Chapter 8

Water Reuse

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Direct reuse is the use of effluent from a wastewater treatment plant that is piped directly from the plant to the place where it is used.

Indirect reuse is the use of water, usually treated effluent, which is placed into a river or stream and then diverted further downstream to be used again.

Existing supply from water reuse, using existing infrastructure, will be approximately 360,000 acre-feet per year in 2010 and is projected to increase to about 370,000 acre-feet per year by 2060.

8.1 Reuse in Texas

Water reuse is the use of surface water that has already been beneficially used once under a water right or the use of groundwater that has already been used. For example, treating wastewater and piping it to a golf course for irrigation is water reuse. There are two types of water reuse: direct reuse and indirect reuse. Direct reuse is the use of effluent from a wastewater treatment plant that is piped directly from the plant to the place where it is used, such as the golf course example just mentioned. Indirect reuse is the use of water, usually treated effluent, which is placed back into a river or stream and then diverted further downstream to be used again. An example of indirect reuse is treating wastewater, discharging the treated effluent into a river, and using the river to transport it downstream where a golf course diverts the water from the river for irrigation. Indirect reuse projects require a bed and banks permit from the state, which authorizes the permit holder to convey and subsequently divert water in a river or stream.

Reuse is a promising source of additional water in the future. As municipal water supply and wastewater facilities expand to support a growing customer base, the volume of treated wastewater can be expected to expand as well. Because treated wastewater is often located close to its customers, the cost of conveying this water supply source can be much less than that of other water supply options. Indirect reuse projects also have savings associated with using the bed and banks of streams and rivers for conveyance instead of pipeline infrastructure. These attributes have contributed to the emergence of water reuse as a valuable and competitive water supply option in Texas.

A number of communities and water providers in Texas provide treated wastewater for direct and indirect reuse. Although wastewater can be treated to achieve compliance with federal and state drinking water standards, currently no entity in Texas distributes treated wastewater for drinking water purposes. Municipal and other water utilities do, however, distribute treated wastewater for a variety of other purposes. For example,

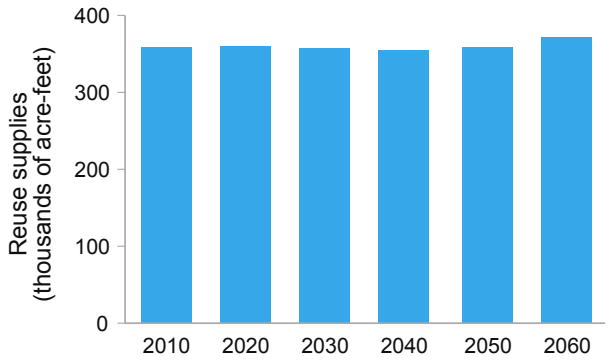

Figure 8.1. Projected reuse supplies through 2060.

El Paso's Northwest Reclaimed Water Project provides more than 300 million gallons of reclaimed water per year to schools, parks, a golf course, multifamily housing developments, and residential customers for irrigation. An indirect reuse project recently implemented by the Tarrant Regional Water District—a project that uses man-made wetlands to further "polish" treated effluent withdrawn from the Trinity River—is expected to yield an additional 63,000 acre-feet per year in Richland-Chambers Reservoir and 52,500 acre-feet per year in Cedar Creek Reservoir. Wetlands function to polish effluent by effectively reducing elevated concentrations of nutrients and sediment prior to its introduction into water supply reservoirs.

8.2 Reuse Supply Projections

The amount of existing supply related to water reuse is based on the amount of water that can be produced with current permits and existing

infrastructure. The planning groups estimated that the existing supply will be approximately 360,000 acre-feet per year in 2010 and will increase slightly to about 370,000 acre-feet per year by 2060 (Figure 8.1, Table 8.1). The amount of existing supply from direct reuse is about 260,000 acre-feet per year, and indirect reuse is approximately 100,000 to 110,000 acre-feet per year between 2010 and 2060 (Table 8.1).

As the amount of treated effluent and the need for additional supplies of water increase, water reuse will have an important role in meeting the state's future water supply needs. However, policy issues related to permitting and environmental flows (see Volume I, Policy Recommendations) will have to be addressed before the full potential of this water management strategy is realized.

Table 8.1. Existing supply of water from reuse in acre-feet per year

	2010	2020	2030	2040	2050	2060
Region A						
Direct reuse	26,067	29,934	31,116	32,687	34,255	38,407
Region C						
Direct reuse	30,058	30,284	30,142	29,962	29,865	29,486
Indirect reuse	49,284	50,381	51,713	52,740	54,037	55,265
Region D						
Direct reuse	83,642	78,247	72,821	67,505	68,761	77,635
Region E						
Direct reuse	5,000	5,000	5,000	5,000	5,000	5,000
Indirect reuse	37,597	37,597	37,597	37,597	37,597	37,597
Region F						
Direct reuse	18,435	18,435	18,435	18,435	18,435	18,435
Region I						
Direct reuse	253	268	281	294	305	319
Indirect reuse	13,687	13,687	13,687	13,687	13,687	13,687
Region L						
Direct reuse	30,653	31,773	31,773	31,773	31,773	31,773
Region M						
Direct reuse	10,687	10,687	10,687	10,687	10,687	10,687
Indirect reuse	2,240	2,240	2,240	2,240	2,240	2,240
Region O						
Direct reuse	51,514	51,921	51,957	51,648	51,806	51,589
Total						
Total direct reuse	256,309	256,549	252,212	247,991	250,887	263,331
Total indirect reuse	102,808	103,905	105,237	106,264	107,561	108,789
Total reuse	359,117	360,454	357,449	354,255	358,448	372,120