6050	5613	6403	8832	4810	2210	3505	4126	8688	4264	4669	5427

Total for year 64,597 Acre-feet
Drainage area 2,766 square miles

GILA RIVER AT HEAD OF SAFFORD VALLEY NEAR SOLOMON, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	191	331	154	209	109	48	21	110	714	54	101	155
2	190	314	165	245	109	44	28	161	874	58	103	158
3	190	308	167	282	100	47	28	79	583	55	105	161
4	186	294	168	334	101	58	28	74	399	54	103	184
5	176	282	179	360	103	63	33	64	545	57	103	229
6	176	276	193	366	147	60	35	64	363	61	103	265
7	172	265	197	360	165	47	23	83	245	62	98	245
8	163	265	202	366	146	44	28	154	402	62	91	237
9	155	263	202	372	129	51	35	143	495	64	93	229
10	151	251	202	353	122	56	42	83	590	58	95	225
11	147	240	190	346	109	54	63	65	676	58	110	205
12	151	223	184	346	104	54	110	59	1020	60	105	198
13	151	227	189	334	106	54	69	66	579	60	100	188
14	163	227	180	322	109	54	44	150	520	56	98	198
15	186	211	180	290	115	51	319	158	385	54	99	188
16	225	203	171	290	115	42	94	102	385	55	118	180
17	214	203	163	267	112	40	288	92	346	56	151	191
18	214	203	141	245	112	44	199	88	302	56	316	188
19	205	194	122	229	104	49	128	80	250	56	217	180
20	195	189	115	209	94	51	99	72	170	61	237	177
21	190	189	111	190	86	47	83	61	132	144	194	160
22	181	192	121	185	83	44	221	55	125	501	174	155
23	205	192	167	176	82	44	103	57	105	230	167	154
24	220	199	199	185	82	42	82	56	102	156	161	150
25	209	199	194	163	82	40	186	58	102	144	152	159
26	205	200	218	151	76	40	271	93	100	141	150	168
27	287	200	218	147	65	38	150	111	100	128	145	174
28	376	200	213	137	65	35	262	91	100	118	140	181
29	362		204	129	63	35	130	185	95	108	135	208
30	356		204	126	60	35	130	188	95	93	130	210
31	360		204		60		130	518		83		210
Total	6552	6540	5517	7714	3115	1411	3462	3420	10899	3003	4094	5910
Ac-ft.	12996	12972	10943	15300	6179	2799	6867	6783	21618	5956	8120	11722

Total for year 122,255 Acre-feet
Drainage area 7,896 square miles

SAN SIMON RIVER NEAR SOLOMON, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969 Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1								12	10			
2								67				
3												
4												
5												
6									8.7			
7									1.0			
8								34				
9								30				
10							288	20				
11							94	10				
12								.2				
13								54	265			
14								214	70			
15								54				
16								10				
17							120					
18												
19												
20												
21												
22												
23												
24												
25												
26							42					
27							20					
28												
29												
30												
31								42				
Total							564	547.2	354.7			
Ac-ft.							1119	1085	704			

Total for year 2,908 Acre-feet
Drainage area 2,192

GILA RIVER AT CALVA, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	170	311	69	44	32	17	7.4	12	77	14	48	119
2	170	287	63	42	32	16	7.4	10	387	14	48	100
3	161	287	58	48	30	17	7.0	18	391	13	45	94
4	170	280	63	45	31	15	6.1	15	180	13	50	68
5	190	246	63	51	37	14	5.4	15	98	13	45	79
6	181	254	61	58	37	14	4.8	14	185	13	48	94
7	173	250	68	58	37	13	4.6	9.6	122	13	45	143
8	209	222	61	54	37	12	4.1	7.7	69	14	45	148
9	196	226	66	52	45	12	4.1	7.4	98	13	40	143
10	170	232	60	55	45	11	4.1	7.7	76	12	45	148
11	178	222	61	52	45	11	3.9	6.7	206	12	36	135
12	178	206	60	54	43	10	22	6.4	307	14	36	140
13	187	206	61	52	36	10	11	10	665	14	39	145
14	193	196	60	48	30	10	7.4	55	608	12	36	143
15	173	184	58	45	30	9.1	6.7	97	323	12	33	151
16	181	176	58	44	26	9.6	7.7	52	193	11	40	130
17	209	161	57	44	26	9.6	12	50	178	11	93	110
18	236	164	54	40	26	10	13	36	112	11	61	96
19	261	151	51	42	25	9.1	142	19	72	11	104	85
20	265	143	48	43	24	8.6	103	9.1	55	11	108	68
21	243	128	51	42	22	9.1	17	8.0	40	14	106	61
22	232	121	52	39	25	9.1	12	9.1	32	15	114	64
23	226	114	52	38	25	8.0	11	9.6	29	107	106	60
24	216	133	50	36	23	8.0	10	9.6	24	90	112	52
25	229	119	44	39	21	7.4	11	15	23	55	112	47
26	250	106	48	36	20	7.4	11	33	24	38	100	44
27	257	88	47	34	19	8.6	11	17	20	32	100	43
28	272	76	44	34	19	8.6	25	8.0	19	30	98	47
29	323		47	34	21	8.6	14	85	18	37	100	66
30	319		45	34	21	8.0	32	43	17	40	100	66
31	315		44		18		16	10		57		58
Total	6733	5289	1724	1337	908	320.8	553.7	704.9	4648	766	2093	2947
Ac-ft.	13355	10491	3420	2652	1801	636	1098	1398	9219	1519	4151	5845

Total for year 55,585 Acre-feet
Drainage area 11,470 square miles

SAN CARLOS RIVER NEAR PERIDOT, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	34	33	18	15	10	2.0	.4	3.3	9.2	4.0	10	12
2	34	22	17	12	10	1.9	.3	4.6	9.2	4.3	10	13
3	36	18	17	11	11	2.0	.1	3.3	8.5	4.0	10	12
4	36	20	17	10	12	2.0	.6	2.8	6.8	4.0	11	13
5	36	20	18	10	16	2.4	.9	3.1	6.2	4.3	11	15
6	31	20	19	10	15	1.9	.6	2.8	5.5	4.3	11	15
7	29	20	19	10	15	1.9	.4	2.2	5.2	4.3	11	14
8	34	20	19	10	16	1.6	.9	4.0	14	4.6	11	14
9	34	20	18	11	14	1.6	.9	2.6	15	4.6	12	14
10	34	20	19	11	13	1.5	.9	1.9	6.8	4.6	14	14
11	32	16	22	12	12	1.6	1.0	1.2	9.4	4.6	14	14
12	30	14	23	12	12	1.6	.9	1.2	8.1	4.9	13	13
13	29	13	25	12	12	1.3	.9	1.3	12	5.2	12	13
14	29	13	28	11	11	1.2	.8	7.6	8.5	5.2	12	13
15	382	14	29	11	10	1.0	.8	1.0	7.4	5.2	12	13
16	342	14	30	11	9.6	1.0	.9	1.0	7.1	5.5	13	13
17	152	14	30	11	8.8	1.0	.8	.5	6.2	5.5	14	13
18	103	15	28	11	8.5	1.0	7.7	.5	6.2	5.5	14	13
19	80	18	27	11	8.1	1.0	5.0	.3	5.5	6.2	12	12
20	50	19	26	11	7.1	1.0	5.0	.2	5.0	6.5	12	12
21	37	18	26	11	7.1	1.2	3.1	.1	4.6	32	12	13
22	1540	18	26	11	6.8	1.2	4.1	.2	4.6	15	12	13
23	268	20	25	11	6.5	1.0	4.1	.3	4.6	12	12	13
24	130	20	24	11	6.2	.9	4.3	.6	4.6	11	12	13
25	83	23	23	11	5.8	.9	3.1	1.8	4.3	10	12	13
26	235	26	21	11	4.9	.9	3.1	9.7	4.3	10	12	14
27	182	21	20	11	5.0	.9	3.3	47	4.0	10	12	14
28	128	19	20	11	5.0	.8	3.3	11	4.0	10	12	14
29	87		20	11	4.0	.5	3.3	14	3.8	10	12	16
30	64		15	10	3.0	.5	3.1	10	3.8	10	12	16
31	58		15		2.0		2.9	9.6		10		16
Total	4379	528	684	332	287.4	39.3	67.5	149.7	204.4	237.3	359	420
Ac-ft.	8686	1047	1357	659	570	78	134	297	405	471	712	833

Total for year 15,249 Acre-feet
Drainage area 1,027 square miles

GILA RIVER BELOW COOLIDGE DAM, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.4	106	412	705	652	652	720	705	671	200	99	58
2	5.4	122	414	686	678	685	720	693	671	206	102	60
3	5.4	124	429	667	705	701	705	693	660	206	102	61
4	5.4	153	459	678	701	701	720	635	638	200	97	61
5	5.4	173	493	656	701	701	720	693	649	200	95	63
6	5.4	206	509	656	701	701	720	710	645	206	95	63
7	5.4	225	519	638	701	732	744	716	645	176	95	64
8	5.4	225	584	565	678	744	773	720	645	162	95	66
9	5.4	225	625	570	621	744	781	724	628	158	97	67
10	4.7	282	656	580	621	744	786	724	601	156	100	68
11	2.8	324	678	594	621	744	798	709	594	154	49	118
12	2.5	324	678	574	607	740	823	674	577	154	49	167
13	2.5	327	678	574	570	740	823	663	544	156	49	175
14	2.8	332	678	574	604	761	823	649	483	160	50	175
15	2.5	330	678	574	628	769	823	649	444	165	44	203
16	2.5	330	678	574	628	794	823	649	375	160	44	243
17	2.5	330	678	574	660	807	819	649	321	158	31	251
18	2.5	383	674	557	678	794	793	649	282	158	2.4	280
19	2.5	416	674	548	678	794	819	649	247	158	2.0	303
20	2.5	435	674	548	678	790	823	649	220	158	2.0	303
21	2.4	435	674	548	678	790	819	660	197	158	2.4	303
22	2.4	435	689	544	678	786	804	678	200	158	2.4	303
23	2.4	435	701	548	678	781	823	674	200	158	2.4	306
24	2.4	422	638	590	678	786	802	662	200	158	24	306
25	2.8	403	570	611	678	798	781	674	200	158	50	308
26	2.8	409	567	642	678	794	769	674	200	158	50	308
27	2.8	409	574	652	678	781	773	674	200	158	53	308
28	3.2	409	587	652	678	773	757	663	200	158	57	308
29	3.2		604	652	663	769	724	674	200	128	58	307
30	3.2		605	652	652	752	724	674	200	99	58	123
31	55		674		652		724	674		99		3.2
Total	161.5	8729	18751	18183	20502	22648	24056	20983	12537	5041	1656.6	5732.2
Ac-ft.	320	17314	37192	36065	40665	44922	47714	41619	24867	9999	3286	11370

Total for year 315,333 Acre-feet
Drainage area 12,886 square miles

Plate 42

NATURAL FLOW RELEASED AT COOLIDGE DAM
Based on Provisional Records of U. S. Geological Survey

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		106	87	59	42	19	8	15	86	18	58	58
2		122	80	54	42	18	8	15	396	18	58	60
3		124	75	59	41	19	7	21	400	17	55	61
4		153	80	55	43	17	7	18	187	17	61	61
5		173	81	61	53	16	6	18	104	17	56	63
6		206	80	68	52	16	5	17	190	17	59	63
7		225	87	68	52	15	5	12	127	17	56	64
8		225	80	64	53	14	5	12	83	19	56	66
9		225	84	63	59	14	5	10	113	18	52	67
10		252	79	66	58	12	5	10	83	17	59	68
11		238	83	64	57	13	5	8	215	17	49	118
12		220	83	66	55	12	23	8	315	19	49	153
13		219	86	64	48	11	12	11	544	19	49	158
14		209	88	59	41	11	8	63	483	17	48	156
15		198	87	56	40	10	8	98	330	17	44	164
16		190	88	55	36	11	9	53	200	16	44	143
17		175	87	55	35	11	13	50	184	16	31	123
18		179	82	51	34	11	21	36	118	16		109
19		169	78	53	33	10	147	19	78	17		97
20		162	74	54	31	10	108	9	60	18		80
21		146	77	53	29	10	20	8	45	46		74
22		139	78	50	32	10	16	9	37	30		77
23		134	77	49	32	9	15	10	34	119		73
24		153	74	47	29	9	14	10	29	101	24	65
25		142	67	50	27	8	14	17	27	65	50	60
26		132	69	47	25	8	14	43	28	48	50	58
27		109	67	45	24	10	14	64	24	42	53	57
28		95	64	45	24	9	28	19	23	40	57	61
29			67	45	25	9	17	99	22	47	58	82
30			60	44	24	8	35	53	21	50	58	82
31	55		59		20		19	20		67		
Total	55	4820	2408	1669	1196	360	621	855	4586	1002	1234	2621
Ac-ft.	109	9560	4776	3310	2372	714	1232	1696	9096	1988	2448	5199

Total for year 42,500 Acre-feet

STORED WATER RELEASED AT COOLIDGE DAM
Based on Provisional Records of U. S. Geological Survey

1969 Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			325	646	610	633	712	690	585	182	41	
2			334	632	636	667	712	678	275	188	44	
3			354	608	664	682	698	672	260	189	47	
4			379	623	658	684	713	617	451	183	36	
5			412	595	648	685	714	675	545	183	39	
6			429	588	649	685	715	693	455	189	36	
7			432	570	649	717	739	704	518	159	39	
8			504	501	625	730	768	708	562	143	39	
9			541	507	562	730	776	714	515	140	45	
10		30	577	514	563	732	781	714	518	139	41	
11		86	595	530	564	731	793	701	379	137		
12		104	595	508	552	728	800	666	262	135		14
13		108	592	510	522	729	811	652		137		17
14		123	590	515	563	750	815	586		143	2	19
15		132	591	518	588	759	815	551	114	148		39
16		140	590	519	592	783	814	596	175	144		100
17		155	591	519	625	796	806	599	137	142		128
18		204	592	506	644	783	772	613	164	142		171
19		247	596	495	645	784	672	630	169	141		206
20		273	600	494	647	780	715	640	160	140		223
21		289	597	495	649	780	799	652	152	112		229
22		296	611	494	646	776	788	669	163	128		226
23		301	624	499	646	772	808	664	166	39		233
24		269	564	543	649	777	788	652	171	57		241
25		261	503	561	651	790	767	657	173	93		248
26		277	498	595	653	786	755	631	172	110		250
27		300	507	607	654	771	759	610	176	116		251
28		314	523	607	654	764	729	644	177	118		247
29			537	607	638	760	707	575	178	81		225
30			545	608	628	744	689	621	179	49		41
31			615		632		705	654		32		
Total		3909	16343	16514	19306	22288	23435	20128	7951	4039	409	3108
Ac-ft.		7754	32416	32755	38293	44208	46482	39923	15771	8011	811	6165

Total for year 272,589 Acre-feet

Plate 44

GILA RIVER AT WINKELMAN, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	40	120	419	667	629	629	729	714	649	204	101	62
2	40	150	419	671	629	628	715	697	646	204	100	62
3	40	150	416	674	668	667	707	695	655	204	102	63
4	30	150	449	642	687	669	709	690	625	202	101	70
5	20	180	465	643	695	660	709	645	615	200	98	70
6	20	185	486	640	692	670	706	701	621	198	98	70
7	20	238	490	628	688	673	711	697	619	199	98	69
8	20	238	503	581	685	714	764	706	622	171	98	67
9	18	238	621	540	618	712	761	705	615	164	105	67
10	18	241	635	543	591	715	780	702	589	165	108	67
11	18	307	681	564	590	715	769	702	593	166	75	65
12	18	310	667	553	588	714	801	683	592	159	59	140
13	20	310	660	546	555	715	804	678	504	160	59	174
14	50	316	656	546	548	712	801	664	488	159	59	178
15	300	316	656	548	588	747	800	638	431	166	59	177
16	100	316	652	550	588	741	799	636	424	169	140	210
17	50	319	652	549	587	783	801	633	322	161	587	241
18	50	322	652	545	628	783	820	633	290	159	100	243
19	50	416	652	503	630	783	799	633	250	159	58	276
20	50	426	652	507	632	786	796	632	225	157	24	275
21	80	429	652	512	633	781	794	624	215	175	20	275
22	100	436	652	512	634	776	890	653	212	167	20	275
23	80	446	681	512	633	779	861	658	210	164	19	275
24	60	442	670	523	632	769	806	658	208	164	19	275
25	50	413	572	584	633	785	777	650	208	161	24	275
26	80	413	517	593	634	792	761	656	206	159	49	272
27	70	413	534	630	634	787	761	657	206	159	52	272
28	60	413	534	629	638	770	758	653	204	156	53	272
29	50		558	629	641	753	723	653	204	157	58	276
30	50		568	630	629	753	710	654	204	112	61	268
31	50		579		629		714	653		101		61
Total	1702	8653	18000	17394	19486	21961	23836	20653	12452	5201	2604	5442
Ac-ft.	3376	17163	35702	34500	38650	43559	47278	40965	24698	10316	5165	10794

Total for year 312,166 Acre-feet
Drainage area 13,268 sq. mi., of which 382 sq. mi. below Coolidge Dam

GILA RIVER AT KELVIN, ARIZONA
Mean daily discharge, cubic feet per second
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	101	93	450	674	605	638	734	920	734	191	114	72
2	78	139	446	678	610	634	722	885	694	189	115	71
3	80	153	446	678	626	646	714	860	694	195	114	72
4	79	158	446	658	650	658	710	860	694	195	118	81
5	74	170	454	658	666	654	698	831	706	193	113	81
6	77	178	478	658	674	662	698	955	674	193	114	81
7	84	193	506	658	674	662	734	870	670	197	113	79
8	80	202	494	658	674	694	738	1030	694	176	113	79
9	80	231	562	600	638	694	738	988	678	158	125	81
10	78	231	594	570	618	690	738	970	654	153	127	81
11	79	268	679	580	614	686	738	825	646	157	130	80
12	76	309	694	570	602	686	780	790	892	149	110	100
13	73	322	670	570	586	686	780	775	626	149	93	146
14	128	334	658	570	582	682	780	830	558	151	93	144
15	1250	334	662	570	590	686	780	880	534	153	91	146
16	590	338	666	570	602	686	830	730	466	157	109	164
17	318	338	670	570	602	706	810	722	410	148	563	186
18	223	341	666	560	618	722	830	710	344	149	167	182
19	189	392	666	550	630	730	820	710	312	148	79	214
20	245	443	670	550	642	742	835	710	262	151	62	231
21	270	478	674	550	642	738	825	710	228	166	57	236
22	1440	478	678	540	642	738	830	730	218	168	53	236
23	371	506	694	540	646	738	1050	730	214	158	51	231
24	294	514	698	540	646	738	925	734	209	158	49	244
25	276	482	658	540	646	738	910	726	206	155	48	236
26	331	458	614	560	654	746	875	730	204	155	57	231
27	189	450	606	580	654	734	960	878	197	151	65	241
28	141	450	610	600	654	734	1010	824	195	151	64	241
29	117		618	600	650	730	915	961	193	149	68	257
30	104		622	600	642	730	1090	722	191	134	71	241
31	97		626		634		945	762		117		153
Total	7612	8983	18675	17800	19613	21008	25542	25358	13997	5014	3246	4918
Ac-ft.	15098	17818	37041	35306	38902	41669	50662	50297	27763	9945	6438	9755

Total for year 340,694 Acre-feet
Drainage area 18,011 sq. mi., of which 5,125 sq. mi. is below Coolidge Dam

PLATE SHOWING OPERATION OF SAN CARLOS RESERVOIR
Based on Provisional Records - Quantities in Acre-feet

	Stored Water			Inflow				Outflow			Bank	
1969	Beginning	End	+ or -	Calva	Peridot	Rain	Total	Releases	Evaporation	Total	Storage	Releases
January	465,000	485,600	+20,600	13,355	8,686	1,574	23,615	109	1,438	1,547	1,468	
February	485,600	478,800	-6,800	10,491	1,047	651	12,189	17,314	1,997	19,311		322
March	478,800	446,200	-32,600	3,420	1,357	765	5,542	37,192	3,613	40,805		2,663
April	446,200	411,400	-34,800	2,652	659	55	3,366	36,065	5,833	41,898		3,732
May	411,400	372,200	-39,200	1,801	570	825	3,196	40,665	7,037	47,702		5,306
June	372,200	322,600	-49,600	636	78		714	44,922	8,473	53,395		3,081
July	322,600	272,600	-50,000	1,098	134	464	1,696	47,714	6,948	54,662		2,966
August	272,600	229,500	-43,100	1,398	297	1,543	3,238	41,619	4,752	46,371		33
September	229,500	210,500	-19,000	9,219	405	861	10,485	24,867	3,446	28,313	1,172	
October	210,500	199,500	-11,000	1,519	471	327	2,317	9,999	2,644	12,643	674	
November	199,500	200,200	+700	4,151	712	1,388	6,251	3,259	1,384	4,643	908	
December	200,200	195,600	-4,600	5,845	833	468	7,146	11,363	897	12,260		514
Totals			-269,400	55,585	15,249	8,921	79,755	315,088	48,462	363,550		14,395

Plate 47

SAN CARLOS RESERVOIR, AVAILABLE STORED WATER & MASS DIAGRAM OF STORAGE FACTORS, 1969

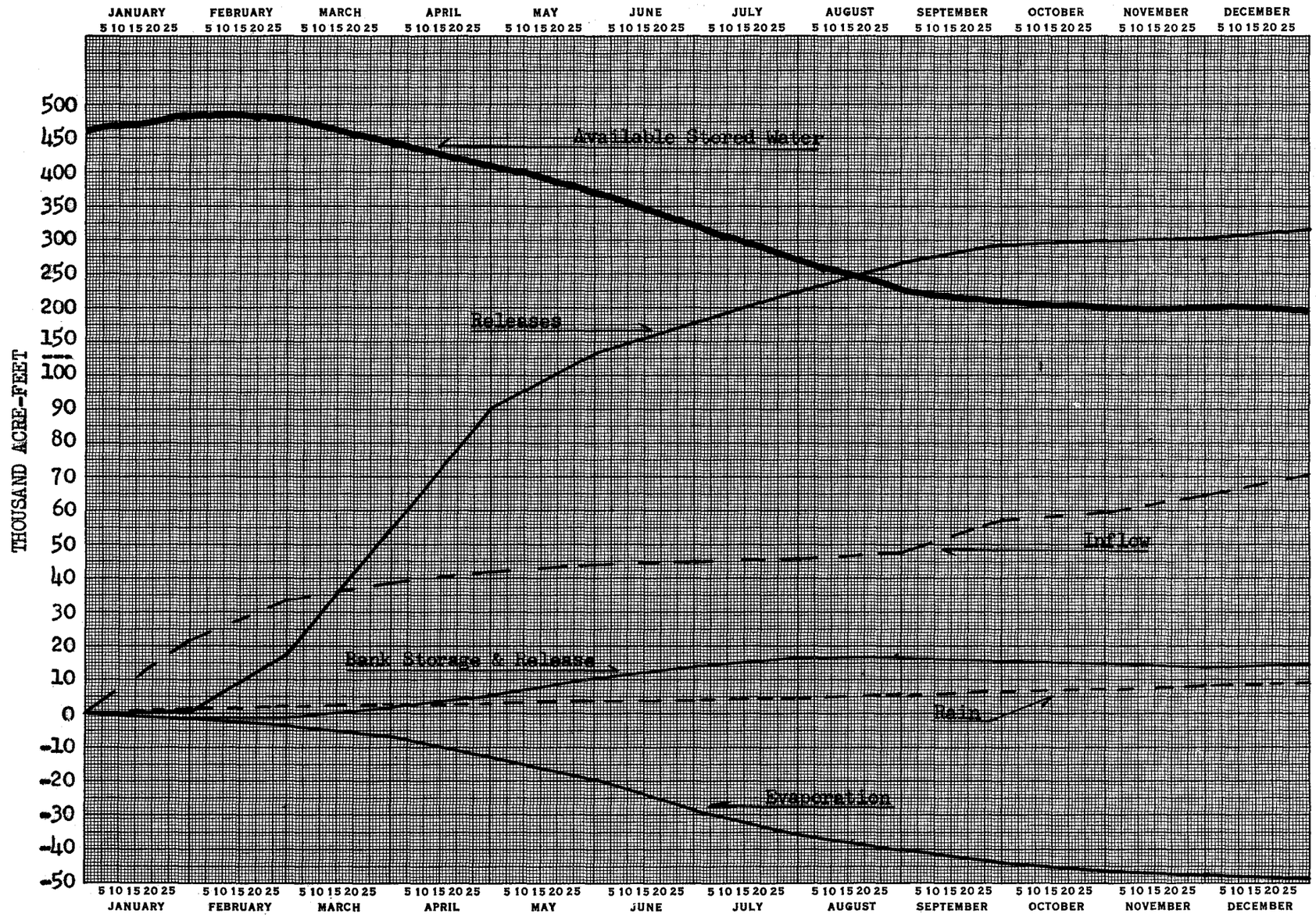

Plate 48

WATER SURFACE ELEVATIONS, SAN CARLOS RESERVOIR AT COOLIDGE DAM, ARIZONA
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2476.74	2478.50	2477.83	2474.90	2471.72	2467.93	2462.85	2456.99	2451.42	2448.82	2447.29	2447.45
2	2476.77	2478.53	2477.77	2474.78	2471.60	2467.77	2462.68	2456.82	2451.31	2448.74	2447.26	2447.46
3	2476.81	2478.54	2477.72	2474.66	2471.45	2467.62	2462.50	2456.64	2451.20	2448.65	2447.22	2447.48
4	2476.83	2478.57	2477.63	2474.57	2471.36	2467.50	2462.32	2456.47	2451.02	2448.56	2447.20	2447.49
5	2476.86	2478.59	2477.56	2474.45	2471.28	2467.35	2462.14	2456.29	2450.87	2448.48	2447.18	2447.51
6	2476.90	2478.59	2477.47	2474.33	2471.17	2467.19	2461.93	2456.11	2450.73	2448.41	2447.16	2447.52
7	2476.93	2478.60	2477.41	2474.20	2471.07	2467.03	2461.77	2455.93	2450.56	2448.35	2447.14	2447.54
8	2476.97	2478.59	2477.32	2474.11	2470.94	2466.88	2461.58	2455.73	2450.40	2448.31	2447.12	2447.57
9	2477.01	2478.59	2477.23	2474.02	2470.84	2466.69	2461.38	2455.54	2450.23	2448.24	2447.13	2447.59
10	2477.07	2478.58	2477.16	2473.92	2470.74	2466.51	2461.21	2455.34	2450.08	2448.18	2447.13	2447.62
11	2477.08	2478.57	2477.06	2473.83	2470.63	2466.37	2461.02	2455.13	2450.00	2448.09	2447.19	2447.61
12	2477.11	2478.55	2476.95	2473.74	2470.52	2466.21	2460.82	2454.96	2449.92	2448.02	2447.19	2447.61
13	2477.15	2478.53	2476.86	2473.65	2470.41	2466.06	2460.64	2454.88	2449.88	2447.97	2447.18	2447.60
14	2477.24	2478.50	2476.75	2473.55	2470.30	2465.90	2460.42	2454.72	2449.87	2447.90	2447.18	2447.59
15	2477.32	2478.48	2476.65	2473.43	2470.15	2465.73	2460.23	2454.56	2449.85	2447.84	2447.19	2447.57
16	2477.39	2478.45	2476.55	2473.33	2470.05	2465.54	2460.02	2454.38	2449.80	2447.79	2447.27	2447.55
17	2477.45	2478.42	2476.44	2473.23	2469.93	2465.36	2459.82	2454.19	2449.74	2447.74	2447.30	2447.52
18	2477.50	2478.38	2476.34	2473.11	2469.79	2465.19	2459.62	2454.01	2449.68	2447.66	2447.31	2447.46
19	2477.55	2478.35	2476.23	2473.03	2469.65	2465.02	2459.46	2453.82	2449.63	2447.60	2447.32	2447.40
20	2477.59	2478.33	2476.13	2472.94	2469.53	2464.85	2459.31	2453.64	2449.55	2447.56	2447.34	2447.34
21	2477.65	2478.25	2476.02	2472.86	2469.40	2464.64	2459.11	2453.46	2449.48	2447.65	2447.34	2447.28
22	2477.88	2478.20	2475.89	2472.76	2469.28	2464.42	2458.90	2453.26	2449.42	2447.62	2447.36	2447.20
23	2477.97	2478.15	2475.79	2472.66	2469.14	2464.24	2458.70	2453.05	2449.37	2447.59	2447.39	2447.14
24	2478.03	2478.10	2475.68	2472.54	2469.01	2464.06	2458.50	2452.88	2449.30	2447.57	2447.42	2447.07
25	2478.10	2478.06	2475.60	2472.43	2468.88	2463.87	2458.30	2452.71	2449.23	2447.49	2447.43	2447.00
26	2478.18	2478.01	2475.51	2472.30	2468.76	2463.69	2458.07	2452.52	2449.17	2447.50	2447.44	2446.93
27	2478.24	2477.96	2475.42	2472.20	2468.61	2463.52	2457.89	2452.36	2449.11	2447.45	2447.50	2446.87
28	2478.29	2477.92	2475.32	2472.08	2468.48	2463.34	2457.71	2452.17	2449.04	2447.41	2447.45	2446.81
29	2478.35		2475.28	2471.96	2468.36	2463.15	2457.53	2452.01	2448.97	2447.37	2447.44	2446.75
30	2478.41		2475.14	2471.84	2468.20	2462.99	2457.35	2451.82	2448.95	2447.35	2447.44	2446.74
31	2478.52		2475.03		2468.07		2457.20	2451.63		2447.34		2446.76

TABLE SHOWING COMPUTED WATER SURFACE AREAS, SAN CARLOS RESERVOIR

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11272	11494	11419	11081	10713	10180	9301	8105	7316	6973	6713	6730
2	11276	11492	11408	11068	10698	10159	9273	8067	7290	6953	6704	6732
3	11279	11496	11400	11055	10681	10134	9238	8038	7277	6940	6699	6733
4	11284	11497	11394	11042	10662	10110	9201	8007	7264	6926	6692	6737
5	11287	11500	11384	11032	10649	10091	9163	7978	7243	6912	6689	6738
6	11290	11503	11375	11019	10638	10067	9124	7948	7226	6900	6686	6742
7	11295	11503	11363	11005	10624	10041	9079	7920	7210	6889	6682	6743
8	11299	11504	11356	10991	10610	10015	9043	7891	7192	6879	6679	6746
9	11303	11503	11345	10981	10592	9990	9000	7860	7173	6873	6675	6751
10	11308	11503	11335	10971	10578	9958	8954	7831	7153	6861	6677	6754
11	11315	11502	11326	10961	10564	9927	8916	7801	7133	6852	6677	6759
12	11317	11500	11314	10951	10548	9904	8873	7769	7123	6837	6687	6758
13	11320	11498	11301	10941	10533	9877	8829	7745	7113	6825	6687	6758
14	11325	11496	11290	10933	10517	9851	8790	7733	7107	6817	6686	6756
15	11336	11492	11277	10921	10502	9824	8743	7711	7106	6806	6686	6754
16	11345	11489	11265	10907	10481	9794	8703	7688	7103	6796	6687	6751
17	11354	11485	11253	10896	10467	9761	8658	7663	7096	6788	6701	6748
18	11361	11481	11240	10884	10450	9730	8616	7637	7088	6780	6706	6743
19	11367	11477	11228	10870	10431	9700	8575	7612	7079	6766	6708	6733
20	11373	11473	11216	10861	10411	9671	8542	7588	7072	6756	6709	6723
21	11379	11471	11204	10850	10394	9642	8512	7563	7060	6750	6713	6713
22	11386	11460	11191	10841	10376	9605	8471	7540	7050	6764	6713	6703
23	11414	11454	11176	10829	10359	9567	8429	7514	7042	6759	6716	6689
24	11425	11448	11165	10817	10340	9535	8389	7487	7034	6754	6721	6679
25	11433	11442	11153	10802	10321	9503	8350	7467	7024	6751	6726	6667
26	11442	11437	11144	10789	10302	9469	8311	7445	7014	6738	6728	6656
27	11452	11430	11134	10772	10284	9435	8266	7422	7006	6740	6730	6644
28	11459	11424	11124	10759	10262	9404	8232	7403	6996	6732	6740	6634
29	11466		11113	10744	10243	9370	8199	7380	6986	6725	6732	6625
30	11473		11109	10729	10225	9332	8165	7361	6976	6718	6730	6615
31	11480		11093		10201		8133	7338		6714		6613

SAN CARLOS RESERVOIR AT COOLIDGE DAM, ARIZONA. AVAILABLE STORED WATER IN ACRE-FEET
U. S. Geological Survey Provisional Records, Subject to Revision

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	465300	485400	477700	444700	410200	370800	321300	270900	227900	209600	199200	200300
2	465700	485800	477000	443400	408900	369200	319700	269500	227100	209000	199000	200300
3	466100	485900	476500	442000	407300	367700	318100	268100	226300	208400	198700	200500
4	466300	486200	475400	441100	406300	366500	316400	266700	225100	207800	198600	200500
5	466700	486400	474600	439700	405500	365000	314800	265200	224000	207300	198400	200700
6	467100	486400	473600	438400	404300	363400	312900	263800	223000	206800	198300	200700
7	467500	486600	472900	437000	403300	361800	311500	262400	221800	206400	198200	200900
8	467900	486400	471900	436000	401900	360300	309800	260800	220600	206100	198000	201100
9	468400	486400	470900	435000	400900	358400	308000	259200	219400	205600	198100	201200
10	469100	486300	470100	433900	399800	356600	306500	257700	218400	205200	198100	201400
11	469200	486200	468900	432900	398600	355200	304800	256000	217800	204600	198500	201300
12	469500	486000	467700	432000	397500	353600	303100	254700	217200	204100	198500	201300
13	470000	485800	465700	431000	396300	352100	301500	254000	217000	203800	198400	201300
14	471000	485400	464400	429900	395200	350500	299600	252800	216900	203300	198400	201200
15	471900	485200	463600	428600	393600	348800	297900	251500	216800	202900	198500	201100
16	472700	484800	462200	427500	392600	347000	296100	250100	216400	202600	199000	200900
17	473400	484500	461900	426400	391300	345200	294400	248700	216000	202200	199200	200700
18	474000	484000	460800	425100	389900	343600	292700	247300	215600	201700	199300	200300
19	474500	483700	459600	424200	388400	341900	291400	245800	215200	201300	199400	199900
20	475000	483500	458400	423300	387200	340200	290100	244400	214700	201000	199500	199500
21	475700	482500	457200	422400	385900	338200	288400	243100	214200	201600	199500	199100
22	478300	482000	455700	421300	384600	336100	286700	241500	213800	201400	199700	198600
23	479300	481400	454600	420200	383200	334400	285000	240000	213400	201200	199900	198200
24	480000	480800	453400	418900	381800	332600	283300	238700	212900	201100	200100	197700
25	480800	480400	452500	417800	380500	330800	281700	237400	212400	200500	200100	197200
26	481700	479800	451500	416400	379300	329100	279800	236000	212000	200600	200200	196800
27	482400	479200	450500	415300	377700	327500	278300	234800	211600	200300	200600	196400
28	483000	478800	449400	414000	376400	325800	276800	233400	211100	200000	200300	196000
29	483700		448900	412700	375200	324100	275300	232200	210600	199700	200200	195600
30	484400		447400	411400	373600	322600	273800	230800	210500	199600	200200	195500
31	485600		446200		372200		272600	229500		199500		195600

TABLE SHOWING COMPUTED EVAPORATION IN ACRE-FEET, SAN CARLOS RESERVOIR
Compiled from U. S. I. I. S. records

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	83	40	157	249	343	264	187	154	122	98	42
2	32	82	89	161	241	263	267	188	156	156	67	27
3	34	66	132	175	244	361	321	94	92	160	73	36
4	49	92	146	224	235	359	254	184	186	170	54	9
5	91	64	99	162	162	250	308	179	180	81	41	10
6	20	75	112	204	76	308	299	210	188	101	52	37
7	44	151	121	236	69	298	333	207	139	91	50	7
8	38	50	71	206	76	307	258	183	13	66	39	50
9	73	66	83	136	174	286	284	209	141	103	35	40
10	49	40	73	159	224	313	164	213	125	164	60	11
11	25	54	94	159	194	266	236	184	131	149	7	65
12	44	83	62	129	230	233	174	134		101	16	26
13	36	54	82	161	207	251	157		49	95	36	35
14	32	38	76	138	199	280	236		97	72	35	23
15	26	73	78	278	257	241	277	124	80	87	33	19
16	26	85	87	200	270	283	253	195	63	91	26	21
17	113	82	146	170	200	258	198	238	111	82	49	17
18	8	72	146	172	259	260	154	200	113	110	54	25
19	39	90	130	235	242	243	151	184	100	94	54	31
20	46	17	130	200	245	267	140	162	106	82	76	34
21	39	74	108	177	332	307	156	163	138		66	48
22	59	37	185	214	231	277	212	147	126	41	27	27
23	114	77	81	262	235	243	174	74	113	21	38	38
24	68	74	141	230	272	260	204	191	107	32	31	21
25	4	27	167	244	252	320	207	140	141	51	42	48
26	36	113	147	261	304	351	222	133	127	45	49	27
27	20	71	142	204	190	243	186	146	100	52	40	40
28	72	107	156	184	282	252	183	140	105	67	75	45
29	56		170	193	268	257	192	146	136	55	23	5
30	59		154	202	287	293	223	69	129	82	38	13
31	40		165		331		261	128		21		20
Total	1438	1997	3613	5833	7037	8473	6948	4752	3446	2644	1384	897

Total for year 48,462 Acre-feet

Plate 52

TABLE SHOWING COMPUTED ACRE-FEET OF RAINFALL, SAN CARLOS RESERVOIR
Compiled from U. S. I. I. S. records

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2								14				
3								182				
4												
5					621							62
6					89							67
7		182	208		106			46				28
8												
9												
10			9								100	
11			444	55							345	23
12							140	13	766		161	
13								142				
14			66		9			458				
15	889		38						95			
16												
17											167	
18											609	
19		115					14					
20		96					85	266				
21		48								219		
22	494						162			85		
23		210					28			23		
24								206				
25	19							50				
26	172						35					
27												
28												
29								166				6
30											6	282
31												
Total	1574	651	765	55	825		464	1543	861	327	1388	468

Total for year 8,921 Acre-feet

Plate 53

TABLE SHOWING RAINFALL IN INCHES AT COOLIDGE DAM
Compiled from U. S. I. I. S. records
Elevations approximately 2,550 feet

1969

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1								.02				
2								.27				
3												
4												.11
5					.70							.12
6					.10			.07				.05
7		.19	.22		.12							
8												
9											.18	
10			.01								.62	.04
11			.47	.06							.29	
12							.19	.02	1.29			
13								.22				
14			.07		.01			.71				
15	.94		.04						.16			
16							T				.30	
17						T					1.09	
18												
19		.12					.02					
20		.10					.12	.42				
21		.05								.39		
22	.52						.23			.15		
23		.22					.04			.04		
24								.33				
25	.02							.08				
26	.18						.05					
27												
28												.01
29								.27			.01	.51
30												
31												
Total	1.66	.68	.81	.06	.93	T	.65	2.41	1.45	.58	2.49	.84

Note: T - Trace

Total for year 12.56 inches

TABLE SHOWING MONTHLY RAINFALL AT COOLIDGE DAM
1940-1969

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1940	.79	2.56	.32	.79	.55	1.25	.13	.37	1.40	1.01	2.98	5.60	17.75
1941	2.49	1.95	4.85	2.01	.98	.13	3.79	1.13	3.61	.87	1.95	2.07	25.83
1942	1.38	1.05	.50	1.19			1.21	1.35	1.37	1.32		1.74	11.11
1943	2.59	.37	2.39			.15	.08	1.51	1.67	1.06	.01	1.23	11.06
1944	.92	1.66	1.17	.66	.72		1.23	3.61	2.69	.89	2.38	1.05	16.98
1945	2.42	.36	1.81	.09			2.24	2.20	.09	.58		1.19	10.98
1946	2.29	.07	.53	.16			1.67	1.80	3.27	.64	1.11	.98	12.52
1947	.19	.39	.09		.70	.01	.80	3.56	.98	1.85	.49	.83	9.89
1948	.06	2.23	.67	.02			.46	1.79	.87	1.14		3.19	11.15
1949	2.56	.27	.22	1.11	.14	.34	1.31	.75	1.88	.97	.39	1.75	11.69
1950	.96	.98	.72		.05	1.37	2.77	.69	.49	.07	.09		8.19
1951	2.03	.51	1.54	2.29	.08		.88	3.48	.90	1.50	1.40	3.27	17.88
1952	4.00	.16	2.72	1.27	.04	.74	2.15	1.24	.12		1.83	1.19	15.46
1953	.41	.53	2.45	.34		.40	2.59	1.07		.08	.26	.12	8.25
1954	1.60	.57	6.02		.42	.12	3.61	5.85	.51	.01		.16	18.87
1955	2.68	.38	.01			1.30	3.30	5.99	.21	1.16	.21	1.28	16.52
1956	2.20	.82		.47		.11	1.51	1.36		.60		.09	7.16
1957	3.90	.60	1.16	.30	.74	.42	1.65	1.64	.07	4.28	1.01	.66	16.43
1958		3.26	4.18	1.12	.02	.67	1.38	1.38	1.91	2.25	1.03	.11	17.31
1959	.42	1.25		.19		.31	2.98	3.20		3.76	.67	3.42	16.20
1960	2.66	1.16	.28	.03	.76		.92	.51	1.19	2.83	.36	.97	11.67
1961	1.21	.08	.83				1.14	2.79	.81	1.07	1.13	3.04	12.10
1962	1.71	.82	.98			.27	1.75	.34	2.23	.91	.91	1.88	11.80
1963	1.87	3.02	.70	.48			.27	4.27	.56	.77	1.09	.19	13.22
1964	.27		.96	.22			4.10	2.75	2.57	.58	1.13	1.26	13.84
1965	2.34	2.18	1.12	1.13		.53	1.35	1.67	.71	.15	3.25	8.53	22.96
1966	1.11	1.99	.37	T		.73	2.21	5.51	3.32	.88	.63	1.14	17.89
1967	.43	.21	1.31	.51	.66	.14	4.68	1.74	1.01	.81	1.05	6.44	18.99
1968	1.05	2.36	1.69	.21	.22	T	.31	2.50	.01	.24	1.78	2.64	13.01
1969	1.66	.68	.81	.06	.93	T	.65	2.41	1.45	.58	2.49	.84	12.56

Note: T - Trace

Plate 55

TABLE SHOWING DAILY RAINFALL AT SAFFORD, ARIZONA
Compiled from U. S. Weather Bureau Records
Station located at Safford Municipal Building
Elevation 2,900 feet

1969 Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1							.05		.45			
2							.05					
3												
4												.15
5			.02		.18				.23			.05
6					.05							.25
7		.04	.18									
8									.33			
9												.12
10			.03								.07	.13
11			.02	.01			.25				.24	
12									.51			
13		.06					.05		.02			
14			.02					.18	.21			
15	.31											
16											.13	
17							.07				.11	
18							.03					
19		.04					.20					
20							1.00			.33		
21										.43		
22	.03							.15				
23		.03										
24												
25								.03				
26												
27												
28											.13	.49
29								.96				
30												
31												
Total	.34	.17	.27	.01	.23		1.70	1.32	1.75	.76	.68	1.19

Total for year 8.42

TABLE SHOWING DAILY RAINFALL NEAR SAFFORD, ARIZONA
Compiled from U. S. Weather Bureau Records
Station located at Safford Experimental Farm approximately 2 miles SE Safford
Elevation 2,954 feet

1969 Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1							T	T	.03			
2							.04	.03	.14			
3												.05
4												.18
5			.04		.13			T	.45			.04
6			T		.07							.27
7		.05	.23		T			T	T			T
8					T			.08	T			T
9			T						.05		.02	.12
10			.04				T				.04	.14
11			.03	.03			.37				.32	.01
12				T			T	T	.44		T	
13		.05			T			.03	T			
14		T	.03		T			.15	.15			
15	.09		.02		T		.03					
16	.01						.02				.10	
17							.17				.08	
18											T	
19		.06					.02					
20		T					1.05			.01		
21	T	T					.25	T		.74	T	
22	T							T		.01	.01	
23		.04	T					.07				
24								.07				
25	T							T				
26	.01						T	.14				
27												
28							.03	T			.17	.03
29							.01	.85			T	.44
30								.02			.01	.01
31												
Total	.11	.20	.39	.03	.20		1.99	1.44	1.26	.76	.75	1.29

Note: T - Trace

Total for year 8.42

Plate 57

TABLE SHOWING MONTHLY RAINFALL NEAR SAFFORD, ARIZONA
1940-1969

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1940	.72	1.54	.18	.25	.51	1.70	.69	1.94	1.47	.11	2.03	2.10	13.24
1941	1.41	.91	1.01	.74	.57		1.86	1.25	3.08	.21	.69	1.48	13.21
1942	.18	.54	.15	.33		.09	1.58	.70	.92	.20		.39	5.08
1943	.88	.10	1.51		.05	.73	1.09	1.45	1.25	.29		.91	8.26
1944	.34	.14	.58	.08	.15	T	2.00	.89	4.38	1.06	.78	.42	10.82
1945	.93	.05	.95	T			2.39	1.73		.59		.35	6.99
1946	1.88		.09	.02		.15	2.16	1.31	1.31	.28	.66	.27	8.13
1947	.13	.10			.03	T	.67	1.03	.70	.66	.31	.19	3.82
1948	.07	1.29	.39				.48	1.17	.33	.42	.19	1.13	5.17
1949	1.84	.02	.45	.75		.19	1.37	.68	1.12	.10	.15	.82	7.49
1950	.20	.38	.05	.06		.30	1.99	T	.65	.01			3.64
1951	.71	.47	1.09	.82	.01		.98	2.60	.33	1.37	.20	.68	9.26
1952	.50	.12	.90	.49	.01	.93	1.02	1.30	.17		.75	.50	6.69
1953	.08	.13	1.33	.26	.19	.15	2.87	.23			.10	.24	5.58
1954	.52	.25	1.76		.16	.07	2.27	2.22	.27	T		.08	7.60
1955	1.30	.16	.04	.02	T	.26	2.43	1.07	.02	.60	T	.29	6.19
1956	.45	.54		.13	.04	.01	1.18	.99	.03	.40		.40	4.17
1957	1.30	.44	.96	.17	.17	.29	3.00	1.90		1.46	.54	.33	10.56
1958	.08	1.49	2.23	.88	.02	.58	1.79	.80	1.13	.53	.49	.03	10.05
1959	.02	.28		.09		.31	3.19	2.81		1.49	.49	.91	9.59
1960	1.01	.83	.13	T	.22	.04	1.10	.38	.35	1.32	.02	.80	6.20
1961	1.83	.04	.21		T	.12	1.39	2.07	1.05	1.56	1.87	1.03	11.17
1962	1.05	.03	.44	T	T	.31	1.91	.18	3.53	1.00	.27	.78	9.50
1963	.28	1.05	.45	.06			1.73	4.43	.62	.88	.43	.08	10.01
1964	.12	.03	.32	.57		.06	1.01	2.46	2.31	.17	.60	.96	8.61
1965	1.52	.40	.12	.11	.02	.48	3.64	2.32	.77	T	.52	4.72	14.62
1966	.58	1.22	.18	T	T	1.13	1.83	1.87	4.22	.06	.15	.21	11.45
1967	.09	.09	.11	.20	.26	.08	1.79	2.77	1.17	.29	.31	2.36	9.52
1968	.31	.64	.69	.08		.23	2.15	3.17	.14	.22	.53	.94	9.10
1969	.11	.20	.39	.03	.20		1.99	1.44	1.26	.76	.75	1.29	8.42

1940-1948 Buena Vista Hotel station at Safford, Arizona
1949-1969 Safford Experimental Farm near Safford, Arizona

Note: T - Trace

TABLE SHOWING DAILY RAINFALL AT DUNCAN, ARIZONA
Compiled from U. S. Weather Bureau Records
Station located at Stanley Coon ranch, Stanley Coon, observer
Elevation 3,640 feet

1969 Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1							T					
2									.06			
3												.15
4								.43				.21
5		.02	.01		.33				.33			.43
6					.12							
7		.02	.04		.01			.29	.27			
8								.02				
9							.02					.15
10									.23		.05	
11			.03				.69	.15				
12								.05				
13		.07			.01			.26				
14	.29	.04	.10									
15	.16		.01			.05	.04					
16			.01								.14	
17							.87				.11	
18							.01			T		
19		.04										
20							.05		.03			
21		.01					.33			.55		
22	.05						.02					
23												
24								.21				
25	.03							.05				
26								.13				
27								.07		.03		.25
28								.03			.29	
29												.12
30												.01
31							T	.25				
Total	.53	.20	.20		.47	.05	2.03	1.94	.92	.58	.59	1.32

Note: T - Trace

Total for year 8.83 inches

Plate 59

TABLE SHOWING DAILY RAINFALL AT CASA GRANDE NATIONAL MONUMENT 1¼ MI. NW OF COOLIDGE, ARIZONA
NATIONAL PARK SERVICE OBSERVER
Elevation 1,419 feet

1969 Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3									.15			.05
4												.22
5					.21				.46			
6												
7		.11										
8												
9			T								.42	.10
10			.35								.34	.05
11			.12	.03								
12							T	.04	.08			
13		.10							.20		T	
14	.48	T						.07	T			
15	.20								1.02			
16							.02				.15	
17							.07				.09	
18							.06					
19	T	.09										
20		.02					T	T				
21	T									.12		
22		.13	.29							.38		
23		.23					.03					
24												
25	T						.02					
26	.02											
27												
28	T										T	.20
29								.26			.12	.31
30												T
31												
Total	.70	.68	.76	.03	.21		.20	.37	1.91	.50	1.12	.93

Note: T - Trace

Total for year 7.41 inches

Plate 60

TABLE SHOWING MONTHLY RAINFALL AT CASA GRANDE NATIONAL MONUMENT
1940-1969

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1940	.07	.88		.16	.07	T	.86	.26	.74	.86	1.29	3.31	8.50
1941	2.33	1.90	2.60	2.03	.71	T	1.46	.90	3.74	.56	1.02	1.96	19.21
1942	.89	.64	.34	1.30			1.23	.82	.63	.25		.86	6.96
1943	.53	.11	.61		T	T	.20	1.26	1.77	.26		1.12	5.86
1944	.33	1.85	.63	.60	.88	T	.80	1.03	1.69	.50	1.54	.29	10.14
1945	.68	.14	.87	.01			2.22	2.17	T	1.04		.90	8.03
1946	1.23	.28	.04	.17			2.32	1.79	4.36	.20	1.04	.52	11.95
1947	.07	.48			.06		.01	2.00	.01	1.05	.79	.99	5.46
1948		1.28	.20			.05	.19	.32	.11	.84		1.39	4.38
1949	1.61	.28	.38	.17	T	.54	1.57	.07	1.06	.33	.35	1.18	7.54
1950	.46	1.37	.29			.03	1.59	2.03	.63		.01		6.41
1951	2.70	.11	.21	.87	.13		.85	2.52	.32	.97	1.34	.55	10.57
1952	.76	.16	1.56	1.06		.18	.39	.49	.64		3.56	.63	9.43
1953		.23	.80	.05			1.98	.54			.10		3.70
1954	.92	.33	2.64		.38	.20	1.10	.63	2.94	.06		.12	9.32
1955	2.47	T			.02	.83	3.64	2.98	.18			.01	10.13
1956	.90	.90		.02	T	.13	.99	.15	T	.15		.30	3.54
1957	1.44	.15	1.02	.02	.82	.30	1.16	.75		3.97	T	.49	10.12
1958		1.08	1.93	.98	T	.06	.53	1.13	1.37	1.13	.77		8.98
1959	.09	.64		.17			.65	1.96	.12	1.87	.29	3.26	9.05
1960	1.82	.58		.06	.24		.15	.71		.55	T	.36	4.47
1961	.48	.24	.60		T		1.23	2.75	.15	.27	.18	1.60	7.50
1962	.89	.54	.57		.03	.10	.29	.02	.44	.13	.30	.54	3.85
1963	1.24	2.02	.66	.33			T	2.18	.23	1.00	.98	.09	8.73
1964	.08	T	.88	.11		.02	2.18	1.58	.95	1.44	.76	.86	8.86
1965	.59	1.78	.58	.99	.10	.16	.48	.24	.42	.38	.60	5.38	11.70
1966	.75	1.79	.30			.03	.48	.21	2.20	.33	.50	.47	7.06
1967	.36	T	.86	.39	.12	.07	1.95	1.17	.41	.82	1.03	4.50	11.68
1968	.23	.66	1.47	.03	T		1.72	.67	T	.53	1.72	1.43	8.46
1969	.70	.68	.76	.03	.21		.20	.37	1.91	.50	1.12	.93	7.41

Note: T - Trace

Plate 61