

Chapter 6 *Effluent Reuse*

CHAPTER OVERVIEW

As the major producer of effluent in Eastern Pima County, Pima County Wastewater Management Department (PCWMD) will play a significant role in how effluent is used in the future. There are some restrictions to this role. While PCWMD is the major producer of effluent, the 1979 Merger IGA dictated there were two major recipients of Metropolitan Area effluent: Tucson Water and Pima County. Since 1979, the Southern Arizona Water Rights Settlement Act (SAWRSA) and the 2000 IGA increased the number to four major recipients: Tucson Water, which shares a portion of its allocation of effluent with several other entities that contribute to the Metropolitan Treatment Facilities; the Bureau of Reclamation which is acting on behalf of SAWRSA; Pima County; and the Conservation Effluent Pool (CEP).

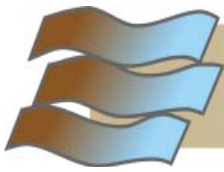
Tucson Water receives 90 percent and Pima County receives 10 percent of the remaining effluent once the volumes dedicated for SAWRSA and the CEP are deducted. Tucson Water's 90 percent share is reduced by its agreements with other local water providers that contribute to the Metropolitan Treatment Facilities. Pima County also receives the effluent from the outlying treatment facilities.

Pima County is presently using its allotment or participating in projects such as:

- Ed Pastor Kino Environmental Restoration Project.
- County Parks (including Arthur Pack Golf Course).
- High Plains Effluent Recharge Project.
- Lower Santa Cruz Managed Recharge Project.

Other environmental restoration projects are envisioned to help make beneficial use of the remainder of Pima County's allotment of effluent including:

- Tres Rios del Norte Project.
- Paseo de Las Iglesias.
- Canoa Ranch.
- Black Wash.



CHAPTER 6.0 EFFLUENT REUSE

As the major producer of effluent in Eastern Pima County, PCWMD will play a significant role in how effluent is used in the future. There are some restrictions to this role; however, because while PCWMD is the major producer of effluent, the 1979 Merger IGA dictated there were two major recipients of metropolitan effluent: Tucson Water and Pima County. Since 1979, the Southern Arizona Water Rights Settlement Act (SAWRSA) and the 2000 IGA increased the number to four major recipients: Tucson Water, which shares a portion of its allocation of effluent with several other entities that contribute to the subject treatment facilities; the U.S. Secretary of the Interior, which is acting on behalf of SAWRSA; Pima County; and CEP.

In accordance with the 2000 IGA, SAWRSA provides 28,200 acre feet (AF) of effluent to be allocated to the Secretary of the Interior. Up to 10,000 AF, based on actual usage, is then allotted to the CEP for use on approved environmental restoration projects.

The remaining effluent is then allocated to Tucson Water and PCWMD. Tucson Water has rights to 90 percent of the remaining effluent, currently equaling about 36,000 AF. Tucson Water currently shares approximately 8 percent of its allotment with Metropolitan Domestic Water Improvement District and 5 percent with Oro Valley Water Utility. PCWMD then has rights to the remaining 10 percent, which is approximately 4,000 AF, at this time.

Recent activities, especially those proposed by the Pima County Regional Flood Control District (PCRFCDD), could use effluent as a key resource in a number of environmentally sensitive projects. Many of these projects will be wash and riparian restorations. The Conservation Effluent Pool (CEP) is explained later in this chapter.

Chapter 6 of the 2006 Metropolitan Area Facility Plan Update (Facility Plan) will address PCWMD's general infrastructure, allotments, distribution, CEP, recharge projects, constraints, proposed projects and conclusions. However, these policies are very fluid at this time. While effluent will play a larger role in the Metropolitan Area's water resource planning, it is difficult to predict exactly how effluent will be used in the future. While PCWMD's 4,000 AF of effluent sounds significant; as a comparison, this is only enough effluent to water approximately eight golf courses for a year. However, effluent will increase as the population continues to grow. Some gains in effluent are projected in the Metropolitan Area, the significant increases in effluent are projected for the Non-metropolitan Treatment Facilities. Effluent from Non-metropolitan Treatment Facilities such as Avra Valley, Marana, and Corona de Tucson are expected to increase from approximately 2,789 AF in 2005 to 10,323 AF by 2030.

Descriptions of Metropolitan Treatment Facilities

Although PCWMD currently has eleven wastewater treatment facilities, for the purposes of the 2005 Facility Plan, discussions will be limited to three Metropolitan Treatment Facilities: the Ina Road Water Pollution Control Facility (WPCF), Roger Road Wastewater Treatment Plant (WWTP), and Randolph Park Water Reclamation Facility (WRF); and three Non-metropolitan Treatment Facilities: the Corona de Tucson Wastewater Treatment Facility (WWTF), Avra Valley WWTF, and Marana WWTF. The remaining Non-metropolitan Treatment Facilities that are not included in the 2005 Facility Plan are Green Valley WWTP, Pima County Fairgrounds WWTF, Arivaca Junction WWTF, Mt. Lemmon WWTP, and Rillito Vista WWTF. The three Metropolitan Treatment Facilities provide the majority of currently available effluent, and, because of their locations and influent volumes, the three Non-metropolitan Treatment Facilities are the best candidates for the generation of usable quantities of effluent in the future.



Ina Road Water Pollution Control Facility

The Ina Road WPCF is in the northwestern part of the Tucson basin. The plant was originally designed to treat 25 MGD and the average daily inflow of influent is approximately 25 MGD, depending on the amount of flows diverted from the Roger Road WWTP. During the past few years, a new treatment train has been under construction to increase the WPCF's capacity to 37.5 MGD. When the new treatment train is completed in 2006, it will provide an additional 12.5 MGD of treatment capacity through a Biological Nutrient Removal Activated Sludge (BNRAS) process.

The existing 25 MGD facility uses the high-purity oxygen (HPO) activated sludge process. It incorporates digestion and centrifuging for biosolids handling to meet agriculture land application disposal criteria, and provides an energy-recovery system for on-site generation of electrical power to meet plant operations. This portion of the Ina Road WPCF produces Class B effluent.

Effluent from this facility is utilized through three methods: plant irrigation, Arthur Pack Golf Course irrigation and discharge/recharge into the Santa Cruz River. Plant irrigation currently consists of 24 AF. An average of approximately 526,900 GPD (594.19 AF/Yr) of Class B effluent is delivered through a Pima County owned/operated line to the Arthur Pack Golf Course to be used for irrigation purposes. The Arthur Pack Golf Course will be connected to the Tucson Water Reclaimed Water system in 2006. The remaining effluent (approximately 24.2 MGD) is discharged into the Santa Cruz River where it is recharged into the Lower Santa Cruz River Managed Recharge Project (LSCMRP). The LSCMRP is a non-constructed recharge project (water is not diverted, slowed or retained by constructed devices) and, as such, it only receives 50 percent recharge credits from ADWR. The credits are apportioned among the five LSCMRP recipients: City of Tucson, Pima County, the Town of Oro Valley, Metropolitan Domestic Water Improvement District and the Bureau of Reclamation. There are four other partners on the LSCMRP that do not receive credits: Town of Marana, Flowing Wells Irrigation District (FWID), Avra Valley Irrigation and Drainage District (AVIDD), and Cortaro-Marana Irrigation District (CMID). This partnership is based on the Intergovernmental Agreement titled Permitting and Operating Managed In-Channel Recharge of Effluent in the Santa Cruz River Channel (Managed Recharge IGA 2003).

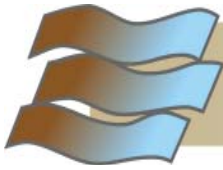
Roger Road Wastewater Treatment Plant

The Roger Road WWTP is located on the west side of Tucson. This is currently PCWMD's largest facility, with a capacity of 41 MGD. Currently, the plant is receiving average flows of approximately 35 to 40 MGD. Flows to the Roger Road WWTP will also fluctuate slightly depending on the amount of influent processed through the Randolph Park WRF.

Effluent disposal from Roger Road WWTP consists of three methods: plant reuse, Santa Cruz River discharge/recharge, and diversion to Tucson Water's Sweetwater Recharge Facilities/Reclaimed Water Treatment Plant. Plant irrigation consists of 4.8 AF of effluent per year. Approximately 28 MGD of Class B effluent is discharged into the Santa Cruz River for storage in two managed recharge projects (Upper Santa Cruz River Managed Underground Storage Facility and Lower Santa Cruz River Managed Recharge Project). The remaining Class B effluent, approximately 8.8 MGD, is diverted to Tucson Water's Sweetwater Recharge Facilities/Reclaimed Water Treatment Plant.

Randolph Park Water Reclamation Facility

The Randolph Park WRF is located in midtown Tucson. It was originally built by the City of Tucson in 1975; its ownership was transferred to the County as part of the 1979 IGA. In February 2000, a supplemental agreement to the IGA was signed between the two parties, and, as part of this agreement, PCWMD was tasked with rebuilding the Randolph Park WRF. The plant is currently rated at 3.0 MGD. Randolph Park WRF's primary purpose is to produce effluent, with a secondary



benefit of this plant being a reduction of flows to the Roger Road WWTP, although solids are returned to the collection system for treatment at Roger Road WWTP.

Although the facility is currently permitted to produce Class A effluent, which meets the existing requirements of Tucson Water's Reclaimed Water System; it is capable of producing Class A+ effluent. Effluent disposal consists of direct delivery into Tucson Water's Reclaimed Water System, per the agreement reached in the 2000 Supplemental IGA. A significant feature of the Randolph Park WRF is it is considered a "scalping" plant, and, as such, it is not required to remain in operation at all times. When the Randolph Park WRF production is reduced or shut down, sewage simply bypasses the plant and is conveyed on to the Roger Road WWTP. When Randolph Park WRF is in operation, effluent is reused and the biosolids are conveyed to the Roger Road WWTP.

Governing Agreements: IGAs for Effluent

Basis of Effluent Entitlements

Currently, there are four IGAs between Pima County and the City of Tucson governing their effluent ownership and distribution: the 1979 Intergovernmental Agreement (1979 IGA), the 2000 Supplemental Intergovernmental Agreement, (2000 IGA, which governs the Conservation Effluent Pool), and the 2003 Intergovernmental Wheeling Agreement (2003 Wheeling IGA). As the dates of these IGAs suggest, they were sequentially passed and each succeeding IGA builds upon the previously granted agreement. A fourth IGA, the Intergovernmental Agreement titled Permitting and Operating Managed In-Channel Recharge of Effluent in the Santa Cruz River Channel (2003 Managed Recharge IGA), governs the recharge of effluent allotted to the nine participants of the Lower Santa Cruz River Managed Recharge Project.

1979 Intergovernmental Agreement, Resolution No. 1979 – 78 (1979 IGA)

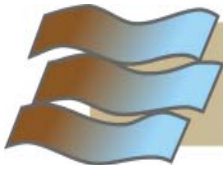
The 1979 Intergovernmental Agreement, signed on June 26, 1979, was the original agreement between PCWMD and the City of Tucson. This agreement assigned control of wastewater conveyance and treatment activities to PCWMD. In exchange, the City of Tucson would receive 90 percent of all effluent produced at the PCWMD Metropolitan Treatment Facilities, which were limited at that time to the Ina Road WPCF, Roger Road WWTP and Randolph Park WRF.

City of Tucson–Pima County Supplemental Intergovernmental Agreement Relating to Effluent, Resolution No. 2000-28 (2000 IGA)

The 2000 Supplemental Intergovernmental Agreement signed on February 8, 2000, placed restrictions on how PCWMD could use the effluent from the Ina Road WPCF and the Roger Road WWTP. This agreement also exempted outlying facilities from the control of City of Tucson, and identified the need for reopening the Randolph Park WRF, which had been shutdown in 1995. It provided an avenue for PCWMD to deliver effluent to Pima County facilities. This supplemental agreement also established a Conservation Effluent Pool for use with riparian habitat projects and identified how the SAWRSA effluent water rights would be treated in determining effluent allocations.

Conservation Effluent Pool Agreement

The 2000 IGA identifies up to 10,000 AF of effluent that will be set aside for use on environmental restoration projects. These projects will be in accordance with the criteria of the 2000 IGA, or must have the approval of both the City of Tucson and Pima County.

**Intergovernmental Agreement between the City of Tucson and Pima County for Treating Effluent and Wheeling Reclaimed Water (Wheeling Agreement), Resolution No. 2003-286 (2003 Wheeling IGA)**

The Wheeling Agreement, signed December 16, 2003, governs reclaimed water transactions between PCWMD, the effluent provider; City of Tucson, the distributor and a reclaimed water user/owner; and other Pima County facilities, reclaimed water users. The effluent enters the system at the City of Tucson's Sweetwater Recharge Facilities and the Tucson Reclaimed Water Treatment Plant and through direct delivery from the Roger Road WWTP; from there it is piped to various locations. The Randolph Park WRF discharges its effluent directly into the City of Tucson reclaimed water system. The agreement governs the costs (per acre-foot) that will be charged to Pima County for distribution of Pima County effluent to Pima County sites from either of these two locations.

Intergovernmental Agreement – Permitting and Operating Managed In-Channel Recharge of Effluent in the Santa Cruz River Channel (2003 Managed Recharge IGA)

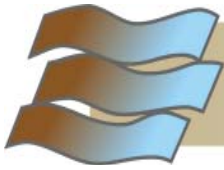
The 2003 Managed Recharge IGA governs the recharge of effluent and the associated credits granted by Arizona Department of Water Resources (ADWR) for the LSCMRP between the Ina Road WPCF and Trico Road in Marana. Participants include the Town of Marana, Cortaro-Marana Irrigation District, Avra Valley Irrigation and Drainage District, Metropolitan Domestic Water Improvement District, Flowing Wells Irrigation District, Oro Valley, Pima County, City of Tucson, and the Bureau of Reclamation.

Effluent Allotments to Agencies as Determined by the IGAs and the Southern Arizona Water Rights Settlement Act

In accordance with the 1979 IGA, Tucson Water was awarded 90 percent of all effluent after the SAWRSA distribution and PCWMD was awarded 10 percent. However, under the SAWRSA and separate IGAs between Tucson Water, Metropolitan Domestic Water Improvement District, and Oro Valley Water, a new distribution formula was created and also incorporated into the 2003 Managed Recharge IGA.

In accordance with this new formula, of the total effluent generated from all Metropolitan and Non-metropolitan Treatment Facilities, SAWRSA had rights to the first 28,200 AF, and then the CEP had rights to up to 10,000 AF on an as-needed basis for environmental restoration projects. Since CEP is allotted after the United States receives its SAWRSA share and before either Tucson Water or PCWMD receive their share, any allocation to CEP effectively reduces the remaining share available to Pima County and Tucson Water. As part of a settlement, Oro Valley and Metropolitan Domestic Water Improvement District provide a portion of Tucson Water's CEP share, and therefore they indirectly contribute to CEP. However, at the maximum CEP allocation, PCWMD provides 1,000 AF, while Tucson Water and other providers are required to provide up to 9,000 AF.

Although a final agreement has not been reached between Tucson Water and Pima County as to how the CEP will be administered, it is currently anticipated that City of Tucson and Pima County CEP projects could reach the maximum CEP allotment of 10,000 AF of effluent by 2015. As not every restoration project will qualify or attempt to qualify for CEP, it is difficult to say with certainty the CEP allocation will be consumed as quickly as anticipated. It is possible that qualifying for CEP allocations could be a lengthy process involving the United States Fish and Wildlife Department. If the CEP effluent remains unused as an environmental water source, it could become very difficult for PCWMD to predict its own long-term effluent balance.



Tucson Water and PCWMD Allotments of Effluent

In 2004, Metropolitan Area effluent from the Ina Road WPCF and Roger Road WWTP was approximately 68,000 AF. After allocations of SAWRSA (28,200 AF) and CEP (there were no CEP allocations in 2003), the remaining balance was approximately 40,000 AF. Of this remaining 40,000 AF, Tucson Water had rights to its allotment of 90 percent or 36,000 AF (which is shared with other entities that contribute to metropolitan effluent), and PCWMD had rights to an allotment of 10 percent or 4,000 AF.

Projections indicate that by 2030 effluent generated by the three metropolitan plants is estimated to increase to approximately 95,286 AF, with PCWMD receiving approximately 5,700 AF.

County Effluent Recharge Projects

The High Plains Project

The High Plains project is a research project to investigate constructed recharge methods. While it is a Pima County Project requiring effluent, this effluent is part of surface water rights agreement that contributes 2,100 AF to the Santa Cruz River. As part of this agreement, each party that discharges effluent into the Santa Cruz River provides a percentage of this 2,100 AF. These parties include Tucson Water, which shares a portion of its allocation of effluent with several other entities that contribute to the metropolitan treatment facilities; the Bureau of Reclamation; and Pima County. In accordance with the 2003 Managed Recharge IGA, up to 600 AF are currently delivered into the PCRFCF High Plains Project. PCWMD currently has a three-year agreement with the Cortaro-Marana Irrigation District (CMID) to provide the High Plains Project's 600 AF for ADWR credits that go to CMID. PCWMD is also studying the viability of entering into an IGA with PCFCD that would allow Pima County to use the High Plains Project as a means of obtaining constructed recharge credits for its own effluent.

The Santa Cruz River Managed Underground Storage Facility (SCRMUSF) and Lower Santa Cruz River Managed Recharge Project (LSCMRP)

Pima County effluent that is not reused on site or wheeled to Pima County facilities at Arthur Pack or through Tucson Water's Reclaimed Water System is discharged into the Santa Cruz River where it is recharged into the LSCMRP. The SCRMUSF and LSCMRP are non-constructed recharge projects, and, as such, only receive a maximum of 50 percent ADWR recharge credit. However, because of the current drought in the Southwest and the 2003 Mt. Lemmon fire, a layer of algae and/or ash has formed just under the surface of the Lower Santa Cruz River channel making the soil far more resistant to percolation. As a result, recharge rates have dropped to less than 40 percent of normal. If the SCRMUSF and LSCMRP were constructed recharge projects, participants of the SCRMUSF and LSCMRP would receive approximately 100 percent credit for the recharged effluent. A LSCMRP subcommittee is studying the feasibility of conducting in-channel constructed recharge and has met with ADWR to explore several possible options.

Currently, PCWMD receives the vast majority of its effluent from the Ina Road WPCF. If PCWMD were to start receiving effluent from the Roger Road WWTP, PCWMD would need to either work out an agreement with Tucson Water and the Bureau of Reclamation for recharge rights to the SCRMUSF or apply for a permit for that project. PCWMD, Metropolitan Domestic Water Improvement District and Oro Valley Water Utility have already asked Tucson Water and the Bureau of Reclamation to join the SCRMUSF. These requests are under consideration. If approved, this move could provide PCWMD with more recharge options and because the SCRMUSF is approximately five miles upstream from the LSCMRP, effluent that is discharged by PCWMD would have more opportunity to recharge into one of the two facilities.



Effluent and the Outlying Facilities

Corona de Tucson Wastewater Treatment Facility

The Corona de Tucson WWTF is located 22 miles southeast of Tucson. The facility is comprised of two facultative stabilization lagoons, which are each approximately 4-feet deep and 3.5 acres in size. The south lagoon is lined with soil cement and the north lagoon is lined with cement around the top and soil cement on the bottom. The facility also has one 11-acre high density polyethylene (HDPE) lined evaporative disposal pond.

The current WWTF is designed to treat 150,000 GPD of domestic sewage, but the permitted capacity is limited to the evaporation capability of the evaporation pond of 117,000 GPD in the Aquifer Protection Permit dated December 17, 2004. Currently, average monthly inflows are approximately 84,000 GPD; the WWTF doesn't have a reuse permit.

PCWMD has worked with ADEQ to reclassify the plant to 117,000 GPD and is working on designs to potentially increase the plant to approximately 1 MGD in FY2007/08. It is anticipated that effluent will reach 2,946 AF (2.6 MGD) by 2030.

Avra Valley Wastewater Treatment Facility

The Avra Valley WWTF is located approximately 20 miles southwest of Tucson. The facility is comprised of a flow equalization basin, an oxidation ditch, two secondary clarifiers, four sludge-drying beds and four percolation basins. The WWTF is designed to treat 1.2 MGD and is currently averaging approximately 965,000 GPD. WWTF influent is expected to increase to about 1.1 MGD at the end of 2005.

Effluent disposal consists of percolation, evaporation, plant irrigation reuse, and disposal through a spray field into the Black Wash. Generally, the spray field is only used when emergency flow conditions exceed percolation capabilities.

PCWMD, PCRFC and other stakeholders have developed a plan to utilize future effluent generated from the expansion for on-site pond recharge and recharge to Black Wash in-channel constructed recharge and riparian restoration.

Projections indicate effluent will increase to 1,154 AF (1.1 MGD) by 2005 and 6,272 AF (5.6 MGD) by 2030.

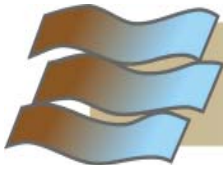
Marana Wastewater Treatment Facility

It is currently anticipated the Town of Marana will experience significant growth between 2005 and 2030 per PAG projections. Effluent rates at the Marana WWTF are expected to climb from approximately 952 AF in 2005 to approximately 4,973 AF in 2030.

Although still in the planning stages, the Marana WWTF has several plant expansion options available to it. It can use percolation and evaporation to gain approximately 100 percent constructed recharge credits; it can discharge effluent into the Santa Cruz River for 50 percent recharge credits; or PCWMD can sell effluent to the Town of Marana or CMID for irrigation.

Proposed Projects

The United States Army Corps of Engineers is currently working with the City of Tucson and the Town of Marana to develop a proposal for the Tres Rios del Norte project that is expected to extend approximately from Prince Road in Tucson to Sanders Road in Marana. This is a massive environmental project that is expected to require up to 10,000 AF of effluent. However, to date, there has been no specific determination of this effluents' source.



PCFCD has identified fourteen proposed environmental restoration projects including a two-phase project at Paseo de Las Iglesias. These projects could require approximately 5,600 AF of effluent by 2010.

Tucson Water Long Range Water Plan: 2000 – 2050

Tucson Water submitted its draft *Water Plan: 2000 - 2050* to the City of Tucson Mayor and Council in November 2004. The plan was developed to initiate a dialogue with the community about the water resource challenges that lie ahead. The plan is based on the same population projections provided by the Pima Association of Governments as this Facility Plan and states that Tucson Water's service area population is projected to grow from 638,936 in 2000 to approximately 1.3 million by 2050. Tucson Water's total demand in 2000 was 128,521 AF, and this is anticipated to grow to approximately 253,000 AF by 2050. *Water Plan: 2000 - 2050* will be extremely important to the development of effluent policy in the greater Tucson area. This plan is important because it makes these options openly available to the public to choose the pathways to the City of Tucson's water future. The Plan lists a number of options for expanding effluent use, most of which do not commence until about 2015. Key issues affecting effluent planning are discussed in the following sections.

Assured Water Supply

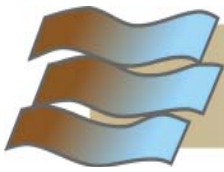
Tucson Water has a designation of Assured Water Supply (AWS) and as such, it is subject to the AWS rules administered by the Arizona Department of Water Resources (ADWR). The AWS Designation allows Tucson Water to use its Central Arizona Project (CAP) water and effluent, but places significant restrictions on the use of groundwater to meet future demand. Tucson Water must significantly reduce its use of groundwater over time. The Plan indicates the expanded use of effluent may be necessary to meet future demands and remain in compliance with the AWS rules.

Current Sources of Water

Tucson Water will need to reduce its dependency on groundwater to a more sustainable pumping rate (currently estimated to be about 50,000 to 70,000 AF per year) by identifying and incorporating other water resources. These additional resources are limited to deliveries from the CAP, which is currently up to 135,966 AF per year (potential to increase to 144,172 AF per year), and effluent at up to 30,739 AF (Tucson Water 2003 figure). Due to allocation limits, the CAP allotment is not likely to be increased above the 144,172 AF. Tucson Water's draft *Water Plan: 2000-2050* projected its effluent entitlement to be 62,000 AF by 2030 and 66,000 AF by 2050. These two projected figures are larger than the combined flows forecasted from the Ina Road WPCF, Roger Road WWTP and Randolph Park WRF facilities in the initial draft of this Facility Plan. In order to achieve consistency across the two plans, Pima County and Tucson Water staff met frequently in late 2005 to resolve this issue. The effluent volumes projected in this finalized Facility Plan are the result of this cooperative effort and will also be used by Tucson Water in subsequent versions of *Water Plan: 2000-2050*.

Water Quality

Tucson Water has been blending groundwater with recharged and recovered CAP water since 2001 to improve the aesthetic appeal of its water. Through blending, Tucson Water can maintain a Total Dissolved Solids (TDS) level below 450 mg/L through at least 2009. One of the critical community decisions identified in *Water Plan: 2000-2050* is whether Tucson Water should implement an enhanced treatment plant to maintain this TDS level indefinitely or allow the TDS level to gradually increase to a new equilibrium of about 600 mg/L. The outcome of this decision will affect the TDS level of wastewater that is treated at the Metropolitan Treatment Facilities. Additionally, the



report comments on the evaluation of emerging contaminants, which is an issue PCWMD is already watching (e.g., pharmaceutical issues).

Tucson Water's Use of Effluent

Tucson Water owns and operates a Reclaimed Water System to supply tertiary treated effluent for turf irrigation and certain industrial uses. Tucson reuses about one-third of its effluent through this system and also wheels effluent owned by other entities, including Pima County, to their points of use. Reclaimed water use meets about eight percent of Tucson Water's current total water demand and this is projected to continue into the future. Tucson Water is also a contributor to the SCRMUSF and the LCSRMRP. However, *Water Plan: 2000-2050* presents scenarios where Tucson could pull all of its effluent out of the Santa Cruz River within the next 15 years. Additional critical decisions of *Water Plan: 2000-2050* are whether to move forward with plans to put all of Tucson's effluent to use and, if so, what types of expanded uses of effluent will be acceptable to the community.

Future Challenges

As part of its long-range planning, Tucson Water is suggesting the possibility of following in the footsteps of other southwestern communities and treating effluent to very high standards for recharge and indirect potable reuse. In the long-range plan, Tucson Water indicated that such a decision would need to be made by 2014 unless other water supplies are acquired or increased levels of water conservation are achieved. Tucson Water has based *Water Plan: 2000-2050* on fully utilizing all of their available water resources, including effluent, while they seek to obtain new ones.

Summary

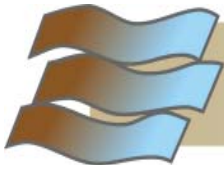
While there may be some uncertainties surrounding effluent ownership and delivery over the next decade, the need to more effectively use effluent as a renewable water resource in the region will become increasingly important. PCWMD has a finite amount of effluent under its control, and this effluent is regulated by IGAs and constrained by conveyance costs. Therefore, the most likely customers of PCWMD's allotment will be public/governmental entities such as PCFCD.

PCWMD will continue to work toward the goal of using its effluent in the most efficient manner possible. PCWMD would like to wheel as much of its effluent as possible to Pima County projects and thereby reduce the amount of effluent being discharged into the Santa Cruz River. Remaining PCWMD effluent will continue to be discharged into the Santa Cruz River channel where it will be recharged into the LCSRMRP. Finally, at the Non-metropolitan Treatment Facilities, PCWMD will be working toward obtaining constructed recharge permits.

Conclusions and Recommendations

Based on discussion in this chapter, PCWMD should:

- Work in collaboration with Tucson Water on the long range *Water Plan: 2000 - 2050* in areas of mutual benefit.
- Work in collaboration with the other water providers and local citizens groups on recharge, reuse and water conservation activities.
- Assist in developing regional water policy and effluent utilization practices.
- Continue to work closely with the other Pima County agencies including National Resources, Flood Control and the Kino Stadium District to identify and coordinate existing and potential effluent utilization opportunities for Pima County's effluent.



- Obtain the necessary recharge permits for all of the percolating treatment facilities. This would include Avra Valley WWTF, Arivaca Junction WWTF, Corona de Tucson WWTF, Green Valley WWTP, Marana WWTF and Rillito Vista WWTF. The Pima County Fairgrounds WWTF receives only limited seasonal flows and is probably not worth permitting at this time. Effluent from the Mt. Lemmon WWTP is dispersed via spray-field.