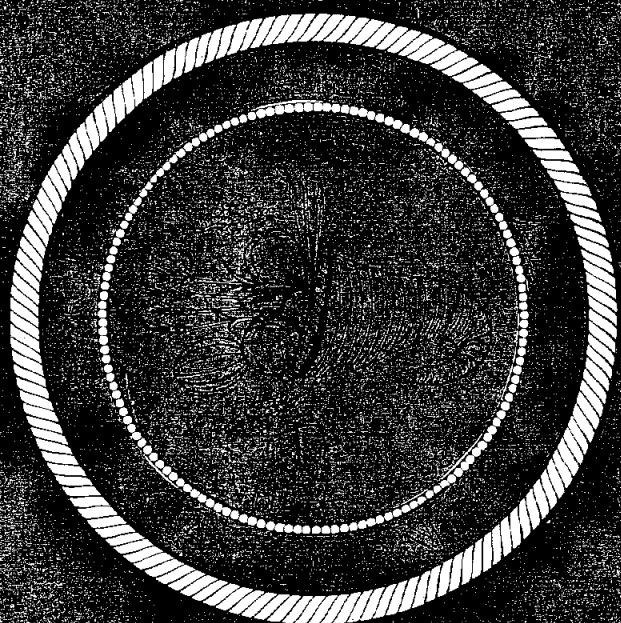


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KERN RIVER 1983



Joint Exhibit 79

KERN RIVER IN REVIEW

1983

Record setting rainfall and runoff amounts experienced on the Kern River water shed during the fall of 1982 carried over into 1983 as severe storm systems continually saturated the southern Sierras. Precipitation amounts recorded at Isabella Dam and Reservoir totaled 14.63 inches between January 1 and March 31. Record high water content readings were found on several of the snow courses in the Kern River basin, some with measurement records dating back to the year 1930. An unusually cool month of April delayed the melt of the record-breaking snow pack in the Sierras, but warm temperatures towards the end of May caused Kern River flow to climb to new highs for the April thru July runoff period.

Mandatory flood control releases at Isabella Reservoir were initiated by the Corps of Engineers on March 9, 1983 and except for the period of August 1 thru 16 continued throughout the remainder of the year. Storage evacuation efforts were hampered by the extremely high natural flow of the Kern, however, Isabella Reservoir storage was drawn down to 352,377 acre-feet on May 15, the lowest point it had been since February 27, 1983. 46 consecutive days passed after May 15 before a withdrawal from Isabella Reservoir could be accomplished. Isabella Reservoir peaked on July 6 with 630,825 acre-feet of storage. On this date, 5,721 cubic feet per second was flowing over the dam spillway.

Kern River natural flow during the 1983 April thru July runoff period totaled 1,545,810 acre-feet, 323% of average and 407% of the historical median, placing it third largest of the 90 years of record. Water year and Calendar year runoff amounts exceeded those experienced in 1969, thus becoming the highest amounts recorded in 67 years.

As of December 31, 1983, 311,944 acre-feet remained in storage behind Isabella Dam.

On the following page, a list of records or near records set on the Kern River during 1983 is detailed.

HYDROGRAPHIC NOTES ON KERN RIVER FOR 1983

1. Highest minimum natural flow day on record for Calendar year (Nov. 6 @ 602 cfs)
2. Largest June natural flow on record (571,846 AcFt)
3. Largest August natural flow on record (154,935 AcFt)
4. Largest September natural flow on record (68,503 AcFt)
5. Largest October natural flow on record (53,300 AcFt)
6. Largest natural flow day on record for May (May 29 @ 14,038 cfs)
7. Largest natural flow day on record for August (Aug. 19 @ 3,795 cfs)
8. Longest sustained period natural flow exceeds 1,000 cfs (241 days between January 22 and September 19)
9. Largest volume of Kern River flow @ Second Point of Measurement (1,204,310 AcFt)
10. Highest Isabella Reservoir storage level on record (July 6 @ 630,825 AcFt)
11. Highest release from Isabella Reservoir on record (June 29 @ 7,237 cfs)
12. Longest period of time Isabella Reservoir flowing over spillway (38 days between June 13 and July 20), highest spillway discharge on record (5,721 cfs on July 6) and largest volume of water flowing over spillway calculated @ 244,125 AcFt
13. Wettest 2 year (1982-1983) consecutive period on record (3,760,267 AcFt)
14. Wettest 5 year (1979-1983) consecutive period on record (6,522,148 AcFt)
15. Largest volume of water passing 1st Point of Measurement between September 1 and December 31 before or after completion of Isabella Reservoir (459,212 AcFt)
16. Greatest number of days after August 1 that natural flow exceeded 90 year historical mean of 1,019 cfs (100 days)
17. Largest volume of Friant-Kern inflow to Kern River channel (139,125 AcFt)
18. Highest annual precipitation total on record for Isabella Dam & Reservoir (23.84")
19. Largest annual volume of flow to be released from Isabella Dam in its 30 years of operation (2,245,565 AcFt)
20. First year on record to have maximum natural flow days in excess of 1,500 cfs occurring all 12 months
21. Highest minimum natural flow day on record for the months of January (Jan. 15 @ 885 cfs), June (June 30 @ 7,574 cfs), August (Aug. 31 @ 1,461 cfs), September (Sep. 28 @ 876 cfs), October (Oct. 30 @ 690 cfs) and December (Dec. 20 @ 1,003 cfs)
22. Highest natural flow on record for Memorial Day @ 13,148 cfs (previous high of 11,931 cfs in 1969)
23. Highest natural flow on record for Labor Day @ 1,496 cfs (previous high of 1,369 cfs in 1906)
24. Largest volume of inflow to Kern River below Isabella Dam during the months of March (37,912 AcFt), September (7,454 AcFt), October (6,473 AcFt) and November (5,718 AcFt) in 30 years of record
25. Highest minimum natural flow day on record for March since March of 1916 (March 12 @ 3,401 cfs)
26. Highest minimum natural flow day on record for July since July of 1906 (June 31 @ 3,020 cfs)
27. Largest volume of water passing 1st Point of Measurement during any one month since May of 1952 (June @ 419,760 AcFt)
28. Largest volume of water passing 1st Point of Measurement during the Calendar year since 1916 (2,381,575 AcFt)
29. Second greatest number of days during the year that natural flow exceeded 10,000 cfs (23 days)
30. Second largest March natural flow on record (265,543 AcFt)
31. Second largest May natural flow on record (478,625 AcFt)
32. Second largest July natural flow on record (288,866 AcFt)
33. Second largest November natural flow on record (71,599 AcFt)
34. Second largest December natural flow on record (103,019 AcFt)
35. Second largest Calendar year runoff on record (2,489,128 AcFt)
36. Second largest Water year runoff on record (2,442,481 AcFt)
37. Second largest volume of January thru March runoff on record (491,962 AcFt)
38. Second wettest back to back months on record (May-June @ 1,050,471 AcFt)
39. Second highest natural flow on record for Independence Day @ 7,628 cfs (record high of 8,431 cfs in 1906)
40. Second highest natural flow on record for Thanksgiving Day @ 2,225 cfs (record high of 2,439 cfs in 1946)
41. Second highest natural flow on record for Christmas Day @ 4,214 cfs (record high of 4,322 cfs in 1955)
42. Third largest April thru July runoff on record (1,545,810 AcFt)
43. Fourth largest February natural flow on record (138,514 AcFt)

DISCHARGE IN CUBIC FEET PER SECOND

1983

KERN RIVER CONDUIT AT ALTERNATE SECOND POINT (Total Flow)

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	0	0	66	64	662	709	76	317	647	309	301	240
2		54	71	620	654	720	795	254	651	244	306	245
3		27	339	595	667	738	760	295	573	304	306	245
4		107	340	597	674	743	76	314	492	301	301	244
5		102	602	604	676	762	787	422	413	292	307	248
6		600	608	603	660	736	718	419	455	288	305	246
7		683	610	593	702	763	720	429	462	291	306	249
8		702	607	592	647	721	729	464	462	290	302	244
9		706	604	596	639	751	782	478	465	294	300	244
10		709	603	599	658	719	743	456	467	290	302	242
11		700	601	598	653	720	682	321	382	356	306	200
12		700	60	595	592	736	605	321	395	386	300	201
13		707	606	599	593	726	520	307	397	446	301	229
14		710	605	618	609	729	463	324	369	486	302	245
15		702	610	620	613	728	454	297	374	477	303	241
16		706	613	624	677	726	447	293	373	475	301	277
17		707	613	609	671	748	438	281	370	489	301	295
18		717	601	603	639	815	436	267	313	540	300	247
19		715	599	621	632	714	454	278	297	525	299	298
20		707	600	657	583	791	425	291	307	533	299	296
21		705	600	664	624	714	406	284	309	476	301	294
22		705	610	709	639	716	383	313	312	379	273	300
23		709	628	697	691	770	385	315	310	316	254	302
24		712	624	720	627	746	332	316	309	303	245	291
25		709	594	704	610	713	306	297	309	302	246	332
26		640	597	713	577	697	279	291	311	301	256	260
27		702	604	678	617	646	213	284	311	302	257	288
28		711	609	648	649	672	195	258	316	305	256	330
29			608	645	622	701	240	435	318	302	238	356
30			600	646	627	728	279	642	325	300	226	355
31			605		653	374	374	646	305	305		358
TOTAL	0	17,381	18,230	19,028	19,777	22,026	15,932	10,883	11,609	11,257	8,600	8,427
MAX.		717	660	734	702	815	795	642	651	540	307	358
MIN.		0	339	592	577	672	195	254	297	288	226	200
MEAN		621	588	634	638	734	514	351	387	363	287	272
TOTAL AC. FT.	0	34,475	36,158	37,741	39,227	43,688	31,601	21,586	23,026	22,328	17,068	16,715
WHOLE YEAR:-	TOTAL, 163,150			MAXIMUM, 815		MINIMUM, 0		MEAN, 447				TOTAL AC. FT., 323,603

KERN RIVER CHANNEL AT SECOND POINT OF MEASUREMENT (Total Flow)

1983

DISCHARGE IN CUBIC FEET PER SECOND

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	435	1087	1048	1804	3039	3354	3363	496	27	543	299	266
2	476	1282	901	1844	2827	3550	3690	104	19	455	251	359
3	408	1077	421	1839	3076	3621	3672	12	39	385	259	426
4	500	1037	287	1725	3108	3653	3395	0	275	315	271	439
5	561	1077	683	1856	3263	3636	3171	782	284	324	275	350
6	598	1078	70	2118	3272	3504	3256	829	273	276	308	327
7	605	1214	749	2218	3160	3546	3244	741	331	229	299	307
8	628	612	741	2215	3206	3491	3207	468	318	222	276	356
9	838	458	808	2393	3275	3454	3348	435	265	190	255	394
10	832	572	727	2508	3232	3487	3453	452	289	195	309	492
11	821	807	839	2582	3230	3471	3527	394	355	197	411	470
12	772	886	821	2526	3310	3482	3418	416	388	128	326	467
13	676	876	931	2604	3210	3465	3324	386	400	96	289	430
14	734	940	918	2840	3188	3422	3175	340	378	91	275	422
15	736	879	900	2910	3205	3341	3325	341	372	81	248	479
16	745	824	1078	3006	3058	3275	3362	425	435	62	286	480
17	818	839	1166	3026	2768	3260	3362	467	434	21	297	471
18	812	890	1247	2996	2756	3333	3116	740	389	0	349	452
19	836	964	1217	2991	2837	3368	3024	767	343	0	342	436
20	828	946	1245	3026	3049	3303	2842	444	343	47	440	421
21	860	950	1257	3102	3228	3271	2778	330	362	137	370	419
22	734	934	1366	3167	3104	3179	2922	388	358	209	353	419
23	1092	903	1014	3274	3001	3158	2978	412	401	240	363	401
24	821	1099	918	3174	3009	3175	3010	579	443	248	439	489
25	780	1256	1797	3134	2947	3233	2876	598	446	297	378	522
26	853	1540	1682	3055	3131	3205	2700	587	464	308	277	424
27	1125	1279	1637	3028	3205	3185	2376	514	460	291	317	417
28	1203	1335	1658	3008	3272	3179	2988	511	488	296	301	268
29	1004	1004	1767	3064	3437	3166	1691	366	540	278	327	294
30	990	1672	1672	3171	3089	3196	1443	157	522	249	270	312
31	952	1650	1650	3269	3269	3269	824	91	253	253	253	288
TOTAL	24,249	27,684	36,095	80,176	97,141	101,015	90,611	13,514	10,481	6,610	9,664	12,503
MAX.	1263	1540	1918	3274	3437	3553	3672	829	540	543	639	522
MIN.	435	488	287	1725	2756	3158	824	0	19	0	248	266
MEAN	782	989	1104	2673	3134	3367	2923	436	349	213	322	403
TOTAL AC. FT.	18,097	54,910	71,594	159,027	192,676	200,360	179,724	26,805	20,789	13,111	19,168	24,799

TOTAL AC. FT., 1,011,060

MEAN, 1,317

MINIMUM, 0

MAXIMUM, 3,672

WHOLE YEAR- TOTAL, 509,743

TOTAL FLOW AT SECOND POINT OF MEASUREMENT

1983

DISCHARGE IN CUBIC FEET PER SECOND

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	435	1087	2300	2416	3701	4060	4180	813	644	862	600	506
2	478	1280	1372	2464	3481	4276	4385	356	676	764	557	604
3	468	1354	760	2484	3743	4359	4456	307	612	689	565	671
4	500	1440	677	2322	3782	4396	4171	314	767	646	572	683
5	581	1539	1285	2462	3939	4340	3958	1204	777	616	582	604
6	596	1738	1398	2721	3932	4300	3974	1248	728	504	643	573
7	765	1897	1379	2811	3862	4249	3984	1170	733	511	635	556
8	828	1314	1346	2807	3853	4212	3936	932	729	512	578	608
9	838	1163	1412	2989	3914	4205	4130	910	670	484	555	608
10	832	1281	1330	3107	3890	4206	4196	910	678	485	611	614
11	821	1513	1446	3150	3883	4191	4009	715	737	515	717	670
12	772	1366	1431	3121	3902	4216	4023	739	778	514	626	668
13	676	1577	1537	3263	3803	4193	3844	693	717	542	590	659
14	734	1700	1523	3458	3747	4151	3328	604	767	579	577	667
15	730	1581	1510	3536	3818	4069	3479	640	766	558	551	720
16	746	1530	1641	3400	3735	4001	3669	718	806	537	589	757
17	818	1346	1779	3365	3489	4000	3554	748	814	510	600	766
18	812	1607	1848	3399	3375	4148	3510	1007	762	540	619	749
19	836	1669	1816	3612	3469	4152	3463	985	640	525	641	734
20	828	1682	1846	3683	3532	4054	3267	735	660	580	739	717
21	640	1655	1857	3763	3552	4065	3164	614	671	607	671	713
22	754	1639	1976	3876	3803	3977	3305	701	670	588	626	719
23	1042	1672	2242	3971	3632	3928	3363	727	711	565	617	763
24	821	1811	2582	3894	3636	3915	3342	815	752	561	884	780
25	780	1965	2391	3868	3557	3946	3176	815	756	599	624	834
26	853	2230	2279	3768	3708	3962	2979	878	775	609	635	684
27	1125	1981	2241	3726	3822	3881	2589	778	771	593	574	705
28	1203	2046	2267	3656	3921	3851	2283	769	804	595	557	598
29	1004	2316	2316	3769	4059	3867	1931	801	858	580	566	650
30	946	2278	2278	3817	3836	3924	1442	799	847	549	496	667
31	952	2255	2255	4022	4022	3924	1198	767	568	568	496	646
TOTAL	24,249	45,065	54,325	99,204	116,918	123,041	109,543	24,397	22,070	17,867	18,264	20,930
MAX.	1263	2230	2542	3971	4059	4396	4458	1248	868	852	884	854
MIN.	435	1087	677	2322	3395	3851	1198	307	612	484	496	506
MEAN	782	1609	1752	3307	3772	4101	3437	787	736	576	609	675
TOTAL AC. FT.	48,097	89,385	107,752	196,768	231,903	244,048	211,325	48,391	43,815	35,439	36,226	41,514

WHOLE YEAR-- TOTAL, 672,893

MAXIMUM, 4,458

MINIMUM, 307

MEAN, 1,844

TOTAL AC. FT., 1,334,663

DISCHARGE IN CUBIC FEET PER SECOND

1983

KERN RIVER WATER AT SECOND POINT OF MEASUREMENT

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	0	480	691	2418	3701	4063	4133	813	644	882	600	506
2	38	624	880	2464	3481	4270	4355	358	670	734	587	604
3	28	710	608	2434	3743	4359	4458	307	612	689	565	671
4	7	604	639	2322	3782	4396	4471	314	767	616	572	683
5	21	537	1066	2462	3939	4340	4458	1204	777	616	582	604
6	0	766	670	2721	3932	4800	4774	1248	728	564	613	573
7		843	666	2811	3862	4249	4984	1170	733	511	635	556
8		288	691	2867	3853	4212	4926	932	726	512	578	605
9		184	766	2989	3914	4205	4190	913	670	484	555	608
10		240	626	3107	3890	4206	4196	910	698	485	611	675
11		72	1072	3150	3883	4191	4269	76	737	515	717	636
12		81	1078	3121	3902	4218	4023	739	778	514	626	694
13		308	1178	3263	3863	4193	3844	693	777	542	590	594
14		190	1173	3458	3977	4151	3628	604	767	571	577	602
15		72	1408	3530	3818	4069	3479	640	766	558	551	655
16		8	1691	3636	3735	4001	3509	718	808	537	589	692
17		10	1779	3635	3439	4006	3564	748	812	510	600	701
18		4	1848	3699	3995	4148	3510	1007	762	640	619	709
19		25	1816	3612	3469	4152	3403	985	640	525	644	709
20	0	9	1845	3683	3632	4054	3267	738	650	580	739	717
21	76	28	1857	3763	3852	4065	3184	614	671	607	671	713
22	356	26	1976	3876	3863	3977	3305	701	670	588	626	719
23	646	56	2242	3971	3633	3928	3363	727	711	550	617	703
24	430	193	2542	3894	3915	3915	3342	896	752	501	884	780
25	209	344	2391	3868	3636	3946	3176	815	756	519	624	834
26	254	590	2279	3768	3557	3902	3179	878	775	609	533	604
27	517	320	2241	3726	3768	3881	2589	798	771	593	574	765
28	536	399	2267	3656	3921	3851	2283	769	804	515	567	596
29	435		2315	3709	4059	3867	1931	801	888	380	566	655
30	376		2278	3617	3936	3924	1442	799	847	549	476	655
31	343		2250		4022		1198	707		588		637
TOTAL	4,274	7,880	46,290	99,204	116,918	123,041	106,543	24,397	22,090	17,867	18,204	20,407
MAX.	646	843	2342	3971	4059	4396	4458	1248	888	882	884	854
MIN.	0	4	480	2322	3345	3651	1198	307	612	484	476	506
MEAN	138	281	1493	3307	3772	4101	3437	787	736	576	609	658
TOTAL AC. FT.	8,476	15,629	91,814	196,768	231,903	244,048	211,325	48,391	43,815	35,439	36,226	40,476

WHOLE YEAR- TOTAL, 607,175

MAXIMUM, 4,458

MINIMUM, 0

MEAN, 1,664

TOTAL AC. FT., 1,204,310

UTILIZATION OF STORAGE - ISABELLA RESERVOIR
 KERN RIVER FIRST POINT GROUP 1983

Quantities in acre-feet

End of Month Unit Storage

STORAGE UNITS	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	TOTAL
Kern Island	2500	15000	15000	15000	16000	14000	7000	2500	2500	2500	2500	2500	99,000
Buena Vista	1500	6950	11000	11000	11000	11000	6000	2000	1500	1500	1500	1500	66,450
Stine	1500	8382	9000	9000	9000	9000	5000	1500	1500	1500	1500	1500	58,382
Farmers	1500	6000	6000	6000	6000	6000	4000	2500	2000	1500	1500	1500	44,500
KERN DELTA WD TOTAL	7000	36332	41000	41000	44000	40000	22000	8500	7500	7000	7000	7000	268,332

City of Bakersfield	18044	73253	59750	24612	45525	83718	75403	78687	60590	44785	39949	44752	679,068
K.R.C. & Irrigating Co.	21540	14318	14777	17495	18000	18000	18000	18000	18000	18000	18000	18000	212,130
South Fork	600	1051	1541	1800	1800	1800	1800	1800	1800	1800	600	600	16,992
CITY TOTAL	70184	88622	76068	43907	65325	103518	95203	98487	80390	64585	58549	63352	908,190

North Kern WSD	68506	81648	92839	84908	107325	143519	117203	113401	87890	71586	65549	76352	1,106,726
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TOTAL 1st Pt. STORAGE	145,690	266,002	209,907	167,815	218,650	287,037	234,406	220,388	175,780	143,171	131,098	140,704	2,283,248
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**KERN RIVER GROUNDWATER REPLENISHMENT OPERATIONS
FIRST POINT GROUP FACILITIES**

Year: 1983

Quantities in acre-feet

LOCATION	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
CITY OF BAKERSFIELD													
Kern River Laterals	0	0	175	117	214	331	417	207	12	58	0	0	1,543
Carrier Spreading	0	686	728	71	202	546	417	115	0	0	143	91	3,009
Calloway - Central - ID#4	700	422	656	432	445	903	1310	1473	1880	1771	1656	1620	13,268
James (City)	0	40	54	52	71	73	72	70	58	34	38	48	618
Upstream of 2800 Ac.	1791	5127	6177	7059	10034	11209	8555	3794	5788	5192	3858	3799	72,383
2800 Acre Spdg. Fac.	2756	7801	8086	10264	13465	15279	13048	5761	9278	9343	7664	7435	110,970
Subtotal City of Bakersfield	5247	14086	16476	17985	24439	28341	23819	11620	17016	16318	13365	12999	201,711
CITY/OTHERS FACILITIES													
Pioneer (JPID)	2105	3148	3459	4231	4519	5348	3408	1837	2850	2700	1936	2321	38,662
James (JPID)	0	0	0	405	1847	992	515	0	0	83	301	311	4,454
KCWA Spreading	0	0	593	256	1851	1632	1563	260	1382	1368	1416	967	11,288
Boswell Spreading	0	0	0	0	4346	3558	2983	0	0	0	0	0	10,887
Rosedale RBWSD	7529	7710	9328	11290	15776	16770	15390	10295	12314	10141	9253	7275	133,094
TOTAL	15681	24944	29856	34167	52798	56644	41678	24012	33562	30690	26271	23873	400,176
KERN DELTA WD													
Kern Island	711	759	599	1519	2446	3078	2145	1170	1790	1500	791	586	17,094
Eastside	0	0	0	0	0	0	31	0	0	0	0	0	31
Buena Vista	0	986	1505	1111	1652	2453	1997	1276	1427	904	906	906	15,177
Stine	106	99	184	166	780	1348	546	117	142	29	67	51	3,635
Farmers	126	392	343	399	452	661	920	892	975	881	812	642	7,495
TOTAL KERN DELTA WD	943	2236	2631	3195	5300	7540	5639	3449	4334	3374	2576	2185	43,432
NKMSD													
Calloway - NKMSD	1304	1364	1394	203	1559	2268	2874	1587	1639	1693	1194	956	17,265
District Spreading	16764	14861	14618	13528	13156	12871	13574	12540	13257	12932	12837	11907	162,845
Poso Creek Spreading	1245	0	0	0	248	1488	2432	3126	3567	3337	1731	0	17,174
TOTAL NORTH KERN WSD	19313	16225	16692	13741	14763	16627	18100	17253	18463	17962	15762	12863	197,284
TOTAL - ALL UNITS	35,937	43,405	48,499	51,103	73,091	80,811	71,417	44,714	56,359	52,026	44,609	38,921	640,892