From USGS NWIS USGS 06853500 REPUBLICAN R NR HARDY, NE AF

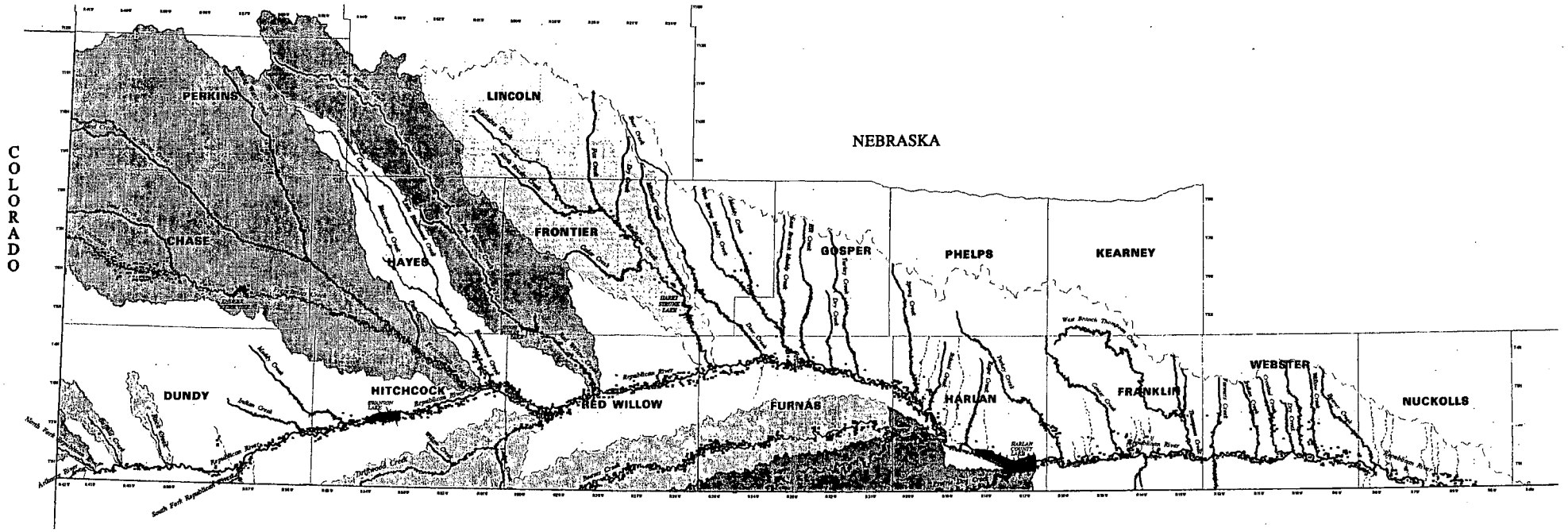
YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1962	13,381	16,133	17,923	34,808	22,588	96,109	171,557	110,484	58,034	27,007	12,533	11,662	592,220
1963	9,637	29,605	66,229	40,392	13,074	6,831	5,383	20,869	43,481	24,552	17,939	13,872	291,863
1964	13,442	18,073	10,557	7,900	4,775	10,157	5,696	14,670	27,740	6,445	6,653	6,506	132,616
1965	8,839	13,084	17,002	12,533	39,160	66,231	96,674	11,969	36,590	120,919	77,398	41,002	541,401
1966	39,038	53,666	59,354	40,036	16,695	12,949	34,557	11,908	15,147	10,005	8,554	13,442	315,351
1967	12,706	29,605	31,918	21,206	12,399	117,553	129,328	22,649	16,038	6,997	8,672	7,795	416,865
1968	6,199	18,628	21,115	38,135	17,616	10,930	8,164	14,854	11,048	8,409	7,366	5,659	168,122
1969	6,261	37,200	44,439	23,285	56,777	47,104	37,074	22,649	26,730	12,092	22,156	27,498	363,265
1970	18,107	29,938	38,792	44,550	17,371	8,791	4,358	6,199	5,904	8,716	10,217	8,225	201,168
1971	6,322	11,587	16,143	10,454	10,619	21,681	8,286	5,954	4,918	2,652	8,672	9,084	116,373
1972	7,243	7,484	7,979	7,603	9,698	6,712	12,030	13,381	8,554	6,875	10,811	9,882	108,253
1973	14,117	10,977	19,151	23,582	37,687	22,513	14,547	10,987	86,427	78,075	25,720	19,028	362,811
1974	23,202	43,243	44,378	37,244	32,593	11,345	4,395	12,215	4,497	7,427	9,148	9,330	239,015
1975	9,944	10,977	15,222	10,157	8,348	66,112	25,595	10,435	5,328	6,568	8,494	10,742	187,922
1976	9,514	9,425	9,453	21,622	10,373	9,801	9,330	6,052	3,873	3,186	2,726	4,769	100,123
1977	4,493	9,647	7,488	6,415	7,734	9,920	9,023	20,685	47,579	10,373	9,207	7,795	150,360
1978	5,960	5,483	33,759	14,315	9,637	4,312	8,102	17,248	23,582	6,629	7,781	6,752	143,560
1979	4,634	22,287	57,759	17,701	21,237	8,910	14,915	18,660	5,423	7,488	13,246	9,575	201,836
1980	8,102	10,146	19,151	31,779	11,171	10,811	5,248	8,532	3,635	5,690	5,833	7,059	127,156
1981	7,059	5,932	7,059	2,928	22,772	7,781	23,263	18,107	9,563	7,427	8,732	12,706	133,329
1982	6,199	23,617	16,020	10,157	83,477	31,423	42,168	18,107	12,236	13,013	9,563	9,023	275,004
1983	11,417	19,238	39,345	37,422	41,309	70,686	19,519	13,135	43,956	66,352	15,800	13,811	391,989
1984	30,690	24,338	24,920	64,924	92,070	45,203	11,294	8,777	5,423	3,357	7,247	18,353	336,597
1985	9,330	14,193	12,583	10,870	43,212	11,524	15,591	42,168	14,672	15,284	11,939	11,417	212,781
1986	14,731	11,642	11,969	17,701	14,117	13,187	11,908	16,204	23,285	23,018	10,454	12,030	180,247
1987	10,987	8,870	48,920	59,281	37,626	13,662	20,931	20,624	7,960	7,979	9,801	11,908	258,548
1988	11,601	14,304	11,846	9,088	6,752	3,309	31,856	14,424	4,158	3,333	6,237	7,059	123,966
1989	7,366	8,039	8,532	5,411	2,093	4,402	29,708	10,680	3,659	5,383	6,296	5,230	96,798
1990	7,734	5,333	5,365	8,019	8,839	17,642	11,417	29,831	4,271	2,142	2,138	2,148	104,878
1991	3,922	8,316	4,082	2,323	6,384	13,068	3,333	3,603	909	1,056	1,325	1,608	49,927
1992	2,069	1,497	4,782	3,374	1,817	2,762	57,083	14,915	8,316	7,488	7,544	7,427	119,074
1993	7,059	28,607	97,226	32,254	28,419	19,424	197,030	52,050	69,676	76,786	77,695	56,961	743,187
1994	29,094	29,328	69,544	23,819	21,913	8,019	16,757	8,716	8,316	6,813	8,197	9,391	239,907
1995	7,059	7,263	9,944	10,039	70,648	68,726	18,966	14,363	6,356	6,506	9,682	9,268	238,820
1996	8,593	7,152	9,637	8,613	24,552	20,255	36,276	59,416	76,210	69,789	53,341	20,317	394,151
1997	19,396	16,521	13,995	49,658	28,971	17,582	12,092	11,048	6,356	4,935	14,612	18,230	213,397
1998	15,959	14,747	17,923	46,213	29,647	7,247	16,020	12,583	4,574	8,961	11,702	12,276	197,852
1999	15,591	11,033	10,987	15,206	44,009	19,305	9,698	10,435	3,416	5,745	7,247	8,655	161,326
2000	9,084	7,928	4,646	14,315	5,708	7,781	31,058	5,702	2,293	1,755	2,519	1,492	94,283
2001	2,498	2,844	33,207	12,949	48,183	23,404	17,984	9,023	6,415	0	0	0	156,507
Mean 62-2001	11,464	16,448	25,009	22,207	25,552	24,379	30,955	18,858	18,914	17,431	13,880	11,975	237,071
Max	39,038	53,666	97,226	64,924	92,070	117,553	197,030	110,484	86,427	120,919	77,695	56,961	743,187
Min	2,069	1,497	4,082	2,323	1,817	2,762	3,333	3,603	909	0	0	0	49,927
SD	7783.596	11452.03	21562.58	16388.3	21603	26962.08	43259.36	18826.4	22039.04	26479.66	17088.52	10311.99	148120.3

From USGS NWIS

YEAR	Total	Percent Rank	Percentile	Percentile	Five-Month Maximum	Percent Rank	Percentile	Percentile	Unuseable Flow Release
1962	592,220	0.97	684,310	99%	463,191	0.97	469,320	99%	498,805
1963	291,863	0.74	625,433	98%	158,937	0.62	465,402	98%	244,323
1964	132,616	0.26	583,581	97%	64,708	0.13	442,852	97%	153,425
1965	541,401	0.95	563,762	96%	343,550	0.95	396,192	96%	393,991
1966	315,351	0.77	543,942	95%	208,789	0.77	349,532	95%	287,568
1967	416,865	0.92			312,402	0.92			355,832
1968	168,122	0.41			106,423	0.41			152,783
1969	363,265	0.85			208,805	0.79			210,376
1970	201,168	0.51			148,757	0.59			222,979
1971	116,373	0.15			70,484	0.21			83,272
1972	108,253	0.13			51,650	0.03			59,164
1973	362,811	0.82			220,237	0.85			100,638
1974	239,015	0.64			180,659	0.69			194,428
1975	187,922	0.46			125,435	0.46			104,380
1976	100,123	0.08			60,673	0.08			135,992
1977	150,360	0.33			97,580	0.36			79,463
1978	143,560	0.31			70,126	0.18			75,252
1979	201,836	0.54			127,894	0.51			39,714
1980	127,156	0.23			83,057	0.28			98,551
1981	133,329	0.28			81,487	0.26			44,648
1982	275,004	0.72			187,411	0.74			47,544
1983	391,989	0.87			213,648	0.82			244,200
1984	336,597	0.79			251,456	0.87			146,930
1985	212,781	0.56			127,166	0.49			58,007
1986	180,247	0.44			87,601	0.31			88,244
1987	258,548	0.69			180,420	0.67			52,614
1988	123,966	0.21			65,429	0.15			109,520
1989	96,798	0.05			55,727	0.05			64,563
1990	104,878	0.10			75,747	0.23			56,055
1991	49,927	0.00			34,172	0.00			47,237
1992	119,074	0.18			95,347	0.33			22,641
1993	743,187	1.00			473,238	1.00			196,933
1994	239,907	0.67			173,697	0.64			142,131
1995	238,820	0.62			182,742	0.72			144,285
1996	394,151	0.90			295,032	0.90			250,861
1997	213,397	0.59			128,542	0.54			133,106
1998	197,852	0.49			124,489	0.44			95,631
1999	161,326	0.38			100,540	0.38			64,107
2000	94,283	0.03			64,566	0.10			124,367
2001	156,507	0.36			135,727	0.56			55,814
Mean 62-2001	237,071				155,939				142,009
Max	743,187				473,238				498,805
Min	49,927				34,172				22,641
SD	148120.3				104166.8				105,245

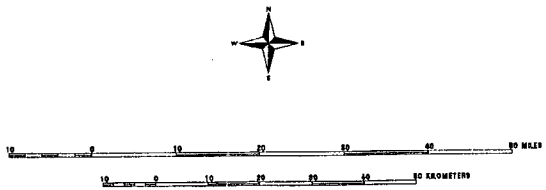
1994 Ground Water Wells Reported to Republican River Compact Commission

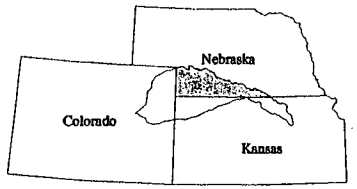
Republican River Basin, Nebraska



Sub Basins and Map Features

- Arikaree River
- Beaver Creek
- Buffalo Creek
- Driftwood Creek
- Frenchman River
- Main Stem Republican River
- Medicine Creek
- North Fork Republican River
- Prairie Dog Creek
- Red Willow Creek
- Rock Creek
- Sappa Creek
- South Fork Republican River
- Ground Water Wells
- Perennial Streams





DEPARTMENT OF Water RESOURCES

Department of Water Resources
State of Nebraska
Prepared by Wade D. Kenney
June 6, 1995

Calendar Year	Annual Total Flow (AF) Arikaree USGS Gaging Station #06821500	North Fork USGS Gaging Station #06823000	Buffalo Creek USGS Gaging Station #06823500	Rock Creek USGS Gaging Station #06824000	South Fork USGS Gaging Station #06827500	Frenchman USGS Gaging Station #06835500	Driftwood Creek USGS Gaging Station #06836500	Red Willow Creek USGS Gaging Station #06838000	Medicine Creek USGS Gaging Station #06842500	Beaver Creek USGS Gaging Station #06847000	Sappa Creek USGS Gaging Station #06847500	Prairie Dog Creek USGS Gaging Station #06848500	Courtland Canal USGS Gaging Station #06852500	Republican Guide Rock USGS Gaging Station #06853000 (1959-	Republican near Hardy USGS Gaging Station #06853500	Flood Year 5 mo	Flood Year 2 mo
1959	9,860	35,995	5,492	10,670	27,463	38,190	3,698	24,168	46,522	7,120	13,956	7,557	31,091	261,847	313,734		
1960	32,820	37,688	5,651	10,926	31,579	120,905	18,532	74,845	76,715	10,881	39,792	9,107	31,285	330,577	576,001	522,451	
1961	11,513	33,745	5,038	9,987	28,634	72,403	2,902	20,391	33,045	1,485	3,008	26,149	48,844	236,002	275,839		
1962	28,928	38,115	6,897	10,600	35,530	114,768	14,166	74,570	68,464	10,650	27,186	31,811	24,866	361,668	501,416	464,127	282,611
1963	10,765	30,555	4,429	9,647	24,938	67,661	4,885	6,835	36,297	1,659	1,811	24,054	75,690	258,065	292,453		
1964	10,340	29,486	3,902	9,593	17,533	57,085	6,258	6,773	46,737	1,242	31,780	4,701	83,410	110,474	132,884		
1965	18,100	39,087	5,611	10,869	30,819	74,597	14,589	9,485	39,632	6,345	15,419	27,157	56,179	281,301	514,195	344,244	
1966	13,377	40,051	5,311	10,118	30,115	68,878	4,476	8,684	47,009	1,705	1,276	26,207	83,377	280,428	315,988		
1967	10,919	33,171	5,111	10,129	26,092	38,580	5,159	13,888	51,011	8,598	4,480	13,967	71,634	361,988	417,707		247,379
1968	8,237	30,863	4,545	9,592	15,627	59,765	7,397	14,620	43,707	2,509	14,386	7,837	61,298	152,342	168,462		
1969	12,258	35,862	5,257	10,659	25,546	66,476	5,251	13,817	60,214	6,048	24,459	11,895	48,823	280,317	363,999		
1970	6,762	29,490	4,646	10,147	8,977	47,527	5,455	11,856	49,512	2,311	11,498	4,422	99,564	175,533	201,574		
1971	6,982	31,890	4,882	9,656	18,647	51,331	6,044	11,092	33,992	2,443	9,449	3,449	68,080	69,893	116,608		
1972	16,401	30,666	4,269	10,138	28,367	51,890	9,241	10,992	35,517	1,791	7,797	3,343	46,596	73,884	108,471		
1973	16,356	33,037	4,695	9,862	31,315	55,971	8,756	16,038	44,058	1,237	8,528	6,943	43,105	198,020	363,544		
1974	9,676	29,748	4,219	9,592	14,719	51,433	10,405	10,474	37,032	2,922	6,748	3,635	70,138	200,751	239,498		
1975	8,401	28,481	4,249	9,393	20,445	47,004	7,261	10,065	33,783	5,121	17,694	8,211	70,926	112,831	188,301		
1976	4,378	24,823	3,806	8,866	7,878	38,147	6,499	9,556	41,932	593	2,981	3,429	103,808	63,124	100,325		
1977	8,361	30,735	4,331	9,602	16,788	44,658	8,765	9,033	26,062	1,552	7,097	14,160	65,057	88,803	150,663		
1978	3,408	22,582	3,807	8,809	7,855	32,931	4,778	15,151	55,064	319	2,019	6,684	53,432	85,469	143,851		
1979	6,388	23,244	3,792	8,641	18,286	35,867	5,117	8,386	22,904	1,341	2,863	2,198	40,167	132,766	202,244		
1980	11,471	29,878	4,396	8,974	21,497	35,393	4,745	10,669	48,867	390	540	798	70,873	88,185	127,413		
1981	13,157	30,530	5,181	9,088	28,842	36,278	5,252	8,195	22,170	594	431	1,806	48,872	89,988	133,599		
1982	9,902	33,620	4,527	8,729	15,617	44,164	7,879	9,169	33,524	485	4,164	1,434	36,279	184,314	275,560		
1983	7,631	31,006	4,223	7,973	16,026	41,178	7,070	8,355	39,448	22,807	26,928	3,652	85,649	304,190	392,780		
1984	8,342	33,949	4,720	8,667	24,624	44,526	6,234	6,656	38,976	1,659	7,586	963	73,166	219,942	337,277		
1985	7,432	30,977	4,500	8,174	13,882	31,859	8,518	8,387	29,645	856	7,116	2,551	43,551	149,825	213,211		
1986	6,414	29,471	3,835	8,101	14,205	30,418	4,712	6,798	36,514	1,617	7,810	1,560	53,440	93,414	180,611		
1987	5,772	29,119	4,439	8,142	12,137	32,362	5,532	6,790	24,929	1,053	8,395	4,174	44,804	140,904	259,071		
1988	5,794	25,632	3,827	8,235	10,157	39,665	7,255	8,693	36,794	548	5,639	3,759	79,579	80,646	124,217		
1989	4,108	26,264	3,109	7,664	12,392	34,886	7,408	7,580	32,431	497	1,769	2,398	56,493	69,911	96,994		
1990	4,488	26,024	3,282	7,545	10,893	26,865	4,752	6,105	31,565	184	1,559	1,028	78,107	76,752	105,090		
1991	6,930	29,239	3,805	8,239	15,472	26,159	4,547	6,616	29,366	232	709	279	58,045	36,175	50,028		
1992	10,039	25,854	3,251	7,544	24,495	41,205	5,824	5,876	14,149	363	2,390	6,096	40,044	71,926	119,314		
1993	7,544	29,302	3,546	8,240	16,723	49,427	5,457	9,014	73,496	2,371	25,372	12,929	20,416	330,936	744,688	474,194	249,583
1994	7,881	25,792	3,332	7,214	11,612	34,696	4,380	9,186	42,394	2,034	20,833	6,106	45,235	185,072	240,391		
1995	6,440	29,133	3,160	7,327	15,639	35,491	4,448	6,141	38,482	6,123	20,412	15,546	65,749	178,189	239,302		
1996	5,667	25,548	3,179	6,811	15,944	38,281	7,568	7,472	25,898	1,904	57,959	29,635	67,191	392,600	594,917		
1997	2,950	22,232	2,419	6,608	10,276	29,992	4,551	7,445	43,331	6,650	25,513	15,705	58,086	169,394	213,828		
1998	2,701	20,746	1,910	6,336	9,964	27,122	4,149	6,006	35,981	2,153	17,827	12,319	55,817	144,776	198,251		
1999	6,803	21,572	3,138	6,291	9,006	31,694	4,939	6,259	21,225	2,369	16,193	11,032	53,025	108,246	161,652		
2000	3,628	19,437	2,256	5,607	4,858	21,493	2,870	9,262	37,974	1,561	9,190	7,387	98,089	66,091	94,473		
1971-2000																	
Average	7,532	27,851	3,800	8,201	16,393	38,060	6,172	8,715	35,583	2,859	11,117	6,440	59,962	######	210,540		
Median	6,956	29,126	3,817	8,237	15,545	36,073	5,678	8,387	35,749	1,556	7,691	3,705	57,269	######	184,456		
Maximum	16,866	38,037	5,131	10,138	34,543	55,371	10,405	16,038	73,496	22,807	57,959	29,635	108,898	######	744,688		
Minimum	2,701	19,437	1,910	5,607	4,858	21,493	2,870	5,876	14,149	184	431	279	20,416	36,175	50,028		
Std Dev	3,493	4,260	783	1,145	7,306	8,641	1,822	2,435	11,252	4,666	11,949	6,360	18,844	######	136,007		
Percentile																	
99%	16,528	36,552	5,061	10,041	29,163	53,659	9,846	15,310	67,811	17,852	53,850	27,857	104,570	######	541,588		
95%	14,496	30,798	4,985	9,756	29,724	50,684	9,157	13,016	59,975	10,639	26,491	15,684	92,460	######	393,972		
90%	11,640	32,063	4,697	9,607	28,415	51,341	8,757	11,002	44,539	6,176	25,386	14,298	80,186	######	366,468		
85%	9,991	30,996	4,518	9,522	24,579	48,579	8,294	10,601	43,003	4,351	20,686	12,716	76,378	######	315,676		
80%	11,505	33,878	4,994	10,092	28,581	58,262	7,817	13,267	48,495	12,842	30,809	15,674	75,185	######	259,071		

Bloomington

	Exceed	monthly cfs	Hardy	month
June	.002 = .2%	4020	4830 cfs	= 289,800 AF
1930-1940	5%	1629	1771	
	1935 June	9343	10390 cfs	623,400 AF
			.02	= 53% of max flow

Hardy Flows AF

year	1930	1931	1932	1933	1934	1935
June	141,500 (2358 cfs)	12,800	121,000	15,600	66,630	618,200 (10,390 cfs)
max					7.002	
annual	559,600	541,200	601,500	459,210	313,470	1,119,000

	1936	1937	1938	1939	1940
June	72,660	103,500	100,200	139,800	77,300
ann	410,590	405,640	496,270	407,530	307,900

1935 = 1.92 % $\bar{x}$

1993 = 1.5 % $\bar{x}$

diff = 2% of max

within .02 monthly exceedance

2400 = .04 next high monthly in 1930's = 141,500 cfs

2660 = .03 = 2400 cfs

∴ side board exceedance < .03.

R. Heau Bureau Contract renewal 93 level flows

Annual flow compact — 59-94. Exceedance using excell

Bearu Nadan Spills

7/22/02

from Dennis — Cal year

Harlan spills 93 = 184,000 AF

94 ~~89~~ 75,000 AF

wet in 94. ~~260~~ 259,000

Look at Hardy — what released do river. — Diversion losses.

no ds Kansas demand

	96	172,000 pass Hardy
	74	101,000
spills	83	150,000
	70	95,000
	69	156,000
	67	259,000
	66	210,000
	93	172,000

sept → march.

Milford built 60's

2 month using 93 levels. includes Harlan on line

Actual		KAF	
	✓ 1935	266.4	all reservoir in place
243.6	1993	247.3	no water stored in Flock.
565.9	1951	223.6	
443.7	1947	189.0	In any year 2 month flow
263	1973	185	? X ,
299.8	1957	137	(between 47-51)

189 – 223.6

flow at Hardy.

Notes on Monthly Flow Analysis 1965-2000
Republican River – Guide Rock and Hardy

The monthly mean flows were analyzed and a percentile flow values were computed at follows:

Percentile	Hardy – Mean Monthly cfs	Guide Rock – Mean Monthly cfs
75	364	235
80	446	307
90	724	589
95	1102	868

The flows were also analyzed using the USGS Bulletin 17B Method Mean Monthly Flow Frequency and the results are shown as exceedance probability

Monthly Exceedance Probability	Hardy – Mean Monthly cfs	Guide Rock – Mean Monthly cfs
0.10 – Ten month event	1210	970
0.04 – 25 month event	1630 97,900	1380
0.02 – 50 month event	2000 120,000 AF	1750
0.01 – 100 month event	2420 145,200 AF	2180
0.005 – 200 month event	2900 174,000 AF	2690
0.002 – 500 month event	3640 218,400 AF	3500

July 1993 was 3210 and 2446

During the 1965-2000 period, the ten-month flows were exceeded 14 times at Guide Rock and 14 times at Hardy.

.012 monthly event left in
left in 1.2% event

The USGS Bulletin 17B Method Limits the number of records that can be used, for these analysis, all flows less than 200 were removed. The effect of removing them causes the exceedance values to increase and the results can be seen in the following chart

Monthly Exceedance Probability	Guide Rock all Flows 1990-1999 – Mean Monthly cfs	Guide Rock Flow > 200 cfs 1990-1999– Mean Monthly cfs
0.10 – Ten month event	620	1140
0.04 – 25 month event	1020	1630
0.02 – 50 month event	1410	2050
0.01 – 100 month event	1870	2530
0.005 – 200 month event	2420	3070
0.002 – 500 month event	3300	3890

gage + divers – inflow = gain

Harlan County Lake
Design Flood Evacuation

Edward Parker, P.E.
13-Aug-02

Assumptions:

Flood Storage (AF)	500,000
Pool evaporation	0
Additional lake inflow	0
Downstream inflow	0
Days in Month	30

Release Criteria:

	Phase I to II	Phase II to III
May,June,July,Aug	30%	80%
Other Months	50%	90%

Phase I Release	1200 cfs
Phase II Release	2000 cfs
Phase III Release	2400 cfs

May,June,July,Aug

	Storage (AF)	Days to Release
Phase I Storage (AF)	150000	63
Phase II Storage (AF)	250000	63
Phase III Storage (AF)	100000	21

Monthly Release Totals (AF)

Month 1	**135467**
Month 2	**118800**
Month 3	**109573**
Month 4	**71280**
Month 5	**64880**
Total	**500000**

Other Months

	Storage (AF)	Days to Release
Phase I Storage (AF)	250000	105
Phase II Storage (AF)	200000	51
Phase III Storage (AF)	50000	11

Monthly Release Totals (AF)

Month 1	**127133**
Month 2	**118800**
Month 3	**72907**
Month 4	**71280**
Month 5	**71280**
Month 6	**38600**
Total	**500000**

RRCL Settlement **Draft** **Confidential**
Analysis to determine that amount of flood flows to remove from the compact computations
David Barfield September 5, 2002

what is a flood/spill month?
used 30 years.

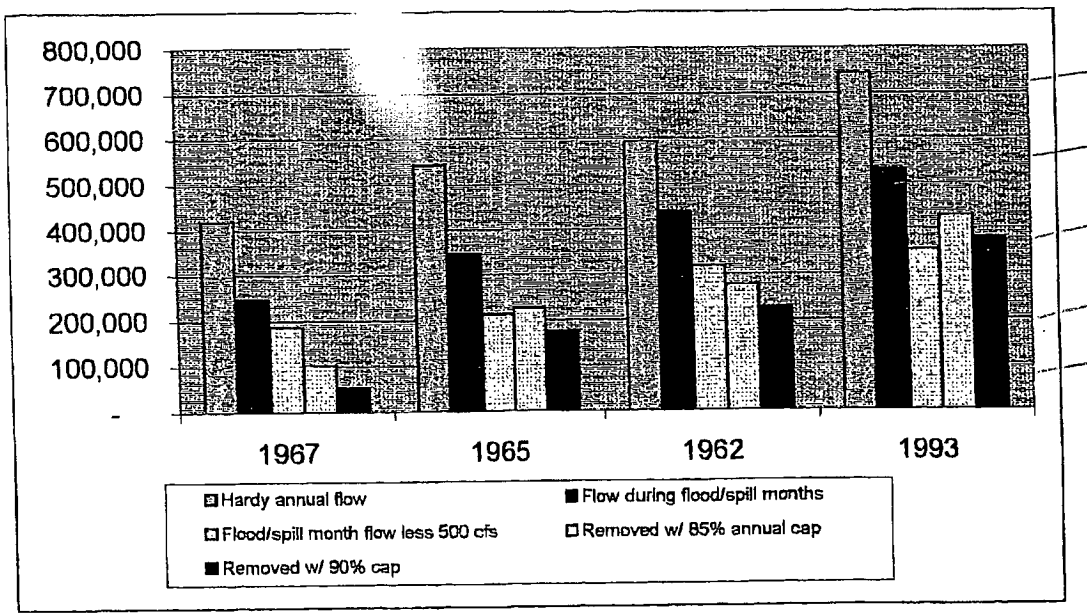
90% ann
377
226
175
52

Hardy CY flow statistics based on last 30 years

50th percentile	184,281
60th percentile	206,692
67th percentile	224,413
70th percentile	239,034
75th percentile	239,700
80th percentile	262,093
85th percentile	315,040
90th percentile	365,798
95th percentile	393,487

what I would remove

Year	CY flow at Hardy AF	Hardy flows during flood/spill months AF	Flood/spill flows above 500 cfs AF	Amount removed using annual cap at percentile 80th	85th	90th	95th	Difference, annual cap flood removal less 500 cfs monthly method 80th	85th	90th	95th
1962	592,220	437,065	317,065	330,127	277,180	226,422	198,733	13,062	(39,885)	(90,643)	(118,332)
1965	541,401	344,244	212,251	279,308	226,361	175,603	147,914	67,057	14,111	(36,647)	(64,336)
1967	417,923	247,379	187,379	155,830	102,883	52,125	24,436	(31,549)	(84,496)	(135,254)	(162,943)
1993	743,187	531,270	351,270	481,094	428,147	377,389	349,700	129,824	76,878	26,120	(1,569)



total annual volume at Hardy 743 KAF
Flow during spill months 531 KAF
am't Kansas take out
→ 85th
→ 90th.

Notes on Monthly Flow Analysis 1930-1940
Republican River – Bloomington and Hardy

The Hardy gage does not have flow values for Jan 1930 – April 1931 and from October 1931 – January 1932.

May and June of 1935 were eliminated from the original compact water supply calculations

The June 1935 flows were the largest for both gages

The May 1935 flows at Bloomington were the 4th largest, May 1936 and June 1930 were both larger

The May 1935 flows at Hardy were the 5th largest, May 1936, June 1939, and June 1932 were all larger.

The monthly mean flows were analyzed and a percentile flow values were computed at follows:

Percentile	Hardy – Mean Monthly cfs	Bloomington – Mean Monthly cfs
75	757	687
80	879	782
90	1346	1181
95	1771	1629

The flows were also analyzed using the USGS Bulletin 17B Method Mean Monthly Flow Frequency and the results are shown as exceedance probability

Monthly Exceedance Probability	Hardy – Mean Monthly cfs	Bloomington – Mean Monthly cfs
0.10 – Ten month event	1420	1280
0.04 – 25 month event	2100	1850
0.02 – 50 month event	2660	2310
0.01 – 100 month event	3270	2810
0.005 – 200 month event	3920	3340
0.002 – 500 month event	4830 = 46% of MAX	4070

623,400 AF

The results show that the June 1935 flows (mean monthly cfs) of 10390 at Hardy and 9343 at Bloomington would be considered greater than 500-month events. During the 1930-1940 period, the ten-month flows were exceeded 11 times at Bloomington and 13 times at Hardy.