

## *U.S. Army Institute for Water Resources*

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IWR strives to improve the performance of the Corps water resources program by examining water resources problems and offering practical solutions through a wide variety of technology transfer mechanisms. In addition to hosting and leading Corps participation in national forums, these include the production of white papers, reports, training sessions and manuals; the development of new planning and decision-support methodologies, improved hydrologic engineering methods and software tools; and the management of national waterborne commerce statistics and other information systems. The Institute is the Corps designated center of expertise (DX) for integrated water resources planning and management, hydrologic engineering, and marine transportation information systems. The Institute's Hydrologic Engineering Center, located in Davis, CA is a world-renowned research and development, training and consulting organization in the area of hydrologic engineering and hydrologic models. IWR's Navigation Data Center and its Waterborne Commerce Statistical Center in New Orleans, LA, is the Corps data collection organization for waterborne commerce, vessel characteristics, port facilities, dredging information, and information on navigation locks.

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<i>Environmental Restoration</i>	<i>Great Lakes &amp; Ohio R.</i>	<i>Environmental</i>
<i>Water Supply</i>	<i>Mississippi Valley</i>	<i>Collaborative Planning &amp; Public Involvement</i>
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<i>Regulatory</i>	<i>Northwestern</i>	<i>Water Resources</i>
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IWR supports the Office of the Assistant Secretary of Civil Works [OASA (CW)] and the Headquarters, U.S. Army Corps of Engineers (HQUSACE).

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# ***Water Supply Database 2005 Update***

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**U.S. Army Corps of Engineers  
Institute for Water Resources  
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## **Municipal & Industrial**

*Storage Space*

*Storage Costs*

*Project Locations*

*Reallocations*

*Local Sponsors*

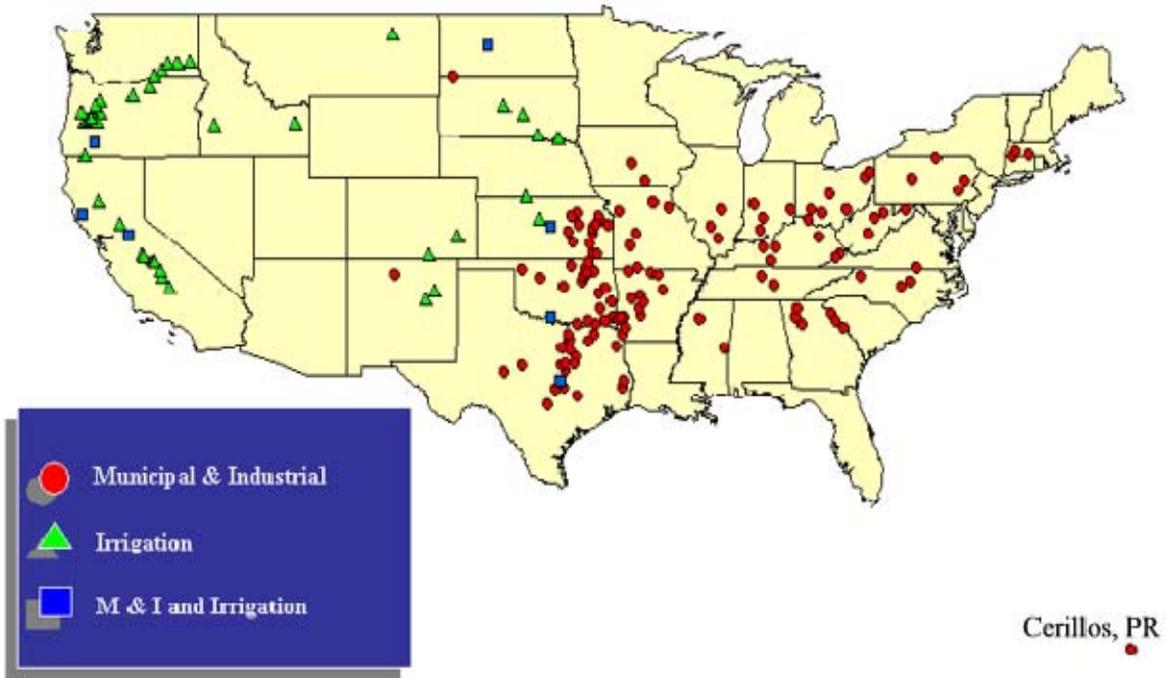
*People Served*

**Agricultural**

*Summary of 2004 Data*



### Corps Projects with Municipal and Industrial and Irrigation Water Supply



# Preface and Acknowledgement

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## PREFACE

Now that municipal and industrial (M&I) water supply is one of the Corps business programs for budgeting purposes, it is under greater scrutiny by the Office of Management and Budget (OMB). One item the OMB examiners always question is the M&I storage space in Corps multiple purpose for which the cost is not being repaid. This storage space consists of old signed agreements for future use (with a ten-year interest free period) as well as storage space that had been included in previously constructed projects based only on an assurance that some entity in the future would contact for the storage. A survey of Corps M&I water supply projects in 2004 indicated these two categories of storage space for which costs were not being recovered consisted of approximately 2.85 million acre-feet out of a total of about 9.86 million acre-feet or about 29%. Note that these two options afforded local sponsors were basic premises of the 1958 Water Supply Act that are no longer permitted. The future use options were removed from law (for Corps of Engineers projects) by Section 932 of the Water Resource Development Act of 1986 and further restrictions of Army policy which now only permit the Corps to enter into water supply agreements for present use storage.

To get a better understanding of this storage space for which costs were not being recovered, in March 2005 HQUSACE issued a memorandum to the MSCs and Corps' districts to initiate a 4-phase water availability initiative. This initiative was to: 1) check the accuracy of the amount of storage space assigned to these two categories, describe to the best of their ability what this storage space is currently being used for and a value of that use; 2) confirm the cost assigned to the storage space; 3) contact the local entities responsible for these costs to determine their plans for use of the storage; and 4) for that storage for which the local sponsor had no immediate plans, determine if the sponsor would release their right to that storage and then for the storage that would be released, for the Corps to try to market that storage space to others.

Results of the first phase of this initiative reduced the storage space for which costs were not being recovered down to 25 percent of total storage. The first phase attempt to determine the use and value of this storage in many cases proved unsuccessful as the districts could not determine these values with any accuracy. But more importantly, many responses reported that efforts to "market" this storage would be time consuming, prove futile and could result in legal issues difficult to resolve. This initiative was further complicated in that funding to districts to carry out the actions required was not available. For these reasons, this initiative was not carried out further. The data collected, did however, permit the updating of the 2004 water supply database. The results up this database update are contained in this report.

## ACKNOWLEDGEMENT

Many individuals in the USACE's MSCs and districts are to be thanked for their actions in responding to the HQUSACE directive and in collecting the data that are contained in this report. Of particular note are the MSC Water Supply Business Program Managers who provided input: William Sutyak (NAD), Terry Stratton (SAD), Ron Wilson (LRD), Philip Kuhn (MVD) and his replacement Kevin Curran (MVS), Jim Fredericks (NWD) and Adrienne Carter (SWD).

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Many district personnel assisted these division points of contact and therefore, there are more individuals who contributed that remain unidentified but surely assisted in this exercise. However, those contributors who I was able to identify from e-mail activity included Austin Gerrard (NAP), Duane Bailey, (SAS), Bill Frechione and Roscoe Bright (LRP), Parvathi Gaddipati (LRN), Kelley Campbell (LRH), Dennis Foss (MVS), Gary Walker (MVK), Arthur Armour (NWP), Michael Padilla (NWS), John Turner and John Grothaus (NWK), Jonathan Long, Ron Carman and Jorge Gutierrez (SWL), and Janet Hotubbee (SWT). The effort expended by these individuals in attempting to get a handle on estimates of storage space and costs is greatly appreciated. Note that the South Pacific Division and its districts were not a part of this data collection effort as the 2004 Water Supply Database indicated none of their projects had unrecovered costs. The Pacific Ocean Division and its districts were also not included as there are no water supply projects in this division.

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# Main Report

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## A. WATER SUPPLY AVAILABILITY

1. Database Background. Municipal and industrial (M&I) water supply was established as one of the eight business programs for Corps's budgeting purposes in the fiscal year 2005 budget. In order to manage this business program properly it was necessary to update certain data and develop new data that could be used to assess the performance of the water supply program. Previous to this requirement, the water supply database was limited to storage space and costs. This previous database is contained in the *Water Supply Handbook*, IWR Report 96-PS-6, dated December 1998 and is based on a 1996 survey. This report can be found on line at: <http://www.iwr.usace.army.mil/iwr/pdf/96ps4.pdf>. By memorandum dated 6 May 2004, the Chief of the Programs, Directorate of Civil Works called for an update of this 1996 data as well as the collection of new data. The data were developed and is presented in IWR Report 05-PS-1 titled "Water Supply Database 2004 Survey." This report can be found on line at: <http://www.iwr.usace.army.mil/iwr/pdf/IWRReport05-PS-1.pdf>

2. Data Call.

a. CECW-I Memorandum. By memorandum dated March 15, 2005 the Chief of Programs Integration Division, Director of Civil Works initiated an action titled "Water Supply Availability." A copy of this memorandum is provided as **Appendix A**. This Water Supply Availability action was based on the findings of IWR Report 05-PS-1 that showed, among other things, that out of a total of 9.856 million acre-feet of storage space included in Corps' reservoirs for municipal and industrial water supply, 2.106 million acre-feet were under future use agreements and another 0.748 million acre-feet (or about 29%) had not yet been placed under repayment agreements. The Water Supply Availability action was an effort, through a four-phase initiative, to investigate these two categories of use in an attempt to ascertain if there was some way to recover these costs under present use water supply agreements. This action was initiated in order to respond to concerns raised by examiners from the Office of Management and Budget (OMB) during budget briefings.

b. First Phase Results. This first phase of the initiative was to confirm the accuracy of the approximately 2.8 million acre-feet of storage space listed as under contract for future use and not under contract. This required the updating of two tables that were provided in the CECW-I memorandum (Appendix A). Additional information on the current use of that storage space and an approximate value of that use was also requested. The results of this data call are provided as **Appendix B**. During this update of the tables it was difficult in many cases for the districts to determine the current use of the storage and in most cases an estimated value of that use could not be determined with any accuracy. Many responses also indicated that the projected use of this "future" storage was sensitive because contractual agreements between users and because of potential water rights issues. Because of these concerns expressed by the MSC's and districts, it was determined that further exploration of this initiative would prove futile and could result in legal issues difficult to resolve. This initiative was further complicated in that funding to the districts to carry out further time consuming efforts was not available.

c. OMBIL. While the information collected in the 15 March 2005 data call were being analyzed, an action was initiated within the Institute of Water Resources to add water supply to the reporting requirements of the Operations and Maintenance Business Information Link (OMBIL). For more information on this program see <https://ombil.usace.army.mil/>. This program will provide some of the data sought in the data call and will help in responding to the concerns of OMB. An initial meeting between the Corps and the contractor (CDM) in Carbondale, IL was held during the week of 20 March 2006.

d. Benefits of Data Call. Information received in the Water Supply Availability data call, however, did result the ability to update some of the data obtained in the 2004 database to 2005 values. This update is provided in the following section.

## B. 2005 DATABASE

1. Storage Space. The national total of all M&I water supply storage space contained in Corps reservoir projects (summarized by division) is shown in **Table 1**. A breakout by district, project and contract is provided as **Appendix C**. As indicated in the table, there are 307 signed M&I

**Table 1: M&I Water Supply Storage Space Summary by Division**

Division	Projects	Contracts	Storage Space (acre-feet)			Total
			Present Use	Future Under Contract	Not Under Contract	
NAD	8	9	147,810	0	0	147,810
SAD	11	26	208,080	12,920	0	221,000
LRD	25	35	582,113	0	2,200	584,313
MVD	8	12	211,314	131,260	32,557	375,131
NWD	16	29	406,914	455,530	81,992	944,436
SWD	64	192	5,071,838	1,569,960	288,088	6,929,886
SPD	4	4	557,900	0	0	557,900
<b>TOTAL</b>	<b>136</b>	<b>307</b>	<b>7,185,969</b>	<b>2,169,670</b>	<b>404,837</b>	<b>9,760,476</b>

water supply agreements. Four of these agreements (located the Tulsa District) are just for water conduits. These 307 agreements are in 136 reservoir projects. These 136 projects contain a total of about 9.76 million acre-feet of storage for M&I water supply. In this table "present use" defines the storage that is under a signed agreement for immediate use. Some of this storage has already been repaid and some is being repaid over a period of up to 50 years. The "future under contract" is that storage that is under a future repayment agreement. The "future not under contract" is that space that was included in reservoirs under an assurance that an entity would, some time in the future, agree to repay the costs. The table also includes not only storage that was originally authorized and constructed as part of a multipurpose project, but also storage that has been reallocated. The vast majority (approximately 71 percent) of the storage is contained in reservoir projects located in the Southwestern Division.

# Main Report

2. Costs. The national total of all M&I water supply storage space contained in Corps reservoir projects (summarized by division) is shown in **Table 2**. A breakout by district, project and contract is provided as Appendix C. The total investment cost of storage space, including the investment cost used in the agreements and varies from about 1950 dollars to 2005 dollars. The vast majority (about 95%) of the costs are under a repayment agreement for either present or future use.

**Table 2: M&I Water Supply Investment Cost Summary by Division**

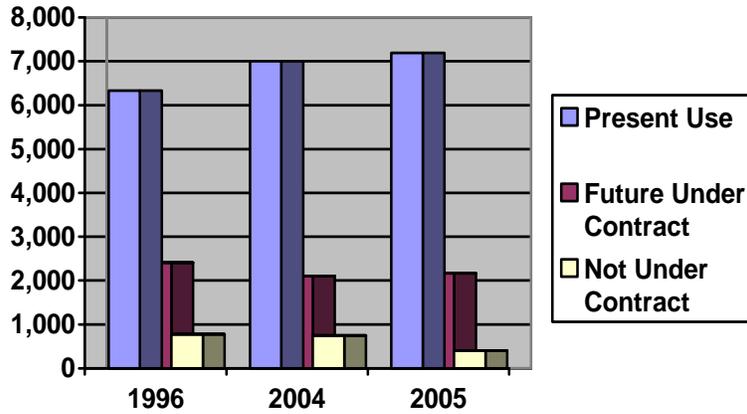
Division	Projects	Contracts	Storage Space (\$000)			Conduit (\$000)		Total (\$000)
			Present Use	Future Under Contract	Not Under Contract	Under Contract	Not Under Contract	
NAD	8	9	138,839.0	0.0	0.0	0	0	138,839.0
SAD	11	26	244,890.1	1,588.0	0.0	0	0	246,478.1
LRD	25	35	74,456.4	0.0	4,300.0	0	1	78,756.4
MVD	8	12	40,575.4	3,286.8	2,173.7	0	0	46,035.9
NWD	16	29	43,719.6	50,041.6	20,603.3	365.0	0	114,729.5
SWD	64	192	394,434.5	240,212.0	41,366.5	34,626.8	186.9	710,826.7
SPD	4	4	124,158.0	0.0	0.0	0	0	124,158.0
<b>TOTAL</b>	<b>136</b>	<b>307</b>	<b>1,061,073.0</b>	<b>295,128.4</b>	<b>68,443.5</b>	<b>34,991.8</b>	<b>186.9</b>	<b>1,459,823.6</b>

3. Comparison to Earlier Data. The comparison of storage volumes between the three data bases (1996, 2004 and 2005) is provided in **Table 3**, with a visual comparison as **Figure 1**.

**Table 3: Comparison of Storage Space**

Survey	Storage Space (acre-feet)			
	Present Use	Future Use	Not Under Contract	Total
1996	6,335,393	2,410,539	778,699	9,524,631
2004	7,002,679	2,105,660	747,554	9,855,893
2005	7,185,969	2,169,670	404,837	9,760,476

**Figure 1: 1996-2004-2005**  
**Visual Comparison of Storage Space (1,000 of acre feet)**



The changes in the storage volume are due to four items: reallocation actions, placing future storage under present use agreements, expiring contracts and not including reallocated storage in the database until the storage is placed under contract. This later item is in accordance with the policy that storage is not reallocated until a present use agreement is executed.

4. Location of Projects. The 136 Corps multipurpose reservoir projects that contain storage space for M&I water supply are located in 25 states plus Puerto Rico and in 23 of the Corps' 38 districts. This distribution by state is provided in **Table 4**. The 15 districts without water supply projects are: New York, Norfolk, Charleston, Buffalo, Chicago, Detroit, St. Paul, Memphis, New Orleans, Seattle, Walla Walla, Galveston, Los Angeles, Honolulu and Alaska. Note that in Table 3, the number of projects exceeds 136 as some projects are located on the border of two states. A complete list of the 136 projects is provided as **Appendix D**.

**Table 4: Distribution of M&I Water Supply Projects by State**

State	Number	State	Number	State	Number
Texas	26	North Carolina	4	Connecticut	2
Oklahoma	20	Pennsylvania	4	Iowa	2
Kansas	15	West Virginia	4	Mississippi	2
Arkansas	13	Tennessee	3	North Dakota	2
Kentucky	8	California	3	Maryland	1
Ohio	6	Illinois	3	Massachusetts	1
Missouri	6	Indiana	3	New Mexico	1
Georgia	5	South Carolina	3	Oregon	1
		Virginia	3	Puerto Rico	1

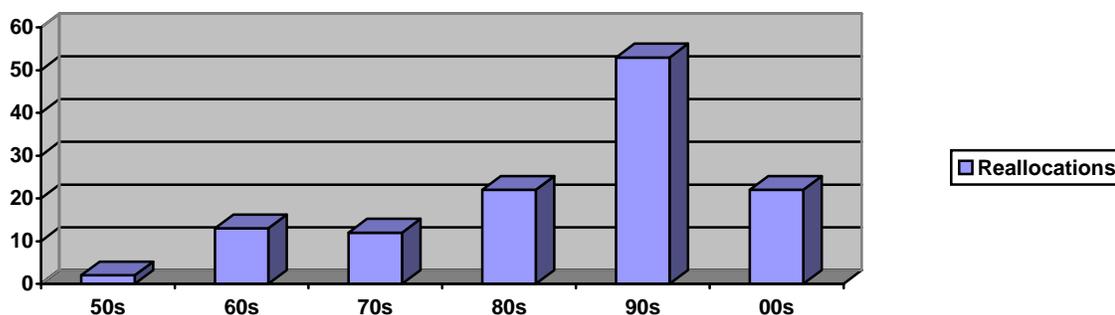
5. Reallocations. The national summary of our reallocations, summarized by district is shown in **Table 5**. A breakout by district, project and contract is shown in **Appendix E**. As shown in the

Table 5: Reallocations

Division	District	Projects (Number)	Contracts (Number)	Years Reallocated (Between)	Storage Space Reallocated (acre feet)	Contract Price (\$)
NAD	New England	1	1	1962	1,140	24,500
	Baltimore	2	2	1990 - 1997	29,695	44,292,000
SAD	Wilmington	1	3	1984 - 1991	10,823	2,431,565
	Savannah	3	13	1964 - 2001	31,279	6,341,900
	Mobile	2	4	1963 - 1991	20,329	2,273,621
LRD	Nashville	4	13	2003 - 2005	22,251	11,377,416
	Louisville	5	8	1965 - 2003	6,269	210,230
	Huntington	3	3	1977 - 2005	3,220	3,718,400
MVD	Rock Island	1	1	1982	14,900	4,811,600
	Vicksburg	2	2	1996 - 1998	6,075	1,224,757
NWD	Omaha	1	1	1981	19,780	825,000
	Kansas City	7	7	1985 - 2002	211,000	29,565,500
SWD	Little Rock	7	16	1959 - 1998	33,836	3,984,900
	Ft. Worth	4	4	1975-1982	554,526	55,390,000
	Tulsa	7	46	1953 - 2005	226,634	29,077,200
<b>6 Divisions</b>	<b>15 Districts</b>	<b>50</b>	<b>124</b>	<b>1953 &amp; 2005</b>	<b>1,191,757</b>	<b>195,584,589</b>

table, between 1953 and 2005 we have signed 124 contracts for over 1.19 million acre-feet of storage space with a repayment value of about \$196 million. These numbers represent 40% of our contracts, 12.2% of the storage space and 13.4 % of the water supply investment. Our water supply reallocation activity has covered a period of approximately 50-years; it has, however, become more prevalent since the mid-1980s after enactment of the Water Resources Development Act of 1986 and the policies that have emanated from that Act. The progression by decade of the contracts signed as a result of reallocations is shown in **Figure 2**.

Figure 2: History of Agreements Signed as a Result of Reallocations



Reallocations come from various pools within the reservoir. This breakout by the reallocated purpose and the corresponding storage space is shown in **Table 6**. Authority to reallocate storage

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**Table 6: Purpose Reallocated**

<b>Purpose Reallocated</b>	<b>Contracts Signed</b>	<b>Storage Reallocated</b>
Hydropower	37	229,582
Flood Control	49	95,709
Water Quality	7	125,125
Conservation	6	35,505
Multipurpose	2	69,780
Conservation/hydropower	4	20,329
Flood Control/hydropower	1	1,575
Water Quality/Navigation	1	50,000
Not Available	17	564,152
<b>TOTAL</b>	<b>124</b>	<b>1,191,757</b>

can originate in specific Congressional authorization or under the general authority of the 1958 Water Supply Act. One unique situation of reallocation under the 1958 Act was an agreement reached between the Department of the Army and the State of Kansas. This unique arrangement resulted in 7-contracts for 173,000 acre-feet of storage space. This storage is included in the above table for 6 of the 7 “water quality” actions and the one “water quality/navigation” action.

6. Revenues Received Versus Costs of Collection. All revenues received from the sponsors for M&I water supply are deposited into the U.S. Treasury. This requirement dates back to Section 6 of the 1944 Flood Control Act (33 U.S.C. § 708) (58 Stat. 890). Revenues are comprised of the repayment of investment costs, interest and late payments, and yearly operation, maintenance, repair, replacement and rehabilitation (OMRR&R) costs. Costs of collection include the manpower required by the districts to determine these costs, bill the sponsor, collect the revenue and return the revenue to the U.S. Treasury. A national data base of these annual revenues and collection costs is not currently available. An effort, however, is underway to accomplish this through an OMBIL initiative (see paragraph A.2.c.).

7. Local Sponsors. Corps water supply agreements are with a variety of local sponsors: states (including commonwealths and river basin commissions), counties, cities, industry, private individuals, Federal/Interstate Commissions, Indian Tribes and corporations. A summary of the M&I storage distribution by local sponsor is provided as **Table 7**. More detail on the distribution is provided in **Appendix F**. The number of agreements includes four agreements with state sponsors in the Tulsa District just for water supply conduits. As shown, the vast majority of our agreements (56%) and storage space (84%) are with states and cities.

**Table 7: Storage Distribution by Non-Federal Sponsor**

Type of Sponsor	Agreements		Storage Space	
	Number	Percent	Acre-feet	Percent
State	70	23	4,710,491	50.3
County	74	24	1,186,323	12.7
City	100	33	3,155,551	33.7
Industry	19	6	167,793	1.8
Private	38	12	36,723	0.4
Other	6	2	98,758	1.1
<b>TOTAL</b>	<b>307 [1]</b>	<b>100.0</b>	<b>9,355,639</b>	<b>100.0</b>

Footnote:[1] Tulsa District also has four contracts just for conduits with state agencies.

8. People Served. The Corps sells storage space and not water. Under normal circumstances a local sponsor will request a certain yield in perhaps million gallons of water per day and then the Corps computes the required acre-feet of storage based on a certain dependability. It has always been a desire to arrive at the number of people Corps projects provides with M&I water. That is impossible because, as noted above, we supply storage to a wide variety of local interests and exactly how these entities parcel out the water cannot be ascertained. A proxy, however, can be developed. It takes nearly 1,200 gallons of water per person per day to meet the needs of farmers, factories, electrical utilities and the many other organizations that make it possible for us to have food on our table and power for our home. This differs from what the typical household uses in water per day, which runs from 50 to 85 gallons, or an average of 67.5 gallons. Based on the various project yields as provided in **Appendix G; Table 8** presents an approximation of personal and household needs that could be met by Corps projects under present use water supply agreements in 2005. Table 8 shows Corps M&I water supply contracts for present use storage are theoretically capable of meeting the personal needs of about 3.1 million people and 55.8 million households.

**Table 8: Summary of Personal and Household Needs Met**

District	Storage Space in Present Use (acre-feet)	Yield (MGD)	Number of Personal Needs Met	Number of Households
<b>North Atlantic Division</b>				
New England	41,240	36.8	30,684	545,185
Philadelphia	35,880	57.4	47,833	850,370
Baltimore	70,690	171.8	143,167	2,545,185
<b>Total</b>	<b>147,810</b>	<b>266.0</b>	<b>221,664</b>	<b>3,940,740</b>
<b>South Atlantic Division</b>				
Wilmington	131,092	225.0	187,500	3,333,333
Savannah	18,359	47.4	39,500	702,222
Jacksonville	25,200	21.9	18,250	324,445
Mobile	33,429	78.3	65,250	1,160,000
<b>Total</b>	<b>208,080</b>	<b>372.6</b>	<b>310,500</b>	<b>5,520,000</b>
<b>Lakes and River Division</b>				
Pittsburgh	11,000	16.0	13,333	237,037
Huntington	88,893	132.8	110,667	1,967,407
Louisville	459,969	392.5	327,083	5,814,815
Nashville	22,251	71.1	59,250	1,053,333
<b>Total</b>	<b>582,113</b>	<b>612.4</b>	<b>510,333</b>	<b>9,072,592</b>
<b>Mississippi Valley Division</b>				
Rock Island	14,900	48.5	40,416	718,519
St. Louis	186,406	75.2	62,667	1,114,074
Vicksburg	10,008	14.4	12,000	213,333
<b>Total</b>	<b>211,314</b>	<b>138.1</b>	<b>115,083</b>	<b>2,045,926</b>
<b>Northwestern Division</b>				
Portland	3,708	3.3	2,750	48,888
Omaha	19,780	17.6	14,667	260,741
Kansas City	383,426	171.9	143,250	2,546,667
<b>Total</b>	<b>406,914</b>	<b>192.8</b>	<b>160,667</b>	<b>2,856,296</b>
<b>Southwestern Division</b>				
Little Rock	158,768	212.6	177,167	3,149,630
Ft. Worth	3,644,871	863.8	719,833	12,797,037
Tulsa	1,268,199	720.2	600,167	10,669,629
<b>Total</b>	<b>5,071,838</b>	<b>1,796.6</b>	<b>1,497,167</b>	<b>26,616,296</b>
<b>South Pacific Division</b>				
Sacramento	105,000	93.3	77,750	1,382,222
San Francisco	282,000	251.8	209,833	3,730,370
Albuquerque	170,900	43.0	35,833	637,038
<b>Total</b>	<b>557,900</b>	<b>388.1</b>	<b>323,416</b>	<b>5,749,630</b>
<b>National Total</b>	<b>7,185,969</b>	<b>3,766.6</b>	<b>3,138,830</b>	<b>55,801,480</b>

9. Percent of National Needs Met. As shown in Table 8, M&I storage space in Corps projects provides approximately 3.767 billions gallons of water per day. The United States Geologic Survey estimated total offstream withdrawals of 408 billion gallons per day of water for the year 2000 (<http://water.usgs.gov/watuse/>). Of these 408 billion gallons per day, 76 are for M&I use,

137 for irrigation and 195 for thermoelectric. Based on this estimate, Corps present use contracts are capable of providing about 5 percent of the nations offstream M&I water needs.

10. New M&I Projects. Since the passage of the 1986 Water Resources Development Act, there has been only one multipurpose project that included M&I water supply, the Little Dell project in Salt Lake City, Utah. This project has subsequently been turned over to the local sponsor for operation and maintenance and is not included in this database. There have, however, been a number of reallocations and these actions, to the extent reported, are included in the database.

### C. AGRICULTURAL WATER SUPPLY (2004)

1. Introduction. Corps lakes in the 17 contiguous Western States in which Reclamation Law applies may include irrigation as a project purpose upon the recommendation of the Secretary of the Interior (Section 8 of Public Law 78-534, the 1944 Flood Control Act). Agricultural water supply is included in Corps reservoir projects in the Western states under repayment agreements between the Bureau of Reclamation and the local sponsors. To date, there are no agricultural water supply agreements in Corps reservoir projects in the Eastern states, although “irrigation” can be an authorized project purpose such as in the Central and Southern Florida Flood Control Project.

2. Irrigation Storage in Completed Corps Projects. Data on Corps irrigation projects was originally compiled by Planning Division, Headquarters USACE, in a 1982 survey in response to an inquiry from the U.S. Senate. These data, updated in 1996 are contained in the *Water Supply Handbook*, IWR Report 96-PS-6, dated December 1998 and then further updated for the 2004 water supply database update and are contained in IWR Report 05-PS-1. This latest data can be found online at: <http://www.iwr.usace.army.mil/iwr/pdf/IWRReport05-PS-1.pdf>. A summary of the 2004 data are provided in **Table 9**. This information shows there are 48 completed projects that include agricultural water supply in some form. Thirty-seven of the projects include storage for “joint” and/or “specific” use. The remaining 10 projects are utilized for irrigation purposes, but contain no storage. The joint storage, listed as approximately 56 million acre-feet, can normally be used for flood control, navigation, recreation and/or hydroelectric power as well as for irrigation purposes. The total Federal cost allocated to the irrigation purpose, less the reimbursable cost, is listed as about \$1.7 billion. The “Total Federal Cost” in the 4<sup>th</sup> column is less reimbursable. These data were not updated in this current data call.

**Table 9: Summary of Irrigation Data (2004)**

Division	Number of Projects	Total Project Cost (\$1000)	Total Federal Cost to Irrigation (\$1000)	Storage Reserved for Irrigation	
				Joint (1000AF)	Specific (1000 AF)
Northwestern	30	3,563,099	1,159,697	50,496	NA
Southwestern	2	85,500	42,100	0	64
South Pacific	16	868,070	525,039	5,490	577
<b>TOTAL</b>	<b>48</b>	<b>4,516,669</b>	<b>1,726,836</b>	<b>55,986</b>	<b>NA</b>

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3. New Irrigation Projects. According to the best available information, there are no storage projects currently under construction with irrigation as a purpose.

# Appendix A: Memorandum to MSCs and Districts

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DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS  
Washington, D.C. 20314-1000  
(COPY)

CECW-I

MAR 15 2005

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Water Supply Availability

1. In May 2004, I initiated an action to update our existing municipal and industrial (M&I) water supply database and to acquire additional information to help us better manage this business line. An 80-page report on this new data has been developed and published as IWR Report 05-PS-1, *Water Supply Database 2004 Survey*, February 2005. This report is available on the IWR web page at: <http://www.iwr.usace.army.mil/iwr/pdf/WSDataUpdateFinalReportRev05ps1.pdf>

2. Among other data, this update reported that out of the 9,855,893 acre-feet of M&I water supply storage space in our reservoir projects, 2,105,660 acre-feet are under a future use contract and 747,554 acre-feet has not yet been placed under a repayment agreement. A list of these projects and the storage space as developed by our recent update is provided as Enclosure 1. Table 1 is for storage space that is under a future use contract and Table 2 is for the storage space included in projects where only a water supply assurance was received. In presenting water supply budget data to the examiners of the Office of Management and Budget, concerns are often raised about this M&I water supply storage space that is not being repaid. By this memorandum we are implementing a four-phase water supply availability initiative to investigate these two categories of use.

3. You should take the following actions to implement the first phase.

(a). Check Tables one and two for accuracy of projects, local sponsor and storage space. For the projects listed on Table 2, fill in the name of the local entity that provided the water supply assurance.

(b). For all projects, describe to the best of your ability what this storage space is currently being used for, e.g., hydropower generation, recreation, environmental purposes, etc. If you have a dollar value to assign to the use, that should also be provided. The basis of this value should be provided, e.g., if hydropower, what is the value and how obtained.

(c). Please respond to this first phase of the initiative by 30 April 2005 to the Institute for Water Resources, 7701 Telegraph Road, Alexandria, VA 22315-3868, ATTN: CEIWR-GR, Ted Hillyer. Mr. Hillyer (IWR/POC) can be reached by phone at 703/428-6140, by fax at 703/428-6124 or by e-mail at: [Theodore.m.hillyer@usace.army.mil](mailto:Theodore.m.hillyer@usace.army.mil).

4. The second phase consists of confirming the cost assigned to the storage space. The attached tables provide an investment cost, but some of this data may not be current. The cost of storage will depend upon when and how the water supply storage was included in the project.

(a). Pre-WRDA '86 Projects. The majority of the costs not being recovered were included as originally authorized storage in projects constructed prior to WRDA '86. For these projects the cost should be calculated as the actual allocated investment cost, including interest during construction, plus

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interest compounded annually after the end of the ten-year interest free period. The interest rate will be the rate as established by the 1958 Water Supply Act on the date of initiation of project construction. Current policy for recovery of these costs (paragraph E-56c of ER 1105-2-100) require that they be repaid over a period of 30-years from the latter of the plant-in-service date of the project or the date the first water supply agreement was signed at the project. Historical water supply interest rate data can be found as Enclosure 3 of the EGM located at following web page:  
[http://www.usace.army.mil/inet/functions/cw/cecwp/General\\_guidance/EGM-05-04.pdf](http://www.usace.army.mil/inet/functions/cw/cecwp/General_guidance/EGM-05-04.pdf).

(b). Post-WRDA '86 Projects and Reallocations. For these projects, different rules apply (see paragraph E-56a, b and c of ER 1105-2-100). In addition, for reallocations, the basic cost of storage will have been determined in a different manner (see paragraph E-57d of ER 1105-2-100).

(c). Provide these data on a present value and annual basis to the IWR/POC by 31 July 2005. All responses to the IWR/POC will be provided to HQUSACE for review and approval prior to implementation of the third phase.

5. After approval of costs by HQUSACE, you will be notified by the IWR/POC to initiate the third phase. In the third phase, local entities with future use contracts (Enclosure 1, Table 1) and for those that have only provided letters of assurance (Enclosure 1, Table 2) should be contacted to determine their plans for using such storage. Local entities with plans for utilization of the storage should be encouraged to place the needed storage under a present use contract as soon as possible or to provide information on when they anticipate such need. If the local entity has no plans for use of the storage in the foreseeable future, ascertain if they are willing to give up their right to the storage as provided by their contract or assurance, as appropriate. A possible draft template to send out to the local entity about their future plans is provided as Enclosure 2. Costs of storage to provide to the local entities will be as approved by HQUSACE in the second phase. Provide the results of this investigation to the IWR/POC as they become available. All responses will, in turn, be provided to HQUSACE for appropriate action.

6. The fourth phase applies only to that storage space identified in the third phase for possible release by local entities. For these projects, information on the available storage, yield and cost should be provided to governors, state agencies, local government entities, and other potential buyers. Provide the results of this investigation to the IWR/POC as they become available. All responses to the IWR/POC will be provided to HQUSACE for appropriate action.

FOR THE COMMANDER

2 Encls  
1 Table 1 and 2  
2 Draft Template

(Signed)  
ROBERT F. VINING  
Chief, Programs Management Division  
Directorate of Civil Works

DISTRIBUTION (See Page 3)

(COPY)

DISTRIBUTION

MSC Civil Works Chiefs  
LAKES AND OHIO RIVER DIVISION  
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NORTHWESTERN DIVISION  
PACIFIC OCEAN DIVISION  
SOUTH ATLANTIC DIVISION  
SOUTH PACIFIC DIVISION  
SOUTHWESTERN DIVISION

CF:

DISTRICTS Chief of Project Management

BUFFALO DISTRICT  
CHICAGO DISTRICT  
DETROIT DISTRICT  
HUNTINGTON DISTRICT  
LOUISVILLE DISTRICT  
NASHVILLE DISTRICT  
PITTSBURGH DISTRICT  
ST. LOUIS DISTRICT  
MEMPHIS DISTRICT  
NEW ORLEANS DISTRICT  
VICKSBURG DISTRICT  
ROCK ISLAND DISTRICT  
ST. PAUL DISTRICT  
BALTIMORE DISTRICT  
NEW ENGLAND DISTRICT  
NEW YORK DISTRICT  
NORFOLK DISTRICT  
PHILADELPHIA DISTRICT  
PORTLAND DISTRICT  
SEATTLE DISTRICT  
WALLA WALLA DISTRICT  
OMAHA DISTRICT  
KANSAS CITY DISTRICT  
ALASKA DISTRICT  
HONOLULU DISTRICT  
CHARLESTON DISTRICT  
JACKSONVILLE DISTRICT  
MOBILE DISTRICT  
SAVANNAH DISTRICT  
WILMINGTON DISTRICT  
LOS ANGELES DISTRICT  
SACRAMENTO DISTRICT  
SAN FRANCISCO DISTRICT  
ALBUQUERQUE DISTRICT  
FORT WORTH DISTRICT  
TULSA DISTRICT  
GALVESTON DISTRICT  
LITTLE ROCK DISTRICT

CF DIRECTOR, INSTITUTE FOR WATER RESOURCES (CEIWR-GR)

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**Appendix A: Memorandum to MSCs and Districts**

Table 1: M&I Water Supply Storage Under Contract for Future Use

District	Project	Local Sponsor	Sponsor's Future Use Storage	
			Space (AF)	Investment Cost (\$000)
Philadelphia	Blue Marsh, PA	Delaware RBC, DE	4,000	7,500.0
Savannah	Hartwell, GA & SC	Anderson County Joint Municipal Water System, SC	12,920	1,588.0
Huntington	Alum Creek, OH	State of Ohio	49,500	11,412.6
St. Louis	Clarence Cannon, MO	Clarence Cannon Wholesale Water Commission, MO	13,750	8,940.0
Kansas City	Clinton, KS	State of Kansas	35,680	2,580.3
	Hillsdale, KS	State of Kansas	45,500	20,107.5
	Long Branch, MO	City of Macon, MO	20,000	5,082.9
	Milford, KS	State of Kansas	198,350	8,625.3
	Perry, KS	Sate of Kansas	125,000	7,673.6
	Smithville, MO	City of Smithville, MO	6,000	1,176.0
	Stockton, MO	City of Springfield, MO	25,000	4,796.0
Little Rock	Beaver, AR	Beaver Water District No. 1, AR	31,056	1,480.3
	Dierks, AR	Marion Tri-Lakes Water District, AR	9,910	2,106.6
	Gillham, AR	Gillham Lake Regional Water, AR	20,600	5,251.0
	Millwood, AR	Southwest Arkansas Water District, AR	105,456	10,177.6
Ft. Worth	Aquilla, TX	Brazos River Auth., TX	16,280	6,092.0
	Granger, TX	Brazos River Auth., TX	37,900	12,865.0
	Joe Pool, TX	Trinity River Auth., TX	142,900	50,396.0
	Navarro Mills, TX	Trinity River Auth., TX	37,240	1,523.0
	N. San Gabriel (Georgetown), TX	Brazos River Auth., TX	728	150.0
	Proctor, TX	Brazos River Auth., TX	25,120	1,051.0
	Ray Roberts, TX	City of Dallas, TX	266,104	50,653.0
		City of Denton, TX	93,496	17,797.0
	Sam Rayburn, TX	City of Lufkin, TX	25,000	306.0
	Somerville, TX	Brazos River Auth., TX	136,700	6,837.0
	Stillhouse Hollow, TX	Brazos River Auth.	178,160	6,072.0
	Tulsa	Broken Bow, OK	Broken Bow Public Works Auth., OK	4,054
Copan, OK		Copan Public Works Authority, OK	4,750	5,105.2
El Dorado, KS		City of El Dorado, KS	72,087	18,500
Eufaula, OK		Krebs Utility Authority, OK	280	29.1
		McIntosh County Rural WGS Dist. No. 8	1,200	106.1
		Porum Public Works Auth, OK	120	10.6
		Pittsburg County, PWAAuth., OK	190	25.8
		Public Service Co. of Oklahoma, OK	100	8.1
Hugo, OK		Hugo Municipal Authority, OK	18,880	1,082.4
		Antlers Public Works Authority, OK	430	25.0
		Western Farmers Cooperative, OK	17,350	995.0
Kaw, OK		Oklahoma Gas & Electric, OK	21,761	4,999.5
		Stillwater Utility Authority, OK	44,788	10,290.0
Keystone, OK		Public Service Co. of Oklahoma, OK	5,500	481.7
Oologah, OK		Town of Chelsea, OK	860	27.7
Pat Mayse, OK		City of Paris, OK	65,800	1,926.0
Pearson-Skubitz Big Hill, KS		State of Kansas	16,500	4,465.3
Pine Creek, OK		Weyerhaeuser	11,160	1,052.0
Sardis, OK		Oklahoma Water Resources Board, OK	155,500	19,760.1
Skiatook, OK		Osage County Rural Water & Sewer District #15, OK	2,000	563.9
<b>Totals</b>	<b>38</b>	<b>46</b>	<b>2,105,660</b>	<b>321,800.8</b>

**Enclosure 1**

Table 2: Projects where there are only Water Supply Assurances

District	Project	Local Sponsor	WS Not Under Contract		Conduit Not Under Contract (\$000)
			Storage (AF)	Investment Cost (\$000)	
Pittsburgh	Berlin, OH (1)		19,400	1,356.0	1.3
	Stonewall Jackson, WV		2,200	4,300.0	0
Vicksburg	DeGray, AR (2)		163,817	5,460.5	0
Portland	Lost Creek, OR		6,292	5,730.3	0
Kansas City	Harry S. Truman, MO		324	100.0	0
	Rathbun, IA		8,320	1,800.0	0
	Smithville, MO		75,700	14,873.0	0
Little Rock	DeQueen, AR		17,275	4,942.4	186.9
Tulsa	Birch, OK		7,630	2,209.0	23.0
	Broken Bow, OK		144,145	3,827.0	108.1
	Copan Lake, OK		2,500	2,686.0	24.7
	Eufaula, OK (3)		* 29,932	2,341.6	10.4
	Fort Supply, OK		400	38.8	0
	Hugo, OK		2,197	126.0	0
	Kaw, OK		80,217	18,428.5	0
	Keystone, OK		2,000	175.2	28.3
	Oologah, OK		9,365	302.8	0
	Pat Mayse, OK		0	0	10.0
	Pine Creek, OK		20,600	1,942.0	14.8
	Skiatook, OK (4)		* 40,409	11,275.5	0
	Tenkiller, OK (5)		* 4,884	763.4	0
Waurika, OK		109,600	8,042.0	0	
Wister, OK		347	199.7	0	
<b>TOTAL</b>	<b>23</b>		<b>747,554</b>	<b>90,919.7</b>	<b>407.5</b>
	* (-) Under negotiation		45,634	NA	NA

Footnotes:

- (1) Berlin. Storage space not authorized, but operated for water supply. The total 19,400 acre-feet was under contract with the Mahoning Valley Sanitary District until 2001 at which time it expired. Possible renewal of the total 19,400 acre-feet is under negotiation.
- (2) DeGray. In the 2004 data update, Vicksburg District reported that the Ouachita River Water District is paying \$154,426 annual interest payment for the right of first refusal.
- (3) Eufaula. There is one contract under negotiation for 25,000 acre-feet of the 29,932 acre-feet.
- (4) Skiatook. There are two contracts under negotiation for a total of 15,750 acre-feet of the 40,409 acre-feet.
- (5) Tenkiller. There is one contract under negotiation for the total 4,884 acre-feet.

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DISTRICT LETTERHEAD

\* e x a m p l e \*

Dear Sponsor:

The U.S. Army Corps of Engineers in an effort to operate on a more cost effective basis has recently updated its database of municipal and industrial (M&I) water supply cost sharing agreements. This update has shown that most of the investment costs assigned to this M&I storage space is in the process of being recovered or has already been recovered. There is, however, still some of this storage space that is either under an agreement for future repayment or a water supply assurance that payment will be made at some time in the future.

A scenario where there is an agreement for future use.

Our records indicate that you signed agreement Number \_\_\_\_\_ on \_\_\_\_\_ (date) to utilize \_\_\_\_\_ acre-feet of future use storage in (\_\_\_\_\_ project\_\_\_\_\_). The cost of this future use storage space in this agreement is listed as \$\_\_\_\_\_. The agreement allows for a ten-year interest free period. At the end of this period, the interest on the unpaid balance (at \_\_\_\_\_%) could be paid yearly or would be compounded and added to the unpaid balance. [Since this ten-year period has not expired, the total you own remains at \$\_\_\_\_\_. [You have paid this interest as it became due, so the total owed by you remains at \$\_\_\_\_\_.] Due to the expiration of this ten-year period and the fact that you have not repaid the interest the total now owed on the \_\_\_\_\_ acre-feet of storage space is \$\_\_\_\_\_.]

In order for the Federal Government to recover its M&I water supply investment at this project, we would like to encourage you to initiate repayment on this storage agreement as soon as possible. In this vein, we would like to explore with you a timeframe in which you intend to initiate payment on this future use storage space. However, if you have no further need for this storage space, we request you explore the option of acting as a wholesaler and selling the water to a third party or even transfer your right to a third party. These options are available to you under the "Transfers and Assignments" article of the agreement. If you deem these actions unacceptable or impossible, would you consider relinquishing your right to this storage and amending your agreement with the Government? Should you agree to relinquish your right to this future use storage space, it is our intent to contact state and local agencies in you region to determine if there are others who may be interested in purchasing the storage space.

Your response to the options as developed in the above paragraph is eagerly awaited. Should you desire to discuss these options with a member of my staff please contact \_\_\_\_\_.

Sincerely,

(Name)

(Title)

Enclosure 2

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## Water Supply Database 2005 Update

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A scenario where there is only a water supply assurance.

Our records indicate that \_\_\_\_\_ (name of entity) \_\_\_\_\_ signed a water supply assurance on \_\_\_\_\_ (date) \_\_\_\_\_ for the Corps of Engineers to reserve \_\_\_\_\_ acre-feet of future use storage space in \_\_\_\_\_ (project) \_\_\_\_\_. A copy of this assurance is attached. This project has now been operational for M&I purposes since \_\_\_\_\_ (date) \_\_\_\_\_. The cost of the M&I water supply storage space included in this project was estimated as of 31 December 2004 to be \$\_\_\_\_\_. [This cost includes interest at \_\_\_\_\_% that has been compounding on the unpaid balance following the end of the ten-year interest free period starting on \_\_\_\_\_(date)\_\_\_\_\_.]

In order for the Federal Government to recover its M&I water supply investment at this project, we would like to encourage you to initiate actions with this office to enter into an M&I water supply repayment agreement to repay these costs at the earliest possible date. However, if you have no further need for this storage space would you consider relinquishing your right to this storage space? Should you agree to relinquish your right, it is our intent to contact state and local agencies in your region to determine if there are others who may be interested in purchasing the storage space.

Your response to the options as developed in the above paragraph is eagerly awaited. Should you desire to discuss these options with a member of my staff please contact \_\_\_\_\_.

Sincerely,

Enclosure

(Name)  
(Title)

# Appendix B: First Phase Results

**Table 1: Contracts Under Future Use Storage**

District	Project	Local Sponsor	Sponsor's Future Use Storage		Current Use of the Storage Space	Estimated Value of that Use (\$000)
			Space (AF)	Assigned Cost (\$000)		
Savannah	Hartwell, GA & SC	Anderson County Joint Municipal Water System, SC [1]	12,920	1,588.0	Hydropower	182.6 annually
Vicksburg	DeGray	Ouachita River Water District [2]	131,260	3,286.8	Hydropower	Not estimated
Kansas City	Clinton, KS	State of Kansas	35,680	2,580.3	[3]	Not estimated
	Hillsdale, KS	State of Kansas	45,500	20,107.5	[3]	Not estimated
	Long Branch, MO	City of Macon, MO	20,000	5,082.9	[3]	Not estimated
	Milford, KS	State of Kansas	198,350	8,625.3	Navigation + [3]	Not estimated
	Perry, KS	Sate of Kansas	125,000	7,673.6	Navigation + [3]	Not estimated
	Smithville, MO	City of Smithville, MO	6,000	1,176.0	[3]	Not estimated
	Stockton, MO	City of Springfield, MO	25,000	4,796.0	Hydropower + [3]	Not estimated
Little Rock	Beaver, AR	Beaver Water District No. 1, AR	31,056	1,480.3	Hydropower	4,944.8 annual
	Dierks, AR	Marion Tri-Lakes Water District, AR	9,910	2,106.6	Conservation	1,398.7 annual
	Gillham, AR	Gillham Lake Regional Water, AR	20,600	5,251.0	Conservation	2,907.5 annual
	Millwood, AR	Southwest Arkansas Water District, AR	105,456	10,177.6	Conservation	2,438.2 annual
Ft. Worth	Aquilla, TX	Brazos River Auth., TX	16,280	6,092.0		
	Granger, TX	Brazos River Auth., TX	37,900	12,865.0		
	Joe Pool, TX	Trinity River Auth., TX	142,900	50,396.0		
	Navarro Mills, TX	Trinity River Auth., TX	37,240	1,523.0		
	N. San Gabriel (Georgetown), TX	Brazos River Auth., TX	728	150.0		
	Proctor, TX	Brazos River Auth., TX	25,120	1,051.0		
	Ray Roberts, TX	City of Dallas, TX	266,104	50,653.0		
		City of Denton, TX	93,496	17,797.0		
	Sam Rayburn, TX	City of Lufkin, TX	25,000	306.0		
	Somerville, TX	Brazos River Auth., TX	136,700	6,837.0		
Stillhouse Hollow, TX	Brazos River Auth.	178,160	6,072.0			

## Water Supply Database 2005 Update

Table 1 (continued)

District	Project	Local Sponsor	Sponsor's Future Use Storage		Current Use of the Storage Space	Estimated Value of that Use (\$000)	
			Space (AF)	Assigned Cost (\$000)			
Tulsa	Broken Bow, OK	Broken Bow Public Works Auth., OK	4,054	107.6	Probably hydropower	Not estimated	
	Copan, OK	Copan Public Works Authority, OK	4,750	5,105.2	Water Quality, Rec. and F&WL	Not estimated	
	El Dorado, KS	City of El Dorado, KS	72,087	18,500			
	Eufaula, OK	Krebs Utility Authority, OK		280	29.1	Probably hydropower	Not estimated
		McIntosh County Rural WGS Dist. No. 8		1,200	106.1	do	Not estimated
		Porum Public Works Auth, OK		120	10.6	do	Not estimated
		Pittsburg County, PWAuth., OK		190	25.8	do	Not estimated
		Public Service Co. of Oklahoma, OK		100	8.1	do	Not estimated
		Hugo, OK	Hugo Municipal Authority, OK		18,880	1,082.4	Rec., Water Quality and F&WL
	Antlers Public Works Authority, OK			430	25.0	do	Not estimated
	Western Farmers Cooperative, OK			17,350	995.0	do	Not estimated
	Kaw, OK	Oklahoma Gas & Electric, OK		21,761	4,999.5	Rec. and F&WL	Not estimated
		Stillwater Utility Authority, OK		44,788	10,290.0	do	Not estimated
	Keystone, OK	Public Service Co. of Oklahoma, OK		5,500	481.7	Probably hydropower	Not estimated
	Oologah, OK	Town of Chelsea, OK		860	27.7	Rec. and F&WL	Not estimated
	Pat Mayse, OK	City of Paris, OK		65,800	1,926.0		
	Pearson-Skubitiz Big Hill, KS	State of Kansas		16,500	4,465.3		
	Pine Creek, OK	Weyerhaeuser		11,160	1,052.0		
	Sardis, OK	Oklahoma Water Resources Board, OK		155,500	19,760.1		
	Skiatook, OK	Osage County Rural Water & Sewer District #15, OK		2,000	563.9		
<b>Total 6 Districts</b>	<b>36 Projects</b>	<b>44 Sponsors</b>	<b>2,169,670</b>	<b>297,235.0</b>			

See next page for Footnotes.

Footnotes:

[1] Savannah District, Hartwell. This was a transfer of storage from Duke Power Company to Anderson County, pre 1986 and involved a substantial amount of funds between the two for the rights to future water storage. This is a very sensitive subject and would require considerable input by others, including legal implications, if we were to attempt to find other users of the storage space.

[2] Vicksburg District, DeGray. In accordance with a 4 April 1998 MOA, the Ouachita River Water District (ORWD) obtained the right of first refusal for all water supply storage in DeGray Lake, estimated at 152 million gallons per day (mgd). For this right of first refusal, the ORWD agreed to pay the annual interest attributable to 120 mgd. This annual payment estimated at \$154,426 has been paid by ORWD since signing of the MOA.

[3] Kansas City District. Recreation, Fish and Wildlife, Water Quality and Streamflow Supplementation.

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Table 2: Projects where there are only Water Supply Assurances

District	Project	Local Sponsor	WS Not Under Contract		Current Use of the Storage Space	Estimated Value of that Use (\$000)
			Space (AF)	Assigned Cost (\$000)		
Pittsburg	Stonewall Jackson, WV	City of Grafton, WV	2,200	4,300.0	Recreation	Not estimated
Vicksburg	DeGray, AR	Ouachita River Water District [1]	32,557	2,173.7	Hydropower	Not estimated
Portland	Lost Creek, OR	State of Oregon [2]	6,292	5,730.3	Rec., F&WL, low flow	Not estimated
Kansas City	Smithville, MO	Kansas City, MO [3]	75,700	14,873.0	Rec., F&WL, WQ, Streamflow supp.	Not estimated
Little Rock	DeQueen, AR	Tri-Lakes Water District	17,275	4,942.4	Conservation	2,438 annual
Tulsa	Birch, OK	Oklahoma Water Resources Board	7,630	2,209.0	Rec. and F&WL	Not estimated
	Broken Bow, OK	Oklahoma Water Resources Board [4]	37,145	986.1	Hydropower	To be developed
	Copan Lake, OK	Oklahoma Water Resources Board	2,500	2,686.9	WQ, Rec. and F&WL	Not estimated
	Hugo, OK	Oklahoma Water Resources Board	2,197	126.0	WQ, Rec. and F&WL	Not estimated
	Kaw, OK	Oklahoma Water Resources Board	80,217	18,428.5	Rec. and F&WL	Not estimated
	Keystone, OK	Oklahoma Water Resources Board	2,000	175.2	Hydropower generation or head, Rec. and F&WL	Not estimated
	Oologah, OK	Oklahoma Water Resources Board	9,365	302.8	Rec. and F&WL	Not estimated
	Skiatook	Oklahoma Water Resources Board	35,909	10,194.7		
	Waurika, OK [5]	Waurika Project Master Conservancy District	109,600	8,042.0	Rec. and F&WL	Not estimated
<b>Totals</b>			<b>420,587</b>	<b>75,170.6</b>		

See next page for footnotes.

Footnotes:

[1] Vicksburg District, DeGray Lake. Reserved by the ORWD for the Little Rock Municipal Water Works. The water from this storage space is being used to produce hydropower as originally planned for the project.

[2] Portland District, Lost Creek. The State of Oregon was the partner on this project with the Portland District and provided assurances for the full 10,000 acre-feet. The District has pursued having the State, through the Oregon Water Resources Department, contract for the remaining storage, but in the end the State decided not to follow through.

[3] Kansas City District, Smithville. A large portion of the storage in Smithville lake at one time was spoken for (no contract, however) by the city of Kansas City Missouri (KCMO). The planned development of the far northland (north of the Missouri River airport region) didn't happen. KCMO, even though asked several times in the last 20 years, has shown no interest in a contract.

[4] Tulsa District, Broken Bow. As authorized by Section 338 of WRDA 96, a report is under preparation to reallocate 107,000 acre-feet of M&I water supply to fish and wildlife for purposes of mitigation to support a non-native fishery. Upon approval of the report, there will only be 37,145 acre-feet of M&I storage remaining not under contract.

[5]. Tulsa District, Waurika. Storage not under contract is needed by other users in the area but they can't obtain water rights.

## Appendix C: Storage Space and Costs by District and Project

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\* Because the Southwestern has a large number of projects this division is subdivided by districts. Further, because the Tulsa district has such a large number of sponsors, this district is first presented by projects and sponsors and then the projects are summarized.

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## Appendix C: Storage Space and Costs by District and Project

### North Atlantic Division

Dist	Project	User	Storage Space (acre-feet)			Contract Price (\$000)			
			Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Total Contract
NAE	Colebrook, CT	Hartford, CT Metro Water Dist.	30,700	0	30,700	5,281.2	0	0	5,281.2
	East Brimfield, CT	American Optical Company	1,140	0	1,140	24.5	0	0	24.5
	Littleville Lake, MA	City of Springfield, MA	9,400	0	9,400	2,202.2	0	0	2,202.2
<b>Total</b>	<b>3 projects</b>	<b>3 contracts</b>	<b>41,240</b>	<b>0</b>	<b>41,240</b>	<b>7,507.9</b>	<b>0</b>	<b>0</b>	<b>7,507.9</b>
NAP	Beltzville Lake, PA	Delaware RBC	27,880	0	27,880	6,500	0	0	6,500
	Blue Marsh, PA	Delaware RBC	8,000	0	8,000	15,000	0	0	15,000
<b>Total</b>	<b>2 projects</b>	<b>2 contracts</b>	<b>35,880</b>	<b>0</b>	<b>35,880</b>	<b>21,500</b>	<b>0</b>	<b>0</b>	<b>21,500</b>
NAB	Cowanessque, PA	Susquehanna RBC	24,335	0	24,335	39,414	0	0	39,414
	Curwensville, PA	Susquehanna RBC	5,360	0	5,360	4,878	0	0	4,878
	Jennings Randolph, MD/WV	District of Columbia, Washington Suburban Sanitary Commission and Fairfax County Water Auth	7,158	0	7,158	11,360	0	0	11,360
		District of Columbia, Washington Suburban Sanitary Commission, Fairfax County Water Auth. and the transfer of the MD Potomac Water Auth., 1970 agreement.	33,837	0	33,837	54,179	0	0	54,179
<b>Total</b>	<b>3 projects</b>	<b>4 contracts</b>	<b>70,690</b>	<b>0</b>	<b>70,690</b>	<b>109,831</b>	<b>0</b>	<b>0</b>	<b>109,831</b>
<b>Div Total</b>	<b>8 projects</b>	<b>9 contracts</b>	<b>147,810</b>	<b>0</b>	<b>147,810</b>	<b>138,838.9</b>	<b>0</b>	<b>0</b>	<b>138,838.9</b>

# Water Supply Database 2005 Update

## South Atlantic Division

Dist	Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
			Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Total Contract	
SAW	B. Everett Gordan, NC	State of NC	45,800	0	45,800	4,388	0	0	4,388.0	
	Falls Lake, NC	City of Raleigh, NC	41,469	0	41,469	12,170	0	0	12,170.0	
	John H. Kerr, VA/NC	City of Henderson, NC [1]		-	-	-	-	-	-	-
		Virginia Beach, VA		10,200	0	10,200	2,275.7	0	0	2,275.7
		VA Dept. of Corrections		23	0	23	5.6	0	0	5.6
		Mecklenburg Cogeneration		600	0	600	150.2	0	0	150.2
	W. Kerr Scott, NC	County of Wilkes, NC & City of Winston-Salem, NC	33,000	0	33,000	945.4	0	0	945.4	
Total	4 projects	7 contracts	131,092	0	131,092	19,934.9	0	0	19,934.9	
SAS	Hartwell, GA & SC	Anderson County Joint Municipal Water System, SC	11,700	12,920	24,620	1,437	1,588	0	3,025	
		City of Lavonia, GA	127	0	127	21.5	0	0	21.5	
		Hart County, GA	1,827	0	1,827	335.2	0	0	335.2	
	Richard B. Russell, GA & SC	City of Elberton, GA	381	0	381	419	0	0	419	
		SC Public Service Co. (Santee Cooper), SC	491	0	491	1,615.2	0	0	1,615.2	
	J. Strom Thurmond, GA & SC	City of Lincolnton, GA	92	0	92	12	0	0	12	
		City of McCormick, SC	506	0	506	75	0	0	75	
		Savannah Valley Auth., SC	92	0	92	27.4	0	0	27.4	
		Columbia County, SC	1,056	0	1,056	313	0	0	313	
		City of Thompson, McDuffie County, GA	1,056	0	1,056	334.7	0	0	334.7	
		City of Lincolnton, GA	83	0	83	24.6	0	0	24.6	
		City of McCormick, SC	316	0	316	66.5	0	0	66.5	
	City of Washington, GA	632	0	632	72.8	0	0	72.8		
Total	3 projects	13 contracts	18,359	12,920	31,279	4,753.9	1,588	0	6,341.9	
SAJ	Cerrillos, PR	Commonwealth of Puerto Rico [2]	25,200	0	25,200	214,980	0	0	214,980	
Total	1 project	1 contract	25,200	0	25,200	214,980	0	0	214,980	
SAM	Allatoona, GA	Cobb Co. - Marietta Water Authority	13,140	0	13,140	1,268.4	0	0	1,268.4	
		City of Cartersville	1,996	0	1,996	177	0	0	177	
		City of Cartersville	4,375	0	4,375	1,655.7	0	0	1,655.7	
	Carters, GA	City of Chatsworth	818	0	818	609.2	0	0	609.2	
	Okatibbee, MS	Pat Harrison WW District	13,100	0	13,100	1,292	0	0	1,292	
Total	3 Projects	5 Contracts	33,429	0	33,429	5,002.3	0	0	5,002.3	
DIV Total	11 Projects	26 Contracts	208,080	12,920	221,000	244,671	1,588	0	246,259	
						+ 219			+ 219	
						conduit			conduit	

### Footnotes:

[1] Wilmington District: Contract with the City of Henderson in the John H. Kerr project is a water use contract, not storage.

[2] Jacksonville District: Cerrillos project, determination of correct investment cost is being evaluated pursuant to a congressional directive.

## Appendix C: Storage Space and Costs by District and Project

### Lakes and River Division

Dist	Project	User	Storage Space (acre-feet)			Contract Price (\$000)			
			Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Total Contract
LRP	Mosquito Creek Lake, OH	City of Warren, OH	11,000	0	11,000	569.2	0	0	569.2
	Stonewall Jackson Lake, WV	<b>Not Under Contract</b>		<b>2,200</b>	<b>2,200</b>	<b>0</b>	<b>0</b>	<b>4,300.0</b>	<b>4,300.0</b>
	Tygart, WV [1]	City of Grafton, WV	Withdrawal of up to 1.9 mgd			No cost. City provided lands for project.			
<b>Total</b>	<b>3 Projects</b>	<b>2 contracts</b>	<b>11,000</b>	<b>2,200</b>	<b>13,200</b>	<b>569.2</b>	<b>0</b>	<b>4,300.0</b>	<b>4,869.2</b>
LRH	Alum Creek, OH	State of Ohio	79,200	0	79,200	18,260.1	0	0	18,260.1
	Grayson Lake, KY	Rattlesnake Ridge Water Distinct	627	0	627	76.7	0	0	76.7
	John W. Flannagan, VA	John W. Flannagan Water Auth.	2,125	0	2,125	3,407.7	0	0	3,407.7
	North Fork of Pound, VA	Town of Pound	62	0	62	37.9	0	0	37.9
	Tom Jenkins, OH	State of Ohio	5,690	0	5,690	785.0	0	0	785.0
	Paint Creek, OH	Highland County Water Co.	721	0	721	189.7	0	0	189.7
	Summersville, WV	City of Summersville	468	0	468	234.0	0	0	234.0
<b>Total</b>	<b>7 Projects</b>	<b>7 Contracts</b>	<b>88,893</b>	<b>0</b>	<b>88,893</b>	<b>22,991.1</b>	<b>0</b>	<b>0</b>	<b>22,991.1</b>
LRL	Barren River Lake, KY	Glasgow	681	0	681	22.3	0	0	22.3
		Scottsville	369	0	369	12.2	0	0	12.2
	Brookville, IN	State of Indiana	89,300	0	89,300	7,541.0	0	0	7,541
	Caesar Creek Lake, OH	State of Ohio	39,100	0	39,100	5,742.0	0	0	5,742
	Cave Run Lake, KY	Cave Run Water Comm.	536	0	536	0.7	0	0	0.7
	Green River Lake, KY	Campbellsville	3,460	0	3,460	92.1	0	0	92.1
		Columbia	855	0	855	0.9	0	0	0.9
	Monroe Lake, IN	State of Indiana	160,000	0	160,000	8,015.0	0	0	8,015
	Nolin Lake, KY	Edmonson Co. Water Dist.	98	0	98	0.1	0	0	0.1
	Patoka Lake, IN	State of Indiana	129,800	0	129,800	14,023.0	0	0	14,023
	Rough River Lake, KY	Leitchfield	120	0	120	3.6	0	0	3.6
		Hardinsburg	150	0	150	78.8	0	0	78.8
William H. Harsha, OH	State of Ohio	35,500	0	35,500	3,987.0	0	0	3,987	
<b>Total</b>	<b>10 projects</b>	<b>13 contracts</b>	<b>459,969</b>	<b>0</b>	<b>459,969</b>	<b>39,518.7</b>	<b>0</b>	<b>0</b>	<b>39,518.7</b>
LRN	Center Hill, TN	Cookeville, TN	6,680	0	6,680	2,915.0	0	0	2,915.0
		Smithville, TN	401	0	401	54.5	0	0	54.5
		Riverwatch Golf, TN	131	0	131	103.4	0	0	103.4
	J. Percy Priest, TN	LaVergne, TN	2,733	0	2,733	1,818.6	0	0	1,818.6
		Murfreesboro	5,084	0	5,084	3,051.4	0	0	3,051.4
		Consolidated Utility Dist., TN	3,007	0	3,007	1,804.6	0	0	1,804.6
		Consolidated Utility Dist., TN	1,367	0	1,367	820.3	0	0	820.3
		YMCA, TN	22	0	22	16.6	0	0	16.6
		Cedar Crest Golf Ventures, LLC, TN	96	0	96	76.0	0	0	76.0
		<b>(1-contract) (Under negotiation)</b>	<b>5,002</b>	<b>0</b>	<b>5,002</b>	<b>3,002.2</b>	<b>0</b>	<b>0</b>	<b>3,002.2</b>
	Dale Hollow, TN/KY	Byrdstown, TN	1,841	0	1,841	372.7	0	0	372.7
		Dale Hollow State Park Golf Course, KY	368	0	368	176.5	0	0	176.5
		Trooper Island, KY	2	0	2	0.9	0	0	0.9
	Laurel, KY	Laurel County Water District #2 KY	519	0	519	166.9	0	0	166.9
		<b>Barbourville, KY (Under negotiation)</b>	<b>415</b>	<b>0</b>	<b>415</b>	<b>1,013.2</b>	<b>0</b>	<b>0</b>	<b>1,013.2</b>
		<b>London, KY (Under negotiation)</b>	<b>779</b>	<b>0</b>	<b>779</b>	<b>272.5</b>	<b>0</b>	<b>0</b>	<b>272.5</b>
	<b>L. Cumberland – Wolf Creek Dam, KY</b>	<b>(Reallocation study on hold due to Congress) (10-contracts)</b>	<b>32,190</b>	<b>0</b>	<b>32,190</b>	<b>10,759.5</b>	<b>0</b>	<b>0</b>	<b>10,759.5</b>
<b>Total</b>	<b>4 reservoirs</b>	<b>13 contracts</b>	<b>22,251</b>	<b>0</b>	<b>22,251</b>	<b>11,377.4</b>	<b>0</b>	<b>0</b>	<b>11,377.4</b>
<b>Div Total</b>	<b>25 reservoirs</b>	<b>35 contracts</b>	<b>582,113</b>	<b>2,200</b>	<b>584,313</b>	<b>74,456.4</b>	<b>0</b>	<b>4,300.0</b>	<b>78,756.4</b>
<b>(+ Under negotiation)</b>	<b>(3 Projects)</b>	<b>(13-contracts)</b>	<b>(38,386)</b>	<b>(0)</b>	<b>(38,386)</b>	<b>(15,047.4)</b>	<b>(0)</b>	<b>(0)</b>	<b>(15,074.4)</b>

Footnote: [1] Pittsburg District. Tygart Creek, WV. June 1941 is the date a supplement was signed. This was a supplement to a contract number W1110eng-3572 executed Aug. 1, 1938. The district was unable to locate the 1938 contract. The City of Grafton withdraws an average of 1.9 mgd.

Mississippi Valley Division

Dist	Project	User	Storage Space (acre-feet)			Contract Price (\$000)			
			Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Total Contract
MVR	Saylorville, IA	State of Iowa	14,900	0	14,900	4,811.6	0	0	4,811.6
Total	1 Project	1 contract	14,900	0	14,900	4,811.6	0	0	4,811.6
MVS	Carlyle, IL	State of Illinois	32,692	0	32,692	3,635.0	0	0	3,635.0
	Clarence Cannon Dam (Mark Twain Lake), MO	Clarence Cannon Wholesale Water Commission	6,250	0	6,250	5,144.6	0	0	5,144.6
		State of Missouri	13,750	0	13,750	11,318.3	0	0	11,318.3
	Lake Shelbyville, IL	State of Illinois	24,714	0	24,714	4,310.0	0	0	4,310.0
	Rend Lake, IL	State of Illinois	109,000	0	109,000	10,000.0	0	0	10,000.0
Total	4 projects	5 contracts	186,406	0	186,406	34,407.9	0	0	34,407.9
MVK	DeGray, AR	Ouachita River Water District	1,573	0	1,573	52.4	0	0	52.4
		Ouachita River Water District	787	0	787	26.3	0	0	26.3
		Ouachita River Water District	1,573	0	1,573	52.4	0	0	52.4
		Ouachita River Water District [1]	0	131,260	131,260	0	3,286.8	0	3,286.8
		<b>Not Under Contract [2]</b>	<b>0</b>	<b>32,557</b>	<b>32,557</b>	<b>0</b>	<b>0</b>	<b>2,173.7</b>	<b>2,173.7</b>
	Enid, MS	LS Power Energy Limited Partnership	4,500	0	4,500	1,111.9	0	0	1,111.9
	Lake Ouachita, AR	N. Garland County Regional Water District	1,575	0	1,575	112.9	0	0	112.9
Total	3 projects	6 contracts	10,008	163,817	173,825	1,355.9	3,286.8	2,173.7	6,816.4
Div Total	8 Projects	12 Contracts	211,314	163,817	375,131	40,575.4	3,286.8	2,173.7	46,035.9

Footnotes:

[1] Vicksburg District: DeGray Lake, in accordance with a 4 April 1988 MOA, the Ouachita River Water District (ORWD) obtained the right of first refusal for all water supply storage in DeGray Lake, estimated at 152 million gallons per day (mgd). For this right of first refusal, the ORWD agreed to pay the annual interest attributable to 120 mgd. This annual payment, estimated at \$154,426 has been paid by ORWD since signing of the MOA.

[2] Vicksburg District: DeGray Lake. Reserved by the ORWD for the Little Rock Municipal Water Works. The water from this storage space is being used to produce hydropower as originally planned for the project.

## Appendix C: Storage Space and Costs by District and Project

### Northwestern Division

Dist	Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
			Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
NWP	Lost Creek, OR	City of Phoenix	400	0	400	269.7	0	0	0	269.7
		City of Phoenix	600	0	600	404.5	0	0	0	404.5
		City of Jacksonville	400	0	400	269.7	0	0	0	269.7
		City of Shady Cove	3	0	3	2.0	0	0	0	2.0
		City of Ashland	1,001	0	1,001	928.5	0	0	0	928.5
		City of Talent	1,292	0	1,292	1,199.6	0	0	0	1,199.6
		City of Shady Grove	12	0	12	11.1	0	0	0	11.1
		<b>Not Under Contract</b>		<b>6,292</b>		<b>6,292</b>			<b>5,730.3</b>	
Total	1 project	7 contracts	3,708	6,292	10,000	3,085.1	0	5,730.3	0	8,815.4
NWO	Bowman Haley, ND	Bowman County Water Management Dist.	19,780	0	19,780	825.0	0	0	0	825.0
	Garrison, ND	Basin Electric Power Cooperative	No storage, surplus water contract with a guaranteed withdrawal of 17,000 AF/year. Contract currently under litigation.							
Total	2 projects	2 contracts	19,780	0	19,780	825.0	0	0	0	825.0
NWK	Clinton, Lake, KS	State of Kansas	53,520	35,680	89,200	3,873.4	2,580.3	0	312.4	6,766.1
	Harry S. Truman Dam & Reservoir, MO	Henry County #3	172	0	172	50.0	0	0	0	50.0
		HST PWSD #2	504	0	504	153.0	0	0	0	153.0
	Hillsdale, Lake, KS	State of Kansas	7,500	45,500	53,000	3,314.2	20,107.5	0	0	23,421.7
	Kanopolis Lake, KS	Kansas Water Office	12,500	0	12,500	4,181.2	0	0	0	4,181.2
	Long Branch Lake, MO	City of Macon	4,400	20,000	24,400	1,118.3	5,082.9	0	0	6,201.2
	Melvorn Lake, KS	Kansas Water Office	50,000	0	50,000	7,131.8	0	0	0	7,131.8
	Milford Lake, KS	State of Kansas	101,650	198,350	300,000	4,420.3	8,625.3	0	0	13,045.6
	Perry Lake, KS	State of Kansas	25,000	125,000	150,000	1,534.7	7,673.6	0	0	9,208.3
	Pomona Lake, KS	RWD #3	230	0	230	13.4	0	0	0	13.4
		RWD #3	270	0	270	20.1	0	0	0	20.1
		Kansas Water Office	32,500	0	32,500	3,593.1	0	0	0	3,593.1
	Rathbun Lake, IA	Rathbun Regional Water Association, Inc. (RRWA)	3,340	0	3,340	331.0	0	0	0	331.0
		RRWA	3,340	0	3,340	498.0	0	0	0	498.0
	Smithville Lake, MO	City of Plattsburg	11,500	0	11,500	2,254.0	0	0	0	2,254.0
		City of Smithville	2,000	6,000	8,000	392.0	1,176.0	0	53.0	1,621.0
		<b>Not Under Contract</b>		<b>75,700</b>	<b>75,700</b>	<b>0</b>	<b>0</b>	<b>14,873.0</b>	<b>0</b>	<b>14,873.0</b>
	Stockton Lake, MO	City of Springfield	25,000	25,000	50,000	4,796.4	4,796.0	0	0	9,592.8
	Tuttle Creek Lake, KS	Kansas Water Office	27,500	0	27,500	1,174.6	0	0	0	1,174.6
Kansas Water Office		8,650	0	8,650	369.0	0	0	0	369.0	
Kansas Water Office		13,850	0	13,850	591.0	0	0	0	591.0	
Total	13 projects	20 contracts	383,426	531,230	914,656	39,809.9	50,041.6	14,873.0	365.4	105,089.9
DIV Total	16 projects	29 contracts	406,914	537,522	944,436	43,719.6	50,041.6	20,603.3	365.4	114,729.9

# Water Supply Database 2005 Update

## Southwestern Division - Little Rock District

Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
		Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Beaver, AR	Beaver Water District No. 1	77,139	31,056	108,195	3,676.9	1,480.3	0	0	5,157.2
	Carroll-Boone Water District	9,016	0	9,016	742.0	0	0	0	742.0
	Madison County Water District	3,945	0	3,945	416.5	0	0	0	416.5
	Benton/Washington County Water District	7,643	0	7,643	939.9	0	0	0	939.9
Blue Mountain, AR	City of Danville	1,550	0	1,550	417.3	0	0	0	417.3
Bull Shoals, AR	Marion County Regional Water System	880	0	880	85.0	0	0	0	85.0
Dardanell Lake, AR	AP&L Nuclear One	No storage. Water withdrawn from Dardanelle for cooling. Much water returned to Arkansas River. They pay only for what evaporates and is not returned to the river.							
DeQueen, AR	Sevier County Rural Water District	610	0	610	249.5	0	0	6.6	249.5 + 6.6 C
	<b>Not Under Contract</b>	<b>0</b>	<b>17,275</b>	<b>17,275</b>	<b>0</b>	<b>0</b>	<b>4,942.4</b>	<b>186.9</b>	<b>4,942.4 + 186.9 C</b>
Dierks, AR	Marion Tri-Lakes Water District	190	9,910	10,100	44.1	2,106.6	0	181.7	2,150.7 + 181.7C
Gillham, AR	Gillham Lake Regional Water	200	20,600	20,800	167.2	5,251.0	0	79.0	5,251.0 + 79.0 C
Greers Ferry, AR	City of Heber Springs	1,013	0	1,013	122.4	0	0	0	122.4
	Tannebaum Golf Course	90	0	90	11.1	0	0	0	11.1
	Clinton Water District	906	0	906	81.0	0	0	0	81.0
	Community Water System	225	0	225	20.3	0	0	0	20.3
	Community Water System Phase I	3,776	0	3,776	457.8	0	0	0	457.8
	Community Water System Phase II	4,283	0	4,283	561.2	0	0	0	561.2
	Thunderbird Golf Course	55	0	55	7.1	0	0	0	7.1
	Red Apple Inn & Country Club	65	0	65	8.4	0	0	0	8.4
Millwood Lake, AR	Southwest AR Water District	44,544	105,456	150,000	4,356.3	10,177.6	0	110.5	14,533.9 + 110.5 C
Nimrod, AR	City of Plainview	33	0	33	33	0	0	0	33.0
	City of Plainview	110	0	110	22.0	0	0	0	22.0
Norfolk, AR	Water Sewer District #3	2,400	0	2,400	65.5	0	0	0	65.5
Table Rock, MO	King's River Country Club [1]	95	0	95	48.9	0	0	0	48.9
12 Projects	23 Contracts	158,768	184,297	343,065	12,533.4	19,015.5	4,942.4	377.8 UC 186.9 NUC	36,491.3 + 564.7 C

Footnote: [1] Surplus water contract, which was just renewed for 5-years. Sponsor pays \$979 annually for P&I + \$46 annual for OMRR&R. Assume 50 x \$979 for contract price.

## Appendix C: Storage Space and Costs by District and Project

### Southwestern Division - Ft. Worth District

Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
		Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Aquilla, TX	Brazos River Auth.	17,320	16,280	33,600	6,481	6,092	0	0	12,573
Bardwell, TX	Trinity River Auth.	42,800	0	42,800	3,291	0	0	0	3,291
Belton, TX	Brazos River A. '59	113,700	0	113,700	1,524	0	0	0	1,524
	Brazos River A. '60	247,000	0	247,000	3,601	0	0	0	3,601
Benbrook, TX	City of Ft. Worth '69	7,250	0	7,250	310	0	0	36	310 +36 C
	Benbrook W&SA '71	9,208	0	9,208	394	0	0	0	394
	Benbrook W&SA '79	7,250	0	7,250	310	0	0	0	310
	Tarrant Reg. WD '91	48,792	0	48,792	2,086	0	0	0	2,086
Canyon, TX	Guadalupe-Blanco RA	366,400	0	366,400	8,080	0	0	0	8,080
Cooper (Jim Chapman), TX	City of Irving '76	100,625	0	100,625	9,208	0	0	0	9,208
	N. Texas MWD '76	100,625	0	100,625	9,208	0	0	0	9,208
	Sulphur R. MWD '76	71,750	0	71,750	6,565	0	0	0	6,565
Ferrell's Bridge Dam (Lake of the Pines), TX	N.E. Texas MWD	250,000	0	250,000	1,753	00	0	0	1,753
Granger, TX	Brazos River Auth.	0	37,900	37,900	0	12,865	0	0	12,865
Grapevine, TX	City of Grapevine '53	1,250	0	1,250	23	0	0	0	23
	City of Dallas '54	85,000	0	85,000	1,433	0	0	0	1,433
	Dallas Co. Park '54	50,000	0	50,000	607	0	0	0	607
	City of Grapevine '81	25,000	0	25,000	684	0	0	0	684
Hords Creek, TX	City of Coleman / Central Colo. River Auth.	5,780	0	5,780	100	0	0	5	100 + 5 C
Joe Pool, TX	Trinity River Auth.	21,435	142,900	164,335	7,559	50,396	0	80	57,955 + 80 C
Lavon, TX	N. Texas MWD	100,000	0	100,000	1,256	0	0	0	1,256
	N. Texas MWD (mod)	280,000	0	280,000	35,040	0	0	0	35,040
Lewisville, TX	City of Dallas '53	415,000	0	415,000	3,677	0	0	0	3,677
	City of Denton '53	20,928	0	20,928	260	0	0	0	260
Navarro Mills, TX	Trinity River Auth.	15,960	37,240	53,200	653	1,523	0	28	2176 + 28 C
N. San Gabriel Dam (Georgetown), TX	Brazos River Auth.	28,472	728	29,200	5,864	150	0	0	6,014
O.C. Fisher	Upper Colorado River Auth.	80,400	0	80,400	860	0	0	0	860
Proctor, TX	Brazos River Auth.	6,280	25,120	31,400	263	1,051	0	0	1,314
Ray Roberts, TX	City of Dallas '80	419,713	266,104	685,817	55,903	50,653	0	0	106,556
	City of Denton '80	147,467	93,496	240,963	19,642	17,797	0	0	37,438
Sam Rayburn, TX	City of Lufkin	18,000	25,000	43,000	220	306	0	0	526
Somerville, TX	Brazos River Auth.	7,200	136,700	143,900	360	6,837	0	0	7,197
Stillhouse Hollow, TX	Brazos River Auth.	26,740	178,160	204,900	911	6,072	0	0	6,983
Town Bluff Dam (B.A. Steinhagen), TX	L. Neches Valley Auth.	94,200	0	94,200	2,000	0	0	0	2,000
Waco, TX	Brazos River Auth.	91,074	0	91,074	5,577	0	0	216	5,577 + 216 C
	City of Waco	13,026	0	13,026	City transferred existing Lake Waco to the Government. No P&I cost to the city for storage in new project.				0
	Brazos River Auth.	47,526	0	47,526	15,242	0	0	0	15,242
Whitney, TX	Brazos River Auth/	50,000	0	50,000	1,181	0	0	0	1,181
Wright Patman, TX	Cities of Texarkana, TX & AR	9,800	0	9,800	350	0	0	0	350
	City of Texarkana, TX #-0019	201,900	0	201,900	1,438	0	0	0	1,438
	City of Texarkana, TX #-0103	This contract to replace #-0019 when final costs determined for pool raise (not yet implemented as of 21 Dec. 2004)							
25 projects	40 contracts	3,644,871	959,628	4,604,499	213,914	153,742	0	365	367,656 + 365 C

# Water Supply Database 2005 Update

## Southwestern Division - Tulsa District

Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
		Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Arcadia Lake, OK	Edmond PWA	23,090	0	23,090	44,043.6	0	0	0	44,043.6
Birch Lake, OK	<b>Not Under Contract</b>	<b>0</b>	<b>7,630</b>	<b>7,630</b>	<b>0</b>	<b>0</b>	<b>2,209.0</b>	<b>0</b>	<b>2,209.0</b>
Broken Bow, OK	OK Tourism & Recreation	60	0	60	1.6	0	0	0.1	1.7
	Broken Bow PWA	4,241	4,054	8,295	112.6	107.6	0	6.2	226.4
	<b>Not Under Contract</b>	<b>0</b>	<b>37,145</b>	<b>37,145</b>	<b>0</b>	<b>0</b>	<b>986.1</b>	<b>108.1</b>	<b>1,094.2</b>
Canton Lake, OK	OK City Municipal Improvement Authority	90,000	0	90,000	2,806.9	0	0	0	2,806.9
Copan Lake, OK	Copan PWA	250	4,750	5,000	268.7	5,105.2	0	0	5,373.9
	<b>Not Under Contract</b>	<b>0</b>	<b>2,500</b>	<b>2,500</b>	<b>0</b>	<b>0</b>	<b>2,686.9</b>	<b>24.7</b>	<b>2,711.6</b>
Council Grove, KA	Kansas Water Res. Board	24,400	0	24,400	1,400	0	0	62.0	1,462.0
	State of Kansas	8,000	0	8,000	723.2	0	0	0	723.2
Denison Dam, Lake Texoma, OK/TX	City of Denison, TX	21,300	0	21,300	292.9	0	0	0	292.9
	Texas Power and Light	16,400	0	16,400	286.4	0	0	0	286.4
	Red River Auth of Texas	450	0	450	9.1	0	0	0	9.1
	Red River Auth of Texas	2,286	0	2,286	364.4	0	0	0	364.4
	N. Texas MWD	95,053	0	95,053	16,984.6	0	0	0	16,984.6
	Buncombe Creek View Addition	1	0	1	0.3	0	0	0	0.3
	Greater Texoma Utility Auth.	5,500	0	5,500	1,266.1	0	0	0	1,266.1
	Greater Texoma Utility Auth.	5,500	0	5,500	1,407.8	0	0	0	1,407.8
	<b>Denison (not included in totals)</b>	OK Tourism & Rec. Dept.	275	0	275				
	Greater Texoma Utility F/Sherman	11,600	0	11,600					
El Dorado, KA	City of El Dorado	70,713	72,087	142,800	18,985.7	18,500	0	838.2	38,323.9
Elk City, KA	Kansas Water Res. Board	24,300	0	24,300	2,076.0	0	0	71.0	2,147.0
	State of Kansas	10,000	0	10,000	663.9	0	0	0	663.9
Eufaula, OK	Haskell County Water Company	400	0	400	35.4	0	0	0	35.4
	Pittsburg County Water Authority	850	0	850	75.3	0	0	0	75.3
	Haskell Co. RWD No. 1	50	0	50	4.4	0	0	0	4.4
	Pittsburg Co. RWD No. 4	50	0	50	4.4	0	0	0	4.4
	Muskogee Co. RWD No. 3	100	0	100	8.9	0	0	0	8.9
	Porum Public Works Auth.	125	0	125	11.1	0	0	0	11.1
	Lakeside Water Co., Inc.	20	0	20	1.8	0	0	0	1.8
	Sherwood Forrest Co.	60	0	60	5.3	0	0	0	5.3
	Haskell Co. RWD No. 3	25	0	25	2.2	0	0	0	2.2
	Krebs Utility Authority	280	280	560	29.1	29.1	0	0	58.2
	McIntosh County Rural WGS District No. 8	300	1,200	1,500	31.6	106.1	0	0	137.7
	Porum Public Works Auth.	280	120	400	30.1	10.6	0	0	40.7
	Pittsburg County Public Works Authority	300	190	490	33.1	25.8	0	0	58.9
	Longtown RWD & SD #1	1,000	0	1,000	80.8	0	0	0.4	81.2
	Public Service Company of Oklahoma	0	100	100	0	8.1	0	0.04	8.14
	McAlester Public Works	6,250	0	6,250	505.1	0	0	2.2	507.3
	Bristow Point Property Owners Association	15	0	15	1.2	0	0	0.01	1.21
	Warner Utilities Authority	220	0	220	17.8	0	0	0.08	17.88
	Twin Rivers Estates, Inc.	9	0	9	0.7	0	0	0.003	0.703
	Bridgeport Dunes Condominium Homeowners Association, Inc.	5	0	5	0.4	0	0	0.002	0.402
Pittsburg Co. RWD #14	320	0	320	25.8	0	0	0.1	25.9	

**Appendix C: Storage Space and Costs by District and Project**

**Southwestern Division - Tulsa District (continued)**

Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
		Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Eufaula, OK (cont.)	Duchess Creek Mobile Home	4	0	4	0.3	0	0	.001	0.301
	Warner Utilities Authority	475	0	475	38.438	0	0	0.17	38.608
	McIntosh County 0 RWD & SWM Dist. #2	1,000	0	1,000	80.8	0	0	0.4	81.2
	Juniper Water Company	12,040	0	12,040	972.9	0	0	4.3	977.2
Heyburn, OK	Creek County RWD #3	300	0	300	13.4	0	0	51.2	64.6
	Creek County RWD #3	600	0	600	34.4	0	0	0	34.4
	Creek County RWD #3	1,100	0	1,100	73.1	0	0	0	73.1
Hugo, OK	Hugo Municipal Authority	1,640	18,880	20,520	94	1,082.4	0	30.0	1,206.4
	Antlers PWA	490	430	920	28.1	25	0	0	53.1
	Western Farmers Coop.	6,100	17,350	23,450	350	995	0	0	1,345.0
	Pushmataha County RWD #3	513	0	513	29.4	0	0	0	29.4
	<b>Not Under Contract</b>	<b>0</b>	<b>2,197</b>	<b>2,197</b>	<b>0</b>	<b>0</b>	<b>126.0</b>	<b>0</b>	<b>126.0</b>
Hula, OK	City of Bartlesville	15,400	0	15,400	618.7	0	0	5.3	624.0
	Hula Water District	100	0	100	4	0	0	0	4.0
	City of Bartlesville, Mod	2,200	0	2,200	88.3	0	0	0	88.3
	City of Bartlesville	2,100	0	2,100	84.2	0	0	0	84.2
John Redmond, KA	Kansas Water Res. Board	34,900	0	34,900	4,488.0	0	0	11.0	4,499.0
	State of Kansas	10,000	0	10,000	469.5	0	0	0	469.5
Kaw, OK	Oklahoma Gas & Electric	17,589	21,761	39,350	4,401.0	4,999.5	0	0	9,040.5
	<b>Kaw reservoir Authority</b>	<b>conduit</b>						396	396.0
	Stillwater Utility Authority	6,662	44,788	51,450	1,530.4	10,290.0	0	0	11,820.4
	Otoe-Missouria	183	0	183	42.1	0	0	0	42.1
	<b>Not Under Contract</b>	<b>0</b>	<b>80,217</b>	<b>80,217</b>	<b>0</b>	<b>0</b>	<b>18,428.5</b>	<b>0</b>	<b>18,428.5</b>
Keystone, OK	Public Service Co. of OK	12,500	5,500	18,000	1,094.8	481.7	0	0	1,576.5
	<b>Not Under Contract</b>	<b>0</b>	<b>2,000</b>	<b>2,000</b>	<b>0</b>	<b>0</b>	<b>175.2</b>	<b>28.3</b>	<b>203.5</b>
Marion, KA	Kansas Water Res. Board	38,300	0	38,300	1,566.0	0	0	0	1,566.0
	Kansas Water Office	12,500	0	12,500	2,188.0	0	0	0	2,188.0
Oologah, OK	City of Tulsa	285,450	0	285,450	9,229.3	0	0	391.5	9,620.8
	City of Collinsville	6,670	0	6,670	215.7	0	0	0	215.7
	Public Service Co. of OK	20,990	0	20,990	678.7	0	0	0	678.7
	Nowata Co. RWD #1	200	0	200	6.5	0	0	0	6.5
	Rogers Co. RWS #4	1,590	0	1,590	51.4	0	0	0	51.4
	Rogers Co. RWS #3	5,960	0	5,960	192.7	0	0	0	192.7
	Town of Chelsea	670	860	1,530	21.7	27.7	0	0	49.4
	City of Claremore	445	0	445	14.4	0	0	0	14.4
	Washington Co. RWD #3	4,170	0	4,170	134.8	0	0	0	134.8
	Claremore Public Works	6,230	0	6,230	201.4	0	0	0	201.4
	<b>Not Under Contract</b>	<b>0</b>	<b>9,365</b>	<b>9,365</b>	<b>0</b>	<b>0</b>	<b>302.8</b>	<b>0</b>	<b>302.8</b>
Pat Mayse, TX	City of Paris	43,800	65,800	109,600	1,284.0	1,926.0	0	0	3,210.0
Pearson-Skubitz, KS	State of Kansas	9,200	16,500	25,700	2,490.5	4,465.3	0	21.3	6,977.1
Pine Creek, OK	Weyerhaeuser	17,640	11,160	28,800	1,663.0	1,052.0	0	0	2,715.0
Sardis, OK	OK Water Res. Board	141,700	155,500	297,200	18,006.0	19,760.1	0	121.2	37,887.3
Skiatook, OK	Osage Co. RWS #15	0	2,000	2,000	0	563.9	0	704.0	1,267.9
	Sand Springs Municipal Auth.	6,740	0	6,740	1,900.2	0	0	0	1,900.2
	Sapulpa Municipal Auth. (SMA)	4,490	0	4,490	1,265.8	0	0	0	1,265.8
	Skiatook PWA	2,018	0	2,018	568.9	0	0	0	568.9
	Skiatook PWA	2,743	0	2,743	890.7	0	0	0	890.7
	SMA	4,500	0	4,500	1,268.7	0	0	0	1,268.7
	SMA	4,500	0	4,500	1,924.6	0	0	0	1,924.6
	<b>Not Under Contract</b>	<b>0</b>	<b>35,909</b>	<b>35,909</b>	<b>0</b>	<b>0</b>	<b>10,194.7</b>	<b>0</b>	<b>10,194.7</b>
	<b>Skiatook (not included in totals)</b>	City of Sand Springs	11,250	0	11,250				
	Sapulpa Municipal Auth.	4,500	0	4,500					
	<b>Not Under Contract</b>	<b>0</b>	<b>20,159</b>	<b>20,159</b>					

# Water Supply Database 2005 Update

## Southwestern Division - Tulsa District (continued)

Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
		Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Tenkiller, OK	East Central Oklahoma Water Authority	300	0	300	6.1	0	0	11.6	17.7
	Cherokee Co. RWD #13	100	0	100	2.0	0	0	0	2.0
	Cherokee Co. RWD #2	100	0	100	2.0	0	0	0	2.0
	Sequoyah Co. Water Ass.	2,200	0	2,200	44.4	0	0	0	44.4
	Sequoyah Fuels Corporation	14,000	0	14,000	285.2	0	0	0	285.2
	Summit Water Inc.	140	0	140	2.8	0	0	0	2.8
	Paradise Hills, Inc.	220	0	220	4.4	0	0	0	4.4
	Lake Tenkiller Association	200	0	200	4.0	0	0	0	4.0
	Greenleaf Nursery Co.	2,120	0	2,120	42.8	0	0	0	42.8
	Greenleaf Nursery Co.	300	0	300	6.1	0	0	0	6.1
	Tenkiller Water Company	38	0	38	4.1	0	0	0	4.1
	Stepp and Ross & Company	17	0	17	2.0	0	0	0	2.0
	Mongold Water System	5	0	5	1.0	0	0	0	1.0
	Tenkiller Aqua Park	17	0	17	2.0	0	0	0	2.0
	Gore Public Works Auth.	480	0	480	51.8	0	0	0	51.8
	Tenkiller Water Company	34	0	34	3.8	0	0	0	3.8
	Pettit Bay Water Association	5	0	5	0.6	0	0	0	0.6
	Fin and Feather Resort	12	0	12	1.5	0	0	0	1.5
	Sixshooter Water System	2	0	2	0.3	0	0	0	0.3
	The Dutchman's Cabins	6	0	6	0.7	0	0	0	0.7
	Bill Richardson	1	0	1	0.1	0	0	0	0.1
	Indian Hills Estate Co.	3	0	3	0.4	0	0	0	0.4
	Charles Willige	2	0	2	0.3	0	0	0	0.3
	JR and ML Mosteller	2	0	2	0.2	0	0	0	0.2
	Tenkiller Water Company	30	0	30	3.8	0	0	0	3.8
	Woodhaven (Tenkiller Water Company, Inc.)	15	0	15	1.9	0	0	0	1.9
	Burnt Cabin RWD, Inc.	12	0	12	1.2	0	0	0	1.2
	Sunny Heights Water System	10	0	10	1.2	0	0	0	1.2
	Tenkiller Development Co.	3	0	3	0.4	0	0	0	0.4
	RWD #13 Cherokee Co.	132	0	132	20.5	0	0	0	20.5
Pettit Mountain Water Ass.	10	0	10	0.007	0	0	0	0.007	
Stick Ross Mountain Water Company	584	0	584	98.2	0	0	0	98.2	
<b>Tenkiller (not included in totals)</b>	<b>RWD # 13</b>	<b>132</b>	<b>0</b>	<b>132</b>					
	<b>Tahlequah PWA</b>	<b>4,300</b>	<b>0</b>	<b>4,300</b>					
	<b>Stick Ross Mountain</b>	<b>584</b>	<b>0</b>	<b>584</b>					
Toronto, KS	City of Toronto	265	0	265	21.4	0	0	0	21.4
	City of Toronto	135	0	135	11.0	0	0	0	11.0
Waurika, OK	Waurika Project Master Conservation District	41,800	0	41,800	2,802.2	0	0	213.0	3,015.2
	Conveyance Facilities / Waurika PMC Dist. Eastern	conduit						9,725.2	9,725.2
	Conveyance Facilities / Waurika PMC Dist. Southern	conduit						447.9	447.9
	Conveyance Facilities / Waurika PMC Dist. Western	conduit						20,608.5	20,608.5
	<b>Not Under Contract</b>	<b>0</b>	<b>109,600</b>	<b>109,600</b>	<b>0</b>	<b>0</b>	<b>8,042.0</b>	<b>0</b>	<b>8,042.0</b>

## Appendix C: Storage Space and Costs by District and Project

### Southwestern Division - Tulsa District (continued)

Project	User	Storage Space (acre-feet)			Contract Price (\$000)				
		Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Wister, OK	Heavener Utility Authority	1,600	0	1,600	41.7	0	0	0	41.7
	Poteau Valley Improvement Authority	4,800	0	4,800	125.0	0	0	0	125.0
	AES Shady Point, Inc.	7,253	0	7,253	109.0	0	0	0	109.0

### Southwestern Division - Tulsa District Summary by Project

Project	Storage Space (acre-feet)				Investment Price (\$000)				
	Present Use	Future Use	Not Under Contract	Total Project	Present Storage	Future Storage	Not Under Contract	Conduit	Total Contract
Arcadia, OK	23,090	0	0	23,090	44,043.6	0	0	0	44,043.6
Birch Lake, OK	0	0	7,630	7,630	0	0	2,209.0	0	2,209.0
Broken Bow, OK	4,301	4,054	37,145	45,500	114.2	107.6	986.1	UC: 6.3 NUC: 108.1	1,322.3
Canton, OK	90,000	0	0	90,000	2,806.9	0	0	0	2,806.9
Copan, OK	250	4,750	2,500	7,500	268.7	5,105.2	2,686.9	NUC: 24.7	8,085.5
Council Grove, KA	32,400	0	0	32,400	2,123.2	0	0	62.0	2,185.2
Denison, OK & TX	146,490	0	0	146,490	20,611.6	0	0	0	20,611.6
El Dorado, KA	70,713	72,087	0	142,800	18,985.7	18,500.0	0	838.2	38,323.9
Elk Creek, KA	34,300	0	0	34,300	2,739.9	0	0	71.0	2,810.9
Eufaula, OK	24,178	1,890	0	26,068	1,996.9	179.7	0	UC: 7.7 NUC: 10.4	2,194.7
Heyburn, OK	2,000	0	0	2,000	120.9	0	0	51.2	172.1
Hugo, OK	8,743	36,660	2,197	47,600	501.5	2,102.4	126.0	30.0	2,759.9
Hula, OK	19,800	0	0	19,800	795.2	0	0	5.3	800.5
John Redmond, KA	44,900	0	0	44,900	4,957.5	0	0	11.0	4,968.5
Kaw, OK	24,434	66,549	80,217	171,200	5,613.5	15,289.5	18,428.5	396.0	39,727.5
Keystone, OK	12,500	5,500	2,000	20,000	1,094.8	481.7	175.2	NUC: 28.3	1,780.0
Marion, KA	50,800	0	0	50,800	3,754.0	0	0	0	3,754.0
Oologah, OK	332,375	860	9,365	342,600	10,746.6	27.7	302.8	391.5	11,468.6
Pat Mayse, TX	43,800	65,800	0	109,600	1,284.0	1,926.0	0	0.0	3,210.0
Pearson-Skubitz, Big Hill, KA	9,200	16,500	0	25,700	2,490.5	4,465.3	0	21.3	6,977.1
Pine Creek, OK	17,640	11,160	0	28,800	1,663.0	1,052.0	0	0	2,715.0
Sardis, OK	141,700	155,500	0	297,200	18,006.0	19,760.1	0	121.2	37,887.3
Skiatook, OK	24,991	2,000	35,909	62,900	7,818.9	563.9	10,194.7	704.0	19,281.5
Tenkiller Ferry, OK	21,100	0	0	21,100	595.8	0	0	11.6	607.4
Toronto, KA	400	0	0	400	32.4	0	0	0	32.4
Waurka, OK	41,800	0	109,600	151,400	2,802.2	0	8,042.0	30,994.6	41,838.8
Wister, OK	13,653	0	0	13,653	275.7	0	0	0	275.7
<b>Total: 27 Projects &amp; 125 storage agreements + 4 separate conduit agreements</b>	<b>1,235,558</b>	<b>443,310</b>	<b>286,563</b>	<b>1,965,431</b>	<b>156,243.2</b>	<b>69,561.1</b>	<b>43,151.2</b>	<b>UC: 33,722.9 NUC: 171.5</b>	<b>302,849.9</b>

Footnote: [1] There is a separate conduit agreement at Kaw plus three at Waurika.

### Southwestern Division Summary by District

District Project / Contracts	Storage Space (acre-feet)				Investment Price (\$000)				
	Present Use	Future Use	Not Under Contract	Total Project	Present Storage	Future Storage	Not Under Contract	Conduit	Total
Little Rock 12 / 23	158,768	167,022	17,275	343,065	12,533.4	19,015.5	4,942.4	UC: 377.8 NUC: 186.9	36,491.3 + 564.7 C
Ft. Worth 25 / 40	3,644,871	959,628	0	4,604,499	213,914.0	153,742.0	0	UC: 365.0	367,656.0 + 365.0 C
Tulsa 27 / 125 + 4 conduits	1,235,558	443,310	286,563	1,965,431	156,243.2	69,561.1	43,151.2	UC: 33,722.9 NUC: 171.5	268,955.5 + 33,894.4 Conduit
<b>TOTAL 64 / 188 + 4 conduits</b>	<b>5,039,197</b>	<b>1,569,960</b>	<b>303,838</b>	<b>6,912,995</b>	<b>382,690.6</b>	<b>242,318.6</b>	<b>48,093.6</b>	<b>UC: 34,465.7 NUC: 358.4</b>	<b>673,102.8 + 34,824.1 Conduit GT707,926.9</b>

**South Pacific Division**

Dist	Project	User	Storage Space (acre-feet)			Contract Price (\$000)			
			Present Use	Future Use	Total Contract	Present Storage	Future Storage	Not Under Contract	Total Contract
SPK	Hew Hogan, CA [1]	Stockton and East San Joaquin Water Conservation Dist.	105,000	0	105,000	1,958	0	0	1,958
SPN	Coyote Valley Dam / Lake Mendocino, CA	Sonoma County Water Agency, CA	70,000	0	70,000	5,600	0	0	5,600
	Warm Springs Dam / Lake Sonoma, CA [2]	Sonoma County Water Agency, CA	212,000	0	212,000	116,600	0	0	116,600
SPA	Abiqui, NM	City of Albuquerque	170,900	0	170,900	0	0	0	0
<b>Total</b>	<b>4 Projects</b>	<b>4 Contracts</b>	<b>557,900</b>	<b>0</b>	<b>557,900</b>	<b>124,158</b>	<b>0</b>	<b>0</b>	<b>124,158</b>

Footnotes:

[1] Sacramento District. Total project cost of New Hogan was \$15,906,000. Share of M&I water supply is 34% of 36.2 of \$15,906,000, or \$1,958,000.

[2] San Francisco District. Cost for Warm Springs Dam based on 1996 data.

**SUMMARY of STORAGE SPACE by DIVISION**

Division	Number of Projects	Number of Contracts	Storage Space (acre-feet)			
			Present	Future	Not Under Contract	Total Division
NAD	8	9	147,810	0	0	147,810
SAD	11	26	208,080	12,920	0	221,000
LRD	25	35	582,113	0	2,200	584,313
MVD	8	12	211,314	131,260	32,557	375,131
NWD	16	29	406,914	455,530	81,992	944,436
SWD	64	192*	5,039,269	1,569,960	303,838	6,913,067
SPD	4	4	557,900	0	0	557,900
<b>Total</b>	<b>136</b>	<b>307</b>	<b>7,153,400</b>	<b>2,169,670</b>	<b>420,587</b>	<b>9,743,657</b>

\* Includes 4 agreements just for water conduits

**SUMMARY of STORAGE COST by DIVISION**

Division	Number of Projects	Number of Contracts	Storage Space Contract Price (\$000)				Conduit Cost (\$000)	Division Total
			Present	Future	Not Under Contract	Total Storage		
NAD	8	9	138,838.9	0	0	138,838.9	0	138,838.9
SAD	11	26	244,671.1	1,588.0	0	246,259.1	219.0	246,478.1
LRD	25	35	74,456.4	0	4,300.0	78,756.4	0	78,756.4
MVD	8	12	40,575.4	3,286.8	2,173.7	46,035.9	0	46,035.9
NWD	16	29	43,720.0	50,041.6	20,603.3	114,364.9	365.4	114,730.3
SWD	64	192*	382,690.6	242,318.6	48,093.6	673,102.8	34,824.1	707,926.9
SPD	4	4	124,158.0	0	0	124,158.0	0	124,158.0
<b>Total</b>	<b>136</b>	<b>307</b>	<b>1,049,110.4</b>	<b>297,235.0</b>	<b>75,170.6</b>	<b>1,421,516.0</b>	<b>35,408.5</b>	<b>1,456,924.5</b>

\*Includes 4 agreements just for water conduits.

# Appendix D: M&I Water Supply Projects

## North Atlantic Division

<u>New England</u>	Colebrook, CT East Brimfield, CT Littlefield, MA
<u>Philadelphia</u>	Beltzville, PA Blue Marsh, PA
<u>Baltimore</u>	Cowanesque, PA Curwensville, PA Jennings Randolph, MD/ WV

## South Atlantic Division

<u>Wilmington</u>	B. Everet Jordan, NC Falls Lake, NC John H. Kerr, VA/NC W. Kerr Scott, NC
<u>Savannah</u>	Hartwell, SC/GA J. Strom Thurmond, SC/GA Richard B. Russell, SC/GA
<u>Jacksonville</u>	Cerrillos, D&R PR
<u>Mobile</u>	Allatoona, GA Carters, GA Okatibbee Lake, MS

## Lakes and Rivers Division

<u>Pittsburgh</u>	Mosquito Creek, OH Stonewall Jackson, WV Tygart River Lake, WV
<u>Huntington</u>	Alum, OH Grayson Lake, KY John W. Flannagan, VA North Fork of Pound Lake, VA Paint, OH Tom Jenkins Dam, OH Summersville, WV
<u>Louisville</u>	Barren River Lake, KY Brookville, IN Caesar, OH Cave Run Lake, KY Green River, KY Monroe, IN Nolin, KY Patoka, IN Rough River Lake, KY William H. Harsha Lake, OH
<u>Nashville</u>	Center Hill Lake, TN Dale Hollow, TN/KY J. Percy Priest, TN Laurel, KY

## Mississippi Valley Division

<u>Rock Island</u>	Saylorville, IA
<u>St. Louis</u>	Carlyle, IL Clarence Cannon Dam, MO Lake Shelbyville, IL Rend Lake, IL
<u>Vicksburg</u>	DeGray, AR Enid, MS Lake Ouachita, AR

## Northwestern Division

<u>Portland</u>	Lost Creek, OR *
<u>Omaha</u>	Bowman-Haley, ND Garrison Dam, ND *
<u>Kansas City</u>	Clinton, KS Harry S. Truman, MO Hillsdale, KS Kanopolis, KS * Long Branch, MO Melvern, KS Milford, KS Perry, KS Pomona, KS Rathbun, IA Smithville, MO Stockton, MO Tuttle Creek Lake, KS

## Southwestern Division

<u>Little Rock</u>	Beaver, AR Blue Mountain, AR Bull Shoals, AR Dardanelle L&D, AR [1] DeQueen, AR Dierks, AR Gillham, AR Greers Ferry, AR Millwood Lake, AR Nimrod, AR Norfolk, AR Table Rock, MO
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[1]: No storage. Water withdrawn from the lake for cooling. Much of the water is returned to Arkansas River. The sponsor pays only for what evaporates and is not returned to the river.

<u>Ft. Worth</u>	Aquilla, TX Bardwell, TX Belton, TX * Benbrook, TX Canyon, TX Cooper (Jim Chapman), TX Ferrell's Bridge Dam, TX
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## Water Supply Database 2005 Update

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### Ft. Worth (continued)

Granger, TX  
Grapevine, TX  
Hords Creek, TX  
Joe Pool, TX  
Lavon, TX  
Lewisville, TX  
Navarro Mills, TX  
North San Gabriel Dam  
(Georgetown), TX  
O. C. Fisher, TX  
Proctor, TX  
Ray Roberts, TX  
Sam Rayburn, TX  
Somerville, TX  
Stillhouse Hollow, TX  
Town Bluff Dam (B.A.  
Steinhagen), TX

Waco, TX

Whitney, TX

Wright Patman, TX

### Tulsa

Arcadia, OK

Birch, OK

Broken Bow, OK

Canton, OK

Copan, OK

Council Grove, KS

Denison Dam, L. Texoma,  
OK/TX

El Dorado, KS

Elk City, KS

Eufaula, OK

Heyburn, OK

Hugo, OK

Hulah, OK

John Redmond, KS

Kaw, OK

Keystone, OK

Marion, KS

Oologah, OK

Pat Mayse, TX

Pearson-Skubitz, Big Hill, KS

Pine Creek, OK

Sardis, OK

Skiatook, OK

Tenkiller Ferry Lake, OK

Toronto, KS

Waurika, OK \*

Wister, OK

### **South Pacific Division**

Sacramento

New Hogan, CA \*

San Francisco

Coyote Valley Dam / Lake  
Mendocino, CA\*

Warm Springs Dam / Lake Sonoma,  
CA

Albuquerque

Abiqui, NM

\* Signifies the seven projects (Lost Creek, OR; Garrison, ND; Kanopolis, KS; Belton, TX; Waurika, OK; New Hogan, CA and Coyote Valley, CA) that also contain agricultural water supply.

# Appendix E: Reallocations

Dist	Project	Sponsor	Year Real.	Storage (acre-feet)	Storage Reallocated From	Contract Price
NAE	East Brimfield Lake, MA	American Optical Co.	1/62	1,140	FC	24,500
NAB	Cowanesque Lake, PA	Susquehanna River Basin Commission	1990	24,335	FC	39,414,000
	Curwensville Lake, PA	Susquehanna River Basin Commission	1997	5,360	Cons.	4,878,000
<b>Total</b>	<b>3</b>	<b>3</b>	<b>62-97</b>	<b>30,835</b>		<b>44,316,500</b>
SAW	John H. Kerr, VA & NC	Virginia Beach	1/84	10,200	Hydro	2,275,685
		VA Dept. of Corrections	4/89	23	Hydro	5,639
		Mecklenburg CoGeneration	6/91	600	Hydro	150,241
SAS	Hartwell, GA&SC	Anderson County Joint Municipal Water System, SC	7/76	24,620	Hydro	3,025,000
		City of Lavonia, GA	2/90	127	Hydro	21,500
		Hart County, GA	2/97	1,827	Hydro	335,200
	Richard B. Russell, GA&SC	City of Elberton, sc	9/90	381	Hydro	419,000
		SC Public Service Auth. (Santee Cooper)	8/01	491	FC	1,615,200
	J. Strom Thurman, GA&SC	City of Lincolnton, GA	5/64	92	Hydro	12,000
		City of McCormick, SC	12/99	506	Hydro	75,000
		Savannah Valley, SC	10/89	92	Hydro	27,400
		Columbia County, GA	11/89	1,056	Hydro	313,000
		City of Thompson and McDuffie, GA	8/90	1,056	Hydro	334,700
		City of Lincoln, GA	4/90	83	Hydro	24,600
City of Wash., GA		1982 Supp.	632	Hydro	72,800	
City of McCormick, SC	8/01	316	Hydro	66,500		
SAM	Allatoona, GA	Cobb Co. – Marietta Water Auth.	10/63	13,140	Cons. / Hydro	1,268,400
		City of Cartersville	7/66	1,996	Cons. / Hydro	396,000
		City of Cartersville	10/91	4,375	Cons. / Hydro	NA
	Carters, GA	City of Chatsworth	11/91	818	Cons. / Hydro	609,221
<b>Total</b>	<b>6</b>	<b>20</b>	<b>63-01</b>	<b>62,431</b>		<b>11,047,086</b>
LRN	Center Hill, TN	City of Cookeville	10/03	6,680	Hydro	2,915,045
		City of Smithville	8/03	401	Hydro	54,536
		Riverwatch Golf Inc.	8/03	131	Hydro	103,381
	J. Percy Priest, TN	City of LaVergne	7/03	2,733	Hydro	1,818,550
		City of Murfreesboro	4/03	5,084	Hydro	3,051,429
		Consolidated Utility Dist.	3/03	3,007	Hydro	1,804,609
		Consolidated Utility Dist.	6/03	1,367	Hydro	820,277
		YMCA	8/03	22	Hydro	16,638
		Cedar Crest Golf LLC.	2/04	96	Hydro	75,951
		Dale Hollow, TN/KY	Byrdstown, TN	2005	1,841	?
	Dale Hollow State Park Golf Course	2005	368	?	176,500	
	Trooper Island, KY	2005	2	?	900	
	Laurel, KY	Laurel Co., Water Dist. #2, KY	2005	519	?	166,900

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Dist	Project	Sponsor	Year Real.	Storage (acre-feet)	Storage Reallocated From	Contract Price
LRH	J.W. Flannagan, VA	Dickenson Co. Water Auth.	10/77	2,125	WQ	3,407,700
	Summersville, WV	City of Summersville	6/01	468	FC	234,000
	Grayson L., KY	Rattlesnake Ridge Water Dist.	/05	627	?	76,700
LRL	Barren River Lake, KY	Glasgow	10/65	681	NA	22,300
		Scottsville	9/69	369	NA	12,200
	Cave Run, KY	Cave Run Water Commission	10/03	536	NA	730
	Green River Lake, KY	Campbellsville	4/69	3,460	NA	92,100
		Columbia	7/92	855	NA	900
	Nolin L. KY	Edmonson County Water District	1/89	98	NA	100
	Rough R. Lake, KY	Hardinsburg	3/79	150	NA	78,300
		Leitchfield	5/66	120	NA	3,600
<b>Total</b>	<b>12</b>	<b>24</b>	<b>65-05</b>	<b>31,740</b>		<b>15,306,046</b>
MVR	Saylorville Lake, IA	State of Iowa	5/82	14,900	FC	4,811,600
MVK	Enid Lake, MS	LS Power Energy Ltd. Partnership	6/98	4,500	FC	1,111,898
	L. Ouachita, AR	N. Garland County RWD	2/96	1,575	FC & Hydro	112,859
<b>Total</b>	<b>3</b>	<b>3</b>	<b>82 - 98</b>	<b>20,975</b>		<b>6,036,357</b>
NWO	Bowman Haley	Bowman Co. Water Management Dist.	1981	19,780	Multi-purpose	825,000
NWK [1]	Harry S. Truman	Henry County #3 and HST PWSD #2	1994	1,000	Cons.	303,000
		Kansas Water Office	2002	12,500	Cons.	4,181,200
	Melvern	Kansas Water Office	1988	50,000	WQ	7,131,800
	Pomona	Kansas Water Office	1988	32,500	WQ	3,593,100
	Rathbun	Rathbun Lake Water Association	1985	15,000	Cons.	2,629,000
	Stockton	City of Springfield	1993	50,000	Multipurpose	9,592,800
	Tuttle Creek	Kansas Water Office	1988	50,000	WQ / NAV	2,134,600
<b>Total</b>	<b>8</b>	<b>8</b>	<b>81 - 02</b>	<b>230,780</b>		<b>30,390,500</b>
SWL	Beaver Lake	Carroll-Boone Water District	1977	9,016	Hydro	742,000
		Madison County Water Dist.	1992	3,945	FC	416,500
		Benton/Washington County Water District	1996	7,643	FC	939,900
	Blue Mountain	City of Danville	1995	1,550	Cons	417,300
	Bull Shoals L	Marion Co. Regional Water Dist.	1988	880	Hydro	85,000
	Dierks Lake	Marion Tri-Lakes Water Dist.	1976	190	Hydro	44,000
	Greers Ferry Lake	City of Herber Springs	1959	1,013	FC	122,400
		Tannebaum Golf Course	1998	90	FC	11,100
		Clinton Water District	1970	900	FC	81,000
		Community Water System	1971	225	FC	20,300
		Community Water System Phase I	1995	3,776	FC	457,800
		Community Water System Phase II	1998	4,283	FC	561,200
		Thunderbird Golf Course	1998	55	FC	7,100
		Red Apple Inn & C. Club	1996	65	FC	8,400
		Nimrod	City of Plainview	1994	110	FC
	Table Rock	Kings River Country Club	1992	95	Cons	48,900

Appendix E: Reallocations

Dist.	Project	Sponsor	Year Real.	Storage (acre-feet)	Storage Reallocated From	Contract Price
SWF	Lavon	N. Texas Municipal Water District	1975	280,000	NA	35,040,000
	Lewisville	City of Dallas and City of Denton	1987	177,000	NA	3,927,000
	Waco	Brazos River Authority	1984	47,526	NA	15,242,000
	Whitney	Brazos River Authority	1982	50,000	NA	1,181,000
SWT [2]	Council Grove	State of Kansas	1996	8,000	WQ	723,200
	Denison Dam – Lake Texoma, OK & TX	City of Denison	9/53	21,300	Hydro	292,900
		Texas Power & Light	8/61	16,400	Hydro	286,400
		Red River Authority of TX	11/69	450	Hydro	9,100
		Red River Authority of TX	8/83	2,286	Hydro	364,400
		N. Texas Municipal Water District	12/85	95,053	Hydro	16,984,600
		Buncombe Creek View Addition	4/92	1	Hydro	300
		Greater Texoma Utility Auth.	9/92	5,500	Hydro	1,266,100
		Greater Texoma Utility Auth.	9/97	5,500	Hydro	1,407,800
		OK Tourist & Rec. Dept.	2005	275	Hydro	87,700
		Greater Texoma Utility Auth.	2005	11,600	Hydro	3,727,100
	Elk City	Kansas Water Auth.	6/96	10,000	WQ	663,900
	John Redmond	State of Kansas	6/96	10,000	WQ	469,500
	Marion	Kansas Water Office	6/96	12,500	WQ	2,188,000
	Tenkiller Ferry Lake	East Central Oklahoma Water Authority	10/64	300	FC	6,100
		Cherokee Co. RWD #13	11/67	100	FC	2,000
		Cherokee Co. RWD #2	11/67	100	FC	2,000
		Sequoyah Co. Water Ass.	7/70	2,200	FC	44,400
		Sequoyah Fuels Corporation	7/70	14,000	FC	285,200
		Summit Water Inc.	9/71	140	FC	2,800
		Paradise Hills, Inc.	10/74	220	FC	4,400
		Lake Tenkiller Ass.	3/81	200	FC	4,000
		Greenleaf Nursery Co.	6/94	2,120	FC	42,800
		Greenleaf Nursery Co.	7/95	300	FC	6,100
		Tenkiller Water Company	11/89	38	FC	4,100
		Stepp and Ross & Company	11/89	17	FC	2,000
		Mongold Water System	1/90	5	FC	1,000
		Tenkiller Aqua Park	9/90	17	FC	2,000
		Gore Public Works Auth.	9/90	480	FC	51,800
		Tenkiller Water Company	10/91	34	FC	3,800
		Pettit Bay Water Association	11/91	5	FC	600
		Fin and Feather Resort	1/92	12	FC	1,500
		Sixshooter Water System	1/92	2	FC	300
		The Dutchman's Cabins	4/92	6	FC	700
		Bill Richardson	7/92	1	FC	100
		Indian Hills Estate Co.	2/93	3	FC	400
		Charles Willige	2/93	2	FC	300
		JR and ML Mosteller	8/93	2	FC	200
		Tenkiller Water Company	5/94	30	FC	3,800
		Woodhaven (Tenkiller Water Company)	9/94	15	FC	1,900
Burnt Cabin RWD, Inc.		11/94	12	FC	1,200	
Sunny Heights Water System		4/95	10	FC	1,200	
Tenkiller Development Co.	5/95	3	FC	400		
RWD #13 Cherokee Co.	6/04	132	FC	20,500		

## Water Supply Database 2005 Update

Dist.	Project	Sponsor	Year Real.	Storage (acre-feet)	Storage Reallocated From	Contract Price
Tulsa (cont.)	Tenkiller Ferry Lake	Petit Mountain Water Association	8/97	10	FC	600
	Wister	AES Shady Point, Inc.	5/87	7,253	FC	109,000
<b>Div Total</b>	<b>18</b>	<b>66</b>	<b>53 - 05</b>	<b>814,996</b>		<b>88,453,100</b>
South Pacific Division reported no reallocations						
<b>National Totals</b>	<b>50</b>	<b>124</b>	<b>Between 1953 &amp; 2005</b>	<b>1,191,757</b>		<b>195,584,589</b>

Footnotes:

[1] Kansas City District: Melvern, Pomona and Tuttle Creek reallocations are the result of the Kansas MOU.

[2] Tulsa District: Council Grove, Elk City, John Redmond and Marion are the result of the Kansas MOU.

## Appendix F: Type of Sponsors and Storage Space

Office	State	County	City	Industry	Private	Other	Not Under Contact	Total
<b>North Atlantic Division</b>								
# Contracts	0	2	2	1	0	4 [1]	0	9
AF Storage	0	40,995	40,100	1,140	0	65,575	0	147,810
<b>South Atlantic Division</b>								
# Contracts	6	5	13	1	0	1 [2]	0	26
AF Storage	84,706	41,699	60,995	600	0	33,000	0	221,000
<b>Lakes and Rivers Division</b>								
# Contracts	8	3	19	0	5	0	0	35
AF Storage	538,958	1,338	40,939	0	878	0	2,200	584,313
<b>Mississippi Valley Division</b>								
# Contracts	6	5	0	1	0	0	0	12
AF Storage	201,306	136,768	0	4,500	0	0	32,557	375,131
<b>Northwestern Division</b>								
# Contracts	10	7	11	1	0	0	0	29
AF Storage	737,200	27,636	97,608	0	0	0	81,992	944,436
<b>Southwestern Division - Little Rock District</b>								
# Contracts	0	10	5	1	7	0	0	23
AF Storage	0	313,589	3,612	0	8,589	0	17,275	343,065
<b>Southwestern Division - Ft. Worth District</b>								
# Contracts	21	1	17	1	0	0	0	40
AF Storage	2,539,710	48,792	1,921,797	94,200	0	0	0	4,604,499
<b>Southwestern Division - Tulsa District</b>								
# Contracts	19	37	32	13	26	1 [3]	0	128 [4]
AF Storage	608,611	188,506	819,600	67,353	27,256	183	270,813	1,982,322
<b>Southwestern Division – District Summary</b>								
# Contracts	40	48	54	15	33	1	0	191[5]
AF Storage	3,148,321	550,887	2,745,009	161,553	35,845	183	288,088	6,929,886
<b>South Pacific Division</b>								
# Contracts	0	3	1	0	0	0	0	4
AF Storage	0	387,000	170,900	0	0	0	0	557,900
<b>TOTAL</b>								
# Contracts	70	73	100	19	38	6	0	306 [5]
AF Storage	4,710,491	1,186,323	3,155,551	167,793	36,723	98,758	404,837	9,760,476

Footnotes:

[1] NAD, 4 contracts with Federal/Interstate.

[2] SAD, 1 contract with County/City.

[3] SWT, 1 contract with Federal/Tribe.

[4] SWT, the district also has 4-contracts with states just for water conduits.

[5] SWD and TOTAL, plus 4-contracts just for water conduits.

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# Appendix G: Project Yields

Dist	Project	Storage Space (acre-feet)	Yield [1] [2]			
			CFS	MGD	AF/Year	Dependability
<b>North Atlantic Division</b>						
NAE	Colebrook, CT	30,700	42.41	27.41	<b>30,700</b>	Not given
	East Brimfield, MA	1,140	1.57	1.02	<b>1,140</b>	Not given
	Littlefield, MA	9,400	12.98	8.39	<b>9,400</b>	Not given
NAP	Beltzville, PA	27,880	<b>65</b>	42	47,058	70% gross firm yield based on 50-years inflow data
	Blue Marsh, PA	8,000	23.83	<b>15.4</b>	1,725	Not given
NAB	Cowanesque, MD	24,335	105	<b>68</b>	76,017	Drought of record
	Curwensville, PA	5,360	27.54	<b>17.8</b>	19,939	Drought of record
	Jennings Randolph, MD&VA	40,995	133.1	<b>86</b>	96,332	Drought of record
<b>South Atlantic Division</b>						
SAW	B. Everet Jordan, NC	45,800	154.7	<b>100</b>	<b>112,000</b>	Drought of record
	Falls Lake, NC	41,469	38.8	<b>60</b>	<b>67,000</b>	Drought of record
	John H. Kerr, NC&VA	10,823	12.9	<b>20</b>	<b>22,400</b>	Drought of record
	W. Kerr Scott, NC	33,000	69.6	<b>45</b>	<b>50,000</b>	Average yield
SAS	Hartwell, GA	26,574	58.52	<b>37.8</b>	<b>42,364</b>	Drought of record
	J. Strom Thurmond, GA	3,833	18.78	<b>12.13</b>	<b>13,594</b>	Drought of record
	Richard B. Russell, GA	872	24.54	<b>15.85</b>	<b>17,764</b>	Drought of record
JAX	Cerrillos, PR	25,200	33.88	<b>21.9</b>	<b>24,544</b>	Average yield
SAM	Allatoona, GA	19,511	79.31	<b>51.26</b>	<b>46,819</b>	31 month low flow 7/39 – 1/42
	Carters	818	3.09	<b>2.0</b>	<b>2,240</b>	50 yr low flow
	Okatibbee Lake, MS	13,100	38.68	<b>25</b>	<b>28,000</b>	NA
<b>Lakes and River Division</b>						
LRP	Berlin, OH	19,400	52.60	<b>34</b>	38,085	1930s drought – firm yield
	Michael J. Kirwan, OH	52,900	73.1	113.1	<b>52,900</b>	1930s drought – firm yield
	Mosquito Creek, OH	11,000	24.8	<b>16</b>	17,922	1930s drought – firm yield
	Stonewall Jackson, WV	2,200	2.9	<b>1.9</b>	2,1289	1930s drought – firm yield
LRH	Alum, OH	29,700	61.89	<b>40</b>	<b>44,800</b>	NA
	John W. Flannagan, VA	2,125	4.64	<b>3</b>	<b>3,360</b>	NA
	North Fork of Pound, VA	29,700	17.02	<b>11</b>	<b>12,231</b>	NA
	Paint OH	721	1.55	<b>1</b>	<b>1,120</b>	NA
	Summersville,	468	3.09	<b>2</b>	<b>2,240</b>	NA
	Tom Jenkins Dam, OH	5,690	NA	NA	NA	NA
LRL	Barren River Lake, KY	1,050	27.85	<b>18</b>	20,163	Drought of record
	Brookville, IN	89,300	127.65	<b>82.5</b>	92,412	Average yield
	Caesar, KY	39,100	57.25	<b>37</b>	41,445	Average yield
	Cave Run, KY	536	3.09	<b>2</b>	2,240	Drought of record
	Green River, KY	4,315	11.60	<b>7.5</b>	8,401	Drought of record
	Monroe, IN	160,000	201.14	<b>130 (est.)</b>	145,618	Average yield
	Nolin Lake, KY	98	1.55	<b>1</b>	1,120	Drought of record
	Patoka, IN	129,800	116.04	<b>75</b>	84,011	Average yield
	Rough River Lake, KY	270	3.87	<b>2.5</b>	2,800	Drought of record
William H. Harsha Lake, OH	35,500	57.25	<b>37</b>	41,445	Average yield	
LRN	Center Hill	9,401	43.55	<b>28.15</b>	<b>31,557</b>	Drought of record
	J. Percy Priest	17,433	98.68	<b>63.78</b>	<b>71,497</b>	Drought of record

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Dist	Project	Storage Space (acre-feet)	Yield [1] [2]			Dependability
			CFS	MGD	AF/Year	
<b>Mississippi Valley Division</b>						
MVR	Saylorville, IA	14,900	<b>75</b>	48.47	54,298	99%
MVS	Carlyle Lake, IL	32,692	0.26	<b>0.17</b>	<b>190</b>	Average yield
	Clarence Cannon, MO	20,000	27.85	<b>18.0</b>	<b>19,730</b>	Not given
	Lake Shelbyville, IL	24,714	26.30	<b>17.0</b>	<b>19,043</b>	50 Yr drought
	Rend Lake, IL	109,000	61.89	<b>40.0</b>	<b>44,807</b>	Not given
MVK	DeGray, AR	3,933	3.87	<b>2.5</b>	2,802	Firm yield
	Enid, MO	4,500	17.69	<b>10.9</b>	12,834	Firm yield
	L. Ouachita, AR	1,575	1.55	<b>1.0</b>	1,120	Firm yield
<b>Northwestern Division</b>						
NWS	none					
NWP	Lost Creek, OR	10,000	13.81	8.93	<b>10,000</b>	100 %
NWO	Bowman-Haley, ND	21,900	4.14	2.68	<b>3,000</b>	Not given
	Garrison, ND	No storage	<b>23.48</b>	<b>15.16</b>	<b>17,000</b>	100%
NWK	Clinton, KS	89,200	26.77	<b>17.30</b>	<b>19,400</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Harry S. Truman, MO	1,000	3.68	<b>2.38</b>	<b>2,670</b>	Firm yield, 1994 conditions, 50-yr drought (2% chance)
	Hillsdale, KS	53,000	23.52	<b>15.20</b>	<b>17,100</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Kanopolis, KS	12,500	19.93	<b>12.88</b>	<b>14,500</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Long Branch, MO	24,400	10.99	<b>7.10</b>	<b>7,960</b>	Firm yield, 1988 conditions, 50-yr drought (2% chance)
	Melvorn, KS	50,000	11.14	<b>7.2</b>	<b>8,100</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Milford, KS	300,000	171.74	<b>111.0</b>	<b>124,500</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Perry, KS	150,000	11.76	<b>74.60</b>	<b>83,700</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Pomona, KS	33,000	11.45	<b>7.40</b>	<b>8,300</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)
	Rathburn, IA	15,000	7.10	<b>4.59</b>	<b>5,200</b>	Firm yield, 1982 conditions, 50-yr drought (2% chance)
	Smithville, MO	95,200	44.56	<b>28.8</b>	<b>32,400</b>	Firm yield, 1989 conditions, 50-yr drought (2% chance)
	Stockton, MO	50,000	46.42	<b>30.0</b>	<b>33,700</b>	Firm yield, 1987 conditions, 50-yr drought (2% chance)
	Tuttle Creek, KS	50,000	89.48	<b>57.83</b>	<b>64,882</b>	Firm yield for sedimentation in 2040 for a 50-yr. drought (2% chance)

**Appendix G: Project Yields**

Dist	Project	Storage Space (acre-feet)	Yield [1] [2]			Dependability
			CFS	MGD	AF/Year	
<b>Southwestern Division</b>						
SWL	Beaver, AR	128,799	214.29	<b>138.5</b>	155,140	Not given
	Blue Mountain, AR	1,550	3.09	<b>2.0</b>	2,240	Not given
	Bull Shoals, AR	880	1.55	<b>1.0</b>	1,120	Not given
	Dardanell Lake, AR	0	<b>22.0</b>	14.21	15,927	Not given
	DeQueen, AR	610	1.16	<b>0.75</b>	840	Not given
	Dierks, AR	190	0.39	<b>0.25</b>	280	Not given
	Gillham Lake, AR	200	0.63	<b>0.41</b>	459	Not given
	Greers Ferry, AR	10,413	13.74	<b>8.88</b>	9,947	Not given
	Millwood Lake, AR	44,554	121.77	<b>78.7</b>	88,155	Not given
	Nimrod, AR	143	0.65	<b>0.33</b>	370	Not given
	Norfolk, AR	2,400	1.55	<b>1.0</b>	1,120	Not given
	Table Rock, MO	95	Surplus water contract, yield not given.			
SWF	Aquilla, TX	33,600	14.96	<b>9.67</b>	10,832	Not given
	Bardwell, TX	42,800	17.41	<b>11.25</b>	12,602	Not given
	Belton, TX	360,700	162.0	<b>104.7</b>	117,279	Not given
	Benbrook, TX	72,500	10.06	<b>6.5</b>	7,281	Not given
	Canyon, TX	366,400	139.20	<b>89.94</b>	100,779	Not given
	Cooper (Jim Chapman), TX	273,000	168.65	<b>109.0</b>	122,095	Not given
	Ferrell's Bridge Dam Lake of the Pines) TX	250,000	239.82	<b>155.0</b>	173,622	Not given
	Granger, TX	37,900	25.06	<b>16.2</b>	18,146	Not given
	Grapevine, TX	161,250	32.00	<b>20.68</b>	23,165	Not given
	Hords Creek, TX					
	Joe Pool, TX	142,900	21.97	<b>14.2</b>	15,906	Not given
	Lavon, TX	380,000	68.0	<b>43.95</b>	49,230	Not given
	Lewisville, TX	436,000	123.0	<b>79.5</b>	89,051	Not given
	Navarro Mills, TX	53,200	23.0	<b>15.51</b>	17,373	Not given
	N. San Gabriel Cam (Georgetown), TX	29,200	15.94	<b>10.3</b>	11,537	Not given
	O.C. Fisher, TX	80,400	5.57	<b>3.6</b>	4,033	Not given
	Proctor, TX	31,400	21.51	<b>13.9</b>	15,570	Not given
	Ray Roberts, TX	926,700	149.0	<b>96.3</b>	107,870	Not given
	Sam Rayburn, TX	43,000	20.11	<b>13.0</b>	14,562	Not given
	Somerville, TX	143,900	56.0	<b>36.19</b>	40,538	Not given
	Stillhouse Hollow, TX	204,900	97.94	<b>63.3</b>	70,905	Not given
	Town Bluff Dam (B.A. Steinhagen), TX	94,200	Not given			
	Waco, TX	151,626	106.91	<b>69.1</b>	77,396	Not given
	Whitney, TX	50,000	25.06	<b>16.2</b>	18,146	Not given
Wright Patman, TX	91,263	16.01	<b>10.35</b>	11,593	Not given	
SWT	Arcadia, OK	23,090	17.0	<b>11.0</b>	<b>12,300</b>	Firm Yield based on drought of record [3]
	Birch Lake, OK	7,630	4.6	<b>3.0</b>	<b>3,360</b>	[3]
	Broken Bow, OK	152,500	271	<b>175.0</b>	<b>196,000</b>	[3]
	Canton, OK	90,000	7.1	<b>4.6</b>	<b>5,152</b>	[3]
	Copan, OK	7,500	4.6	<b>3.0</b>	<b>3,360</b>	[3]
	Council Grove, KA	32,400	10.3	<b>6.7</b>	<b>5,504</b>	[3]
	Denison, OK & TX	158,060	232	<b>150.0</b>	<b>168,000</b>	[3]
	El Dorado, KA	142,800	34.3	<b>22.2</b>	<b>24,864</b>	[3]
	Elk City Lake, KA	30,180	23.7	<b>15.3</b>	<b>17,136</b>	[3]
	Eufaula, OK	56,000	77.4	<b>50.0</b>	<b>56,000</b>	[3]
	Fort Supply, OK	400	0.3	<b>0.2</b>	<b>224</b>	[3]
	Heyburn, OK	2,000	1.5	<b>1.7</b>	<b>1,904</b>	[3]
	Hugo, OK	47,600	89.7	<b>58</b>	<b>64,960</b>	[3]
	Hula, OK	19,800	19.2	<b>12.4</b>	<b>13,888</b>	[3]
	John Redmond, KA	37,450	83.1	<b>53.7</b>	<b>60,144</b>	[3]

## Water Supply Database 2005 Update

Dist	Project	Storage Space (acre-feet)	Yield [1] [2]			Dependability	
			CFS	MGD	AF/Year		
SWT cont.	Kaw, OK	171,200	258	<b>167</b>	<b>187,040</b>	[3]	
	Keystone, OK	20,000	30.9	<b>20.0</b>	<b>22,400</b>	[3]	
	Marion, KA	44,730	12.5	<b>8.1</b>	<b>9,072</b>	[3]	
	Oologah, OK	342,600		<b>154.0</b>	<b>172,480</b>	[3]	
	Optima, OK (This project has never held water)						
	Pat Mayse, TX	109,600	85.1	<b>55</b>	<b>61,600</b>	[3]	
	Pearson-Skubitz, Big Hill, KA	25,700	13.2	<b>8.5</b>	<b>9,520</b>	[3]	
	Pine Creek, OK	49,400	130	<b>84</b>	<b>94,080</b>	[3]	
	Sardis, OK	297,200	217	<b>140</b>	<b>156,800</b>	[3]	
	Skiatook, OK	62,900	21.7	<b>14</b>	<b>15,680</b>	[3]	
	Tenkiller Ferry, OK	25,400	41.2	<b>26.63</b>	<b>29,825.6</b>	[3]	
	Toronto, KA	400	0.15	<b>0.1</b>	<b>112</b>	[3]	
	Waurka, OK	151,400	561	<b>36.2</b>	<b>40,544</b>	[3]	
	Wister, OK	14,000	31.0	<b>20.03</b>	<b>22,433.6</b>	[3]	
<b>South Pacific Division</b>							
SPK	New Hogan	30,000	41.44	26.65	<b>30,000</b>	Guarantee's at least 30,000 AF/YR	
SPN	Coyote Valley Dam Lake Mendocino, CA	70,000	<b>96.7</b>	<b>62.5</b>	<b>70,000</b>	Maximum available supply	
	Warm Springs Dam Lake Sonoma, CA	212,000	<b>292.8</b>	<b>189.3</b>	<b>212,000</b>	Maximum available supply	
SPA	Abiqui, NM	170,900	66.58	43.03	<b>48,200</b>	San Juan-Chama Annual Allocation	

### Footnotes:

[1] Conversion factor: 1 cubic foot per second = 0.64632 million gallons per day = 723.97 acre-feet per year.

[2] Bold is the yield submitted by district.

[3] All Tulsa District project dependability's are "firm yield based on drought of record."

# REPORT DOCUMENTATION PAGE

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				<b>5d. PROJECT NUMBER</b>	
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<b>13. SUPPLEMENTARY NOTES</b>					
<b>14. ABSTRACT</b> This report updates a more detailed survey of Corps MSCs and their district that was performed in 2004. The report provides data on the Corps of Engineers Municipal and Industrial (M&I) water supply program current as of 2005. The data provided is on storage space and related costs. This information is provided by Corps district, project and water supply agreement. The data is then summarized by district and then by division and then for the nation. The data shows there are 136 Corps reservoir projects that contain a total of 9.76 million acre-feet of storage space for M&I water supply with a repayment value of \$1.46 billion. This storage space is covered by 307 water supply agreements administered by 23 of the Corps 38 districts and is located in 25 states plus Puerto Rico. Information is also provided on reallocations, type of non-Federal sponsor and personal and household needs that could be met by our present use contracts.					
<b>15. SUBJECT TERMS</b> Storage space, present use, future use, not under contract, investment cost, distribution by state, reallocations, non-Federal sponsor, people served					
<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
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