MEMORANDUM

December 5, 2007

TO: File

FROM: Pat Turney and John Whipple, ISC Staff

SUBJECT: Consumptive Uses in the San Juan River Basin in New Mexico, 2001 through 2005 – revised from the November 20, 2006 report to correct Navajo Reservoir evaporation

The Interstate Stream Commission (ISC) staff compiled consumptive use data for the New Mexico portion of the San Juan River Basin for calendar years 2001-2005. Table 1 summarizes that compilation. Table 2 summarizes population estimates for 2001-2005, based on U.S. Census Bureau data for 1990 and 2000.

RESERVOIR EVAPORATION

Navajo Reservoir evaporation was computed for each month using the average of daily reservoir gage heights, corresponding surface areas and USBR monthly net evaporation coefficients for Navajo Reservoir that reflect salvage of pre-reservoir channel losses within the reservoir pool area. Evaporation on all other reservoirs reported under this category was computed based on maximum surface area, long term net lake evaporation rates for individual areas, fullness factors and impact factors, if any. Evaporation from Farmington Lake, Lake Morgan, and Jackson, Berland, Big Gap, Holmburg and Toadacheene reservoirs is variously reported under municipal water supply, power generation, and fish and wildlife and recreation use according to each reservoir's use.

AGRICULTURE

Agriculture accounts for an average of 70 percent of the consumptive water uses made in the New Mexico Upper Basin during the period 2001-2005, excluding San Juan-Chama Project exports. Irrigated acreage determinations were made using BIA Navajo Indian Irrigation Project (NIIP) data, and ISC staff's June 11, 1997, memorandum to file on Irrigated Acreage in the San Juan River Basin in New Mexico, including referenced revisions thereto that incorporate irrigated acreage data collected in the basin in New Mexico during field crop surveys in 2000, 2003, 2004 and 2005.

Irrigated acreage by crop for the New Mexico Upper Basin was segregated into several irrigation areas, as described in the aforementioned June 1997 memorandum, as revised. Except for the NIIP, depletion estimates were computed by multiplying irrigated acres by appropriate consumptive irrigation requirement factors (CIRs), water supply shortage factors and impact factors, if any. The CIRs used were calculated using the modified Blaney-Criddle method and meteorological data collected in or near each irrigation area. Depletions for the NIIP for 2001-2005 were estimated based on BIA NIIP water budget

data. Irrigation depletions for the La Plata and Chaco/Chinle areas were adjusted for shortage conditions. Other irrigated areas did not experience water supply shortages during the period. Chaco/Chinle area depletions were also adjusted to reflect their depletion impact on the San Juan River.

For all areas other than the NIIP, depletions for incidental losses resulting from the delivery and use of irrigation water was estimated to be 18% of the crop consumptive use for acreage which was flood irrigated and 24% of the crop consumptive use for acreage which was sprinkler irrigated. The amounts of acreage irrigated each year by flood and sprinkler methods were determined by field surveys in 2003, 2004 and 2005.

Stock pond evaporation data used in the 1996-2000 Consumptive Uses and Losses Report were used in the computations for this report with adjustment to reflect their depletion impact on the San Juan River. An estimated 3,680 acre-feet was used for each year from 2001-2005.

Livestock uses were calculated from annual head counts for each county obtained from USDA National Agricultural Statistics, when available. Percentages of each type of livestock in the New Mexico Upper Basin portions of Rio Arriba, McKinley and Sandoval counties were obtained from New Mexico Office of the State Engineer Technical Report 51 (TR51) backup data. These same percentages were used in computations for this report. Per capita livestock water depletions from TR 51 were used to obtain total livestock depletions for 2001-2005 in the New Mexico Upper Basin.

MUNICIPAL/INDUSTRIAL

This category includes water use for the extraction of mineral resources, generation of thermal electric power, municipally supplied domestic and industrial uses, self-supplied industrial and commercial uses, and rural domestic uses. Mineral resource extraction and thermal electric power generation water uses are reported to the New Mexico Office of the State Engineer Water Rights Division, which reports were used to compute corresponding depletions for 2001-2005. Evaporation from Lake Morgan and the San Juan Generating Station reservoir are included in the thermal electric power category, and discharges from Lake Morgan are adjusted to reflect the resultant amount of return flows to the San Juan River for determining depletions for thermal electric power generation.

Municipal and domestic water suppliers also report annual water withdrawals to the Water Rights Division. Where annual reports were not available, per-capita water demands listed in TR51 and U.S. Census population data were used to estimate water withdrawals. Depletions for municipal uses were calculated based on measured diversions and measured wastewater treatment plant returns where the data were available. Where such data were not available, domestic and municipal uses were assumed to have a depletion factor of 40-70%, depending on the community. Evaporation from Farmington Lake is included in the municipal category.

FISH AND WILDLIFE, RECREATION

Evaporation from Jackson, Berland, Big Gap, Holmburg and Toadacheene reservoirs and depletions at National and State Parks in San Juan and Rio Arriba counties are included in this category.

EXPORTS

The only exported water in the New Mexico Upper Basin in the 2001-2005 period occurred from the San Juan-Chama Project diversions. These diversions are considered fully depleted and are reported by the U.S. Geological Survey in annual water supply papers for New Mexico as the discharge of Azotea Tunnel at Outlet, near Chama, New Mexico.

Table 1.

Consumptive Water Use in the Upper Colorado River Basin, New Mexico

Units: Thousand acre-feet

Year	Reservoir Evaporation	Irrigation	Stockpond Evaporation, Livestock	Mineral Resources	Thermal Electric Power	Municipal, Industrial, Rural/Domestic	Fish & Wildlife, Recreation	Export SJ-C Project	Total Basin Water Use
2001	29.5	195.1	3.9	0.9	48.3	15.4	0.6	110.6	404.3
2002	23.5	238.1	3.8	0.9	45.6	16.3	0.6	6.3	335.1
2003	19.2	231.2	3.7	0.9	47.0	19.3	0.2	62.7	384.1
2004	21.0	229.0	3.7	1.2	49.0	18.0	0.3	84.9	407.1
2005	30.1	209.9	3.7	1.3	51.2	18.7	0.4	155.2	470.6

Table 2.

Population in the Upper Colorado River Basin, New Mexico

Year	McKinley	Rio Arriba	Sandoval	San Juan	Total Basin Population
2001	13,845	3,784	945	116,297	134,871
2002	14,110	3,846	959	118,848	137,763
2003	14,380	3,909	973	121,455	140,717
2004	14,656	3,973	987	124,119	143,734
2005	14,937	4,039	1,001	126,841	146,817

SMALL RESERVOIR EVAP	Surface Area	2001 Depletion	2002 Depletion	2003 Depletion	2004 Depletion	2005 Depletion	Evaporation rate per Year	
Reservoir	*acres*	*acre-feet*					*feet*	
Navajo		28606	22538	18270	20115	29186	2.15	1
Crowley	17	35	35	35	35	35	2.07	3
Mundo	49	14	14	14	14	14	2.07	3
Luna	6	2	2	2	2	2	2.07	3
La Jara	130	269	269	269	269	269	2.07	3
Dulce	65	135	135	135	135	135	2.07	3
Deadman	20	6	6	6	6	6	2.00	4,5
Juans	341	95	95	95	95	95	2.00	2,4
Long	151	48	48	48	48	48	2.26	2,4
Chuska (no surface connection)	84						2.83	4
Captain Tom	73	31	31	31	31	31	3.00	2,4
Little White Cone	32	13	13	13	13	13	3.00	2,4
Tocito	131	55	55	55	55	55	3.00	2,4
Bolack	47	144	144	144	144	144	3.06	4
Butler	3	9	9	9	9	9	3.06	4
Lost	5	16	16	16	16	16	3.15	4
Whiskey (no surface connection)	142						3.17	4
Black (Chaco)	105	48	48	48	48	48	3.25	2,4
El Paso	6	3	3	3	3	3	3.83	4,5
Bass	8	4	4	4	4	4	4.00	2,4
Mulholland (no surface connection)	4						4.00	4
Toadlena (no surface connection)	38							4
Total excluding Navajo Reservoir		927	927	927	927	927		
Total all reservoirs		29,533	23,465	19,197	21,042	30,112		

[1] USBR net evap coefficients for Navajo Reservoir used. Navajo Reservoir net evap. Coefficients reflect salvage of pre-reservoir losses within the reservoir area.

[2] Depletion = evap rate * maximum surface area * fullness factor (0.20) * impact (0.70)

[3] Net evaporation rate from Jicarilla water supply studies, San Juan River adjudication

[4] Long-term net evaporation rate for area

[5] Average surface area

NAVAJO RESERVOIR EVAPORATION		Mean Surface	Net Evap Rate/Factor	Net Lake Surface			Mean Surface	Net Evap Rate/Factor	Net Lake Surface
Year	Month	Area (ac)	feet	Evap(ac-ft)	Year	Month	Area (ac)	feet	Evap(ac-ft)
2001	Jan	12081	0.048	580	2002	Jan	12457	0.048	598
	Feb	11952	0.059	705		Feb	12286	0.059	725
	Mar	11992	0.123	1475		Mar	12108	0.123	1489
	Apr	12665	0.193	2444		Apr	11853	0.193	2288
	May	13866	0.277	3841		May	11429	0.277	3166
	Jun	13919	0.335	4663		Jun	10954	0.335	3670
	Jul	13630	0.358	4880		Jul	10241	0.358	3666
	Aug	13532	0.281	3802		Aug	9559	0.281	2686
	Sep	13319	0.225	2997		Sep	9103	0.225	2048
	Oct	13005	0.136	1769		Oct	8879	0.136	1208
	Nov	12792	0.066	844		Nov	8762	0.066	578
	Dec	12634	0.048	606		Dec	8686	0.048	417
	Total			28606		Total			22538
2003	Jan	8598	0.048	413	2004	Jan	7762	0.048	373
	Feb	8519	0.059	503		Feb	7721	0.059	456
	Mar	8489	0.123	1044		Mar	7952	0.123	978
	Apr	8554	0.193	1651		Apr	8695	0.193	1678
	May	8725	0.277	2417		May	9357	0.277	2592
	Jun	9122	0.335	3056		Jun	9937	0.335	3329
	Jul	8752	0.358	3133		Jul	9884	0.358	3538
	Aug	8196	0.281	2303		Aug	9588	0.281	2694
	Sep	7989	0.225	1798		Sep	9318	0.225	2097
	Oct	7852	0.136	1068		Oct	9443	0.136	1284
	Nov	7767	0.066	513		Nov	9563	0.066	631
	Dec	7767	0.048	373		Dec	9701	0.048	466
	Total			18270		Total			20115
2005	Jan	9883	0.048	474					
	Feb	10308	0.059	608					
	Mar	10994	0.123	1352					
	Apr	12033	0.193	2322					
	May	13608	0.277	3769					
	Jun	14199	0.335	4757					
	Jul	14467	0.358	5179					
	Aug	14271	0.281	4010					
	Sep	14078	0.225	3168					
	Oct	14134	0.136	1922					
	Nov	14255	0.066	941					
	Dec	14216	0.048	682					
	Total			29186					

AGRICULTURE IRRIGATION SUPPLY

YEAR	Mean Flow La Plata River at Colorado-New Mexico State Line (cfs) April	May	June	July	August	September	Seasonal Average Flow	Supply Factor	Irrigated Acres	Average Flow Requirement @ (1 cfs per 40 ac)
2001	46.4	53.2	41.8	6.3	6.7	4.8	26.5	0.50	2,126	53.2
2002	10.2	8.4	2.7	1.3	1.2	1.7	4.3	0.09	1,855	46.4
2003	22.2	43.3	27.7	0.4	6.7	25.5	21.0	0.48	1,732	43.3
2004	50.9	50.9	45.3	8.3	0.5	6.7	27.1	0.53	2,036	50.9
2005	66.4	66.4	66.4	31.1	9.9	6.8	41.2	0.62	2,656	66.4

Seasonal average flow is based on the lesser of mean monthly flow or average flow requirement
Excludes irrigated acres under the Enterprise and Pioneer Ditches. Ditches divert above the La Plata River at the stateline
In 2001, 2002 excludes 154 acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes
In 2003 excludes 5 acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes
In 2004 excludes 37acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes
In 2005 excludes 106 acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes

YEAR	Mean Flow Animas River near Cedar Hill, NM (cfs) April	May	June	July	August	September	Seasonal Average	Supply Factor	Irrigated Acres	Average Flow Requirement @ (1 cfs per 70 ac)
2001	1,301	3,578	2,353	819	696	324	1,512	14	7,637	109.1
2002	324	542	367	146	114	325	303	3	7,767	111.0
2003	540	1,862	1,327	337	380	753	867	8	7,897	112.8
2004	1,348	2,610	1,979	714	305	678	1,272	12	7,450	106.4
2005	2,343	4,395	3,429	1,488	661	433	2,125	20	7,360	105.1

Irrigated acres include acres under the Farmers Mutual Ditch.

YEAR	Mean Flow Navajo River below Oso Diversion Dam near Chromo, CO (cfs) April	May	June	July	August	September	Seasonal Average	Supply Factor	Irrigated Acres	Average Flow Requirement @ (1 cfs per 70 ac)
2001	**Assumed full supply**								10	0.1
2002									6	0.1
2003									1	0.0
2004									0	0.0
2005									0	0.0

IRRIGATION DEPLETIONS										
YEAR	NM IRRIGATED ACRES	CROP WEIGHTED CIR (FT)	CROP CU FULL SUPPLY (AF)	SUPPLY FACTOR	IMPACT FACTOR	CONSUMPTIVE USE (AF)	INCIDENTAL DEPLETIONS (AF)	CONSERVATION DEPLETION (AF)	TOTAL IRRIGATION DEPLETION (AF)	Incidental Depletion Factor
Pine River Area										
2001	206	2.53	520			520	100	0	620	0.19
2002	266	2.41	641			641	123	0	764	0.19
2003	325	2.57	835			835	165	0	1001	0.20
2004	406	2.19	890			890	168	0	1058	0.19
2005	406	2.02	820			820	158	0	977	0.19
Dulce Area										
2001	10	1.39	14			14	2	0	16	0.14
2002	6	1.73	10			10	2	0	12	0.20
2003	1	0.69	1			1	0	0	1	0.00
2004	0	0.73	0			0	0	0	0	
2005	0	0.61	0			0	0	0	0	
Animas above Animas R. at Farmington Gage										
2001	4840	2.46	11892			11892	2314	0	14206	0.19
2002	4984	2.44	12164			12164	2367	0	14531	0.19
2003	5129	2.35	12064			12064	2358	0	14422	0.20
2004	4952	2.31	11461			11461	2259	0	13720	0.20
2005	4764	2.23	10617			10617	2066	0	12684	0.19
Citizens Ditch										
2001	2661	2.69	7161			7161	1492	0	8653	0.21
2002	2599	2.72	7074			7074	1478	0	8552	0.21
2003	2536	2.78	7045			7045	1478	0	8523	0.21
2004	2739	2.58	7066			7066	1475	0	8541	0.21
2005	2517	2.67	6711			6711	1408	0	8119	0.21
Archuleta Ditch										
2001	15	2.86	42			42	8	0	50	0.19
2002	9	2.92	26			26	5	0	31	0.18
2003	4	3.08	13			13	2	0	16	0
2004	17	2.43	41			41	10	0	51	0.2
2005	12	2.9	35			35	8	0	43	0.23
Turley Ditch										
2001	154	2.7	415			415	77	0	492	0.19
2002	139	2.71	377			377	71	0	447	0.19
2003	123	2.88	354			354	67	0	421	0.19
2004	144	2.42	349			349	65	0	414	0.19
2005	129	2.6	335			335	61	0	396	0.18

IRRIGATION DEPLETIONS	NM IRRIGATED	CROP WEIGHTED	CROP CU FULL	SUPPLY FACTOR	IMPACT FACTOR	CONSUMPTIVE	INCIDENTAL	CONSERVATION	TOTAL IRRIGATION	Incidental Depletion
YEAR	ACRES	CIR (FT)	SUPPLY (AF)			USE (AF)	DEPLETIONS (AF)	DEPLETION (AF)	DEPLETION (AF)	Factor
Hammond Area										
2001	3319	2.84	9412			9412	2217	0	11629	0.24
2002	3330	2.89	9628			9628	2262	0	11890	0.23
2003	3341	2.88	9634			9634	2257	0	11891	0.23
2004	3269	2.66	8710			8710	2063	0	10773	0.24
2005	3233	2.68	8656			8656	2037	0	10693	0.24
Echo Area										
2001	433	2.65	1147			1147	231	0	1378	0.20
2002	420	2.6	1093			1093	219	0	1312	0.20
2003	408	2.75	1122			1122	223	0	1345	0.20
2004	424	2.43	1031			1031	212	0	1242	0
2005	370	2.55	945			945	190	0	1135	0.20
Upper La Plata River Area										
2001	118	2.53	299	0.50		150	34	0	183	0.22
2002	113	2.5	282	0.09		25	5	0	31	0.22
2003	107	2.47	264	0.48		127	27	0	154	0.22
2004	114	2.49	284	0.53		151	34	0	184	0.23
2005	109	2.34	255	0.62		158	33	0	192	0.21
La Plata River Area										
2001	2126	2.51	5336	0.50		2663	506	0	3168	0.19
2002	1855	2.51	4656	0.09		427	81	0	508	0.19
2003	1732	2.49	4313	0.48		2088	398	0	2486	0.19
2004	2036	2.39	4866	0.53		2591	489	0	3080	0.19
2005	2656	2.21	5870	0.62		3639	685	0	4324	0.19
Irrigated acres in 2001, 2002 excludes 154 acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes										
In 2003 excludes 5 acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes										
In 2004 excludes 37acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes										
In 2005 excludes 106 acres at Jackson Lake Wildlife Refuge assumed irrigated by Jackson Lake for wildlife purposes										
Chaco River Area										
2001	632	2.34	1479	0.50	0.70	518	26	0	543	0.05
2002	544	2.34	1273	0.50	0.70	446	22	0	468	0.05
2003	456	2.24	1021	0.50	0.70	358	18	0	375	0.05
2004	456	2.24	1021	0.50	0.70	358	18	0	375	0.05
2005	456	2.24	1021	0.50	0.70	358	18	0	375	0.05

IRRIGATION DEPLETIONS	NM IRRIGATED	CROP WEIGHTED	CROP CU FULL	SUPPLY FACTOR	IMPACT FACTOR	CONSUMPTIVE	INCIDENTAL	CONSERVATION	TOTAL IRRIGATION	Incidental Depletion
YEAR	ACRES	CIR (FT)	SUPPLY (AF)			USE (AF)	DEPLETIONS (AF)	DEPLETION (AF)	DEPLETION (AF)	Factor
Farmington Glade										
2001	89	2.68	239			239	47	0	285	0.20
2002	91	2.57	234			234	46	0	280	0.20
2003	93	2.75	256			256	51	0	307	0.20
2004	108	2.46	266			266	53	0	319	0.20
2005	101	2.36	239			239	45	0	283	0.19
Farmers Mutual Ditch										
2001	2308	2.67	6153			6153	1136	0	7289	0.18
2002	2335	2.9	6782			6782	1250	0	8032	0.18
2003	2363	2.93	6934			6934	1274	0	8208	0
2004	1966	2.54	4984			4984	916	0	5900	0.
2005	2125	2.65	5634			5634	1037	0	6670	0.18
Jewett Valley										
2001	882	2.98	2625			2625	491	0	3116	0.19
2002	896	2.84	2546			2546	479	0	3025	0.19
2003	911	3.05	2776			2776	526	0	3302	0.19
2004	879	2.65	2330			2330	440	0	2770	0.19
2005	741	2.72	2019			2019	382	0	2401	0.19
Fruitland										
2001	2050	2.52	5162			5162	932	0	6094	0.18
2002	2016	2.79	5618			5618	1015	0	6632	0.18
2003	1982	2.85	5639			5639	1019	0	6658	0.18
2004	1941	2.39	4637			4637	835	0	5472	0.18
2005	1925	2.44	4691			4691	847	0	5537	0.18
Hogback East										
2001	981	2.83	2778			2778	501	0	3279	0.18
2002	972	2.4	2332			2332	420	0	2752	0
2003	963	3.01	2900			2900	523	0	3423	0.
2004	984	2.36	2325			2325	419	0	2744	0.18
2005	962	2.59	2494			2494	449	0	2944	0.18

IRRIGATION DEPLETIONS									TOTAL	Incidental
	NM IRRIGATED	CROP WEIGHTED	CROP CU FULL	SUPPLY FACTOR	IMPACT FACTOR	CONSUMPTIVE	INCIDENTAL	CONSERVATION	IRRIGATION	Depletion
YEAR	ACRES	CIR (FT)	SUPPLY (AF)			USE (AF)	DEPLETIONS (AF)	DEPLETION (AF)	DEPLETION (AF)	Factor
Cambridge										
2001	48	2.72	130			130	23	0	153	0.18
2002	40	2.31	93			93	17	0	110	0.18
2003	33	2.84	94			94	17	0	111	0.18
2004	64	2.24	144			144	26	0	169	0.18
2005	22	2.67	59			59	11	0	69	0.19
Hogback West										
2001	1832	2.88	5284			5284	951	0	6235	0.18
2002	1823	2.44	4454			4454	802	0	5255	0.18
2003	1813	2.98	5406			5406	976	0	6382	0.18
2004	1594	2.41	3842			3842	691	0	4533	0
2005	1865	2.57	4793			4793	863	0	5656	0.
Cudei										
2001	339	2.98	1011			1011	182	0	1193	0.18
2002	366	2.51	920			920	166	0	1086	0.18
2003	393	3.06	1201			1201	216	0	1417	0.18
2004	298	2.45	731			731	132	0	863	0.18
2005	285	2.58	736			736	132	0	868	0.18
Total Basin excluding NIIP										
2001	23043								68583	
2002	22804								65717	
2003	22713								70443	
2004	22391								62208	
2005	22678								63366	

Chaco River Area incidental depletions are 5% of consumptive use. For all other areas, incidental depletions are calculated at 24% of consumptive use for sprinkler irrigated acres, 18% of consumptive use for flood irrigated acres and 5% of consumptive use for drip irrigated acres.

IRRIGATION DEPLETIONS										
	NM	CROP	CROP	SUPPLY	IMPACT				TOTAL	Incidental
	IRRIGATED	WEIGHTED	CU FULL	FACTOR	FACTOR	CONSUMPTIVE	INCIDENTAL	CONSERVATION	IRRIGATION	Depletion
YEAR	ACRES	CIR (FT)	SUPPLY (AF)			USE (AF)	DEPLETIONS (AF)	DEPLETION (AF)	DEPLETION (AF)	Factor
Navajo Indian Irrigation Project Depletions										
		Total	Total							
	Irrigated	Diversion[2]	Consumptive Use[2,3]							
	Acres[1,2]	(ac-ft)	(ac-ft)							
2001	44,070	140,605	126,545							
2002	49,425	191,563	172,407							
2003	55,610	178,567	160,710							
2004	57,452	185,373	166,836							
2005	57,313	162,797	146,517							
1 Irrigated acres for NIIP exclude double-cropped, CRP and fallow acres.										
2 Data from Keller-Bliesner Engineering										
3 Total depletion = 90% of total diversion from Navajo Reservoir; based on BIA NIIP water budget data										

Ag & Stock Summary

Year	Irrigated Acres	Irrigation Depletion Acre-Feet	Stockpond Depletion Acre-Feet	Livestock Consumption Acre-Feet	Total Stockpond Evap & Livestock Impact[1] Acre-Feet
			Irrigation Depletions	**Stockpond Evaporation & Livestock Depletions**	
2001	67,113	195,127	3,680	694	3,936
2002	72,229	238,124	3,680	559	3,815
2003	78,323	231,153	3,680	452	3,719
2004	79,843	229,044	3,680	447	3,714
2005	79,991	209,883	3,680	458	3,724

[1] 1/3 of stockpond depletion + livestock consumption @ 70% impact; 2/3 of stockpond depletion + livestock consumption @ 100%

LIVESTOCK CONSUMPTION, SUMMARY

UNITS: ACRE-FEET

YEAR	COUNTY	CATTLE	MILK COWS	SHEEP	HORSES	CHICKENS	HOGS	TOTAL ALL LIVESTOCK
2001	McKinley	96	0	25	3	0.12	0	124
	Rio Arriba	82	1	5	8	0.12	0	97
	Sandoval	15	0	0	1	0.01	0	16
	San Juan	398	3	31	25	0.17	0	457
	TOTAL	591	4	60	37	0.42	1	694
2002	McKinley	74	0	24	3	0.12	0	101
	Rio Arriba	73	1	4	8	0.12	0	88
	Sandoval	10	0	0	1	0.01	0	11
	San Juan	308	3	22	25	0.17	0	359
	TOTAL	466	4	50	37	0.42	1	559
2003	McKinley	55	0	23	3	0.12	0	81
	Rio Arriba	67	1	4	8	0.12	0	81
	Sandoval	8	0	0	1	0.01	0	8
	San Juan	235	3	18	25	0.17	0	282
	TOTAL	364	4	45	37	0.42	1	452
2004	McKinley	56	0	22	3	0.12	0	82
	Rio Arriba	67	1	3	8	0.12	0	80
	Sandoval	8	0	0	1	0.01	0	8
	San Juan	230	3	18	25	0.17	0	277
	TOTAL	360	4	44	37	0.42	1	447
2005	McKinley	59	0	22	3	0.12	0	85
	Rio Arriba	68	1	3	8	0.12	0	81
	Sandoval	7	0	0	1	0.01	0	8
	San Juan	235	3	20	25	0.17	0	283
	TOTAL	370	4	45	37	0.42	1	458

UPPER COLORADO RIVER BASIN, NEW MEXICO

LIVESTOCK CONSUMPTION, MILK COWS

YEAR	COUNTY	TOTAL HEAD OF MILK COWS IN COUNTY ON JAN 1 (1)	PERCENT OF MILK COWS IN COUNTY WHICH IS IN UPPER COLORADO DRAINAGE (2)	TOTAL HEAD OF MILK COWS IN UPPER COLORADO DRAINAGE ON JAN 1 (3)	AVERAGE HEAD OF MILK COWS IN UPPER COLORADO DRAINAGE FOR YEAR (4)	ACRE-FEET OF WATER CONSUMED BY MILK COWS IN UPPER COLORADO DRAINAGE (5)
2001	McKinley	0	100.00	0	0	0
	Rio Arriba	11	100.00	11	11	1
	Sandoval	9	6.40	1	1	0
	San Juan	24	100.00	24	24	3
	TOTAL	44		36	36	4
2002	McKinley	0	100.00	0	0	0
	Rio Arriba	11	100.00	11	11	1
	Sandoval	9	6.40	1	1	0
	San Juan	24	100.00	24	24	3
	TOTAL	44		36	36	4
2003	McKinley	0	100.00	0	0	0
	Rio Arriba	11	100.00	11	11	1
	Sandoval	9	6.40	1	1	0
	San Juan	24	100.00	24	24	3
	TOTAL	44		36	36	4
2004	McKinley	0	100.00	0	0	0
	Rio Arriba	11	100.00	11	11	1
	Sandoval	9	6.40	1	1	0
	San Juan	24	100.00	24	24	3
	TOTAL	44		36	36	4
2005	McKinley	0	100.00	0	0	0
	Rio Arriba	11	100.00	11	11	1
	Sandoval	9	6.40	1	1	0
	San Juan	24	100.00	24	24	3
	TOTAL	44		36	36	4

(1): USDA NATIONAL AGRICULTURAL STATISTICS SERVICE 2002 CENSUS DATA USED ALL YEARS

(3): (1)x(2)/100

(4): AVERAGE OF (3) FOR CURRENT AND FOLLOWING YEAR

(5): (4)x100.0x365/325850; 100.0 GALLONS PER HEAD PER DAY CONSUMPTIVE USE FOR MILK COWS FROM SEO TECHNICAL REPORT 51

UPPER COLORADO RIVER BASIN, NEW MEXICO

LIVESTOCK CONSUMPTION, CATTLE

YEAR	COUNTY	TOTAL HEAD OF CATTLE IN COUNTY ON JAN 1 (1)	PERCENT OF CATTLE IN COUNTY WHICH IS IN UPPER COLORADO DRAINAGE (2)	TOTAL HEAD OF CATTLE IN UPPER COLORADO DRAINAGE ON JAN 1 (3)	AVERAGE HEAD OF CATTLE IN UPPER COLORADO DRAINAGE FOR YEAR (4)	ACRE-FEET OF WATER CONSUMED BY CATTLE IN UPPER COLORADO DRAINAGE (5)
2001	McKinley	34,000	26.50	9,010	8,613	96
	Rio Arriba	25,000	30.50	7,625	7,320	82
	Sandoval	22,000	6.40	1,408	1,312	15
	San Juan	38,000	100.00	38,000	35,500	398
	TOTAL	119,000		56,043	52,745	591
2002	McKinley	31,000	26.50	8,215	6,625	74
	Rio Arriba	23,000	30.50	7,015	6,558	73
	Sandoval	19,000	6.40	1,216	928	10
	San Juan	33,000	100.00	33,000	27,500	308
	TOTAL	106,000		49,446	41,611	466
2003	McKinley	19,000	26.50	5,035	4,903	55
	Rio Arriba	20,000	30.50	6,100	5,948	67
	Sandoval	10,000	6.40	640	672	8
	San Juan	22,000	100.00	22,000	21,000	235
	TOTAL	71,000		33,775	32,522	364
2004	McKinley	18,000	26.50	4,770	5,035	56
	Rio Arriba	19,000	30.50	5,795	5,948	67
	Sandoval	11,000	6.40	704	672	8
	San Juan	20,000	100.00	20,000	20,500	230
	TOTAL	68,000		31,269	32,155	360
2005	McKinley	20,000	26.50	5,300	5,300	59
	Rio Arriba	20,000	30.50	6,100	6,100	68
	Sandoval	10,000	6.40	640	640	7
	San Juan	21,000	100.00	21,000	21,000	235
	TOTAL	71,000		33,040	33,040	370

(1): USDA NATIONAL AGRICULTURAL STATISTICS SERVICE

(3): (1)x(2)/100

(4): AVERAGE OF (3) FOR CURRENT AND FOLLOWING YEAR; TOTAL OF (3) FOR 2005

(5): (4)x10.0x365/325850; 10.0 GALLONS PER HEAD PER DAY CONSUMPTIVE USE FOR CATTLE FROM SEO TECHNICAL REPORT 51

UPPER COLORADO RIVER BASIN, NEW MEXICO

LIVESTOCK CONSUMPTION, SHEEP

YEAR	COUNTY	TOTAL HEAD OF SHEEP IN COUNTY ON JAN 1 (1)	PERCENT OF SHEEP IN COUNTY WHICH IS IN UPPER COLORADO DRAINAGE (2)	TOTAL HEAD OF SHEEP IN UPPER COLORADO DRAINAGE ON JAN 1 (3)	AVERAGE HEAD OF SHEEP IN UPPER COLORADO DRAINAGE FOR YEAR (4)	ACRE-FEET OF WATER CONSUMED BY SHEEP IN UPPER COLORADO DRAINAGE (5)
2001	McKinley	25,000	40.60	10,150	9,947	24.51
	Rio Arriba	6,000	39.00	2,340	1,950	4.81
	Sandoval	500	6.40	32	32	0.08
	San Juan	15,000	100.00	15,000	12,500	30.80
	TOTAL	46,500		27,522	24,429	60.20
2002	McKinley	24,000	40.60	9,744	9,541	23.51
	Rio Arriba	4,000	39.00	1,560	1,755	4.32
	Sandoval	500	6.40	32	35	0.09
	San Juan	10,000	100.00	10,000	9,000	22.18
	TOTAL	38,500		21,336	20,331	50.10
2003	McKinley	23,000	40.60	9,338	9,135	22.51
	Rio Arriba	5,000	39.00	1,950	1,755	4.32
	Sandoval	600	6.40	38	38	0.09
	San Juan	8,000	100.00	8,000	7,500	18.48
	TOTAL	36,600		19,326	18,428	45.41
2004	McKinley	22,000	40.60	8,932	8,932	22.01
	Rio Arriba	4,000	39.00	1,560	1,365	3.36
	est. Sandoval	600	6.40	38	38	0.09
	San Juan	7,000	100.00	7,000	7,500	18.48
	TOTAL	33,600		17,530	17,835	43.95
2005	McKinley	22,000	40.60	8,932	8,932	22.01
	Rio Arriba	3,000	39.00	1,170	1,170	2.88
	est. Sandoval	600	6.40	38	38	0.09
	San Juan	8,000	100.00	8,000	8,000	19.71
	TOTAL	33,600		18,140	18,140	44.70

(1): USDA NATIONAL AGRICULTURAL STATISTICS SERVICE

(3): (1)x(2)/100

(4): AVERAGE OF (3) FOR CURRENT AND FOLLOWING YEAR; TOTAL OF (3) FOR 2005

(5): (4)x2.2x365/325850; 2.2 GALLONS PER HEAD PER DAY CONSUMPTIVE USE FOR SHEEP FROM SEO TECHNICAL REPORT 51

UPPER COLORADO RIVER BASIN, NEW MEXICO

LIVESTOCK CONSUMPTION, HORSES

YEAR	COUNTY	TOTAL HEAD OF HORSES IN COUNTY ON JAN 1 (1)	PERCENT OF HORSES IN COUNTY WHICH IS IN UPPER COLORADO DRAINAGE ON JAN 1 (2)	TOTAL HEAD OF HORSES IN UPPER COLORADO DRAINAGE ON JAN 1 (3)	AVERAGE HEAD OF HORSES IN UPPER COLORADO DRAINAGE FOR YEAR (4)	ACRE-FEET OF WATER CONSUMED BY HORSES IN UPPER COLORADO DRAINAGE (5)
2001	McKinley	537	40.60	218	218	3
	Rio Arriba	1,437	39.00	560	560	8
	Sandoval	824	6.40	53	53	1
	San Juan	1,740	100.00	1,740	1,740	25
	TOTAL	4,537		2,570	2,570	37
2002	McKinley	537	40.60	218	218	3
	Rio Arriba	1,437	39.00	560	560	8
	Sandoval	824	6.40	53	53	1
	San Juan	1,740	100.00	1,740	1,740	25
	TOTAL	4,537		2,570	2,570	37
2003	McKinley	537	40.60	218	218	3
	Rio Arriba	1,437	39.00	560	560	8
	Sandoval	824	6.40	53	53	1
	San Juan	1,740	100.00	1,740	1,740	25
	TOTAL	4,537		2,570	2,570	37
2004	McKinley	537	40.60	218	218	3
	Rio Arriba	1,437	39.00	560	560	8
	Sandoval	824	6.40	53	53	1
	San Juan	1,740	100.00	1,740	1,740	25
	TOTAL	4,537		2,570	2,570	37
2005	McKinley	537	40.60	218	218	3
	Rio Arriba	1,437	39.00	560	560	8
	Sandoval	824	6.40	53	53	1
	San Juan	1,740	100.00	1,740	1,740	25
	TOTAL	4,537		2,570	2,570	37

(1): USDA NATIONAL AGRICULTURAL STATISTICS SERVICE 2002 CENSUS DATA USED ALL YEARS

(4): AVERAGE OF (3) FOR CURRENT AND FOLLOWING YEAR

(5): (4)x13.0x365/325850; 13.0 GALLONS PER HEAD PER DAY CONSUMPTIVE USE FOR HORSES FROM SEO TECHNICAL REPORT 51

UPPER COLORADO RIVER BASIN, NEW MEXICO

LIVESTOCK CONSUMPTION, CHICKENS

YEAR	COUNTY	TOTAL HEAD OF CHICKENS IN COUNTY ON JAN 1 (1)	PERCENT OF CHICKENS IN COUNTY WHICH IS IN UPPER COLORADO DRAINAGE (2)	TOTAL HEAD OF CHICKENS IN UPPER COLORADO DRAINAGE ON JAN 1 (3)	AVERAGE HEAD OF CHICKENS IN UPPER COLORADO DRAINAGE FOR YEAR (4)	ACRE-FEET OF WATER CONSUMED BY CHICKENS IN UPPER COLORADO DRAINAGE (5)
2001	McKinley	1,346	100.00	1,346	1,346	0.12
	Rio Arriba	5,836	22.20	1,296	1,296	0.12
	Sandoval	1,003	6.40	64	64	0.01
	San Juan	1,935	100.00	1,935	1,935	0.17
	TOTAL	10,120		4,641	4,641	0.42
2002	McKinley	1,346	100.00	1,346	1,346	0.12
	Rio Arriba	5,836	22.20	1,296	1,296	0.12
	Sandoval	1,003	6.40	64	64	0.01
	San Juan	1,935	100.00	1,935	1,935	0.17
	TOTAL	10,120		4,641	4,641	0.42
2003	McKinley	1,346	100.00	1,346	1,346	0.12
	Rio Arriba	5,836	22.20	1,296	1,296	0.12
	Sandoval	1,003	6.40	64	64	0.01
	San Juan	1,935	100.00	1,935	1,935	0.17
	TOTAL	10,120		4,641	4,641	0.42
2004	McKinley	1,346	100.00	1,346	1,346	0.12
	Rio Arriba	5,836	22.20	1,296	1,296	0.12
	Sandoval	1,003	6.40	64	64	0.01
	San Juan	1,935	100.00	1,935	1,935	0.17
	TOTAL	10,120		4,641	4,641	0.42
2005	McKinley	1,346	100.00	1,346	1,346	0.12
	Rio Arriba	5,836	22.20	1,296	1,296	0.12
	Sandoval	1,003	6.40	64	64	0.01
	San Juan	1,935	100.00	1,935	1,935	0.17
	TOTAL	10,120		4,641	4,641	0.42

(1): USDA NATIONAL AGRICULTURAL STATISTICS SERVICE 2002 CENSUS DATA USED ALL YEARS

(3): (1)x(2)/100

(4): AVERAGE OF (3) FOR CURRENT AND FOLLOWING YEAR

(5): (4)x0.08x365/325850; 0.08 GALLONS PER HEAD PER DAY CONSUMPTIVE USE FOR CHICKENS FROM SEO TECHNICAL REPORT 51

UPPER COLORADO RIVER BASIN, NEW MEXICO

LIVESTOCK CONSUMPTION, HOGS

YEAR	COUNTY	TOTAL HEAD OF HOGS IN COUNTY ON JAN 1 (1)	PERCENT OF HOGS IN COUNTY WHICH IS IN UPPER COLORADO DRAINAGE (2)	TOTAL HEAD OF HOGS IN UPPER COLORADO DRAINAGE ON JAN 1 (3)	AVERAGE HEAD OF HOGS IN UPPER COLORADO DRAINAGE FOR YEAR (4)	ACRE-FEET OF WATER CONSUMED BY HOGS IN UPPER COLORADO DRAINAGE (5)
2001	McKinley	135	25.00	34	34	0.11
	Rio Arriba	148	100.00	148	148	0.50
	Sandoval	150	6.40	10	10	0.03
	San Juan	76	100.00	76	76	0.26
	TOTAL	509		267	267	0.90
2002	McKinley	135	25.00	34	34	0.11
	Rio Arriba	148	100.00	148	148	0.50
	Sandoval	150	6.40	10	10	0.03
	San Juan	76	100.00	76	76	0.26
	TOTAL	509		267	267	0.90
2003	McKinley	135	25.00	34	34	0.11
	Rio Arriba	148	100.00	148	148	0.50
	Sandoval	150	6.40	10	10	0.03
	San Juan	76	100.00	76	76	0.26
	TOTAL	509		267	267	0.90
2004	McKinley	135	25.00	34	34	0.11
	Rio Arriba	148	100.00	148	148	0.50
	Sandoval	150	6.40	10	10	0.03
	San Juan	76	100.00	76	76	0.26
	TOTAL	509		267	267	0.90
2005	McKinley	135	25.00	34	34	0.11
	Rio Arriba	148	100.00	148	148	0.50
	Sandoval	150	6.40	10	10	0.03
	San Juan	76	100.00	76	76	0.26
	TOTAL	509		267	267	0.90

(1): USDA NATIONAL AGRICULTURAL STATISTICS SERVICE 2002 CENSUS DATA USED ALL YEARS

(3): (1)x(2)/100

(4): AVERAGE OF (3) FOR CURRENT AND FOLLOWING YEAR

(5): (4)x3.0x365/325850; 3.0 GALLONS PER HEAD PER DAY CONSUMPTIVE USE FOR HOGS FROM SEO TECHNICAL REPORT 51

POWER, MINING, INDUSTRIAL, COMMERCIAL USES	Units: Acre-Feet																
	2001			2002			2003			2004			2005				
	Diversion	Depletion Factor OR Return Flow	Depletion	Diversion	Depletion Factor OR Return Flow	Depletion	Diversion	Depletion Factor OR Return Flow	Depletion	Diversion	Depletion Factor OR Return Flow	Depletion	Diversion	Depletion Factor OR Return Flow	Depletion	
THERMAL ELECTRIC POWER																	
Four Corners Power Plant / Navajo Mine[1]	28982.0	4700.0	24282.0	29035.0	6301.0	22734.0	28453.0	4102.0	24351.0	27014.0	1820.0	25194.0	27627.0	66.0	27561.0		Water use not differentiated between power generation and related coal mining
PNM - SJ Generating Sta / SJ & LP mines[1]	24034.0	0.0	24034.0	22887.0	0.0	22887.0	22640.0	0.0	22640.0	23780.0	0.0	23780.0	23624.0	0.0	23624.0		
Subtotals	**53016.0**		**48316.0**	**51922.0**		**45621.0**	**51093.0**		**46991.0**	**50794.0**		**48974.0**	**51251.0**		**51185.0**		
MINERAL RESOURCES																	
Enterprise Products (formerly El Paso Field Services) - Blanco, Chaco, Conoco, Val Verde plants [1]- 2865 & 2718	959.5	112.0	847.5	960.0	112.0	848.0	960.0	112.0	848.0	1221.7	112.0	1109.7	1322.5	112.0	1210.5		2005 data for return flow per Bloomfield used for all years
San Juan Basin Water Haulers - 3453	35.0	1.0	35.0 e	35.0	1.0	35.0 e	35.3	1.0	35.3	35.0	1.0	35.0	101.6	1.0	101.6		2003 data used for estimated years
San Juan Concrete - 1396 & 2837	36.0	0.2	7.2 e	36.0	0.2	7.2 e	36.0	0.2	7.2 e	36.0	0.2	7.2 e	36.0	0.2	7.2 e		2000 data used for all years
Subtotals	**1030.5**		**889.7**	**1031.0**		**890.2**	**1031.3**		**890.5**	**1292.7**		**1151.9**	**1460.1**		**1319.3**		
INDUSTRIAL																	
City of Bloomfield - 2800																	
Blanco Plant	2.0	1.0	2.0 e	2.0	1.0	2.0 e	2.0	1.0	2.0 e	2.0	1.0	2.0 e	2.0	1.0	2.0		2005 data used for estimated years
El Paso - Rio Vista	0.0	1.0	0.0 e	0.0	1.0	0.0 e	0.0	1.0	0.0 e	0.0	1.0	0.0 e	0.0	1.0	0.0		2005 data used for estimated years
Kutz Plant	65.0	1.0	65.0 e	65.0	1.0	65.0 e	65.0	1.0	65.0 e	65.0	1.0	65.0 e	66.0	1.0	66.0		2005 data used for estimated years
Transwestern Conoco	0.0	1.0	0.0 e	0.0	1.0	0.0 e	0.0	1.0	0.0 e	0.0	1.0	0.0 e	0.0	1.0	0.0		2005 data used for estimated years
Williams Oilfield (Milagro)	60.0	1.0	60.0 e	60.0	1.0	60.0 e	60.0	1.0	60.0 e	60.0	1.0	60.0 e	58.0	1.0	58.0		2005 data used for estimated years
Trucking	100.0	1.0	100.0 e	100.0	1.0	100.0 e	100.0	1.0	100.0 e	100.0	1.0	100.0 e	99.0	1.0	99.0		2005 data used for estimated years
Conoco Inc. (San Juan Gas Plant) - 01675	280.0	1.0	279.0	280.0	1.0	279.0	276.7	1.0	275.7	282.7	1.0	281.7	281.6	1.0	280.6		
Dugan Production Co.- SJ-1255	1.0	1.0	1.0 e	2.0	1.0	2.0	4.7	1.0	4.7	3.7	1.0	3.7	6.1	1.0	6.1		2000, 2002 data used for estimated years
El Paso Natural Gas - SJ-75	0.0	1.0	0.0	0.0	1.0	0.0	0.1	1.0	0.1	0.1	1.0	0.1	1.0	1.0	1.0		
Giant Refining-San Juan - 3385 & 2593	270.2	1.0	270.2	270.0	1.0	270.0 e	270.0	1.0	270.0 e	270.0	1.0	270.0 e	270.0	1.0	270.0		2001 data used for estimated years
Hydro Resources Inc.- SJ-1624	5.6	0.5	2.8	5.6	0.5	2.8	5.6	0.5	2.8	5.6	0.5	2.8 e	5.6	0.5	2.8		2001-2003 data used for estimated years
Highway Construction	0.0			0.0			0.0			27.6	1.0	27.6	27.2	1.0	27.2		
Texakoma Oil & Gas Corp. 2847-T, 2848-T,-S	31.3	1.0	31.3	44.9	1.0	44.9	44.4	1.0	44.4	73.6	1.0	73.6	75.0	1.0	75.0		2004 data used for estimated years
Nellsons - 3843-T	27.8	1.0	27.8	8.2	1.0	8.2	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0		Project term 3/01 - 7/02
Subtotals	**845.4**		**841.6**	**840.3**		**836.5**	**831.0**		**827.2**	**892.9**		**889.1**	**894.1**		**890.3**		
COMMERCIAL																	
Berean Mission	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0		2000 data used for all years
Blanco Trading Post	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5		2000 data used for all years
Brethren-in-Christ	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0		2000 data used for all years
Canyon 56 Diner, Crownpoint	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2000 data used for all years
Dzilth-Na-O-Dith-Hle Health Ctr.	15.0	0.5	7.5	15.0	0.5	7.5	15.0	0.5	7.5	15.0	0.5	7.5	15.0	0.5	7.5		2000 data used for all years
El Huerfano Trading Post	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5		2000 data used for all years
Huerfano Boarding School	5.0	0.5	2.5	5.0	0.5	2.5	6.0	0.5	3.0	6.0	0.5	3.0	6.0	0.5	3.0		2000 data used for all years
Miscellaneous Businesses	10.0	1.0	10.0	10.0	1.0	10.0	10.0	1.0	10.0	10.0	1.0	10.0	10.0	1.0	10.0		2000 data used for all years
NM Highway Dept. Rest Areas	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2000 data used for all years
Thriftway Store - Nageezi	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5		2000 data used for all years
Subtotals	**47.5**		**31.5**	**47.5**		**31.5**	**48.5**		**32.0**	**48.5**		**32.0**	**48.5**		**32.0**		
TOTALS	**54939.4**		**50078.8**	**53840.8**		**47379.2**	**53003.8**		**48740.7**	**53028.1**		**51047.0**	**53653.7**		**53426.6**		

Diversions tabulated from water use records submitted to the Office of the State Engineer, Water Rights Division, whenever available.
Depletion factors from NM State Engineer Office Technical Report 51, "Water Use by Categories in NM Counties and River Basins, and Irrigated Acreage in 2000", prepared by B.C.Wilson PE, et al, 2003.

[1] Measured return flow for Four Corners Power Plant, San Juan Generating Station and Enterprise Products. Measured Lake Morgan blowdown discharges reduced 30% for transit losses to estimate Four Corners Power Plant reutrn flows to San Juan River.

MUNICIPAL USES		Units: Acre-Feet															
		Diversion	2001 RETURN FLOW	Consumptive Use	Diversion	2002 RETURN FLOW	Consumptive Use	Diversion	2003 RETURN FLOW	Consumptive Use	Diversion	2004 RETURN FLOW	Consumptive Use	Diversion	2005 RETURN FLOW	Consumptive Use
01901 & 01902	CITY OF AZTEC	2292	755	1537	2300	750	1550 e	2300	750	1550 e	1864	836	1028	2567	827	1740
2801 & SJ-1006	Southside WUA	100	50	50	100	50	50 e	100	50	50 e	84	42	42	96	48	48
	Flora Vista WUA	0	0	0	0	0	0 e	0	0	0 e	0	0	0	0	0	0
		2392	**805**	**1588**	**2400**	**800**	**1600**	**2400**	**800**	**1600**	**1948**	**878**	**1070**	**2663**	**875**	**1788**
2800	CITY OF BLOOMFIELD															
	Bloomfield	840	420	420	840	420	420	840	420	420	840	420	420	838	419	419
	Outside Residential	230	69	161	230	69	161	230	69	161	230	69	161	232	70	162
		1070	**489**	**581**	**1070**	**489**	**581**	**1070**	**489**	**581**	**1070**	**489**	**581**	**1070**	**489**	**581**
2995	CITY OF FARMINGTON	13259	5352	7907	13730	5650	8080	16098	5442	10656	15353	5581	9772	15415	5764	9651
	NTUA Shiprock (depletion factor .62)	467	177	290	467	177	290	601	228	373	574	218	356	552	210	342
	Lower Valley WUA (depletion factor .5)	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1
	Upper La Plata WUA (depletion factor .5)	51	26	26	51	26	26	50	25	25	52	26	26	53	27	27
	Flora Vista WUA (depletion factor .5)	27	14	14	29	15	15	36	18	18	24	12	12	27	14	14
	Outdoor - Private & Civic (depletion factor .7)	547	164	383	547	164	383	688	206	482	651	195	456	633	190	443
	Farmington Lake Evap			610			629			665			643			626
		14352	**5733**	**9229**	**14825**	**6032**	**9422**	**17474**	**5920**	**12219**	**16655**	**6033**	**11265**	**16682**	**6205**	**11103**
SJ-113	City of Gallup - zero San Juan River impact	**704**	**0**	**0**	**152**	**0**	**0**	**992**	**0**	**0**	**909**	**0**	**0**	**950**	**0**	**0** e
	UPPER COLORADO BASIN TOTAL	**18518**	**7027**	**11398**	**18447**	**7321**	**11603**	**21936**	**7209**	**14400**	**20582**	**7400**	**12916**	**21365**	**7569**	**13473**

RURAL/DOMESTIC USES

Units: Acre-Feet

COUNTY / PERMIT			2001 DIVERSION	2001 IMPACT FACTOR x DEPLETION FACTOR	2001 DEPLETION	2002 DIVERSION	2002 IMPACT FACTOR x DEPLETION FACTOR	2002 DEPLETION	2003 DIVERSION	2003 IMPACT FACTOR x DEPLETION FACTOR	2003 DEPLETION	2004 DIVERSION	2004 IMPACT FACTOR x DEPLETION FACTOR	2004 DEPLETION	2005 DIVERSION	2005 IMPACT FACTOR x DEPLETION FACTOR	2005 DEPLETION		
Rio Arriba																				
	Dulce, BIA Jicarilla Agency		500.00	0.50	250.00	500.00	0.50	250.00	500.00	0.50	250.00	500.00	0.50	250.00	500.00	0.50	250.00	Estimated		
	Lindrith Water Coop		5.00	0.05	0.25	5.00	0.50	2.50	5.00	0.50	2.50	5.00	0.50	2.50	5.00	0.50	2.50	Estimated	1	
	Est. total population served	3,400																		
	Self-supplied Homes		34.42	0.05	1.55	39.98	0.45	17.99	45.63	0.45	20.53	51.38	0.45	23.12	57.22	0.45	25.75	Estimated	1	
	Diversions for rural self-supplied homes were estimated based on population not served by a municipal or community system; number of users under various systems, NM State Engineer Office Technical Report No. 51 backup data. For self-supplied domestic, per-capita use of 70 gpd for San Juan & Mckinley counties; 80 gpd for Rio Arriba & Sandoval counties, from NMOSE Tech. Rep. 51.																			
		Subtotals	**539.42**		**261.80**	**544.98**		**270.49**	**550.63**		**273.03**	**556.38**		**276.62**	**562.22**	**1.45**	**278.25**			
San Juan																				
SJ-785	Blanco Water Users Assoc		59.88	0.50	29.94	59.88	0.50	29.94	59.88	0.50	29.94	59.88	0.50	29.94	59.88	0.50	29.94	2000 data used		
SJ-588	Flora Vista WUA (self supply)		300.00	0.50	150.00 e	294.05	0.50	147.02	300.00	0.50	150.00 e	300.00	0.50	150.00 e	300.00	0.50	150.00 e			
01675, 2554-A	Morningstar WUA		480.00	0.50	240.00 e	500.00	0.50	250.00 e	520.00	0.50	260.00 e	539.87	0.50	269.94 e	562.30	0.50	281.15 e			
	Kirtland WUA		1,154.74	0.50	577.37	1,162.54	0.50	581.27	1,177.94	0.50	588.97	1,190.08	0.50	595.04	1,250.19	0.50	625.10			
	La Plata WUA		153.76	0.50	76.88	153.50	0.50	76.75	155.22	0.50	77.61	158.91	0.50	79.46	163.61	0.50	81.81			
	Lee Acres WUA		424.53	0.40	169.81	425.76	0.40	170.30	446.45	0.40	178.58	498.41	0.40	199.36	490.52	0.40	196.21			
3509	Lower Valley WUA (Kirtland)		1,300.00	0.50	650.00 e	1,300.00	0.50	650.00 e	1,300.00	0.50	650.00 e	1,248.75	0.50	624.38	1,386.74	0.50	693.37			
	Lybrook Water Users Assoc		25.59	0.50	12.80	25.59	0.50	12.80	25.59	0.50	12.80	25.59	0.50	12.80	25.59	0.50	12.80	2000 data used	1	
SJ-556	Navajo Dam MDWCA		40.00	0.00	0.00 e	40.00	0.00	0.00 e	37.14	0.00	0.00	38.06	0.00	0.00	42.27	0.00	0.00			
3843	North Star WUA		165.00	0.05	8.25 e	183.28	0.50	91.64	230.00	0.50	115.00 e	220.00	0.50	110.00 e	210.08	0.50	105.04			
	NTUA-Lake Valley		22.00	0.05	1.10	21.00	0.50	10.50	22.00	0.50	11.00	20.00	0.50	10.00	20.00	0.50	10.00	1999 data used	1	
	NTUA-Little Water		114.00	0.05	5.70	128.00	0.50	64.00	111.00	0.50	55.50	70.00	0.50	35.00	70.00	0.50	35.00	1999 data used		
	Rosa Joint Venture		5.45	0.50	2.73	6.35	0.50	3.18	6.35	0.50	3.18	5.83	0.50	2.92	5.16	0.50	2.58			
	Southside WUA		15.00	0.50	7.50 e	15.01	0.50	7.51	14.69	0.50	7.35	19.74	0.50	9.87	12.22	0.50	6.11			
2593(3)	West Hammond WUA		280.00	0.40	112.00 e	280.00	0.40	112.00 e	280.00	0.40	112.00 e	281.12	0.40	112.45	276.66	0.40	110.66			
	Aztec																			
	Bloomfield																			
	Farmington																			
	NTUA-Shiprock																			
	Upper La Plata WUA																			
	Est. total population served	95,000																		
	Self-supplied Homes		1,669.90	0.45	751.48	1,669.91	0.45	841.48	2,074.31	0.45	933.44	2,283.19	0.45	1,027.44	2,496.65	0.45	1,123.49			
	Diversions for rural self-supplied homes were estimated based on population not served by a municipal or community system; number of users under various systems, NM State Engineer Office Technical Report No. 51 backup data. For self-supplied domestic, per-capita use of 70 gpd for San Juan & Mckinley counties; 80 gpd for Rio Arriba & Sandoval counties, from NMOSE Tech. Rep. 51.																			
		Subtotals	**6,209.85**		**2,795.63**	**6,464.87**		**3,048.36**	**6,760.67**		**3,186.36**	**6,969.43**		**3,268.67**	**7,371.87**		**3,463.25**			
McKinley																				
	NTUA-Crownpoint	1,910	154.00	0.05	7.70	131.00	0.50	65.50	152.00	0.50	76.00	190.00	0.50	95.00	190.00	0.50	95.00	1999 data used	1	
	NTUA-Ojo Encino	250	8.00	0.05	0.40	13.00	0.50	6.50	18.00	0.50	9.00	36.00	0.50	18.00	35.00	0.50	17.50	1999 data used	1	
	NTUA-Standing Rock	360	26.00	0.05	1.30	34.00	0.50	17.00	34.00	0.50	17.00	36.00	0.50	18.00	36.00	0.50	18.00	1999 data used	1	
	Total population served	2,520																		
	Self-supplied Homes		687.96	0.05	39.96	908.78	0.45	408.94	929.96	0.45	418.48	951.57	0.45	428.20	973.58	0.45	438.11		1	
	Diversions for rural self-supplied homes were estimated based on population not served by a municipal or community system; number of users under various systems, NM State Engineer Office Technical Report No. 51 backup data. For self-supplied domestic, per-capita use of 70 gpd for San Juan & Mckinley counties; 80 gpd for Rio Arriba & Sandoval counties, from NMOSE Tech. Rep. 51.																			
		Subtotals	**1,075.96**		**49.36**	**1,086.76**		**497.94**	**1,133.96**		**520.48**	**1,213.57**		**559.20**	**1,234.58**		**568.61**			
Sandoval																				
	Total population served	0																		
	Self-supplied Homes		84.72	0.05	3.81	75.19	0.45	33.84	76.28	0.45	34.32	77.37	0.45	34.82	78.49	0.45	35.32		1	
	Diversions for rural self-supplied homes were estimated based on population not served by a municipal or community system; number of users under various systems, NM State Engineer Office Technical Report No. 51 backup data. For self-supplied domestic, per-capita use of 70 gpd for San Juan & Mckinley counties; 80 gpd for Rio Arriba & Sandoval counties, from NMOSE Tech. Rep. 51.																			
		Subtotals	**84.72**		**3.81**	**75.19**		**33.84**	**76.28**		**34.32**	**77.37**		**34.82**	**78.49**		**35.32**			
		TOTALS	**7,909.95**		**3,100.60**	**8,171.81**		**3,850.63**	**8,521.44**		**4,013.20**	**8,806.75**		**4,138.22**	**9,247.16**		**4,345.43**			

Diversions tabulated from water use records submitted to the Office of the State Engineer, Water Rights Division, whenever available.

Depletion factors from NM OSE Technical Report 51, "Water Use by Categories in NM Counties and River Basins, and Irrigated Acreage in 2000", prepared by B.C.Wilson PE, et al, 2003.

1 Groundwater supplied. Impact factor 0.10

FISH & WILDLIFE, RECREATION USES		Units: Acre-Feet														
			2001			2002			2003			2004			2005	
		Diversion	Depletion Factor	Depletion	Diversion	Depletion Factor	Depletion	Diversion	Depletion Factor	Depletion	Diversion	Depletion Factor	Depletion	Diversion	Depletion Factor	Depletion
Navajo Lake State Park (Sims)	e	1.00	0.45	0.45	1.00	0.45	0.45	1.00	0.45	0.45	1.00	0.45	0.45	1.00	0.45	0.45
Navajo Lake State Park (Pine)	e	8.00	0.45	3.60	8.00	0.45	3.60	8.00	0.45	3.60	8.00	0.45	3.60	8.00	0.45	3.60
Berland Lake (8 ac surface) [1]				3.36			3.36			3.36			3.36			3.36
Big Gap Lake (20 ac surface) [1]				8.40			8.40			8.40			8.40			8.40
Toadacheene Lake (9 ac surface) [1]				11.34			11.34			11.34			11.34			11.34
Chaco Culture NH Park		1	0.45	0.50	1	0.45	0.50	1	0.45	0.50	1	0.45	0.50	1	0.45	0.50
Elks Club (#3364)	e	20.00	0.45	9.00	20.00	0.45	9.00	20.00	0.45	9.00	20.00	0.45	9.00	20.00	0.45	9.00
Jackson Lake Evaporation				157.00			157.00			157.00			157.00			157.00
Jackson Lake Irrig				386.54			386.54			12.45			88.43			234.26
Navajo Lake State Park (San Juan)	e	2.00	0.45	0.90	2.00	0.45	0.90	2.00	0.45	0.90	2.00	0.45	0.90	2.00	0.45	0.9
Total		**32**		**581**	**32**		**581**	**32**		**207**	**32**		**283**	**32**		**429**

[1] Evaporation rate 3.0 ft/yr; fullness factor .20; impact .70

Population- Upper Colorado River Basin, New Mexico
United States Census 2000

	COUNTY	Census Tract	Block Group	Population	Percent of Population within Upper Colorado Basin	Total Population within Upper Colorado Basin
	McKinley					
		9434	1	1,399	60	839
		9434	2	2,187	40	875
		9434	4	627	50	314
		9435	1	99	100	99
		9435	2	543	100	543
		9435	3	3,096	100	3,096
		9435	4	154	100	154
		9437	1	993	92	914
		9437	2	1,119	100	1,119
		9437	3	1,097	88	965
		9437	4	1,207	100	1,207
		9438	1	1,176	100	1,176
		9438	2	1,504	60	902
		9438	4	795	67	533
		9439	1	2,328	33	768
		9453	1	1,606	5	80
						13,584
	Rio Arriba					
		0005	1	2,987	17	508
		0005	3	794	33	262
		0006	1	126	100	126
		9409	1	2,604	100	2,604
		9409	2	7	100	7
		9409	3	118	60	71
		9433	1	145	100	145
						3,723
	Sandoval					
		102	3	547	5	27
		9409	2	11	88	10
		9433	1	1,193	75	895
						932
	San Juan	all	all	113,801	100	**113,801**

Population- Upper Colorado River Basin, New Mexico

	Year	McKinley	Rio Arriba	Sandoval	San Juan	Total Population
Census 1990	**1990**	11,236	3,164	808	91,605	106,813
	1991	11,451	3,216	820	93,614	109,101
	1992	11,671	3,269	831	95,668	111,438
	1993	11,894	3,322	843	97,766	113,826
	1994	12,122	3,377	855	99,910	116,265
	1995	12,354	3,432	868	102,102	118,756
	1996	12,591	3,488	880	104,341	121,301
	1997	12,832	3,546	893	106,630	123,901
	1998	13,078	3,604	906	108,968	126,556
	1999	13,329	3,663	919	111,359	129,269
Census 2000	**2000**	13,584	3,723	932	113,801	132,040
	2001	13,845	3,784	945	116,297	134,871
	2002	14,110	3,846	959	118,848	137,763
	2003	14,380	3,909	973	121,455	140,717
	2004	14,656	3,973	987	124,119	143,734
	2005	14,937	4,039	1,001	126,841	146,817
Rate of Change per Year		0.0192	0.0164	0.0143	0.0219	0.0214

Summary of Estimated Water Uses Upper Colorado River Basin, New Mexico

Units: Acre-feet

Year	Reservoir Evaporation	Irrigation[1]	Stockpond Evaporation, Livestock	Mineral Resources	Thermal Electric Power	Commercial	Municipal	Rural/ Domestic	Fish & Wildlife, Recreation	Export SJ-C Project	Total All Depletion
2001	29,533	195,127	3,936	890	48,316	873	11,398	3,100	581	110,576	404,331
2002	23,465	238,124	3,815	890	45,621	868	11,603	3,851	581	6,307	335,125
2003	19,197	231,153	3,719	891	46,991	859	14,400	4,013	207	62,709	384,139
2004	21,042	229,044	3,714	1,152	48,974	921	12,916	4,138	283	84,877	407,062
2005	30,112	209,883	3,724	1,319	51,185	922	13,473	4,345	429	155,244	470,637