

STATE OF COLORADO

Colorado Water Conservation Board

Department of Natural Resources

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MEMORANDUM

TO: Colorado Water Conservation Board Members

FROM: Randy Seaholm *RSK*
Andy Moore
Water Supply Protection Section

DATE: November 3, 2006

SUBJECT: **Agenda Item 17, January 13-15, 2006 Board Meeting:
Water Supply Protection - Colorado River Future Consumptive Use
Projections**

Bill Owens
Governor

Russell George
Executive Director

Rod Kuharich
CWCB Director

Dan McAuliffe
Deputy Director

Background

Every 5-years or so each Upper Division State, through the Upper Colorado River Commission (UCRC), provides estimates of their anticipated future consumptive uses of Colorado River Basin water. These projections are used by the U.S. Bureau of Reclamation, and other federal and public entities on a routine basis solely for planning purposes, for studies such as projecting when to bring on a new water supply or salinity control project, evaluating reservoir operations, determining likely surpluses and shortages, and for the conduct of Western Area Power Administration power-rate studies.

Colorado develops its future depletion estimates by first evaluating the trends in the consumptive use of water over the last several years. This trend analysis is based on the U.S. Bureau of Reclamation's Consumptive Uses and Losses Report's since 1970 and is given the most weight in projecting uses into the future. We then consider the maximum historic uses and other factors such as unused capacity in existing projects, reservations of water in certain sub-basins made as part of a Programmatic Biological Opinion pursuant to a Recovery Program (60,000 AF for the Yampa, 120,000 AF for the Colorado) and the potential consumptive uses from potential new uses of water such as oil shale. This process leads to the state's future consumptive use projections provided to the UCRC. The last revision to the projections was adopted by the UCRC on December 15, 1999 (Attachment 1). The 1999 future depletions table adopted by the UCRC suggests Colorado and the other Upper Division States consumptive uses will reach levels comparable to the levels estimated in the draft 2006 Hydrologic Determination sometime between 2050 and 2060.

The Upper Division States believe that at least 6.0 million acre-feet of yield is available to the Upper Division on an average annual basis, exclusive of CRSP evaporation, as found in

the recent Hydrologic Determinations. Colorado's future consumptive use estimates, in conjunction with the current consumptive uses identified in Reclamation's consumptive uses and losses reports, would consume Colorado's share (51.75 %) of the 6,000,000 acre-feet (3,079,125 acre-feet) deemed reasonably likely to be available. However, this in no way implies any limit on Colorado's ability to fully develop its full apportionment under the Colorado River and Upper Colorado River Compacts.

Other Considerations

Currently, on average there is in excess of 9.0 MAF of Colorado River water flowing out of Colorado annually. We also recognize that there are a number of factors affecting the amount of consumptive use that annually occurs and even more factors affecting future water development opportunities. We also have better information and tools to process information, which allow us to look at how current water uses maybe changing. It is no secret that we are losing agricultural lands to urban development and that there is an increasing desire to leave water in the streams for recreational and environmental purposes. Also, we have seen many efforts, such as the Colorado River Salinity Control Program, implemented to help us use our water more efficiently. These factors likely will slow the development of new water resources, but they should not limit them.

Conclusion

Given the current conditions, we do not foresee a need for Colorado to make any significant changes to our future consumptive use projections other than to exclude CRSP reservoir evaporation so that uses are consistent with the way they are reported in the 2006 Hydrologic Determination.

Recommendation

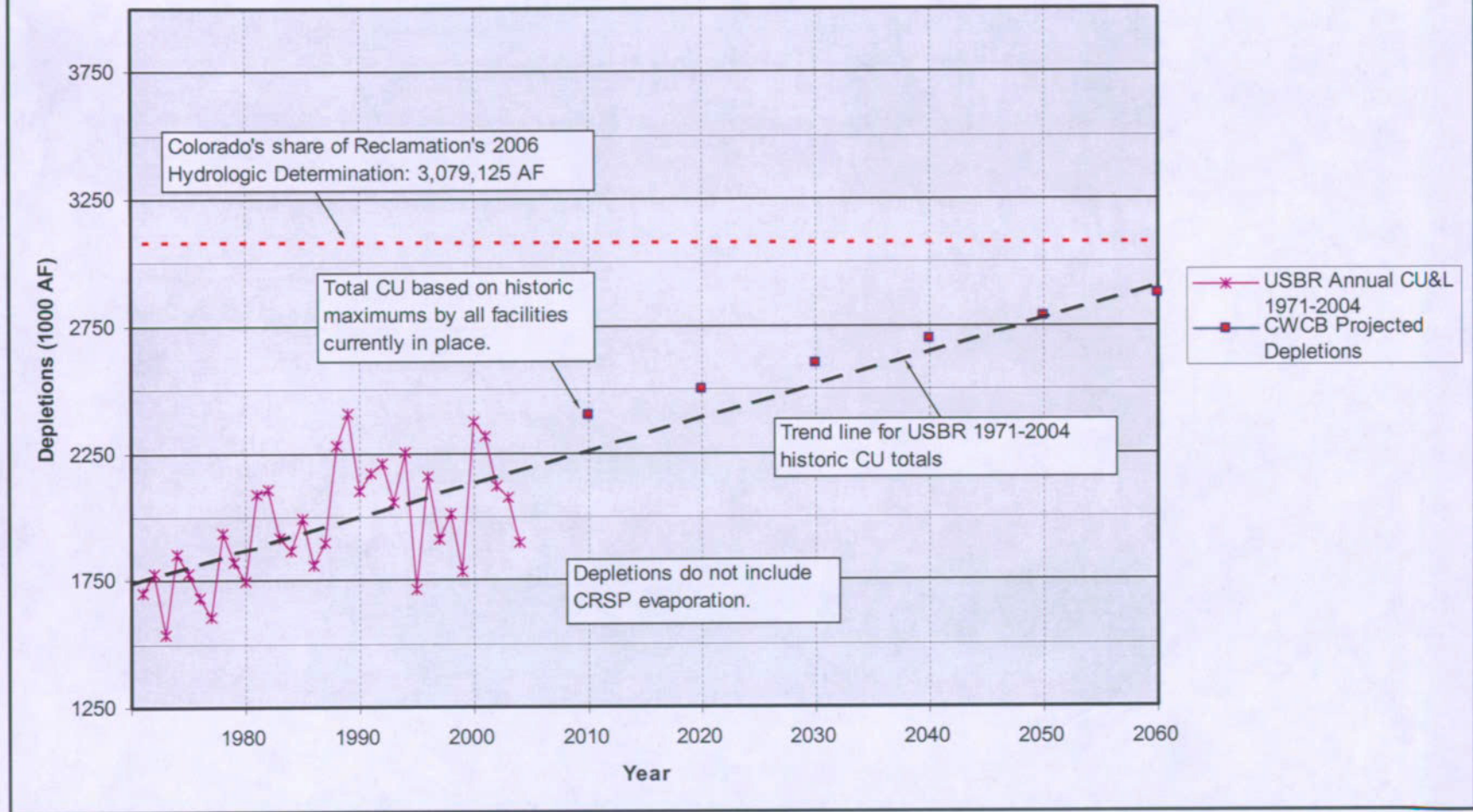
This is an informational item only at this time. We are sending this information to the primary users of Colorado River water requesting their comments and input. We will discuss this item further with the Board in January with the goal of obtaining Board concurrence with protections and subsequently submitting the projections to the UCRC for consideration along with the projections of the other Upper Division States and present that information to the Commissioners for their consideration and hopefully subsequent distribution to federal agencies and other public entities as appropriate.

Attachments

Cc:

Andy Moore
Ray Alvarado
Eric Kuhn
Scott Balcomb
Jim Lochhead

State of Colorado Upper Colorado River Consumptive Uses: Historic and Projected 1971 to 2060



Note: It is Colorado's intent to fully develop its full share of Colorado River water pursuant to the 1922 Colorado River Compact at some time in the future.

RESOLUTION

OF THE

UPPER COLORADO RIVER COMMISSION

RE: JANUARY 2000 STATES' DEPLETION TABLES

WHEREAS, the Upper Colorado River Commission supports water resource development in the Upper Colorado River Basin to enable the Upper Division States to fully develop their compact apportionments of Colorado River water while meeting their compact delivery requirements at Lee Ferry; and

WHEREAS, it is the position of the Upper Colorado River Commission and the Upper Division States that, with the delivery at Lee Ferry of 75 million acre-feet of water in each period of ten consecutive years, the water supply available in the Colorado River System below Lee Ferry may be sufficient to meet the apportionments to the Lower Basin provided for in Article III (a) and (b) of the Colorado River Compact and the entire Mexican Treaty delivery obligation; and

WHEREAS, it is the understanding and expectation of the Upper Colorado River Commission and the Upper Division States that appropriate authorities will take all actions necessary to ensure that all States have access to their respective apportionments as specified in the Upper Colorado River Basin Compact; and

WHEREAS, planning for future development of the water resources available to the Upper Basin is facilitated by the projection of future uses in respective Upper Basin States.

WHEREAS, the Bureau of Reclamation has determined that at least 6.0 million acre-feet (MAF) annually of firm yield is available to the Upper Basin States based on a minimum objective release of 8.23 MAF from Glen Canyon Dam;

WHEREAS, the Commission resolved at its Special Meeting in Denver, Colorado on June 2, 1987 that it "... would not object to a determination by the Bureau [of Reclamation] that the Upper Basin yield is at least 6.0 million acre-feet annually";

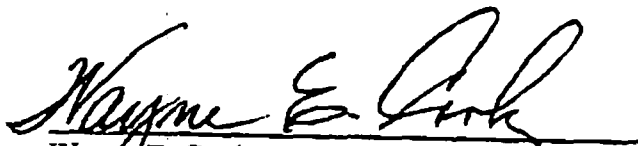
NOW, THEREFORE BE IT RESOLVED, that while the Upper Colorado River Commission disagrees with the assumption of a minimum release of 8.23 MAF annually from Glen Canyon Dam, the Commission does not object to the use of the January 2000 depletion projections for planning purposes and water supply studies within the Colorado River Basin.

BE IT FURTHER RESOLVED, that this Resolution be transmitted to the Regional Director, Upper Colorado Region, Bureau of Reclamation, Salt Lake City, Utah, and, as appropriate, to other Federal, State and Congressional officials who may need to use these depletion projections.

CERTIFICATE

I, **WAYNE E. COOK**, Executive Director and Secretary of the **Upper Colorado River Commission**, do hereby certify that the above Resolution was adopted by the **Upper Colorado River Commission** at a meeting held in Las Vegas, Nevada on December 15, 1999.

WITNESS my hand this 15th day of December 1999.



Wayne E. Cook
Executive Director and Secretary

January 2000

Upper Colorado River Division States Depletion Schedule (Total)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	2717	2717	2717	2717	2717	2717	2717	2717
Municipal/Domestic	58	58	58	58	58	58	58	58
Power/Industrial	178	181	182	183	184	184	184	184
Minerals	30	30	30	30	30	30	30	30
Export	886	886	886	886	886	886	886	886
Reservoir Evaporation	168	169	169	169	169	169	169	169
TOTAL CURRENT DEPLETIONS	4037	4040	4041	4042	4043	4043	4043	4043
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	21	166	212	210	205	202	204
Municipal/Domestic	0	18	90	130	165	196	230	257
Power/Industrial	0	40	60	71	85	93	105	114
Minerals	0	3	14	27	44	50	53	57
Export	0	45	205	227	275	313	338	359
Reservoir Evaporation	0	3	4	4	4	5	6	7
TOTAL ANTICIPATED DEPLETIONS	0	129	539	671	784	862	933	998
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	1	26	32	35	46	101	105
Municipal/Domestic	0	0	1	6	8	11	33	56
Power/Industrial	0	1	3	6	22	34	48	61
Minerals	0	0	1	3	14	21	51	66
Export	0	0	0	8	14	21	24	27
Reservoir Evaporation	0	0	0	1	3	4	6	8
TOTAL POTENTIAL DEPLETIONS	0	2	31	56	95	137	252	323
Summary of Depletions	4037	4171	4612	4769	4922	5042	5239	5365
Evap-Storage Units	546	546	546	546	546	546	546	546
TOTAL DEPLETIONS	4583	4717	5158	5315	5468	5588	5785	5911
Upper Division Allocation	5950	5950	5950	5950	5950	5950	5950	5950
Remaining Available	1367	1233	792	635	482	362	165	39
Percent Unused	23%	21%	13%	11%	8%	6%	3%	1%

NOTE: This depletion schedule does not attempt to interpret the Colorado River Compact, the Upper Colorado River Compact, or any other element of the "Law of the River." This schedule should not be construed as an acceptance of any assumption that limits the Upper Colorado River Basin's depletion.

In this schedule, the Upper Division Allocation is listed, for planning purposes only, as 5,950,000 acre-feet. For planning purposes, the total Upper Colorado River Basin Allocation, is 6,000,000 acre-feet, of which 50,000 acre-feet is the Upper Basin allocation to Arizona. This estimate does not constitute an endorsement of the Bureau of Reclamation's 1988 Hydrologic Determination.

"Evap-Storage Units" refers to the total and individual States portions of evaporation from the major reservoirs constructed under the Colorado River Storage Project Act. These include Flaming Gorge, Curecanti and Glen Canyon.

January 2000

Upper Colorado River Division States Depletion Schedule (Colorado)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	1500	1500	1500	1500	1500	1500	1500	1500
Municipal/Domestic	19	19	19	19	19	19	19	19
Power/Industrial	35	35	35	35	35	35	35	35
Minerals	21	21	21	21	21	21	21	21
Export	606	606	606	606	606	606	606	606
Reservoir Evaporation	84	84	84	84	84	84	84	84
TOTAL CURRENT DEPLETIONS	2265	2265	2265	2265	2265	2265	2265	2265
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	20	49	49	52	52	54	57
Municipal/Domestic	0	18	76	81	82	82	85	86
Power/Industrial	0	40	57	64	73	73	77	80
Minerals	0	0	7	17	32	32	32	32
Export	0	45	122	142	162	182	182	182
Reservoir Evaporation	0	2	2	2	2	2	2	2
TOTAL ANTICIPATED DEPLETION	0	125	313	355	403	423	432	439
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	1	1	5	5	12	64	65
Municipal/Domestic	0	0	1	1	1	1	13	13
Power/Industrial								
Minerals	0	0	0	0	1	2	2	2
Export								
Reservoir Evaporation								
TOTAL POTENTIAL DEPLETIONS	0	1	2	6	7	15	79	80
Summary of Depletions	2265	2391	2580	2626	2675	2703	2776	2784
Evap-Storage Units	295	295	295	295	295	295	295	295
TOTAL DEPLETIONS	2560	2686	2875	2921	2970	2998	3071	3079
Colorado Allocation	3079	3079	3079	3079	3079	3079	3079	3079
Remaining Available	519	393	204	158	109	81	8	0
Percent of State Share	17%	13%	7%	5%	4%	3%	0%	0%

(1982)

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January 2000

Upper Colorado River Division States Depletion Schedule (New Mexico)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	246	246	246	246	246	246	246	246
Municipal/Domestic	10	10	10	10	10	10	10	10
Power/Industrial	58	56	56	57	58	58	58	58
Minerals	0	0	0	0	0	0	0	0
Export	108	108	108	108	108	108	108	108
Reservoir Evaporation	29	29	29	29	29	29	29	29
TOTAL CURRENT DEPLETIONS	449	449	449	450	451	451	451	451
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	0	80	121	121	121	121	121
Municipal/Domestic	0	0	5	11	16	17	18	18
Power/Industrial	0	0	0	0	0	2	3	4
Minerals	0	0	0	0	0	0	0	0
Export	0	0	0	0	0	0	0	0
Reservoir Evaporation	0	0	1	1	1	1	1	1
TOTAL ANTICIPATED DEPLETION	0	0	86	133	138	141	143	144
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	0	0	0	0	0	0	0
Municipal/Domestic	0	0	0	5	7	10	10	10
Power/Industrial	0	1	1	3	4	5	5	5
Minerals	0	0	0	0	0	0	0	0
Export	0	0	0	4	6	9	9	9
Reservoir Evaporation	0	0	0	0	0	0	0	0
TOTAL POTENTIAL DEPLETIONS	0	1	1	12	17	24	24	24
Summary of Depletions	449	450	538	595	606	616	618	619
Evap-Storage Units	58	58	58	58	58	58	58	58
TOTAL DEPLETIONS	507	508	594	653	664	674	676	677
State Share of 6.0 MAF	669	669	669	669	669	669	669	669
Remaining Available	162	161	75	16	5	-5	-7	-8
Percent of State Share	24%	24%	11%	2%	1%	-1%	-1%	-1%

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January 2000

Upper Colorado River Division States Depletion Schedule (Utah)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	591	591	591	591	591	591	591	591
Municipal/Domestic	23	23	23	23	23	23	23	23
Power/Industrial	46	46	46	46	46	46	46	46
Minerals								
Export	154	154	154	154	154	154	154	154
Reservoir Evaporation	19	19	19	19	19	19	19	19
TOTAL CURRENT DEPLETIONS	833	833	833	833	833	833	833	833
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	0	29	33	27	21	15	11
Municipal/Domestic	0	0	7	35	63	91	119	143
Power/Industrial								
Minerals								
Export	0	0	81	81	106	120	141	157
Reservoir Evaporation								
TOTAL ANTICIPATED DEPLETION	0	0	118	149	196	232	275	311
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	0	25	25	25	25	25	25
Municipal/Domestic								
Power/Industrial	0	0	2	3	8	9	13	16
Minerals	0	0	1	3	8	9	13	16
Export								
Reservoir Evaporation								
TOTAL POTENTIAL DEPLETIONS	0	0	28	31	40	43	50	57
Summary of Depletions	833	833	979	1013	1070	1108	1158	1202
Evap-Storage Units	120	120	120	120	120	120	120	120
TOTAL DEPLETIONS	953	953	1099	1133	1190	1228	1278	1322
State Share of 6.0 MAF	1369	1369	1369	1369	1369	1369	1369	1369
Remaining Available	416	416	270	236	179	141	91	47
Percent of State Share	30%	30%	20%	17%	13%	10%	7%	3%

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January 2000

Upper Colorado River Division States Depletion Schedule (Wyoming)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	379	379	379	379	379	379	379	379
Municipal/Domestic	5	6	6	6	6	6	6	6
Power/Industrial	42	44	45	45	45	45	45	45
Minerals	9	9	9	9	9	9	9	9
Export	18	18	18	18	18	18	18	18
Reservoir Evaporation	36	37	37	37	37	37	37	37
TOTAL CURRENT DEPLETIONS	489	493	494	494	494	494	494	494
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	1	8	9	10	11	12	15
Municipal/Domestic	0	0	2	3	5	7	8	10
Power/Industrial	0	0	3	7	12	18	25	30
Minerals	0	3	7	10	12	18	21	25
Export	0	0	2	4	7	11	15	20
Reservoir Evaporation	0	1	1	1	1	2	3	4
TOTAL ANTICIPATED DEPLETIO	0	4	23	34	47	66	84	104
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	0	0	2	5	9	12	15
Municipal/Domestic	0	0	0	0	0	0	10	33
Power/Industrial	0	0	0	0	10	20	30	40
Minerals	0	0	0	0	5	10	36	48
Export	0	0	0	4	8	12	15	18
Reservoir Evaporation	0	0	0	1	3	4	6	8
TOTAL POTENTIAL DEPLETIONS	0	0	0	7	31	55	109	162
Summary of Depletions	489	497	517	535	571	615	687	760
Evap-Storage Units	73	73	73	73	73	73	73	73
TOTAL DEPLETIONS	562	570	590	608	644	688	760	833
Upper Division Allocation	833	833	833	833	833	833	833	833
Remaining Available	271	283	244	225	189	145	74	0
Percent of State Share	32%	32%	29%	27%	23%	17%	9%	0%

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