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NARRATIVE - NEBRASKA ACTIVITY RELEVANT TO WATER USE PROJECTIONS / CHANGES IN WATER USE – Draft 4/9/07

Nebraska is currently implementing a process designed to ensure that the state's river basins sustain a balance between water uses and water supplies. That process does not currently involve the types of projections and estimates envisioned in the Western States Water Council Survey. However, in basins where current surface water and ground water uses would cause surface water or ground water supplies to be insufficient to meet the beneficial uses for which rights were granted or to meet interstate requirements, a moratorium is placed on most new uses until a joint integrated management plan can be adopted by the pertinent Natural Resources District and the Department of Natural Resources. The purpose of the process is to ensure the economic viability, social and environmental health, safety and welfare of river basins, subbasins, and reaches can be achieved and maintained for both the long term and near term.

The activity is required in response to LB 962 (2004), which also requires the Department of Natural Resources to compile an annual evaluation of the availability of hydrologically connected water supplies. That report examines the availability of water supply in basins not already found to be fully or overappropriated. In basins that are already fully or overappropriated; joint integrated management plans will provide the methods for assuring a sustainable balance is reached. While this is not the same as the gross statewide numbers provided in the Western States Water Council Survey; it does provide a working method to make sure uses and supplies remain or become in balance in all individual river basins, subbasins and reaches throughout Nebraska.

Nebraska's process is geared toward assessing and maintaining sustainable basin supplies rather than statewide projections. However, some factors relevant to making rough projections regarding future water use in Nebraska can be identified. They include:

1. *Decline of consumptive water use amounts in overappropriated areas of the state and the Republican Basin and stabilization of consumptive water use amounts in other areas that are fully appropriated. In addition at least a temporary stabilization of consumptive water use amounts should occur in areas that, although not fully appropriated, have moratoriums or stays on wells or acres in place. Finally, stabilization of consumptive water use amounts would also occur in any new areas declared fully appropriated in the future.*

About 54% of the land area of Nebraska is currently under some type of high capacity well, surface water, or irrigated acreage moratorium. With a few exceptions the well moratoriums have been in place since no earlier than 2004. A number of the surface water moratoriums were in place by 1993 and in a few instances as early as the 1970s. Levels of consumptive water use in these areas should remain stable while the

moratoriums are in place with the exception of expected declines in consumptive use in areas in the Republican Basin or areas declared overappropriated. Some of the areas with current high capacity well moratoriums are not fully appropriated and consumptive use might later rise in those areas if the moratorium were to be removed.

2. *The Ethanol Factor*

Nebraska currently has 13 ethanol plants with another 16 under construction, and 37 in some stage of planning. These plants would considerably increase the industrial water use category as well as increase the demand for corn and the water used to grow it. Feedlot numbers and related water use might also rise somewhat as a result. The total capacity of plants constructed and planned is for 2.4 billion gallons of ethanol per year and each gallon of ethanol is likely to require about 3 to 8 gallons of water withdrawal (depending on processing methods) of which 66% to 90% is likely to be consumptive use. However, since there have been assumptions of 1.7 billion gallons per year of ethanol as a state maximum based upon corn supply, it remains to be seen what will be built and how large the water demand will be.

3. *Irrigation/High Capacity Well Development Trends in Areas Where Development is Allowable*

As noted above, each year the Department of Natural Resources is required by law to produce a report evaluating the availability of hydrologically connected groundwater and surface water in areas of the state not previously found fully or over-appropriated. This includes examination of high capacity well development trends and what would happen in the longer term if those trends continue. If additional areas of the state become fully appropriated, consumptive water use levels could become stabilized in those areas.

4. *Population Projections and Past Planning Efforts*

Population projections would be most useful in projection future municipal, domestic and commercial water supplies. Were population projections to be used, the US Bureau of the Census projections for 2030 would seem to be most useful for interstate comparisons. However, Nebraska also has county projections through 2020 available through the University of Nebraska, Bureau of Business Research.

Although Nebraska has not developed statewide comprehensive water use projections, at times in the fairly distant past projections were compiled for some types of uses, such as through the 1971 Report on the Framework Study for the State Water Plan. Also basinwide projections of water uses were made in the Platte Basin in the 1976 Missouri River Basin Commission "Report on the Platte River Basin Level B Study". These documents are dated and likely not relevant for this effort.

spreadsheets are on legal size paper.

Thanks!

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Water Needs & Strategies for a Sustainable Future
Water Supply Report
Timeline 2007

June 10-12	Present report to WGA at Annual Meeting in Deadwood, SD
May 5-31	Prepare, circulate for comment, revise as necessary and print report
May 3-4	Present report to Water Resources Committee and WSWC
April 20	Summarize and compile information from western states; Include water use/supply information in Sioux Falls briefing book
April 16	Deadline for state responses with completed matrices and summary
March 26	Conference call to review progress and answer questions
March 5	Distribute survey/request for water supply information to states
February	Revise matrices and prepare instructions for responses
Feb 5	Hold conference call on state survey/information availability/matrices
Jan 29	Distribute water use matrix and draft water supply matrix for comment

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WESTERN STATES WATER COUNCIL

Water Use Matrix 2000

"Water Needs and Strategies for a Sustainable Future"

Water Withdrawals by Water Use Category - 2000 (in million gallons/day)

STATE	Current Population 2000 (in 1000s)	Public Supply Fresh	Domestic Fresh	Irrigation Fresh	Live Stock Fresh	Aqua-Culture Fresh	Industrial Fresh	Industrial Saline	Mining Fresh	Mining Saline	Thermoelectric Power Fresh	Thermoelectric Power Saline	Total million gallons/day	Total million acre-feet	Fresh/Saline Water %	Surface/GW Water %
Alaska	627	80	11.2	1.01	*	*	8.12	3.86	27.4	140	33.6	0	305	0.342	53% / 47%	54% / 46%
Arizona	5,130	1,080	28.9	5,400	*	*	19.8	0	85.7	8.17	100	0	6,723	7.536	100%	49% / 51%
California	33,900	6,120	286	30,500	409	537	188	13.6	23.7	153	352	12,600	51,182	57.375	75% / 25%	70% / 30%
Colorado	4,300	899	66.8	11,400	*	*	120	0	*	*	138	0	12,624	14.151	100%	82% / 18%
Idaho	1,290	244	85.2	17,100	34.9	1,970	55.5	0	*	*	0	0	19,490	21.848	100%	79% / 21%
Kansas	2,690	416	21.6	3,710	111	5.6	53.3	0	31.4	0	2,260	0	6,609	7.409	100%	43% / 57%
Montana	902	149	18.6	7,950	*	*	61.3	0	*	*	110	0	8,289	9.292	100%	98% / 2%
Nebraska	1,710	330	48.4	8,790	93.4	*	38.1	0	128	4.55	2,820	0	12,252	13.735	100%	36% / 64%
Nevada	2,000	629	22.4	2,110	*	*	10.3	0	*	*	36.7	0	2,808	3.148	100%	73% / 27%
New Mexico	1,820	296	31.4	2,860	*	*	10.5	0	*	*	56.4	0	3,254	3.648	100%	53% / 47%
No Dakota	642	63.6	11.9	145	*	*	17.6	0	*	*	902	0	1,140	1.278	100%	89% / 11%
Oklahoma	3,450	675	25.5	718	151	16.4	25.9	0	2.48	256	146	0	2,016	2.260	87% / 13%	49% / 51%
Oregon	3,420	566	76.2	6,080	*	*	195	0	*	*	15.3	0	6,933	7.771	100%	86% / 14%
So Dakota	755	93.3	9.53	373	42	*	5.12	0	*	*	5.24	0	528	0.592	100%	58% / 42%
Texas	20,900	4,230	131	8,630	308	*	1,450	907	220	504	9,820	3,440	29,640	33.226	84% / 16%	70% / 30%
Utah	2,230	638	16.1	3,860	*	116	42.7	5.08	26.3	198	62.2	0	4,964	5.565	96% / 4%	79% / 21%
Washington	5,890	1,020	125	3,040	*	*	577	39.9	*	*	519	0	5,321	5.965	100%	72% / 28%
Wyoming	494	107	6.57	4,500	*	*	5.78	0	79.5	222	243	0	5,164	5.789	96% / 4%	85% / 15%
Total	92,150.00	17,635.90	1,022.30	117,167.01	1,149.30	2,645.00	2,884.02	969.44	624.48	1,485.72	17,619.44	16,040.00	179,242	200.931		

*data not collected

Source: U.S. Geological Survey, *Estimated Use of Water in the United States in 2000*. (2005 USGS circular not yet available.)

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WESTERN STATES WATER COUNCIL

Water Use Matrix 20??

"Water Needs and Strategies for a Sustainable Future"

Water Withdrawals by Water User Category - 20?? (in million gallons/day)

STATE	Current Population 20?? (in 1000s)	Public Supply Fresh	Domestic Fresh	Irrigation Fresh	Live Stock Fresh	Aqua-Culture Fresh	Industrial Fresh	Industrial Saline	Mining Fresh	Mining Saline	Thermoelectric Power Fresh	Thermoelectric Power Saline	Total million gallons/day	Total million acre-feet	Fresh/Saline Water %	Surface/GW Water %
Alaska	867,674															
Arizona	10,712,397															
California	46,444,861															
Colorado	5,792,357															
Idaho	1,969,624															
Kansas	2,940,084															
Montana	1,044,898															
Nebraska	1,820,247															
Nevada	4,282,102															
New Mexico	2,099,708															
No Dakota	606,566															
Oklahoma	3,913,251															
Oregon	4,833,918															
So Dakota	800,462															
Texas	33,317,744															
Utah	3,485,367															
Washington	8,624,801															
Wyoming	522,979															
Total	134,079,040.00															

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WESTERN STATES WATER COUNCIL
Water Supply Matrix 20??+
"Water Needs and Strategies for a Sustainable Future"

	Estimated Population	Estimated Water Supply		Estimated Water Use		Projected Difference Supply/Demand		Water Use Changes	Strategies to Close Gap									
STATE	20??	mgd	Maf	mgd	Maf	mgd	Maf	Water Rights Transfers	Water Conserv	New Surface Storage	New Aquifer Storage	Water Reuse	Saline Water Use	Interstate Water Transfers	Weather Mod	Other Strategy	Remai Ga mgd
Alaska	867,674																
Arizona	10,712,397																
California	46,444,861																
Colorado	5,792,357																
Idaho	1,969,624																
Kansas	2,940,084																
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