1 of 1

Modified Streamflows 1990 Level of Irrigation

Missouri, Colorado, Peace and Slave River Basins
1928-1989

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MASTER

MODIFIED STREAMFLOWS
1990 LEVEL OF DEVELOPMENT

MISSOURI
COLORADO
PEACE
AND
SLAVE RIVER BASINS

prepared for
BONNEVILLE POWER ADMINISTRATION
CONTRACT NO. DE-AC79-92BP21985

A. G. CROOK COMPANY

June 1993

Data Source
Missouri River Basin Projects

Canyon Ferry and Yellowtail Projects--Modified streamflow data was obtained from the Billings office of the Bureau of Reclamation. Modified streamflows based on a 1987 level of development were available for the period October 1928 through July 1987 and are enclosed in this report. Contact person was Rick DeVore at telephone number (406) 657-6637. Office address is:

U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region
P.O. Box 36900
Billings, Montana 59107-6900

Main Stem Missouri River Projects--Modified streamflow data was obtained from the Missouri River Division of the Corps of Engineers. Modified streamflows based on a 1990 level of development were available for the period July 1928 through September 1989 period. Reservoir evaporation is based on the surface area of minimum pool of the multiple purpose operating zone. Fort Randall and Big Bend projects are close together and Fort Randall flows are also utilized for Big Bend. Contact person was George Patenode at telephone number (402) 221-7390. Office address is:

U.S. Army Corps of Engineers
Missouri River Division
P.O. Box 103, Downtown Station
Omaha, NE 68101-0103

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CANYON FERRY

River: MISSOURI

Drainage Area: 15904 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 2252.8

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												6228	
1928-29	2537	3244	3990	4147	3392	3953	3137	4015	5140	8680	10790	3494	4711
1929-30	1361	3027	3974	3575	3603	3535	3204	3701	6810	5992	4421	1937	3759
1930-31	2122	2816	3372	3379	2745	2902	3352	3574	3836	3888	3375	774	2988
1931-32	800	1518	<u>1917</u>	<u>1863</u>	<u>1818</u>	2460	2635	3709	4273	6163	8945	2423	3203
1932-33	1218	1945	2443	3281	3005	2774	2874	3722	4382	5754	9699	951	3478
1933-34	1418	1854	2248	3438	3083	3137	2783	3302	3340	<u>1945</u>	<u>2226</u>	345	<u>2418</u>
1934-35	<u>72</u>	<u>1076</u>	2177	2231	2115	2115	2687	3198	3454	3983	6094	1958	2587
1935-36	553	1715	2154	2454	3039	3231	<u>1829</u>	3439	4434	7379	5035	<u>233</u>	2959
1936-37	1556	2140	2408	2922	2844	<u>1961</u>	2134	3844	3434	3712	3281	1106	2598
1937-38	524	1728	2289	2375	2805	2673	2230	<u>2990</u>	3407	7559	10900	6685	3851
1938-39	1803	2123	3348	3987	3353	2885	2730	4419	5858	7832	5092	1198	3704
1939-40	1013	2221	3081	2775	2924	2876	3073	3702	4428	6239	4895	463	3136
1940-41	1313	2379	3538	2998	3512	3291	3092	3320	3342	3689	5408	442	3021
1941-42	940	4088	5221	4544	3966	2748	3254	4062	8973	10810	14010	2322	5400
1942-43	1219	2723	3784	4298	3813	2824	3742	5091	9577	10550	18470	5652	5931
1943-44	2527	2868	3493	4248	3580	3338	3492	3615	4157	5244	14230	5758	4701
1944-45	1548	2890	3655	3940	2948	3525	3528	3489	3582	5790	9372	2052	3851
1945-46	1647	2656	3880	4097	3245	3283	3280	3785	6210	9070	6960	1846	4161
1946-47	948	4171	5130	4712	4151	3408	3699	4431	6931	13870	15280	4516	5936
1947-48	1855	4095	5281	4766	4437	3876	3760	4135	7230	15240	<u>21210</u>	5150	6741
1948-49	2587	2927	4252	4499	3613	3115	3384	4849	7412	11300	7973	1151	4737
1949-50	878	3064	4171	3994	3172	2728	3708	4128	5223	6045	12670	5028	4558
1950-51	2509	3347	4834	4578	4278	3119	3773	4128	6112	12000	8770	2859	5011
1951-52	3002	3680	4163	4103	3159	2881	3518	3605	8052	18820	11710	4337	5750
1952-53	2455	2796	3111	3918	3584	3883	3631	3689	4665	4850	15170	3924	4626
1953-54	2072	3387	4590	5194	3707	3642	4533	3964	4271	4972	6289	3337	4153
1954-55	1925	2839	4143	4658	3299	3052	2896	3171	4090	5702	8334	5045	4096
1955-56	1330	2437	3527	4281	4037	3771	3113	5294	7218	12870	11000	3121	5164
1956-57	1675	2740	3980	5300	3511	2514	3485	3982	4468	9510	13100	3980	4847
1957-58	1200	2975	4878	5329	4057	3429	3951	3904	5004	9110	8687	3644	4678
1958-59	1566	2663	4410	4830	3989	3231	3231	4153	4823	5735	12550	4127	4603
1959-60	1119	2698	6795	<u>8047</u>	<u>7746</u>	3808	4201	<u>5964</u>	7454	7728	6731	644	5239
1960-61	1462	2360	3250	3981	3517	3226	3748	3270	<u>2616</u>	2997	4389	483	2931
1961-62	405	3206	5293	5846	3156	2815	3881	4003	6511	7930	11190	3953	4820
1962-63	2398	3475	4871	5300	4096	2881	5291	3789	3992	7922	14920	3836	5212
1963-64	1187	3570	4246	5099	3535	3426	3595	3629	4253	8834	19280	6844	5609
1964-65	2351	3648	4354	5169	3857	4371	4083	4088	7353	11150	18470	9824	6555
1965-66	3873	5387	6772	7080	4410	3953	4160	4299	4774	4128	4075	1055	4488
1966-67	708	2095	4392	5258	3483	3481	3485	3324	3760	9107	20210	6857	5504
1967-68	1577	3349	5030	5435	3819	3789	4796	5224	5218	7260	16500	5315	5592
1968-69	3613	5273	5678	5821	4045	3909	4630	5432	<u>10430</u>	14320	11060	6937	6765
1969-70	2385	3409	5568	5384	4197	3932	4256	4176	4920	11800	18650	7013	6288
1970-71	2315	5077	5662	5744	4289	4267	<u>5477</u>	4135	7059	12550	17230	6985	6720
1971-72	2699	5122	6010	5887	4021	4156	4812	5839	7173	9208	15160	3525	6102
1972-73	2581	4218	6174	6206	3839	3805	4081	4413	4814	6184	6218	1311	4479
1973-74	1324	4265	5267	5841	4234	3894	4234	4541	6902	8743	14680	3367	5594
1974-75	2959	3675	5103	4672	4296	3502	3597	4239	5045	10260	19580	<u>13810</u>	6737
1975-76	5732	4893	<u>6919</u>	6911	6161	4997	4636	5371	9135	<u>18100</u>	15170	5963	<u>7837</u>
1976-77	3919	5554	6844	6255	4567	3554	3966	3654	4836	3455	5181	1800	4459
1977-78	1598	3322	4787	4519	3868	3592	4005	5826	7484	10110	12410	7580	5760
1978-79	2927	4794	5176	4564	3702	3088	3784	5449	6558	10120	8408	2855	5119
1979-80	2272	2579	3195	4154	3506	2769	3834	4003	5867	11480	14240	5421	5268
1980-81	2317	4492	4763	5225	4340	3845	3838	3950	4710	14020	18900	4805	6264
1981-82	2198	2293	4624	4798	4024	3180	4668	4701	6114	12200	19520	10930	6803
1982-83	3263	4816	5847	5885	4567	4717	4493	5167	5779	8346	13240	10160	6360
1983-84	4151	5048	6637	7159	4546	<u>5276</u>	4921	5107	6657	13070	20240	10050	7732
1984-85	<u>5863</u>	<u>6095</u>	6343	6539	4322	4190	3800	4875	7516	7406	4678	1437	5257
1985-86	2306	3533	5301	3660	3727	3743	4304	4894	6189	8208	13310	4073	5263
1986-87	2432	4787	5377	4932	3647	3307	3919	3889	4234	3541	3404	3098	3875
MEAN	2041	3330	4469	4675	3764	3414	3691	4191	5619	8513	11240	4097	4912
MEDIAN	1890	3135	4410	4658	3702	3408	3742	4015	5140	8208	11060	3740	4847

CNF3M9

YELLOW TAIL

River: BIG HORN

Drainage Area: 19626 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 86.6

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1928-29			2512	2179	1852	1514	1479	<u>5880</u>	4112	7535	9338	5273	3467
1929-30	1597	2875	2707	2548	2416	2031	2468	3390	3744	4717	8437	4797	3475
1930-31	<u>6979</u>	<u>5524</u>	3493	3189	2670	2432	2480	2023	1699	3403	6437	1309	3470
1931-32	2135	2047	2459	2133	2246	2319	2395	3307	3656	7021	9703	6792	3853
1932-33	1909	4520	2419	2305	1915	1860	1754	3028	3512	5449	10270	4314	3803
1933-34	3860	2316	2519	2390	2130	2102	1920	<u>1078</u>	1747	1657	2140	1220	2091
1934-35	1558	1923	<u>1398</u>	<u>1148</u>	1046	<u>927</u>	1178	3301	3537	3793	11810	6176	3149
1935-36	1709	2014	1979	1883	1694	1769	1657	2701	3271	4460	8324	3415	2886
1936-37	2823	1903	2345	2264	1852	1654	1659	2974	3520	5176	9708	6930	3574
1937-38	1759	2404	2489	2088	1880	1699	1711	1998	1945	4041	9767	6359	3181
1938-39	1992	2402	2971	2752	2818	2737	2536	2239	2073	3515	6238	2579	2902
1939-40	2572	2221	1933	2728	1577	1163	1149	1281	2012	1959	3417	1743	1978
1940-41	1576	2071	2883	2542	2496	1189	<u>1090</u>	2621	2478	4161	5051	2587	2569
1941-42	4738	4497	4839	<u>4115</u>	<u>3714</u>	2924	3047	3252	4468	6728	7997	3785	4512
1942-43	1520	2474	3137	2875	2685	2946	3451	5223	4784	5340	14280	10990	<u>4975</u>
1943-44	3511	2471	2909	3070	2642	2592	2655	3826	4703	7896	12380	6854	4825
1944-45	1673	2254	2429	2530	2023	2554	2871	3528	3241	4917	9012	7031	3672
1945-46	3073	3762	3405	3101	2680	2584	3026	3005	2703	3893	7812	3428	3535
1946-47	1748	3604	<u>4857</u>	3054	2972	2598	2795	4797	4951	7395	10230	9543	4890
1947-48	3735	2673	3481	3325	2958	2810	3532	3950	3271	3761	8403	2338	3679
1948-49	2221	2653	2816	2811	2891	2811	2811	3639	2869	3912	7240	3380	3302
1949-50	1637	2547	3481	3296	3002	2980	3150	3428	<u>4989</u>	3737	5611	6224	3673
1950-51	2886	3619	4112	3811	3803	3429	3271	3652	4527	4956	8197	7535	4470
1951-52	4823	2964	2779	3283	3291	3200	2965	2724	2616	3172	1716	2769	3030
1952-53	2600	2982	3389	3090	3078	2967	3373	2737	2742	2306	<u>1123</u>	1626	2664
1953-54	2164	2400	2444	2809	2792	2489	1589	1384	1854	3545	3500	3756	2550
1954-55	2034	2032	2011	2327	2411	2537	1945	2589	3523	3619	4624	1951	2632
1955-56	1589	1649	1650	2132	2875	2907	3233	3137	2281	3894	6045	2548	2824
1956-57	1859	2632	3163	3502	2832	2293	2287	2392	1844	4493	12580	11190	4262
1957-58	2354	2750	3645	3643	2997	3631	3719	3018	2051	4312	4586	2224	3240
1958-59	4278	3818	3624	3365	3055	2652	1410	1764	1921	2068	4276	2338	2888
1959-60	1603	1750	2493	2143	2072	1902	1866	2722	1469	<u>1603</u>	2804	<u>1184</u>	1967
1960-61	<u>1434</u>	1617	1730	1200	<u>1031</u>	1073	1356	1193	<u>1089</u>	2395	2802	1657	<u>1548</u>
1961-62	1558	2799	2824	2770	1766	1480	3788	4252	4424	4432	8640	5309	3658
1962-63	3876	3465	3519	2839	2447	1842	2572	2215	2017	3047	13410	5753	3911
1963-64	2239	3135	2803	2732	2659	2680	1829	2366	3762	5657	8442	7767	3843
1964-65	2670	2674	2641	2481	2267	2444	2979	3294	3520	3756	12040	14610	4639
1965-66	4875	4008	4180	3192	3252	2520	2401	2011	1651	2205	2374	1850	2881
1966-67	1613	1947	2185	1980	1824	2000	2430	3206	2345	3356	<u>15570</u>	<u>15990</u>	4544
1967-68	2914	2997	3124	3493	3234	3059	3697	3756	3285	3280	8906	3125	3729
1968-69	3683	3668	3507	3892	3298	2686	3499	3766	3569	3392	5448	4338	3726
1969-70	2060	2511	3185	3196	2489	2276	3352	3226	2661	4511	7949	4766	3510
1970-71	1759	2604	2898	2838	2515	2888	3498	3623	3774	6003	10990	7987	4280
1971-72	2615	3261	4711	3984	2933	3392	<u>4756</u>	4662	4394	4532	9704	4366	4431
1972-73	3813	3362	3808	3527	3011	3054	2874	3324	3305	5437	5652	3172	3699
1973-74	2239	5423	4114	3417	2681	2475	3166	3324	3779	4428	10570	6684	4352
1974-75	3197	2777	3124	2701	2580	2351	2266	2751	3313	6293	9239	11760	4378
1975-76	3649	3142	3488	2713	3223	3281	3748	3868	4559	5395	8847	4193	4171
1976-77	3205	3120	3345	2796	3291	3076	2383	1790	2422	3498	3112	1476	2795
1977-78	1468	<u>1567</u>	1732	1402	1167	1026	1309	2681	4076	<u>8008</u>	8661	10770	3673
1978-79	4296	3698	3779	3207	2844	2647	2356	4042	3967	4907	6020	3473	3776
1979-80	3044	2251	2034	1960	1915	1834	2189	2572	2461	3722	6408	5343	2979
1980-81	3353	3582	2551	2513	2320	2163	2107	2085	1629	4470	8914	3221	3242
1981-82	2298	2167	2636	2434	2406	2006	2606	3049	2174	2463	6855	7003	3177
1982-83	4015	3742	4784	3618	3337	<u>3696</u>	3802	3202	2562	4335	9688	8551	4614
1983-84	3598	3384	3889	3401	1969	2512	2482	3224	3224	6062	8341	5273	3948
1984-85	3748	3838	3546	3542	2844	2563	2379	3257	2622	2932	2453	1667	2952
1985-86	1551	2192	2224	1469	1712	1940	2466	3163	3683	5164	12000	6967	3709
1986-87	3384	3428	2976	2871	2195	2140	2797	2987	2992	3868	4013	2169	2983
MEAN	2683	2851	3022	2783	2508	2392	2568	3042	3074	4339	7629	5057	3504
MEDIAN	2329	2712	2909	2796	2642	2512	2482	3137	3241	4161	8324	4326	3574

YEL3M9

FORT PECK

River: MISSOURI

Drainage Area: 57500 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 1711.5

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												16400	
1928-29	3500	5500	6100	5800	4900	4800	4700	6500	7800	13100	17600	2500	6893
1929-30	800	4300	5200	4700	3300	5100	8100	6700	14000	12000	6400	100	5858
1930-31	300	3100	4900	4800	4900	4200	5800	9200	6100	4400	3800	100	4286
1931-32	100	1900	3100	2500	2500	3400	3000	5000	8700	11300	21800	4100	5597
1932-33	4900	2300	4000	3300	3100	3800	3900	8000	7300	13000	20500	1900	6331
1933-34	2300	2500	3100	5000	2700	5300	8200	8500	11700	10100	12300	300	5961
1934-35	100	<u>100</u>	<u>1700</u>	3400	3100	3400	4300	5100	7300	8200	11600	2600	4226
1935-36	900	2100	3600	2400	2900	3000	3100	10000	7100	11100	7500	<u>100</u>	<u>4488</u>
1936-37	100	200	2400	2500	2600	<u>2800</u>	<u>2700</u>	5600	6300	4400	8500	1800	<u>3319</u>
1937-38	<u>100</u>	900	3200	<u>1700</u>	<u>1900</u>	3100	3700	9800	5400	11800	27300	19700	7381
1938-39	3000	4000	4000	5000	4300	4200	3800	14500	9600	12800	13600	1800	6726
1939-40	800	1700	2900	3100	3200	3300	4500	6600	7000	8600	9000	1400	4331
1940-41	1100	2300	3400	2500	4100	3800	4200	5900	5300	<u>3900</u>	9100	2400	3990
1941-42	1500	4300	6200	5200	5500	4700	5400	10300	13600	17700	33000	6400	9467
1942-43	2700	3500	4900	5500	4700	5400	11400	12800	18600	16500	48300	12100	12130
1943-44	4100	3900	6100	5800	5300	5100	5300	11200	7200	6700	28100	10600	8267
1944-45	3800	3700	5200	5100	4300	6300	6300	8100	6000	8300	20200	4300	6783
1945-46	1300	4100	5300	4400	3800	5900	7500	7400	8200	9800	12900	5400	6312
1946-47	1500	5000	5900	4600	6400	6900	7800	20000	15800	22700	24400	6400	10600
1947-48	2100	5100	8100	6300	6100	6100	6400	8300	14700	25900	<u>52800</u>	18200	13310
1948-49	6100	5300	6400	6500	4000	5400	5300	13900	13000	17000	15000	4400	8536
1949-50	2100	2200	4900	5900	3600	4100	6400	9700	13000	11500	29200	12200	8710
1950-51	6800	6000	7300	6100	6900	6800	6700	13000	15100	21900	23900	10700	10950
1951-52	5200	7500	8800	7800	5400	5700	8800	16000	<u>24500</u>	24900	15800	6500	11400
1952-53	4100	4500	4700	4500	4600	5200	6500	7300	6400	17400	51300	7300	10280
1953-54	3000	3600	4200	4100	4800	4300	8000	6700	8400	10400	13200	4800	6266
1954-55	4600	3000	5200	5400	4900	4300	5900	6100	10600	10300	11900	7700	6653
1955-56	2900	4300	5300	3100	5300	5500	6500	9400	8300	11500	14700	2900	6632
1956-57	4600	4800	5600	5600	5300	5500	7400	11100	8600	8500	17100	4600	7374
1957-58	3700	5800	6400	6900	6400	6700	7100	8700	8300	9300	13200	8200	7551
1958-59	4200	5800	7000	6900	6200	5800	6000	20100	7900	13300	19200	8000	9218
1959-60	4100	4900	6800	10200	<u>13400</u>	5600	7000	13600	11200	13800	10000	1500	8510
1960-61	3700	4900	6200	6300	5300	5700	6600	<u>5000</u>	<u>4300</u>	5100	4800	2000	4978
1961-62	2800	4400	5100	6000	5000	6100	7500	9100	7100	12100	19300	5800	7490
1962-63	3800	5900	6900	5400	4300	5200	11600	7400	5900	7500	19100	5500	7322
1963-64	3500	5300	5700	5200	5700	5900	6400	6000	6600	19000	44800	12500	10520
1964-65	6300	5500	6900	6600	7100	9400	11400	11900	20200	21700	28300	17000	12680
1965-66	9100	11600	<u>16900</u>	<u>13300</u>	8000	7700	8000	13900	10500	9700	9100	4900	10150
1966-67	4000	4600	4900	5300	6900	8000	10600	13800	9900	13500	37900	14300	11110
1967-68	5900	8200	7100	7300	6200	9200	11400	14500	11200	12800	20800	8500	10230
1968-69	7700	7300	9400	9000	6500	8700	9500	19200	19200	15000	14300	17400	11950
1969-70	6600	7000	6000	7300	7200	7100	9000	11200	11600	29400	26500	12400	11780
1970-71	7700	8600	8600	7800	7300	9200	<u>16000</u>	15900	14000	22100	17700	9500	12000
1971-72	6400	7200	8200	7100	6200	8400	10100	17200	13000	16700	19800	8800	10750
1972-73	9400	7700	9000	8700	7500	7000	7300	7300	6800	7000	7800	3900	7448
1973-74	3700	3900	5200	5900	7500	8500	8900	9400	9900	15700	22500	11000	9332
1974-75	9500	7500	6900	5800	6400	6600	7500	11200	18000	<u>35700</u>	42500	<u>33500</u>	<u>15970</u>
1975-76	<u>12200</u>	10400	11100	11300	11600	<u>10400</u>	11900	13500	15800	29800	22700	11900	14390
1976-77	8700	8800	8000	7800	7600	6700	9100	7000	6900	6800	4400	1900	6958
1977-78	3000	3300	4600	4400	7100	7500	9000	<u>37200</u>	18500	18600	21100	19000	12820
1978-79	9200	14000	8200	8100	8300	9000	9700	30600	20400	18500	15200	8200	13300
1979-80	7100	6000	5100	6700	5800	6600	7200	8700	9200	9500	24300	11600	8965
1980-81	6400	4100	5900	6500	6600	8400	9100	9500	7900	23900	34600	11200	11170
1981-82	5800	4100	4700	5300	5800	7000	12700	14900	11900	15700	34300	19300	11760
1982-83	6900	5900	7100	6400	8000	8300	9900	9600	8800	12500	12400	14100	9161
1983-84	6800	5400	6800	8500	6100	9900	10600	9600	10200	13300	19300	12800	9928
1984-85	7100	9800	8300	7200	6300	7900	7900	9800	8600	8500	6000	2400	7475
1985-86	3900	4200	8200	7200	8700	9200	13300	14500	9900	16700	14200	7600	9781
1986-87	5900	<u>14500</u>	7400	7100	7400	7000	7400	7500	7300	6400	5000	4500	7269
1987-88	4200	4600	3900	5100	4700	5500	6900	6700	5700	6500	<u>3200</u>	2700	4968
1988-89	1900	2600	3000	3200	3700	5400	5900	14800	9900	12600	10200	4900	6514
1989-90	4300	4600											
MEAN	4334	5163	6020	5875	5659	6180	7605	11180	10530	13840	19430	8008	8631
MEDIAN	4050	4600	5900	5800	5500	5900	7400	9600	9200	12600	17600	6450	8510

PEK3M9

GARRISON

River: MISSOURI

Drainage Area: 181400 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 1389.9

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												55900	
1928-29	13100	13900	14800	13600	10800	9500	8700	32300	27600	37200	66300	24500	22720
1929-30	2800	10000	13800	11600	8300	9600	19000	28200	35100	25700	33800	9700	17210
1930-31	10100	11600	13500	11200	8300	7600	11200	13500	12300	11600	29000	2700	11840
1931-32	2200	3100	7900	5500	5200	6800	6200	13300	28900	32200	70400	25200	17200
1932-33	8300	7600	11100	8300	7100	8700	7900	31400	17700	37000	65600	8600	18290
1933-34	4200	9400	8400	10500	4600	10400	16100	19100	20800	17600	24500	<u>100</u>	12060
1934-35	100	100	<u>1400</u>	6200	4400	<u>5400</u>	9000	<u>11700</u>	17500	15100	52400	27000	12480
1935-36	4300	4400	7300	5800	7500	6100	6600	23500	23700	25600	34800	4200	12800
1936-37	1300	<u>100</u>	6900	6800	6200	5700	<u>5800</u>	13300	17000	13500	44700	20100	11770
1937-38	1600	2500	9100	5200	4800	7500	6700	28900	14900	26100	79000	50900	19810
1938-39	7700	8900	10400	9000	5100	9900	6700	48000	20900	30500	50700	10700	18260
1939-40	2500	4000	9500	8700	7500	5900	8300	12000	20800	22000	36400	8200	12110
1940-41	1000	3300	13400	6700	9700	8100	9000	12400	17700	16300	43500	9700	12540
1941-42	11500	20400	22500	15500	12900	9300	12000	26200	28400	38600	82200	28600	25670
1942-43	7500	7500	11700	12800	8700	10500	25500	41000	66400	35000	109000	57400	32630
1943-44	15200	10600	15300	14000	8900	10100	11300	26200	41600	23200	100800	46100	26870
1944-45	10100	8600	12300	11900	8400	10300	12900	33100	16700	19000	58100	34900	19700
1945-46	9100	11300	13200	9600	8600	12800	13200	25200	18700	23000	46900	26900	18210
1946-47	4700	12300	16800	11500	11700	11700	17100	47400	44700	49100	70400	40200	28150
1947-48	15600	11300	16600	12100	10500	11000	11200	23900	36700	43200	<u>110400</u>	44200	28840
1948-49	12300	7600	12600	11300	<u>3500</u>	9200	9500	33700	40800	32800	48000	18000	19950
1949-50	3400	5700	13600	14300	6200	9100	12300	19100	54100	26500	67700	43100	22880
1950-51	17300	14600	18800	10400	12800	12800	12800	23200	49000	41500	59900	36100	25790
1951-52	21400	20400	19900	15900	7100	11800	17600	23400	<u>105000</u>	56000	52000	25000	31180
1952-53	11500	9600	11500	11700	8300	10100	13500	15600	17200	30200	98000	27300	21980
1953-54	10400	7700	10700	11800	9400	9100	18900	16300	29500	27100	33100	24700	17340
1954-55	13200	9300	9400	11600	9900	7200	11400	14500	37900	30600	39400	23100	18110
1955-56	7600	7000	11400	7400	12200	14000	13300	23100	24200	29500	56300	18900	18720
1956-57	11400	10900	11600	13500	9700	10400	13000	22900	21000	26600	69200	33800	21150
1957-58	10200	13600	15100	15800	12200	12800	13200	18600	19700	22500	40600	20500	17890
1958-59	8200	10300	13400	12300	11200	10700	10200	49800	18400	22200	50200	24300	20150
1959-60	7100	9200	14700	14500	<u>20500</u>	9000	13100	46100	25300	20800	29100	4200	17810
1960-61	4800	6600	9500	9900	6900	9000	10600	12400	<u>8000</u>	<u>7600</u>	24300	3800	<u>9410</u>
1961-62	2900	9600	12500	11900	7200	10100	16200	21900	24500	33400	63500	36200	20790
1962-63	12500	12200	15900	11800	8900	8200	22400	23800	15100	25700	74400	24300	21180
1963-64	7000	11400	12500	10100	8700	10900	10900	12200	17400	36000	91000	45200	22730
1964-65	11800	11500	12500	11300	10500	15600	16900	19600	54500	48100	77100	64400	29490
1965-66	20600	21400	<u>27800</u>	18100	12300	10800	11800	28900	18700	19800	26800	13700	19260
1966-67	5100	7200	8800	9400	10100	10800	15200	32300	32500	33500	95500	59200	26620
1967-68	12000	14500	13900	14300	10400	17000	19000	35500	20400	22200	68400	29700	23060
1968-69	19900	18400	17800	18300	10700	14100	15300	43300	54100	36100	42200	46300	28090
1969-70	11100	10000	11600	14300	11600	10700	16500	21000	26500	58800	74100	36800	25410
1970-71	11300	13800	16400	12500	12200	14400	<u>32500</u>	45900	39200	40600	68700	34800	28440
1971-72	13000	17100	24100	17100	11500	12900	18800	<u>76200</u>	29200	36300	63600	25500	28780
1972-73	19700	16400	19100	<u>20400</u>	12700	13300	14000	22100	17100	28700	39500	13900	19750
1973-74	6500	15300	15500	14300	12900	14700	17500	23100	30400	32900	72300	39200	24510
1974-75	17200	13800	13500	15200	12400	10600	11700	24100	50600	<u>76100</u>	88100	<u>80500</u>	<u>34590</u>
1975-76	<u>25100</u>	17400	18900	18100	17800	<u>17700</u>	25500	38300	31600	54500	64200	33500	30210
1976-77	15500	13200	13800	13000	13200	9700	15200	17300	15100	16900	21200	3000	13900
1977-78	1800	7700	10500	<u>3400</u>	10200	9700	12500	73500	51300	59100	70700	56500	30690
1978-79	20400	<u>26900</u>	16000	11300	14700	11700	15000	55500	72400	40200	40800	21100	28850
1979-80	11000	11400	9700	11000	9400	8500	12200	18200	21800	23100	46800	20400	16920
1980-81	8800	10300	16300	12800	8000	15000	15000	17000	10900	36000	72100	22100	20330
1981-82	6400	3200	10000	12700	9100	8700	21800	33400	37200	31200	71600	53200	24830
1982-83	17500	13500	20800	14500	15400	15400	22900	25200	17900	23300	40700	38900	22170
1983-84	11700	7500	17000	17700	7300	16600	19500	21300	19100	31700	53200	31000	21110
1984-85	13000	13100	17800	15700	7900	13300	12500	24900	18600	17100	19700	5000	14860
1985-86	9900	8300	17500	10500	13500	14700	18500	50600	20600	39600	54800	26600	23800
1986-87	9500	26100	24600	15500	15000	11500	14900	20500	20600	18900	<u>17900</u>	10800	17140
1987-88	7900	9100	7900	10800	6300	8100	10000	16600	11000	18300	19200	4800	10650
1988-89	<u>100</u>	1300	6200	5200	4900	7200	8200	27900	26100	30500	32100	13100	13580
1989-90	5200	6700											
MEAN	9773	10670	13720	11940	9736	10690	14030	27860	29220	30890	56510	27900	21040
MEDIAN	10000	10150	13400	11800	9400	10400	13100	23800	23700	30200	54800	25350	20330

GAR3M9

OAHE

River: MISSOURI

Drainage Area: 243490 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 1072.3

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												83600	
1928-29	13300	14300	14000	14100	8900	9200	10000	50200	35900	40800	71000	25400	25830
1929-30	1200	8300	14000	10600	7100	8400	18700	39200	41500	28900	35600	5200	18160
1930-31	8700	9900	14800	9100	8600	7700	12500	14900	14400	10400	27800	200	11350
1931-32	100	700	6500	4100	5000	6300	7300	19500	36000	35300	80100	19900	18330
1932-33	8000	5800	9700	6400	4400	8600	7300	34300	20100	48400	64600	4900	18400
1933-34	800	7200	7000	9100	4300	9900	13500	22200	20700	14700	22100	100	10900
1934-35	100	100	100	100	<u>100</u>	<u>100</u>	9400	13700	20900	16800	58900	24800	12030
1935-36	1300	2100	6100	3800	6000	6100	6600	29900	27200	23100	31200	<u>100</u>	11940
1936-37	100	100	100	<u>100</u>	3200	5300	<u>5600</u>	16700	21600	12600	55400	22000	11870
1937-38	100	100	5800	2900	4000	7700	7300	34600	16000	26600	83000	50500	19910
1938-39	3400	7300	9100	6100	3200	10500	7000	63200	15100	30800	53000	8000	18120
1939-40	100	1000	8000	7000	7000	6200	8500	<u>12400</u>	24200	21800	35900	5000	11380
1940-41	100	100	11600	4100	9700	8400	9400	14200	23200	16600	61000	8800	13880
1941-42	8000	19500	22800	14600	11400	9500	12100	28000	34000	57200	90400	29000	28030
1942-43	6100	5600	11300	11200	8800	11500	29500	57100	88600	35000	121900	55600	36690
1943-44	13500	9500	14300	14800	6800	10900	12500	26600	69300	26300	<u>122000</u>	44300	30730
1944-45	10500	7900	12000	13800	6400	10600	19500	55700	21500	19700	64600	33800	22990
1945-46	9500	10100	13800	10400	9300	13200	14000	30400	19700	26700	56900	28300	20200
1946-47	2800	12800	18200	11400	12000	11700	18800	57800	53700	50200	87900	36800	31160
1947-48	12200	10000	17000	9700	9400	11100	12000	39000	55600	46700	112000	43500	31460
1948-49	10300	5200	13100	11500	2600	10000	10400	52600	65600	34900	49000	16600	23490
1949-50	1600	4200	13400	15600	6200	8400	11700	28000	115100	40100	70500	39200	29410
1950-51	16600	14300	18800	8100	12800	13900	12900	27000	64600	40700	62800	33800	27200
1951-52	20600	20600	20000	11900	4500	11200	18700	25800	<u>169300</u>	59100	51200	24300	36240
1952-53	9400	7900	10500	9800	7200	11200	14300	24200	20500	35200	117200	24600	24260
1953-54	9800	5900	10100	10800	8100	9100	20800	18400	34100	27700	37300	22000	17770
1954-55	12300	10100	11600	12800	8900	7700	11600	18200	40300	31200	39600	22500	18890
1955-56	5400	6000	10500	6000	11600	14600	13800	34300	29800	30000	56800	18900	19770
1956-57	10400	9700	10700	13300	8200	9600	12200	26000	22500	31100	71800	33700	21590
1957-58	7500	12000	14000	15700	11300	11200	13300	22700	26100	23300	42500	22200	18460
1958-59	5900	8500	13300	11000	10400	11200	10400	56700	21800	22600	50100	22100	20390
1959-60	4700	7900	15100	10900	<u>21500</u>	9100	13400	54000	32700	21200	29800	1000	18450
1960-61	3200	4500	8900	8800	3100	10100	11700	16100	<u>7800</u>	<u>8700</u>	23700	700	<u>8894</u>
1961-62	700	9700	10700	12100	3500	11000	17200	27100	28000	43900	76000	38700	23180
1962-63	12100	11500	15900	10400	6300	8200	22700	28300	16600	26800	78200	22200	21510
1963-64	6100	10600	12100	8300	5000	10900	11400	13500	21100	39900	99900	45100	23600
1964-65	8900	9800	12300	8400	7900	16100	17600	20800	61800	58500	83800	64300	30850
1965-66	19100	18500	<u>28000</u>	17700	12700	8500	13700	54300	24700	19700	27300	13900	21570
1966-67	3400	6700	8100	9400	9200	10300	16600	43000	36300	41100	111900	57800	29460
1967-68	11500	13100	13900	15400	7800	18200	19600	38600	23900	22000	70900	28200	23530
1968-69	18200	18000	18000	18700	10700	14300	17500	51800	71000	37700	43100	51900	30940
1969-70	8700	9000	11400	14400	12300	9300	18000	23000	38800	70300	77000	38100	27520
1970-71	10800	14200	16300	14400	11800	15700	<u>38000</u>	65800	50000	47200	77500	34400	32900
1971-72	11000	16200	25600	17500	10400	13800	20600	104700	32300	50300	69700	25200	33170
1972-73	19100	14500	18900	<u>21300</u>	12000	17400	16800	31800	20400	31200	40900	11800	21350
1973-74	4800	14800	15700	<u>15000</u>	13100	15200	20000	26600	34300	35000	72700	38400	25420
1974-75	14500	12300	13300	14500	13900	8300	13400	27300	67600	<u>89900</u>	92100	<u>78800</u>	<u>37250</u>
1975-76	<u>23500</u>	14600	18400	17300	18300	17000	30200	42500	33600	54600	69800	32400	30990
1976-77	13900	11600	12200	12200	12300	10600	17300	21500	16600	17100	23000	1500	14110
1977-78	100	6300	10100	1300	10100	10800	16200	<u>111200</u>	69600	68500	73900	56200	36340
1978-79	19400	26300	14100	11000	14600	13300	16700	60000	88900	42000	42900	23100	31020
1979-80	9500	11300	8100	10700	9400	6600	12900	22500	23000	21700	47400	16000	16540
1980-81	5200	7700	16500	11300	8300	16700	16800	19600	10700	36300	74000	22100	20400
1981-82	7000	2300	9500	12900	9000	8600	27300	48500	58000	53300	78800	54000	30720
1982-83	18100	12800	24500	16700	16800	14700	25600	35100	21600	27100	41400	38600	24420
1983-84	10400	6000	15200	16400	5700	<u>18400</u>	24300	26200	22600	37600	65300	28800	23020
1984-85	10200	9800	16200	14900	7800	14200	14900	33700	19000	16800	19400	2100	14910
1985-86	7900	6100	16200	9300	13800	17000	22200	74900	36400	54800	58100	26100	28630
1986-87	6800	<u>26600</u>	24400	16600	14200	10400	19100	53700	34300	22400	18800	8500	21300
1987-88	6500	7300	6300	10200	6300	6100	11500	19000	11200	18400	<u>17500</u>	1700	10140
1988-89	<u>100</u>	<u>100</u>	<u>100</u>	2300	2900	6700	10200	33700	30100	32100	31500	10500	13360
1989-90	2800	5500											
MEAN	8192	9394	13080	10980	8789	10800	15490	36430	37900	34570	60990	26800	22720
MEDIAN	8000	9250	13300	11000	8800	10500	13800	29900	29800	31200	61000	24700	21590

OHE3M9

FORT RANDALL

River: MISSOURI

Drainage Area: 249330 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 880

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												63900	
1928-29	13000	15000	13800	14300	7900	9000	10600	55600	39300	41500	72700	25700	26570
1929-30	300	7500	13000	9400	6000	8100	17800	45800	40700	28300	34100	2800	17760
1930-31	8700	9300	14400	8200	5000	7700	15500	15200	15600	11100	25500	1200	11380
1931-32	600	100	2700	3600	4400	5700	7900	22600	36900	38000	82700	15700	18330
1932-33	9400	4800	9100	4700	3000	8600	7600	36500	22300	48600	62500	3200	18390
1933-34	1800	5600	6700	8100	3300	10500	10200	25400	20700	14200	22800	900	10820
1934-35	400	100	100	100	100	100	<u>1200</u>	14000	22700	19600	61000	24300	11960
1935-36	100	300	5300	2700	4400	8200	6500	39600	27700	21500	29500	2200	12170
1936-37	800	100	100	100	100	<u>100</u>	3000	19200	22000	13000	59100	19000	11340
1937-38	100	100	1300	2300	3200	7400	7300	34700	18100	28800	83700	47600	19580
1938-39	1600	7300	8600	5100	2500	10900	6900	71200	9300	31500	53100	5600	17880
1939-40	100	100	5100	6100	6800	5500	8100	<u>12300</u>	26100	21500	33400	3300	10630
1940-41	100	100	7700	3300	8800	8400	9100	15000	23200	15300	61200	7300	13230
1941-42	6200	19700	23400	15100	10900	9000	11200	28000	36500	84000	97300	27200	30740
1942-43	7200	6400	11300	11100	8700	11600	28800	58600	88300	35700	125600	54000	37120
1943-44	12500	9000	13700	15700	5200	11400	12300	28600	73200	29700	<u>130100</u>	46500	32160
1944-45	12800	8300	11700	14400	3500	9500	20500	62600	22500	19500	64200	33000	23520
1945-46	9800	8700	13600	10500	8700	13400	14700	32500	22000	28000	57700	28600	20690
1946-47	3400	13700	19400	12900	9600	11900	19100	61400	56200	48700	94400	32800	31930
1947-48	11100	8500	16700	9900	7700	12200	14000	42900	55400	47200	113100	40300	31510
1948-49	9800	4700	10600	12200	2000	9400	10600	61600	65400	37800	48800	14200	23920
1949-50	400	3700	14200	15500	5900	7200	12300	34600	119000	43300	69700	39100	30320
1950-51	16400	14000	19000	7900	12200	14400	13000	29400	66400	41800	66500	34100	27930
1951-52	20300	21100	21400	13300	4500	12100	20900	32000	<u>192000</u>	60700	52700	24100	<u>39360</u>
1952-53	8800	6300	9800	9300	6100	10700	15200	34300	24300	44300	120000	27800	26350
1953-54	12500	6800	12900	11100	7200	10000	22500	20000	33600	27400	39800	21100	18670
1954-55	12500	9700	11000	12600	8100	7000	11900	24700	41800	31800	42100	21600	19550
1955-56	6600	7400	12600	3400	12300	14700	14000	35100	31000	31300	57700	18500	20370
1956-57	11400	9100	9600	13800	7400	9400	12600	27300	24400	34600	75200	34200	22410
1957-58	6700	11900	13900	16600	10800	10500	13800	25100	29200	23900	42500	22200	18900
1958-59	4100	7500	13700	10800	10100	11500	10500	57700	21900	23600	50000	21300	20280
1959-60	3800	8300	15000	10500	<u>22100</u>	9000	14000	66200	39000	22800	31100	<u>200</u>	20180
1960-61	3500	4100	9700	8400	3000	10800	12600	16900	<u>8400</u>	<u>10600</u>	25100	600	<u>9427</u>
1961-62	100	9100	10400	12700	2900	11500	17600	30500	30700	51700	86500	44700	25670
1962-63	12500	10000	14900	10200	7100	8700	25600	30600	17100	28500	81500	23300	22400
1963-64	5400	9500	12300	7000	8300	13800	12900	13700	24300	42800	103000	45400	24810
1964-65	9000	8700	11500	8600	10700	18500	19800	22300	63200	62300	85800	65200	32130
1965-66	19500	19800	<u>27500</u>	16900	14100	12000	15400	63900	27500	21000	29300	15100	23570
1966-67	5600	7700	9000	9700	11300	11200	18200	45100	37900	43500	122900	58100	31650
1967-68	11600	13800	14500	15800	8500	<u>19700</u>	21900	39800	28000	23400	76700	29000	25150
1968-69	18900	18500	17700	18600	10000	17800	18600	57100	76700	38500	44100	53400	32530
1969-70	8800	8600	11600	14800	12300	11900	19500	25100	44500	71500	77900	37000	28610
1970-71	9800	14400	16200	14200	12600	16800	<u>40700</u>	69400	54000	49300	79700	34000	34140
1971-72	11700	17400	27200	18000	12200	15500	23000	107700	34800	56200	72300	27600	35360
1972-73	21000	15900	20500	<u>22200</u>	14200	19500	19600	34800	21700	32600	41500	12000	22960
1973-74	5300	15600	16200	14200	14400	17100	21700	28600	36200	36100	73300	38300	26360
1974-75	15200	12400	13400	14400	14600	9000	14400	28900	71900	<u>91900</u>	94100	<u>79500</u>	38400
1975-76	<u>24000</u>	14900	19500	17800	19900	17500	31100	43000	34200	54400	69600	32200	31480
1976-77	13400	10100	10700	10800	12900	11900	17700	26100	20800	18100	24100	700	14730
1977-78	100	5700	9900	900	11200	11900	16800	<u>126500</u>	72600	70900	75600	56800	38410
1978-79	20000	<u>28200</u>	14700	11400	15500	14500	17000	63600	89200	43000	44700	23800	32130
1979-80	10400	11100	8200	9700	10200	5700	14800	23400	23700	22000	47500	14400	16680
1980-81	5400	6700	16700	10600	7700	17100	16700	19700	10300	35300	73200	20600	19970
1981-82	6700	400	8200	11700	8300	8600	28700	49100	59800	60100	80100	52300	31110
1982-83	15700	11000	24800	11300	17200	16000	26900	36100	23400	32700	43700	37900	24730
1983-84	3900	4500	14600	15500	6800	19500	27200	28800	26500	38500	69500	26700	23930
1984-85	10200	9500	14800	12800	9100	15600	16400	37200	19400	16000	18800	900	15050
1985-86	7300	3300	13100	6400	15600	17400	24100	82300	44900	60500	61100	24800	30130
1986-87	6500	26900	22400	14600	14400	12300	20000	60900	40400	23900	18600	7500	22360
1987-88	5100	6500	5000	8100	6500	8700	12500	21100	11900	21400	<u>17300</u>	1200	10420
1988-89	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	7000	10700	36300	30100	31900	30300	8700	12950
1989-90	1000	4300											
MEAN	8171	9095	12730	10520	8687	11320	16160	39970	40180	36680	62750	26370	23500
MEDIAN	8000	8550	13000	10800	8300	11200	15200	34600	30700	32700	61200	24550	23520

RAN3M9

GAVINS POINT

River: MISSOURI

Drainage Area: 279480 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 811.1

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												64800	
1928-29	13400	18300	15600	16200	9500	10000	11800	58500	41100	43300	74600	26400	28090
1929-30	0	9200	14800	11400	7300	9300	20600	48100	43400	31500	36100	2100	19410
1930-31	8700	10800	16400	9900	6800	9500	18000	17300	17800	<u>12600</u>	26300	900	12840
1931-32	900	1100	4100	4800	6100	7000	10400	24800	38800	40300	84800	15300	19780
1932-33	9800	5800	10700	6200	4000	10300	9100	38900	24100	50700	62700	3400	19870
1933-34	2590	6500	8000	9700	4600	12300	12000	27500	22400	15000	23900	900	12070
1934-35	500	1700	1600	1800	<u>1300</u>	<u>1300</u>	<u>3600</u>	16100	25200	21500	63000	24100	13440
1935-36	400	1000	6700	4400	5700	7500	8000	43100	29800	23600	30300	1200	13470
1936-37	500	500	<u>1600</u>	<u>1500</u>	1900	1400	4600	20400	23800	14000	59900	19000	12390
1937-38	400	2200	3000	3300	4800	8800	9000	37100	20300	30500	84600	48000	21030
1938-39	1700	8800	10100	6600	4100	12500	8100	73800	11500	32600	54000	5600	19200
1939-40	700	900	7000	7700	8000	6900	9800	<u>15100</u>	28400	22800	35100	2900	12040
1940-41	400	<u>500</u>	9000	4600	10600	9700	10800	17200	25200	16600	62600	7600	14500
1941-42	6000	20700	25100	16700	12300	10400	12900	30300	38700	89500	99600	27800	32540
1942-43	7700	7800	12700	12700	10400	12700	30900	60800	90300	37300	127900	54100	38590
1943-44	12700	9500	15200	17300	6500	12900	13900	31600	76200	32100	<u>133600</u>	47900	33950
1944-45	13800	9300	13400	16300	5000	11400	22800	66100	24900	21300	<u>67100</u>	33700	25400
1945-46	10400	9900	15200	12200	9800	15200	17000	35200	23700	29800	59200	28900	22210
1946-47	3700	15700	22000	14800	11100	13500	21000	64200	58900	50500	102500	34300	34310
1947-48	10500	11100	18500	10600	8300	13200	15700	45200	59800	49600	119700	44000	33770
1948-49	11200	4900	13300	13400	2900	10400	12300	68800	69500	41400	50900	15700	26250
1949-50	400	6500	16500	16800	6200	8800	13300	38800	126500	45300	71000	42300	32610
1950-51	18200	15800	21800	10200	13600	15700	14700	32300	71300	45500	71000	34900	30380
1951-52	23900	23500	23900	15100	5700	13600	23800	42600	<u>195700</u>	64600	54700	25000	<u>42620</u>
1952-53	10000	7100	11000	10400	6900	13000	17300	39700	26400	47000	121100	27000	28020
1953-54	11700	5900	12400	13700	9800	11300	25400	22700	35400	29500	43700	19300	19970
1954-55	12500	10700	13000	14900	10400	7600	12700	29200	43200	33000	43000	21200	20940
1955-56	3400	6500	12100	5200	13800	15900	15400	38000	31900	31200	55400	17200	20480
1956-57	10900	8400	12300	16700	9500	10800	14900	30500	27300	38800	79300	35800	24570
1957-58	7800	13300	15900	19400	12900	11900	15500	27800	33100	25800	44500	24600	21020
1958-59	4900	8300	15200	13100	11400	12500	12300	60800	23500	26900	51000	21200	21810
1959-60	4900	10000	16900	13200	<u>23900</u>	10100	15700	73500	45100	27500	33200	<u>300</u>	22870
1960-61	4900	5700	11600	10800	4500	12100	15500	19800	<u>9800</u>	13200	26900	1400	<u>11290</u>
1961-62	600	10600	12900	14600	3800	12400	19500	37900	34100	56100	93600	51800	28970
1962-63	14500	12400	17300	12900	8800	10200	28400	34100	19700	31000	84200	25000	24780
1963-64	5900	11400	14000	8900	9700	15200	14900	15900	27700	45600	106200	46900	26800
1964-65	10500	10600	13100	10600	11500	19800	21400	23700	65600	64200	88500	65400	33730
1965-66	20000	21900	29700	19300	16100	13000	17800	68300	30100	22900	31100	15400	25510
1966-67	6800	9200	10400	11600	11800	13200	19800	47200	39300	45300	128700	58800	33470
1967-68	12500	15400	16700	18400	9100	21800	23900	42000	30800	25600	79300	30300	27050
1968-69	19300	20100	20100	20900	10700	19600	20100	61300	41800	41100	46500	55000	34740
1969-70	11300	11500	15300	17800	13300	13500	22000	27300	47900	74200	79700	38000	30970
1970-71	11000	16400	18500	16600	13900	18000	<u>43700</u>	74400	57500	52400	83400	36700	36750
1971-72	12800	19500	<u>29900</u>	21600	14700	16800	25900	111100	36600	61000	75700	30400	38080
1972-73	22300	17700	22800	<u>25800</u>	15900	21700	23000	40500	24700	37300	44300	13400	25780
1973-74	6500	19300	19500	16600	17300	20500	24900	31500	38900	38300	75400	38900	28910
1974-75	17400	14600	16500	17000	16900	10900	16400	32500	76200	<u>94400</u>	97200	<u>82100</u>	41100
1975-76	<u>28200</u>	17700	21900	19900	23600	19400	34700	45400	37800	58300	72000	33900	34370
1976-77	15000	13500	13800	13100	14700	13600	20600	30000	24500	22800	28000	3300	17700
1977-78	3100	8600	13300	4200	12400	13200	18600	<u>135200</u>	78200	75500	78200	61100	41990
1978-79	22300	29500	15500	12300	19400	15900	18100	68900	92700	45000	46400	24800	34250
1979-80	11600	12400	9400	11700	12700	7300	17300	26300	27100	24700	49900	15000	18720
1980-81	6600	7500	17500	11800	9300	19000	18600	21300	12800	37900	75500	23000	21700
1981-82	8800	2500	10700	13900	10000	9700	32300	52200	62700	65800	83700	55000	33880
1982-83	17800	12900	26800	14000	18400	19700	30200	40600	27900	38300	48800	41200	28060
1983-84	11200	5200	15500	17200	8300	<u>22600</u>	31800	34200	34700	44000	75800	77700	27260
1984-85	9900	8800	15100	12900	11100	17900	19300	41700	23700	19600	21800	3300	17080
1985-86	10600	8100	17600	9300	17600	20700	27700	88000	50600	64900	66100	78000	34160
1986-87	8000	<u>30900</u>	24700	16700	17000	15800	23800	69100	46600	28400	21800	70800	26120
1987-88	7900	9700	8100	12300	9000	10200	16200	27200	16600	27000	<u>20500</u>	4100	14050
1988-89	2300	2700	3300	3000	1700	7500	12500	40000	33400	35100	33100	11000	15460
1989-90	3400	6200											
MEAN	9153	10720	14690	12560	10300	12920	18390	43670	43330	39530	65390	27560	25620
MEDIAN	9300	9600	15100	12900	9800	12500	17300	38800	34100	37300	63000	25700	25780

GAV3M9

COLORADO RIVER BASIN

Glen Canyon

Hoover

Data Source
Colorado River Basin Projects

Glen Canyon and Hoover Projects--Natural streamflow data was obtained from the Bureau of Reclamation Salt Lake City Office. The 1990 level of depletions were estimated by the Bureau and have been subtracted from the natural flows to obtain 1990 level of development modified flows. The natural flows, 1990 level depletions, and the modified flows for the period July 1928 through September 1989 are enclosed in this report. Contact person was Brad Vickers at telephone number (801) 524-5576. Office address is:

U.S. Department of the Interior
Bureau of Reclamation
P.O. Box 11568
Salt Lake City, Ut 84146

GLEN CANYON

River: COLORADO

Drainage Area: 107900 Sq. Mi.

Monthly mean streamflow, adjusted for storage, in cfs.

River Mile: 704.5

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVE.
1927-28										36450	17050	9392	
1928-29	10170	9583	5598	5395	8233	15020	28550	69530	91020	44630	<u>38860</u>	<u>29290</u>	29570
1929-30	15690	9419	7110	4858	8742	9353	30130	35280	62610	27540	30750	11620	21110
1930-31	9554	7123	4892	4287	6603	6989	10050	22560	34340	18660	10920	7135	11920
1931-32	8720	5939	4108	4438	9691	10960	28180	69690	70490	43660	22190	11660	24170
1932-33	5978	6361	4437	4445	4610	8152	8669	26090	78670	30870	13310	9478	16760
1933-34	7185	5006	5429	5009	5464	5676	9368	24070	<u>17120</u>	11730	8664	4788	9154
1934-35	3462	<u>3049</u>	3720	4145	4935	5521	11530	25780	79150	36670	15600	9989	16980
1935-36	6304	5370	4328	4293	5537	7478	23540	65570	56480	27790	20530	11860	19950
1936-37	6124	7448	5157	<u>3257</u>	7461	11390	26220	62340	49730	31280	13630	10030	19580
1937-38	8226	6465	6352	5295	6386	12910	27890	58520	89510	40700	16710	17660	24750
1938-39	10080	8066	6684	5666	5410	13160	20650	46590	37830	17960	10240	11300	16190
1939-40	5823	5261	4623	4257	5237	7139	12360	39710	37200	16000	8493	8833	12920
1940-41	11900	6894	5933	5788	7746	10980	18950	86550	77300	39490	19360	11490	25300
1941-42	<u>29490</u>	<u>15350</u>	<u>9361</u>	6576	7130	10750	<u>48800</u>	56920	81270	33720	15260	6926	26840
1942-43	5826	6281	6000	5611	6206	8676	27310	39780	55380	34680	19320	10310	18820
1943-44	6278	7441	6165	4633	5989	8375	17830	58900	80020	41080	13950	5592	21370
1944-45	6151	6371	5000	5373	6473	6997	13290	51220	56450	40140	23830	8313	19220
1945-46	6753	7302	5202	5659	5646	8229	19180	32050	46320	23300	13670	7554	15280
1946-47	6992	7947	6871	4309	6364	10680	14190	58540	63720	44330	25610	13090	21980
1947-48	13500	9708	7165	6113	7513	10160	29050	65570	65810	27030	14430	6265	21880
1948-49	5886	6720	5825	5314	6320	11260	23150	56490	86010	45690	16030	7065	23020
1949-50	8776	7999	5911	5640	7109	10270	21360	36410	63580	32960	13290	7209	18400
1950-51	6879	5982	6873	5004	6422	6773	9490	33090	62100	35850	19060	8947	17250
1951-52	6993	7587	5533	<u>7978</u>	6707	7078	39160	90550	104200	37690	20410	11670	28790
1952-53	6115	6330	6088	6544	6577	7461	9327	20890	65730	27030	16790	6814	15480
1953-54	5177	7179	5577	5169	6152	6321	11210	28510	23470	20420	10810	8313	11560
1954-55	9281	5983	4710	4141	4552	9603	11730	31720	39200	19840	14960	6044	13530
1955-56	3362	4614	5449	6175	4869	8353	16700	45760	59420	18730	11440	5011	15850
1956-57	3151	5121	4198	4801	5963	8273	14600	45620	112100	<u>79770</u>	32650	16990	27850
1957-58	12300	14090	8178	6375	9666	11200	26900	74760	76700	21270	11010	7377	23340
1958-59	5422	6027	5989	4982	5646	5693	7792	22440	47510	23560	12470	5317	12750
1959-60	9082	8703	5707	4712	5473	12190	28930	32160	54180	22140	9477	5518	16500
1960-61	5877	5866	4308	3976	5744	5987	10720	26710	42510	15560	11690	14390	12770
1961-62	13330	9202	6029	5439	<u>13950</u>	8862	42570	66990	64700	41480	14840	6928	24540
1962-63	9024	7532	5577	3277	6677	9354	12840	29400	30920	15180	11150	12360	12790
1963-64	5193	5751	4325	4356	4565	5591	10910	38290	50170	28120	14880	6159	14880
1964-65	4900	5465	5909	6174	6649	7211	23540	55160	94080	61680	26400	14750	26060
1965-66	14230	9591	8983	7401	7120	15950	22410	41030	32520	17140	9591	6012	16050
1966-67	5458	5872	6035	4705	5535	9368	10170	27490	60990	35560	15470	8697	16310
1967-68	5722	5509	3884	5092	5873	8417	10750	34530	84420	28330	23880	7139	18610
1968-69	7213	6485	5215	6366	6354	9298	33170	62920	50500	33100	14520	10220	20510
1969-70	10980	8638	6237	6223	6502	7274	10340	59030	70430	34090	14910	19020	21190
1970-71	10570	8669	6618	6994	8150	9774	23160	40330	77100	36570	15120	8907	21010
1971-72	9407	8436	6620	7064	7567	13480	13520	33090	65230	20810	10560	7838	16950
1972-73	17600	10190	6245	7268	7465	14400	23540	76920	83730	46320	16900	9799	26800
1973-74	6806	7647	6144	6157	6679	12950	18020	57810	57800	25100	11540	5013	18360
1974-75	5254	7688	4709	5750	6229	9992	14090	44430	83470	62850	15430	6658	22280
1975-76	4798	6339	6112	5348	7870	8496	14160	41490	46310	20130	9899	6113	14750
1976-77	5713	4931	<u>3633</u>	4000	4550	<u>3953</u>	<u>6426</u>	<u>10130</u>	18920	<u>7412</u>	7927	5579	<u>6928</u>
1977-78	4357	5084	4807	4749	5046	10140	20650	44080	89670	39300	9424	5273	20230
1978-79	4435	11260	8077	6465	<u>1254</u>	13830	32740	68770	81160	39750	12590	5334	23890
1979-80	3727	7304	4984	5457	10620	10450	24770	72270	90970	32290	7959	8724	23260
1980-81	4665	6618	5962	4936	5067	5530	10940	18810	38560	16360	<u>7597</u>	<u>4772</u>	10820
1981-82	12450	7241	5741	4548	5369	10540	18350	52440	71900	44180	21520	16680	22660
1982-83	14760	10380	9027	6109	7820	16550	19840	61970	<u>130600</u>	69510	30870	12800	<u>32600</u>
1983-84	13580	9829	9074	5318	5739	11850	25270	<u>107000</u>	106900	49460	27290	16510	32390
1984-85	13640	11810	8488	6747	6597	<u>16690</u>	47160	84840	78840	31920	16110	10500	27850
1985-86	19270	9699	6667	5512	8609	13240	45220	99040	84250	28880	22100	19370	30230
1986-87	14620	9632	6553	5951	7546	4358	23520	53920	79530	42080	17870	14510	23380
1987-88	12020	8170	5041	3951	4089	10540	18590	39450	38090	22500	16590	14090	15950
1988-89	<u>2098</u>	3967	4894	5480	5943	7772	15330	48670	29540	8325	9106	10120	12630
MEAN	8698	7501	5897	5362	6492	9589	20440	49360	64860	32360	16200	9889	19750
MEDIAN	6993	7241	5909	5348	6354	9354	18950	45760	64700	32100	14940	8870	19560

GLN3A

Accumulated depletions at site (1990 level of development).

GLN3D9

GLEN CANYON

River: COLORADO

Drainage Area: 107900 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 704.5

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												22220	
1928-29	8509	4885	7324	8995	5029	4828	5802	13880	25600	60430	79250	30400	21250
1929-30	<u>30320</u>	<u>24580</u>	12840	8830	6540	4289	8112	8215	27190	28150	50850	13310	18420
1930-31	22210	6910	6708	6534	4123	3718	5973	5851	7105	13480	22570	4432	9141
1931-32	2385	2428	5874	5351	3539	3869	9082	9818	25230	60590	58730	29430	18020
1932-33	13650	6958	3132	5772	3868	3878	3979	7014	5727	16980	66900	16640	12860
1933-34	4770	4771	4320	4417	4860	4440	4834	4538	6428	14960	<u>5350</u>	-2502	5100
1934-35	127	81	616	<u>2460</u>	3151	3578	4305	4383	8585	16670	67380	22450	11110
1935-36	7060	5282	3459	4781	3759	3724	4928	6340	20590	56460	44720	13560	14560
1936-37	11990	7152	3279	6860	4587	<u>2688</u>	6830	10250	23270	53230	37960	17050	15460
1937-38	5091	5321	5381	5877	5783	4728	5756	11770	24950	49420	77740	26480	19030
1938-39	8169	12960	7211	7477	6115	5097	4779	12020	17710	37480	26060	3737	12420
1939-40	1701	6589	2978	4672	4054	3688	4629	6001	9422	30610	25430	1778	8450
1940-41	-44	4128	9054	6305	5364	5219	7115	9847	16010	77450	65540	25280	19330
1941-42	10820	6779	<u>26650</u>	<u>14760</u>	<u>8812</u>	6007	6500	9609	<u>45860</u>	47810	69510	19500	22720
1942-43	6725	2219	2981	5693	5431	5042	5575	7538	24370	30670	43610	20450	13360
1943-44	10790	5607	3433	6852	5596	4064	5380	7236	14890	49790	68250	26850	17390
1944-45	5409	886	3306	5782	4431	4804	5843	5858	10350	42120	44690	25910	13320
1945-46	15300	3606	5908	6714	4633	5090	5016	7091	16240	22940	34550	9070	11360
1946-47	5331	2847	4146	7359	6302	3740	5734	9540	11250	49440	51960	30110	15700
1947-48	17080	8382	10660	9120	6596	5544	6904	9022	26110	56470	54050	12810	18560
1948-49	5889	1558	3041	6131	5056	4745	5690	10120	20210	47380	74250	31460	17980
1949-50	7496	2358	5931	7410	5342	5071	6479	9133	18420	27310	51810	18730	13780
1950-51	4758	2502	4033	5393	6304	4435	5792	5635	6548	23980	50340	21630	11780
1951-52	10520	4240	4147	6999	4963	<u>7409</u>	6098	5940	36210	81450	92470	23460	23630
1952-53	11870	6962	3269	5742	5518	5975	5947	6323	6385	11790	53970	12800	11350
1953-54	8252	2107	2332	6591	5008	4600	5522	5182	8269	19410	11700	6193	7109
1954-55	2272	3606	6436	5395	4141	3572	3921	8465	8791	22610	27440	5615	8529
1955-56	6427	1338	817	4026	4880	5606	4260	7214	13760	36660	47650	4501	11410
1956-57	2907	305	306	4533	3629	4232	5333	7135	11660	36520	100300	<u>65540</u>	20230
1957-58	24110	12280	9453	13510	7609	5806	9036	10060	23950	65650	64930	7044	21140
1958-59	2475	2670	2576	5439	5420	4413	5016	4555	4850	13340	35740	9332	7964
1959-60	3932	610	6216	8114	5138	4143	4864	11050	25980	23050	42410	7916	11910
1960-61	940	812	3031	5277	3739	3406	5113	4849	7775	17610	30740	1329	7023
1961-62	3154	9683	10480	8614	5460	4870	<u>13320</u>	7724	39630	57880	52940	27250	20060
1962-63	6306	2221	6179	6944	5008	2708	6046	8216	9894	20300	19150	955	7823
1963-64	2611	7656	2347	5163	3756	3787	3956	4453	7970	29180	38400	13890	10250
1964-65	6345	1452	2055	4877	5340	5605	6018	6073	20600	46060	82310	47460	19540
1965-66	17860	10040	11390	9003	8414	6832	6490	14810	19470	31920	20750	2910	13360
1966-67	1054	1305	2612	5283	5466	4136	4904	8230	7224	18390	49220	21340	10760
1967-68	6931	3991	2877	4920	3315	4523	5265	7279	7808	25430	72650	14100	13200
1968-69	15350	2433	4368	5897	4646	5797	5724	8159	30220	53820	38740	18870	16220
1969-70	5979	5509	8133	8050	5668	5654	5871	6135	7403	49930	58660	19870	15600
1970-71	6374	14310	7720	8080	6049	6425	7519	8636	20220	31220	65330	22340	16990
1971-72	6586	4200	6582	7848	6051	6495	6978	12340	10570	23980	53460	6578	12600
1972-73	2024	3131	14760	9605	5676	6699	6835	13260	20600	67820	71970	32100	21270
1973-74	8359	5092	3961	7058	5575	5588	6049	11810	13080	48710	46040	10870	14380
1974-75	3001	307	2408	7100	4140	5181	5599	8854	11150	35330	71700	48620	16980
1975-76	6889	1951	1953	5751	5542	4779	7261	7358	11220	32380	34550	5898	10450
1976-77	1363	1407	2867	4343	<u>3064</u>	3431	3920	<u>2815</u>	<u>3485</u>	<u>1026</u>	7149	<u>-6816</u>	<u>2306</u>
1977-78	-610	872	1512	4496	4238	4180	4416	8999	17710	34970	77910	25070	15290
1978-79	887	567	1589	10670	7508	5896	<u>624</u>	12690	29800	59670	69400	25520	18790
1979-80	4056	627	882	6716	4415	4888	10010	9312	21830	63170	79200	18060	18550
1980-81	-578	4017	1819	6029	5393	4367	4437	4392	7995	9701	26800	2128	6338
1981-82	<u>-939</u>	<u>66</u>	9606	6652	5172	3979	4739	9400	15410	43340	60140	29950	15660
1982-83	12990	11980	11920	9796	8458	5539	7189	15410	16900	52860	<u>118800</u>	55280	27300
1983-84	22340	8093	10730	9241	8504	4748	5131	10710	22320	<u>97900</u>	95170	35230	<u>27570</u>
1984-85	18760	11810	10790	11220	7918	6178	5966	<u>15560</u>	44210	75730	67070	17690	24460
1985-86	7571	5790	16420	9111	6098	4943	7978	12100	42280	89930	72480	14650	24150
1986-87	13560	14660	11770	9044	5984	5382	6916	3219	20580	44810	67760	27850	19300
1987-88	9333	9800	9171	7581	4472	3382	3461	9398	15650	30340	24320	8276	11270
1988-89	8049	9380	<u>-748</u>	3379	4325	4911	5313	6634	12390	39500	17770	-5902	8761
1989-90	569	5413											
MEAN	7668	5182	5852	6912	5327	4793	5867	8450	17500	40250	53090	18140	14930
MEDIAN	6400	4163	4147	6652	5340	4779	5724	8216	16010	36660	52940	17870	14560

GLN3M9

HOOVER

Monthly mean streamflow, adjusted for storage, in cfs.

River: COLORADO

Drainage Area: 167000 Sq. Mi.

River Mile: 342.2

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVE.
1927-28										38740	18420	10350	
1928-29	9940	9990	8631	5946	8633	14570	29370	61500	91020	46230	<u>45120</u>	<u>29810</u>	29810
1929-30	17190	10140	8046	5839	7549	10210	26860	36000	62000	30370	35160	13020	21920
1930-31	10890	8540	5939	5034	7679	7344	9891	22050	35880	20820	12880	7007	12910
1931-32	10240	7315	4835	5951	14790	14120	30260	66670	70320	48860	21160	16200	25900
1932-33	6837	7081	5910	5076	5656	9199	9140	23320	78240	35550	15340	10130	17630
1933-34	8933	5574	6880	6180	6447	6661	9141	24300	19160	12390	9228	5868	10090
1934-35	4101	<u>3562</u>	4468	5328	6074	6784	13040	23900	77040	37940	16300	9795	17360
1935-36	7029	5694	5345	4876	6341	8531	21980	65630	58490	29320	22050	13060	20730
1936-37	5982	7865	5590	<u>3718</u>	11190	14690	26780	64260	50750	32540	13700	10390	20660
1937-38	8278	6663	6907	5773	6941	17280	27370	60410	89930	43250	17220	17840	25700
1938-39	9297	7454	7480	6232	4731	12770	23330	46850	39480	19190	11040	17770	17180
1939-40	6123	6011	5431	5160	6812	8248	12860	40950	39830	16900	9905	11320	14130
1940-41	13450	7359	7938	8414	10890	16320	23280	91470	80660	43130	21310	11380	28080
1941-42	<u>31910</u>	<u>16850</u>	10180	6664	8029	11860	<u>51720</u>	58370	85350	35480	16420	7054	28360
1942-43	5858	6545	6208	6161	7280	10870	28040	42110	55690	37060	20690	11920	19910
1943-44	6358	7422	7167	5132	6934	9504	20550	60450	83580	43970	14920	5331	22620
1944-45	6311	6560	5544	6113	7669	8152	14410	53390	59050	43250	24110	11390	20580
1945-46	9207	7812	5651	5970	5889	8402	19370	34210	47500	25390	15610	8749	16160
1946-47	7412	9121	8077	4427	6669	10950	14600	59430	65230	47040	28950	14030	23100
1947-48	14510	9582	7297	5816	6785	9992	31030	66520	69090	27390	15420	5583	22430
1948-49	5158	6606	5729	5505	5970	13520	24390	58460	88440	48000	17520	6878	23910
1949-50	6608	8348	5735	5073	7921	10820	20950	36860	65230	35500	13990	6655	18640
1950-51	6896	5679	7451	5202	6610	6891	9370	31360	63260	38170	20320	10670	17700
1951-52	6631	8144	6018	<u>10170</u>	7029	7600	40960	94910	107000	39850	20070	12890	30090
1952-53	6042	5467	6498	6858	7003	8189	9373	19000	68370	29490	18280	7918	16040
1953-54	4451	7741	5627	5792	6822	7574	11890	27530	25280	21310	11650	8744	12060
1954-55	10100	6725	5578	4826	5070	10190	11800	31930	42070	21820	19420	6472	14720
1955-56	4048	4877	6220	7318	5621	7723	16810	45580	62730	20180	11590	<u>5047</u>	16470
1956-57	<u>2700</u>	5259	4859	6259	7870	9421	14360	47320	112000	<u>82670</u>	35640	18470	28980
1957-58	12600	15030	8693	6606	10270	13490	28360	76080	81030	22410	12140	8367	24610
1958-59	5809	6675	6367	5479	6492	6595	8487	21890	47830	25190	13800	5394	13350
1959-60	9383	10530	6865	6054	6607	13440	30800	33270	55530	23950	9804	6206	17680
1960-61	6398	7167	5078	4833	6487	6649	11810	26190	45760	17180	12650	14880	13750
1961-62	14230	10250	7478	6139	16100	9138	42440	68100	63050	43660	15400	7108	25270
1962-63	9376	7846	6384	4035	7780	10440	13040	29490	30970	15600	12650	14920	13560
1963-64	5659	6569	4844	4343	4650	4723	12410	40430	49970	27940	16610	6640	15420
1964-65	5495	6088	6261	8128	8308	7971	25820	58920	97680	62120	27060	15250	27490
1965-66	15110	11500	11360	9490	8674	17770	23430	42260	33520	17900	9764	6976	17370
1966-67	6512	7446	9849	6067	6694	9495	9608	28180	61580	37260	17320	11450	17660
1967-68	6521	6300	5189	5810	7936	9394	12670	35880	85180	29610	25770	8092	19840
1968-69	7734	7453	5723	8176	9101	10510	36050	65920	50700	34460	15990	11670	22010
1969-70	10920	9870	6678	7509	8162	7921	10370	60650	71090	35670	16530	19700	22140
1970-71	11360	9656	7007	8642	7969	9995	23080	41120	77400	37530	17820	9351	21770
1971-72	10680	9320	7222	8364	8678	13010	13230	32830	66000	20570	11140	8994	17480
1972-73	23200	11500	6480	7509	9352	16500	28680	83600	85210	47570	17540	10640	29090
1973-74	7008	8975	6983	7662	7534	14510	16550	57920	58570	25710	12320	6334	19230
1974-75	6236	9629	5958	6881	7261	11940	15280	45730	83870	63950	16590	7901	23510
1975-76	5302	6774	6777	6215	9289	9347	15250	42510	46750	21860	10160	7538	15640
1976-77	6800	5351	<u>4002</u>	5172	5143	<u>4153</u>	<u>7035</u>	<u>10580</u>	<u>18510</u>	<u>8200</u>	9596	6076*	<u>7553</u>
1977-78	6109	5005	5060	6268	6834	15580	23040	45160	90010	39980	9683	6413	21610
1978-79	5722	12580	<u>11720</u>	7964	<u>4545</u>	17510	37370	71980	81790	40130	13740	6383	26030
1979-80	3155	8160	7232	6763	<u>19380</u>	13460	28070	75390	91870	34050	<u>8665</u>	9834	25440
1980-81	5097	7577	7039	5639	6257	6753	11720	19660	39080	16740	9701	6272	11790
1981-82	13580	8634	6792	5713	7510	12670	19800	54140	72370	45420	23510	18870	24160
1982-83	14880	11490	11170	7333	9721	<u>20630</u>	22080	65590	<u>130600</u>	73130	33790	13710	<u>34600</u>
1983-84	15830	11510	11550	7009	7335	13480	27410	<u>107700</u>	107600	53300	31120	18280	34420
1984-85	15370	13450	10580	8626	8590	19640	49550	84790	80540	33080	16180	11540	29390
1985-86	20590	11100	8119	6650	10870	15030	47220	97780	85400	28170	23330	20420	31280
1986-87	16070	10600	7445	6604	9618	4958	25280	54760	80750	43440	20530	15680	24680
1987-88	13270	10380	6244	5399	5856	11290	20800	40710	36360	23230	18150	15330	17280
1988-89	3696	4714	5942	6921	7835	8176	16440	48160	29720	10330	10650	11620	13710
MEAN	9377	8277	6875	6309	7832	10890	21580	50200	66050	34050	17630	10960	20860
MEDIAN	7029	7812	6498	6113	7280	10190	20800	46850	65230	34260	16360	10240	20660

HVR3A

Accumulated depletions at site (1990 level of development).

HVR3D9

HOOVER

River: COLORADO

Drainage Area: 167000 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

River Mile: 342.2

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												24520	
1928-29	9881	5641	7094	9402	6062	5377	6002	13430	26430	52400	79250	32010	21110
1929-30	<u>36580</u>	<u>25110</u>	14340	9553	7477	5270	6919	9075	23920	26900	50230	16150	19310
1930-31	26620	8312	7841	7952	5370	4465	7049	6206	6949	12950	23910	6596	10380
1931-32	4339	2300	7395	6727	4266	5382	14180	12980	27320	57560	58550	34630	19620
1932-33	12620	11500	3992	6493	5341	4507	5025	8061	6198	14210	66480	21320	13790
1933-34	6802	5421	6088	4986	6311	5611	5816	5523	6199	15200	7391	-1840	6129
1934-35	692	1161	1255	<u>2973</u>	3899	4759	5443	5646	10100	14790	65270	23710	11600
1935-36	7763	5088	4184	5106	4775	4307	5733	7393	19040	56530	46730	15100	15150
1936-37	13520	8355	3137	7277	5021	<u>3149</u>	10560	13550	23840	55150	38980	18310	16760
1937-38	5162	5681	5433	6075	6338	5204	6311	16140	24430	51300	78160	29020	19960
1938-39	8680	13130	6452	6866	6911	5663	4101	11630	20390	37740	27710	4960	12880
1939-40	2506	13060	3278	5423	4862	4591	6203	7110	9914	31850	28060	2668	9935
1940-41	1369	6615	10600	6771	7389	7845	10260	15180	20340	82360	68890	28900	22270
1941-42	12770	6670	<u>29070</u>	<u>16260</u>	9608	8095	7398	10720	<u>48780</u>	49260	73580	21260	24300
1942-43	7881	2347	3013	5957	5639	5592	6649	9731	25100	33000	43920	22840	14310
1943-44	12160	7211	3512	6833	6598	4563	6325	8366	17610	51350	71810	29740	18830
1944-45	6387	624	3465	5972	4975	5544	7039	7014	11470	44280	47280	29020	14460
1945-46	15570	6686	6361	7024	5082	5401	5259	7263	16430	25100	35740	11160	12270
1946-47	7076	4042	4566	8533	7508	3858	6039	9812	11660	50330	53460	32820	16700
1947-48	20420	9326	11670	8994	6728	5247	6176	8854	28080	57410	57320	13160	19450
1948-49	6880	876	2312	6017	5180	4936	5340	12380	21450	49350	76670	33770	18790
1949-50	8981	2171	3763	7758	5166	4503	7291	9478	18010	27750	53470	21280	14120
1950-51	5458	1949	4051	5091	6882	4633	5980	5753	6428	22260	51490	23940	12000
1951-52	11780	5964	3786	7556	5448	<u>9606</u>	6421	6462	38020	65800	95280	25620	25120
1952-53	11530	7986	3197	4879	5929	6289	6372	7051	6431	9890	56600	15260	11750
1953-54	9748	3211	1605	7153	5058	5223	6191	6436	8949	18420	13510	7085	7723
1954-55	3112	4037	7251	6136	5009	4257	4440	9055	8861	22830	30300	7590	9415
1955-56	10880	1765	1202	4288	5650	6749	5013	6585	13870	36480	50970	5948	12430
1956-57	3049	<u>341</u>	<u>-146</u>	4670	4289	5690	7239	8283	11410	38210	100300	<u>68440</u>	21000
1957-58	27100	13770	9757	14450	8124	6037	9637	12350	25420	66980	69260	8187	22610
1958-59	3606	3660	2964	6087	5818	4910	5861	5456	5545	12780	36070	10960	8620
1959-60	5267	688	6537	9944	6296	5485	5999	12300	27850	24170	43760	9721	13130
1960-61	1267	1499	3552	6578	4509	4264	5856	5511	8866	17090	33990	2954	7960
1961-62	4113	10180	11390	9663	6909	5570	15470	8000	39500	58990	51280	29440	20850
1962-63	6862	2402	6530	7258	5815	3466	7149	9299	10100	20390	19210	1370	8314
1963-64	4117	10210	2814	5981	4275	3774	4041	3585	9468	31320	38200	13710	10940
1964-65	8069	1933	2650	5500	5692	7559	7678	6833	22880	49810	85910	47890	21060
1965-66	18530	10550	12270	10910	10790	8921	8044	16630	20490	33160	21750	3675	14680
1966-67	1228	2269	3666	6858	9280	5498	6063	8357	6666	19070	49810	23030	11810
1967-68	8784	6744	3676	5712	4620	5241	7328	8256	9727	26780	73410	15380	14580
1968-69	17240	3386	4888	6864	5154	7607	8471	9374	33110	56820	38940	20230	17720
1969-70	7455	6962	8074	9281	6109	6940	7531	6783	7431	51550	59320	21440	16600
1970-71	7997	14990	8511	9068	6438	8073	7338	8857	20140	32020	65630	23300	17670
1971-72	9282	4644	7834	8732	6653	7794	8070	11870	10290	23720	54240	6345	13250
1972-73	2607	4287	20360	10910	5911	6939	8722	15360	25730	74490	73440	33340	23570
1973-74	9006	5931	4163	8386	6414	7092	6903	13370	13610	48820	46800	11490	15190
1974-75	3781	1627	3390	9041	5389	6312	6630	10800	12340	36630	72110	49720	18180
1975-76	8055	3194	2456	6185	6208	5646	8680	8209	12310	33400	34980	7635	11400
1976-77	1619	2832	3954	4762	<u>3433</u>	4603	4513	<u>3015</u>	<u>4093</u>	<u>1477</u>	<u>6746</u>	<u>-6027</u>	<u>2887</u>
1977-78	1060	1369	3263	4417	4491	5699	6203	14440	20100	36060	78240	25750	16740
1978-79	1147	1706	2877	11990	<u>11150</u>	7395	<u>3914</u>	16370	34430	62880	70030	25910	20860
1979-80	5199	1676	309	7572	6663	6194	<u>18780</u>	12320	25130	66280	80100	19830	20760
1980-81	<u>126</u>	5127	2251	6988	6470	5070	5627	5614	8783	10560	27310	2517	7164
1981-82	1164	1565	10730	8045	6222	5144	6880	11530	16860	45030	80600	31200	17110
1982-83	14970	14170	12030	10900	10600	6764	9090	<u>19500</u>	19140	56480	<u>118800</u>	58900	29320
1983-84	25250	9005	12980	10920	10980	6440	6726	12340	24460	<u>98630</u>	95850	39070	<u>29450</u>
1984-85	22580	13570	12530	12870	10010	8057	7960	18500	46610	75690	68770	18850	26380
1985-86	7841	6835	17740	10510	7550	6081	10240	13900	44270	88670	73640	13950	25110
1986-87	14790	15720	13220	10010	6876	6035	8988	3820	22340	45660	68980	29210	20470
1987-88	11990	10970	10420	9793	5675	4830	5247	10150	17860	31610	24600	8999	12680
1988-89	9617	10620	850	4126	5373	6351	7204	7038	13500	39050	17950	-3900	9818
1989-90	2113	6915											
MEAN	9095	6251	6531	7689	6305	5739	7207	9753	18630	41090	54280	19820	16040
MEDIAN	7822	5531	4184	7024	5929	5544	6649	9055	17860	37740	53470	20030	15190

HVR3M9

PEACE RIVER BASIN

G.M. Shrum

Peace Canyon

Peace Canyon Site C

Data Source
Peace River Basin Projects

G.M. Shrum--Natural monthly inflows for Williston lake were obtained from B.C. Hydro for the period July 1928 through September 1989 and they are enclosed in this report. No correction for evaporation or irrigation depletions is required at this project. Contact person was Eric Weiss at telephone number (604) 293-5814. Office address is:

British Columbia Hydro and Power Authority
c/o Podium B
6911 Southpoint Drive
Burnaby, B.C. V3N4X8

Peace Canyon and Peace River Site C--Natural mean monthly inflows between Williston lake and Peace Canyon and Peace Canyon and Site C were obtained from B.C. Hydro for the period July 1928 through July 1980. These incremental inflows were added to the Williston Lake natural monthly inflows to obtain the natural monthly flows at Peace Canyon and Site C. No correction for evaporation or irrigation is required. The contact person and office address is as shown above for the G.M. Shrum project.

G M SHRUM

River: PEACE

Drainage Area: 26600 Sq. Mi.

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												61700	
1928-29	24000	17100	19800	14200	10800	9290	7790	8110	11800	54000	103000	52200	27550
1929-30	29500	19400	27000	18400	10400	7130	7480	7080	20700	58600	133000	59800	33260
1930-31	28900	21200	16300	18300	8180	12400	8960	5530	19800	73200	123000	72800	34130
1931-32	30000	21700	23900	18700	10900	10800	7270	7790	16100	79100	132000	74600	36110
1932-33	35500	30400	31800	17800	12700	10800	7390	5580	10200	88900	149000	117000	43270
1933-34	39200	30800	20000	26800	14200	10300	<u>18000</u>	8770	28500	102000	114000	68100	39960
1934-35	36100	31100	27900	24900	15700	9380	11100	7990	9130	62900	132000	85200	36180
1935-36	34100	19400	15000	16700	12000	9210	7160	6060	11700	130000	132000	68400	36580
1936-37	29100	22800	30700	35200	9800	7930	8420	7350	20400	59500	127000	50800	34110
1937-38	42000	28000	26400	20500	12600	11100	8040	7110	17000	65900	91800	53300	32100
1938-39	17800	24500	30300	13600	7230	9910	8100	7170	17200	88400	116000	93300	36130
1939-40	34200	28900	25900	14600	14200	9680	9910	7950	23900	84700	101000	56100	34300
1940-41	50000	22000	33000	16500	11900	11000	8170	7790	<u>29500</u>	68400	80900	42400	31930
1941-42	17100	27000	30000	28600	15900	11900	8790	7030	15100	106000	105000	45800	34970
1942-43	<u>13100</u>	18700	23800	12400	8510	10300	6600	6390	11800	51400	125000	64300	29410
1943-44	23700	21600	17400	17700	11500	11600	7190	6240	23700	54100	97000	52600	28690
1944-45	28800	21100	28000	19500	13500	9580	9450	6550	7620	55300	103000	46600	29150
1945-46	22900	17200	18200	11400	9090	6130	5120	5420	11400	105000	104000	54700	31040
1946-47	30200	19300	18700	11500	11600	9730	6580	7280	24300	102000	125000	56000	35310
1947-48	31400	29800	25700	17700	11500	11000	5580	6360	<u>4940</u>	<u>156000</u>	119000	47000	38970
1948-49	21400	32400	26400	21400	13900	7090	7340	7430	17300	98100	112000	74900	36780
1949-50	37900	27500	27400	33700	15800	8800	6840	6520	11500	66300	159000	49900	37630
1950-51	31300	23200	17800	14100	12700	9380	7380	6050	9370	123000	113000	75600	37110
1951-52	30700	15500	<u>11300</u>	11000	9270	6600	5310	5000	7210	86400	138000	88900	34670
1952-53	32200	23500	26800	13200	8290	7840	6890	6570	9480	117000	107000	61800	35240
1953-54	33300	24200	38500	30800	13000	8110	6720	7600	6320	84000	190000	101000	45400
1954-55	51400	33700	35300	<u>30800</u>	<u>18900</u>	10100	7850	7040	8780	<u>37900</u>	134000	106000	40290
1955-56	39000	19300	22600	<u>8800</u>	<u>6600</u>	5990	5720	5690	5700	68900	123000	69000	31750
1956-57	25800	21800	16900	20500	6790	7140	8870	7360	11000	129000	112000	76300	37140
1957-58	<u>72200</u>	39400	20200	18600	12300	10900	7280	7800	20200	105000	110000	38700	38710
1958-59	18600	19700	29400	17100	8370	8120	7760	7230	12300	80400	154000	81600	37140
1959-60	32600	43000	29200	19400	15600	10000	8870	8690	19900	79900	134000	100000	41810
1960-61	45300	31200	38400	24300	11000	10500	10000	9080	21200	112000	147000	52000	42790
1961-62	21200	27000	33000	20500	8280	8840	7480	7360	16900	54700	133000	97400	36400
1962-63	56300	29600	30800	<u>36100</u>	17100	8440	11300	9200	23400	83200	119000	81600	42320
1963-64	36600	29500	33300	16700	13200	11200	10200	8490	13100	60100	<u>236000</u>	101000	<u>47360</u>
1964-65	66500	32000	40700	27300	12300	11300	10800	10600	13600	58700	136000	75200	41550
1965-66	30800	24700	38000	22300	9630	8950	8690	8130	16900	78600	140000	93500	40150
1966-67	44100	37900	27300	19000	12500	10700	8980	7090	9040	78600	183000	63400	41850
1967-68	30400	23000	39800	20100	8610	8150	10200	<u>11200</u>	20900	98100	134000	75000	40010
1968-69	27500	28600	28400	23800	11600	7360	6070	6710	17510	75970	104800	<u>32580</u>	30970
1969-70	34590	<u>43340</u>	29050	20580	15870	8120	8480	8120	12100	63240	140800	45230	35810
1970-71	29390	26520	21820	10000	7780	<u>4850</u>	11310	<u>4240</u>	13440	76700	133300	67390	33950
1971-72	28960	37110	28340	16940	9630	9080	6220	8290	13950	109100	197500	79560	45380
1972-73	48410	21760	23470	15500	12890	10600	8650	8330	13380	98460	145900	75920	40440
1973-74	27290	30400	20120	8880	13090	6380	8650	9980	20140	73940	133300	110100	38670
1974-75	53510	29920	<u>48840</u>	19210	14670	10300	11020	7190	11250	60970	108600	64940	36850
1975-76	40520	20120	14800	12670	6920	11960	7850	6670	15540	99290	148000	<u>118200</u>	41990
1976-77	66170	33410	26250	19940	13270	9830	9190	7570	24760	92910	117700	82120	42120
1977-78	39230	26570	25410	15300	13940	9850	6920	7420	16120	51410	102300	33660	29070
1978-79	24120	24760	30200	21630	12540	8030	10720	6920	11740	70740	139300	86920	37390
1979-80	27950	25000	21700	9290	7044	8234	<u>4565</u>	6243	18250	65700	<u>77470</u>	52020	<u>27020</u>
1980-81	27950	39580	35390	26960	14700	<u>19250</u>	12860	8371	18890	136800	127900	62530	44420
1981-82	26900	22730	20230	19220	10720	9396	8116	10340	8356	67830	155600	71780	35990
1982-83	38800	33030	32040	22530	11040	9818	9894	8353	23410	76250	107200	77930	37640
1983-84	36220	28830	24870	23220	9907	9770	10090	9339	21270	61370	147500	87300	39120
1984-85	43370	41450	44740	15810	11540	15640	7443	9604	15430	78960	115600	77590	39950
1985-86	25630	30730	24900	9027	13090	8737	8605	8362	13780	60110	143100	84230	35930
1986-87	26210	<u>14530</u>	31660	19560	13850	10210	9901	9883	19980	98770	153000	76610	40470
1987-88	38410	35210	26960	26550	13910	11710	11020	10400	26410	128500	131100	72070	44420
1988-89	38230	20340	24320	18340	13390	11000	8578	8599	21470	101300	101000	46320	34560
1989-90	31530	19830											
MEAN	34490	26840	27150	19270	11760	9630	8450	7584	15800	83500	128800	70490	37100
MEDIAN	31460	26550	26960	18700	12000	9730	8170	7360	15540	78960	127900	70390	37110

GMS3M9

PEACE CANYON

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												62500	
1928-29	24300	17300	20100	14400	10700	9410	7890	8190	11900	54700	104000	52900	27880
1929-30	29900	19700	27300	18700	10500	7220	7550	7160	21000	59300	135000	80500	33700
1930-31	29200	21500	18500	18500	8290	12500	9070	5590	20100	74100	124000	73700	34500
1931-32	30400	22000	24200	19000	11000	10900	7360	7890	16300	80100	134000	75500	36590
1932-33	38000	30800	32200	17800	12800	10900	7480	5650	10300	90000	151000	118000	43780
1933-34	39800	31200	20300	27100	14400	10400	<u>18100</u>	8880	28800	103000	115000	89000	40390
1934-35	36400	31500	28200	25200	15900	9500	11200	8090	9240	63700	134000	86000	36640
1935-36	34500	19700	15200	16900	12100	9320	7250	8140	11800	131000	134000	89300	39030
1936-37	29500	23100	31100	35700	9930	8030	8530	7440	20700	60200	128000	51500	34500
1937-38	42500	28300	26700	20800	12700	11200	8140	7200	17200	88800	93100	54000	32500
1938-39	18000	24800	30700	13800	7320	10000	6180	7260	17400	89500	117000	94500	36540
1939-40	34700	29300	26200	14800	14400	9800	10000	8050	24200	85800	102000	56800	34720
1940-41	50700	22300	33400	16700	12000	11100	8280	7890	<u>29900</u>	69300	81900	42800	32330
1941-42	17300	27300	30400	28900	16100	12000	8900	7110	15300	107000	108000	48400	35340
1942-43	<u>13200</u>	19000	24100	12500	8620	10400	6690	6470	11900	52100	128000	65100	29720
1943-44	24000	21900	17600	17900	11800	11700	7280	6320	24000	54800	98200	53300	29040
1944-45	29100	21400	28300	19800	13700	9700	9570	6630	7710	56000	104000	47200	28490
1945-46	23200	17400	18400	11500	9200	8220	5190	5490	11500	106000	105000	55300	31360
1946-47	30800	19800	19000	11600	11700	9850	6860	7370	24600	103000	126000	58700	35690
1947-48	31800	30200	28000	17900	11600	11100	5850	6440	<u>5000</u>	<u>158000</u>	120000	47800	39410
1948-49	21700	32800	26700	21700	14100	7170	7430	7520	17500	100400	113000	75800	37300
1949-50	38400	27800	27700	34200	16000	8910	6930	6600	11800	67200	161000	50500	38100
1950-51	31700	23500	18000	14300	12800	9500	7450	6120	9490	124000	114000	76500	37490
1951-52	31100	15700	<u>11400</u>	11100	9390	6690	5380	5060	7300	87400	140000	90000	35110
1952-53	32600	23700	27100	13300	8400	7940	6980	6650	9800	118000	108000	62800	35600
1953-54	33700	24500	39000	31000	13100	8210	6810	7690	6400	86100	193000	102000	46090
1954-55	52100	34100	35800	31200	<u>19200</u>	10200	7950	7120	8890	<u>38400</u>	138000	107000	40800
1955-56	39400	19800	22900	<u>8910</u>	<u>6690</u>	6060	5790	5760	5770	69800	124000	69900	32110
1956-57	26100	22100	17100	20800	6880	7230	8980	7450	11100	130000	113000	77200	37510
1957-58	<u>73100</u>	39800	20500	18900	12400	11000	7370	7900	20500	106000	111000	39200	39140
1958-59	18900	20000	29800	17300	8480	8220	7660	7320	12400	81400	156000	82700	37620
1959-60	33000	43500	29800	19700	15800	10100	8980	8800	20230	80900	136000	101000	42350
1960-61	45900	31600	38900	24600	11100	10600	10100	9180	21500	113000	149000	52700	43310
1961-62	21500	27300	33400	20800	8390	8980	7550	7450	17180	55300	135000	98700	36890
1962-63	57000	30000	31200	<u>36600</u>	17300	8550	11400	9310	23700	84300	120000	82800	42810
1963-64	37100	29800	33700	16900	13400	11300	10300	8800	13380	60800	<u>238000</u>	102000	<u>47860</u>
1964-65	69400	32400	41200	27600	12400	11400	10900	10700	13800	59400	138000	76100	42080
1965-66	31200	25000	38500	22600	9750	9060	8800	8230	17100	79600	142000	94700	40680
1966-67	44600	38400	27600	19300	12600	10800	9100	7170	9150	79800	185000	84200	42340
1967-68	30800	23300	40300	20400	8710	8250	10300	<u>11300</u>	21200	100400	136000	75900	40630
1968-69	27800	28900	28700	24100	11700	7450	6150	6800	17710	76870	105800	<u>32980</u>	31310
1969-70	35090	<u>43840</u>	29450	20880	16070	8220	8590	8220	12200	64040	142800	45830	36290
1970-71	29790	28820	22120	10100	7880	<u>4900</u>	11410	<u>4290</u>	13640	77700	135300	68290	34410
1971-72	29360	37610	28640	17140	9750	9190	6300	8400	14150	110100	200500	80560	45960
1972-73	49010	22060	23670	15700	12990	10700	8750	8440	13580	99760	147900	76820	40950
1973-74	27590	30800	20420	8990	13190	6450	8730	10040	20340	74840	135300	111100	39130
1974-75	54210	30320	<u>49440</u>	19510	14870	10400	11120	7280	11380	61770	109600	65740	37290
1975-76	41020	20420	15000	12770	7010	12060	7950	6760	15740	100200	150000	<u>119200</u>	42450
1976-77	67100	33810	26550	20240	13470	9860	9310	7660	25060	94110	118700	83220	42630
1977-78	39830	26870	25710	15500	14140	9980	7010	7510	16320	52110	103300	34060	29400
1978-79	24420	25060	30600	21930	12640	8130	10820	7010	11940	71540	141300	88020	37870
1979-80	28650	25300	22000	9410	7124	8344	<u>4625</u>	6323	18450	66500	<u>78470</u>	52740	<u>27390</u>
MEAN	34860	27130	27440	19480	11880	9717	8531	7659	15970	84360	130100	71210	37490
MEDIAN	31750	26850	27100	19000	12100	9800	8280	7450	15740	79600	128000	70840	37490

PCY3M9

PEACE SITE C

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												73500	
1928-29	27800	24500	23400	17400	11100	10790	8840	7350	13800	69300	120000	63500	33180
1929-30	40100	27700	33500	21900	11200	13800	11200	8990	24200	69600	153000	69500	40440
1930-31	31800	28400	17300	23300	8550	15900	11800	8130	25800	97800	154000	82700	42000
1931-32	39500	29800	25600	23100	13000	11300	7620	9910	21500	93000	139000	92600	42230
1932-33	48000	35800	34600	27600	16500	11800	8010	7270	14100	101000	187000	130000	51990
1933-34	45800	33700	29400	34800	15700	13100	<u>19600</u>	10000	29200	118000	143000	96400	49180
1934-35	45200	34300	29300	34900	20400	11600	12790	8910	12100	89800	165000	101000	47230
1935-36	40900	25900	17900	24000	15200	11600	9140	7440	15900	145000	180000	94600	49050
1936-37	30100	25900	36400	36800	11300	10400	9240	7820	22200	64900	136000	75700	38980
1937-38	50800	30400	32200	23900	15600	14100	8840	7720	22200	71400	105200	55200	36800
1938-39	22500	30700	31100	16900	9200	12400	7450	7430	22500	122000	129000	113000	43910
1939-40	41400	32900	30700	23300	15700	11200	10300	8940	25900	88700	107000	69600	38870
1940-41	57900	31800	40200	17900	15400	13900	10600	8520	<u>35900</u>	81800	91900	44800	37870
1941-42	20800	36900	38600	32400	20200	12500	10600	7350	21400	128000	125000	49100	42030
1942-43	<u>19400</u>	25400	25200	16400	8790	12800	8840	8830	15400	62900	146000	80900	35960
1943-44	29800	25500	19300	21800	14500	15000	8850	7340	26500	73900	111000	54500	33990
1944-45	31300	23000	29600	22300	16200	12200	10400	7020	11100	90300	107000	53200	34600
1945-46	26600	20300	18900	13500	10700	6810	5950	6060	14600	113000	115000	57300	34200
1946-47	36200	22000	23800	13600	16300	12200	7610	8030	26100	121000	142000	80600	40930
1947-48	37500	34300	27900	20200	13800	13900	7000	6990	9120	<u>201000</u>	137000	51300	48850
1948-49	37400	40400	35600	26800	17500	8190	7620	7920	26000	108000	127000	67900	44380
1949-50	44400	31500	29100	36500	21500	11200	7080	7420	16500	71500	195000	56100	44000
1950-51	38200	25100	23100	25200	15000	10800	9080	7460	15200	132000	118000	91300	42760
1951-52	40900	23400	16400	13800	11900	8030	6020	5510	8750	101000	172000	115000	43640
1952-53	38200	26700	31900	14200	8900	8390	9180	8350	11700	134000	120000	75100	40780
1953-54	39800	29400	41800	34100	20500	10400	8700	8430	12400	108000	243000	117000	<u>56240</u>
1954-55	64200	47300	42000	37800	<u>24400</u>	10900	9270	8690	11200	<u>46500</u>	156000	122000	48510
1955-56	46900	20900	27200	9320	7830	7080	6650	6620	<u>6910</u>	75100	129000	78200	35230
1956-57	33900	26800	22800	23700	8360	14900	10900	10200	14700	140000	132000	96300	44770
1957-58	<u>118000</u>	49300	24400	25500	14600	11800	8500	9330	25200	114000	127000	45000	47940
1958-59	22600	21900	31200	18300	9900	8560	8870	7740	13500	86200	175000	91000	41320
1959-60	37700	46400	34800	21800	19300	11700	11300	10800	24330	103000	154000	118000	49500
1960-61	54300	37800	45100	26600	13800	10800	12200	9600	23700	117000	155000	63300	47580
1961-62	21800	27900	34700	21200	10200	11110	8600	7660	17580	58800	147000	120000	40670
1962-63	71600	32200	33800	<u>38200</u>	21600	9870	12800	9780	30900	107000	141000	99000	50830
1963-64	41700	30500	35000	20800	16900	11900	13200	10900	15980	65700	<u>282000</u>	122000	55430
1964-65	91600	32900	45700	30700	13400	12200	11800	11500	15300	79100	163000	96800	50520
1965-66	35800	32600	41800	27600	11800	9680	11100	8760	17900	96300	152000	113000	46880
1966-67	50100	42700	31800	22000	13300	12000	11510	10900	13900	96800	194000	74300	47850
1967-68	33800	23700	44000	21100	9480	12700	10800	<u>12900</u>	25900	117000	153000	90500	46330
1968-69	30700	30000	30000	26100	12400	8070	6800	8360	23610	87770	117800	39680	35170
1969-70	38390	<u>54240</u>	35150	23880	19270	11700	11200	10000	15200	71540	153800	51030	41300
1970-71	31890	28320	23820	10900	9020	<u>5760</u>	12110	<u>4890</u>	16440	83300	153300	86890	38960
1971-72	34160	43210	33240	20640	12000	11300	8330	9530	17750	125100	213500	93860	51890
1972-73	59310	25360	30270	18200	13890	12800	10900	9340	18080	106400	156900	82120	45480
1973-74	29590	32700	21820	10800	16290	7680	9980	11540	24340	85340	144300	122100	43210
1974-75	60110	35120	<u>53740</u>	22810	18070	12200	11520	9230	13640	68570	116600	72040	41320
1975-76	45120	21520	<u>16200</u>	13470	<u>7710</u>	13260	9220	7440	18640	104200	180000	<u>132200</u>	45880
1976-77	88800	39310	30550	23340	15870	13820	12310	10100	29280	102000	133700	93520	49610
1977-78	47230	32270	31010	19700	18640	13540	9520	9640	19120	58810	114300	<u>37760</u>	34360
1978-79	27120	28780	32800	23430	15240	8580	11120	9090	13440	73440	150300	102000	41370
1979-80	32950	29900	23600	11000	9194	8684	<u>4925</u>	6693	18650	77700	<u>86670</u>	61140	<u>31010</u>
MEAN	41060	31030	30550	22410	13920	11340	9731	8650	18910	95300	144400	81790	42590
MEDIAN	38200	30200	30700	22300	13800	11600	9270	8599	18080	93000	143000	79550	42030

PCC3M9

SLAVE RIVER BASIN

Alternative 4 Damsite

Data Source

Slave River Basin Alternative 4 Damsite

The Slave River (at the Alternative 4 damsite) drains an area of approximately 149,000 square kilometers. The Peace River drainage basin makes up about 50% of this total, with the Athabasca River drainage making up another 30%, and the remainder being made up by the Fond-du-Lac River and direct drainage into Lake Athabasca and the Slave River. Of the total inflow to the Slave River, 60% is contributed by the Peace River, 20% by the Athabasca River and the remaining 20% is made up of flows from the Fond-du-lac River as well as direct drainage into Lake Athabasca and the Slave River. Two factors affect the natural flows of the Slave River. These are the Bennett Dam and to a minor extent the Rochers Wier. The Bennett Dam was completed in 1968 and the reservoir filled from 1968 to 1971. Since completion of the dam the flows on the Peace River are much more uniform with larger winter flows and smaller floods. In an attempt to alleviate the detrimental ecological effects of the Benrrett Dam, a rock wier was constructed in the Riviere des Rochers between 1975 and 1976. This weir slows the drainage rate from Lake Athabasca.

A hydraulic model was developed to include the effects of the Bennett Dam operation, Lake Athabasca, and the Delta. A 40 year sequence of monthly flows was developed for study purposes. These flows were furnished to Bonneville Power Administration by TransAlta Utilities Corporation in a letter (with attachment) to Larry Dean dated March 19, 1984. Streamflows for the period July 1941 through June 1980 were provided and are enclosed in this report. A copy of the above referenced letter and attachment resides with Mr. Michael Newsom, Bonneville Power Administration (telephone (503) 230-4468).

ALTERNATIVE 4 DAM SITE

River: SLAVE

Monthly mean modified streamflow, in cfs, adj. for storage change, evap., and irrigation (1990 level).

	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AVE.
1927-28												0	
1928-29	0	0	0	0	0	0	0	0	0	0	0	0	0
1929-30	0	0	0	0	0	0	0	0	0	0	0	0	0
1930-31	0	0	0	0	0	0	0	0	0	0	0	0	0
1931-32	0	0	0	0	0	0	0	0	0	0	0	0	0
1932-33	0	0	0	0	0	0	0	0	0	0	0	0	0
1933-34	0	0	0	0	0	0	0	0	0	0	0	0	0
1934-35	0	0	0	0	0	0	0	0	0	0	0	0	0
1935-36	0	0	0	0	0	0	0	0	0	0	0	0	0
1936-37	0	0	0	0	0	0	0	0	0	0	0	0	0
1937-38	0	0	0	0	0	0	0	0	0	0	0	0	0
1938-39	0	0	0	0	0	0	0	0	0	0	0	0	0
1939-40	0	0	0	0	0	0	0	0	0	0	0	0	0
1940-41	0	0	0	0	0	0	0	0	0	0	0	156700	0
1941-42	132300	122700	130800	82000	85790	75790	87490	71410	83500	95990	189900	197900	108200
1942-43	167400	161800	138700	92030	70520	85000	87980	72290	71440	109500	196900	211800	120800
1943-44	163100	136700	130700	90720	85650	88450	88740	79420	75400	127900	275400	196200	124600
1944-45	175100	146300	150700	100100	89150	87620	88120	80270	75260	100800	170300	135600	113500
1945-46	125600	123100	135600	82110	83600	71720	88480	77340	98170	145000	178800	146100	109900
1946-47	123300	114500	110900	75820	52720	86070	86500	86040	82710	135100	187900	151100	102900
1947-48	145100	136700	136700	94980	87270	74130	97010	83630	96230	<u>294100</u>	229200	198900	137900
1948-49	184700	141000	162900	103100	75400	80410	97810	91180	103500	147300	206300	169700	130400
1949-50	185100	136900	140700	88430	89710	70130	70700	88510	73100	127100	170500	174400	113200
1950-51	137200	118900	117100	74440	54910	73810	76070	88650	78650	166200	203800	181000	112800
1951-52	152600	134200	147800	98130	73100	92350	67130	78400	72250	91820	181800	162600	112700
1952-53	136700	123400	126000	76530	58230	83000	58380	86920	80030	163600	173700	161500	108000
1953-54	165000	143700	142100	90440	78430	80020	87970	82850	85850	163300	<u>308500</u>	256600	140600
1954-55	247300	<u>238600</u>	<u>191200</u>	<u>126000</u>	104000	95000	105000	<u>97220</u>	100300	139700	246100	192800	157100
1955-56	187900	115900	121000	79780	57480	83320	69990	67910	83630	137600	190600	142400	109900
1956-57	138900	117000	128000	83480	51420	73770	82210	79280	100900	171300	176800	173300	114900
1957-58	208100	138300	144200	96550	88650	73980	86220	69250	125300	151000	228300	155700	127200
1958-59	120500	108000	135900	93800	81060	81400	88640	82670	86910	131900	198000	173400	113600
1959-60	115000	112800	127600	91220	80740	69430	87190	82570	85140	164000	264600	205100	122100
1960-61	202000	172900	142500	107500	72890	85640	91180	91460	86910	123400	196800	177500	129400
1961-62	121000	148200	119300	85070	60070	69710	80620	81290	110700	161000	205700	225400	122500
1962-63	185700	164800	139800	100400	82750	79880	82810	87860	144400	215500	235300	191700	141200
1963-64	160200	129700	123400	87300	80350	76480	87280	82280	98490	163900	263300	252900	132200
1964-65	<u>282000</u>	178000	176300	117800	83520	89730	99080	92520	141100	183500	253100	<u>265100</u>	<u>163900</u>
1965-66	164700	172900	169100	108900	74200	78150	98530	90480	130400	175800	215500	209600	140900
1966-67	181200	161700	139500	99450	87520	78470	91710	86730	91820	218800	264500	170700	137900
1967-68	162800	121200	130700	84580	64410	84400	82780	83800	94470	155500	218800	173400	121500
1968-69	150000	131900	114600	90300	58550	70030	84080	86240	99660	151300	156100	136300	110900
1969-70	116600	121400	126900	83550	57670	67730	78650	70240	94080	122500	167300	149100	104700
1970-71	121200	95420	87120	78890	54460	59470	69150	78430	95240	151700	231200	214600	111600
1971-72	143900	144700	142100	89700	62610	63780	78400	83020	110500	178600	287200	237100	135200
1972-73	207600	152800	154700	97010	58410	70840	92880	86580	<u>145400</u>	182400	213500	190700	137900
1973-74	126300	108900	135500	88250	61170	66670	76350	86100	139500	231000	231700	211200	130600
1974-75	167400	137600	154700	88600	73420	77270	79250	90650	78030	136000	175900	177600	119900
1975-76	122500	121100	117000	95700	69460	73350	78190	80270	104400	164200	212900	206800	120500
1976-77	252000	157700	180000	124400	101100	<u>102600</u>	87900	78080	112400	189700	237000	221300	154200
1977-78	190000	157000	167400	122300	<u>104100</u>	100600	<u>110900</u>	92950	93020	145600	199400	149800	136200
1978-79	133700	127900	134200	122900	104000	97610	88390	81540	104500	168700	236100	207500	134100
1979-80	153700	145400	117900	98700	80990	80550	76920	65860	82510	98300	178800	0	0
1980-81	0	0	0	0	0	0	0	0	0	0	0	0	0
1981-82	0	0	0	0	0	0	0	0	0	0	0	0	0
1982-83	0	0	0	0	0	0	0	0	0	0	0	0	0
1983-84	0	0	0	0	0	0	0	0	0	0	0	0	0
1984-85	0	0	0	0	0	0	0	0	0	0	0	0	0
1985-86	0	0	0	0	0	0	0	0	0	0	0	0	0
1986-87	0	0	0	0	0	0	0	0	0	0	0	0	0
1987-88	0	0	0	0	0	0	0	0	0	0	0	0	0
1988-89	0	0	0	0	0	0	0	0	0	0	0	0	0
1989-90	0	0	0	0	0	0	0	0	0	0	0	0	0

**DATE
FILMED**

10 / 14 / 93

END