



Fact Sheet

Aquifer Protection Permit No.P-101324
 Place ID 1378, LTF 37660
 City of Goodyear Water Reclamation Facility
 SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to the Aquifer Protection Permit for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to A.A.C. R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	City of Goodyear
Mailing Address:	P.O. Box 5100 Goodyear, Arizona 85338
Facility Name and Location:	City of Goodyear Water Reclamation Facility 5424 S 157th Ave Goodyear, AZ 85338 (Maricopa County)

Regulatory Status

An Arizona Pollutant Discharge Elimination System (AZPDES) permit (No. AZ0022357) was issued for this facility on February 20, 2000. The most recent renewal of the AZPDES permit was issued on June 3, 2008. The original Aquifer Protection Permit (APP) was issued for this facility on February 22, 1994. An application for a Significant APP Amendment was received on August 1, 2000, and issued on August 23, 2001. An application for an "Other" APP Amendment was received on May 20, 2003, and issued on October 29, 2004. An application for a Significant APP Amendment was received by ADEQ on September 13, 2005. At time of permit issuance, there are no active Notices of Violation (NOVs) and the permittee is considered to be in compliance with the existing APP.

Facility Description

The City of Goodyear is authorized to operate the City of Goodyear Water Reclamation Facility (WRF), a 4.0 million gallons per day (mgd) facility. The WRF process consists of two (2) influent pump stations, static screens, two (2) parallel biological treatment trains (a train consisting of two (2) aeration basins and two (2) sedimentation basins, and a train consisting of two (2) oxidation

ditches and three (3) clarifiers), four (4) traveling bridge filters, disinfection by chlorination with dechlorination, an effluent lift station, two (2) aerobic digesters, a centrifuge, a gravity thickener, and an emergency storage basin

Effluent will be delivered for beneficial reuse under a valid reclaimed water permit, discharged to the Gila River under Arizona Pollutant Discharge Elimination System (AZPDES) Permit #AZ0022357, or discharged to the Buckeye Irrigation District Canal. The outfall to the BID Canal is exempt from APP requirements as per A.R.S. §49-250.B.6. Therefore, it is not listed as a discharging facility, and there is no Point of Compliance protective of the outfall. The WRF is classified for Class A+ reclaimed water according to A.A.C. R18-11, Article 3.

Sludge, including screenings, grit, and scum, will be dried on-site before being hauled off-site for management and disposal in accordance with State and Federal regulations. In addition to the APP conditions pertaining to treatment and disposal of sewage sludge, the permittee must also comply with the requirements for sewage sludge disposal, use, and transportation in 40 Code of Federal Regulations (CFR) Part 503 and 18 A.A.C. 9, Article 10.

The depth to groundwater is approximately 20 feet below ground surface (bgs) and the direction of groundwater flow is to the west. The WRF was designed and constructed according to plans approved by the ADEQ APP and Reuse Unit.

Amendment Description

The purpose of this amendment is to increase the permitted flow from 3.0 to 4.0 mgd, change the effluent discharge methods, convert an existing aerobic digester to aeration basins, construct three (3) new rectangular clarifiers, upgrade the effluent pump station, and convert an existing oxidation ditch to an aerobic digester. Effluent will no longer be discharged to the recharge site permitted under P-103205. The APP has also been updated to conform to the current framework language.

A significant portion of the Goodyear WRF facilities already have a capacity of 4.0 mgd. Phase IIA construction will remove capacity bottlenecks in the existing plant. The modifications to the facility will result in additional capacity for biological treatment and secondary sedimentation, as well as increasing the effluent pumping capacity. The plant already maintains sufficient capacity for the peak flow rates projected for Phase IIA.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The WRF is designed to meet the treatment performance criteria for new facilities as specified in R18-9-B204.

III. HYDROGEOLOGIC SETTING

The Goodyear WRF is located within the Basin and Range physiographic province of Arizona which is characterized by northwest trending mountain ranges separated by gently sloping alluvial valleys. The mountain ranges are generally composed of crystalline and/or lithified basement rocks, whereas the alluvial valleys are composed of unconsolidated to well cemented sedimentary deposits.

The City of Goodyear WRF lies within the southern portion of the West Salt River Valley Basin. The basin-fill sediments within the West Salt River Valley are divided into three geological units called the Upper Alluvial Unit (UAU), the Middle Alluvial Unit (MAU), and the Lower Alluvial Unit (LAU). The UAU consists of sand, gravel, cobbles, and boulders with thin interbeds of silt and clay. The thickness of the UAU in the vicinity of the Goodyear WRF is approximately 160 feet. The MAU is generally finer grained than the UAU and consists of interbedded clay, silt, silty-sand, and gravel. The MAU is approximately 50 feet thick in the WRF area. The LAU is composed of weakly to firmly cemented gravel, boulders, and interbedded clay units. The thickness of the LAU in the vicinity of the WRF is unknown.

The primary water-bearing unit beneath the Goodyear site is the UAU. The depth to groundwater from on and off-site wells is approximately 20 feet below ground surface (bgs) and flows to the west.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

Immediately south of the site is the Buckeye Irrigation District Canal. The WRF is located less than ½ mile north of the Gila River. The facility is located 2.5 miles west of the confluence of the Agua Fria River and the Gila River. The site is not located in a 100-year flood plain.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

The WRF will provide preliminary, secondary, and tertiary treatment of residential and commercial wastewater, as well as brine from the City's reverse osmosis (RO) treatment of well water. The wells requiring RO treatment will only operate during the warmer months, so brine discharges will generally not occur in the winter. The brine removed from groundwater will contain elevated total dissolved solids (TDS) and nitrate concentrations up to 55 milligrams per liter (mg/l). The effluent characteristics are expected to be the same since the WRF will utilize the same treatment process. Based on past performance criteria, the City of Goodyear WRF meets the nitrate discharge limitation in the permit and will continued to be required to meet a total nitrogen limit in the effluent of less than 10 mg/l.

The original permit, issued in 1993, required groundwater monitoring from 3 wells: an upgradient well, the POC, and the No 9 production well. Water level and groundwater quality information was collected between 1993 and 2001. The groundwater quality data collected from the upgradient well indicated that the water quality was poor and did not meet the AWQS standards for nitrates. Total dissolved solids were detected as high as 3,800 mg/L.

The groundwater monitoring requirement at the wells was removed from the APP when the permit was amended in 2001. The requirement was removed because of the facility's BADCT, and because the effluent was disposed through reuse and recharge under a separate APP. Groundwater monitoring was required at the SAT Recharge site under P-103205.

The nearest down-gradient point of use in the aquifer is a group of wells located approximately 1/3 mile to the west. The primary water uses for these wells are drainage and for irrigation.

Monitoring and Reporting Requirements

To ensure that site operations do not violate Aquifer Water Quality Standards at the point of compliance, representative samples of the effluent will be collected at the sampling point at the effluent discharge line. The permittee will monitor the effluent daily for flow rate and fecal coliform, monthly for total nitrogen, quarterly for metals and indicator parameters, and annually for volatile organic compounds (see Section 4.2, Table IA in the permit).

To ensure that site operations do not violate the Reclaimed Water Quality Standards for the beneficial use of Class A+ reclaimed water, the permittee will monitor the reclaimed water at the same effluent sampling point as indicated above. The permittee will monitor the reclaimed water daily for flow rate, fecal coliform and turbidity, monthly for total nitrogen, and on a monthly/suspended basis for enteric viruses (see Section 4.2, Table IB in the permit).

Facility inspection and operational monitoring shall be performed on a routine basis (see Section 4.2, Table III in the permit).

Groundwater monitoring is not required under the terms of the current permit, except as a contingency action. Under the Compliance Schedule, the City of Goodyear will be required to submit an APP Amendment Application to amend the permit to include groundwater monitoring if discharge to the Gila River at Outfall 001 and/or Outfall 003 exceeds 250,000 gpd for three consecutive months (see Section VI, below).

Point of Compliance (POC)

The permittee is required to show that pollutants discharged will not cause or contribute to a violation of aquifer water quality standards at the POC. The location of the points of compliance (POCs) which show compliance with aquifer water quality standards is determined by an analysis of the pollutant management area (PMA), the discharge impact area (DIA), and locations and uses of groundwater wells in the area. The POC locations are selected to protect off-site uses of groundwater, to verify BADCT performance, and to allow early detection of potential impact from the potential discharges at the site.

The pollutant management area (PMA) is described in A.R.S. §49-244 as the limit projected in the horizontal plane of the area on which pollutants are or will be placed. The PMA includes horizontal space taken up by any liner, dike or other barrier designed to contain pollutants in the facility. If the facility contains more than one discharging activity, the PMA is described by an imaginary line circumscribing the several discharging activities. The PMA is defined by a line circumscribing the WRF and the Gila River Outfalls 001 and 003.

The discharge impact area (DIA) is defined by A.R.S. §49-201.13. The DIA means the potential aerial extent of pollutant migration, as projected on the land surface, as the result of a discharge from a facility. The DIA was determined to be contiguous with the PMA at the WRF. The DIA for the Gila River Outfalls 001 and 003, extended approximately 3,800 feet downgradient from the respective Outfalls.

The hazardous/non-hazardous POCs are located as follows:

POC #	Location	Latitude	Longitude
1	Southwest boundary of the WRF	33° 23' 59" N	112° 24' 00" W
2	Near Gila River Outfall 001	33° 23' 35.7" N	112° 23' 45.7" W
3	Near Gila River Outfall 003	33° 23' 41.3" N	112° 24' 12.7" W

Groundwater monitoring is not required at the point of compliance wells, except as a contingency action.

The Director may amend this permit to require installation of wells and initiation of groundwater monitoring at the POCs or to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

VI. COMPLIANCE SCHEDULE

For each compliance schedule item listed below, the permittee must submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section. A copy of the cover letter must also be submitted to the ADEQ Water Quality Compliance Section.

Description	Due by:
The permittee shall submit a signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department that confirms that the facility is constructed according to the Department-approved design report or plans and specifications, as applicable.	Prior to discharging under this permit and within 90 days of completion of construction.
APP Amendment to Install a Groundwater Monitoring Well at POC #2	
The permittee shall submit an application for an APP amendment to add groundwater monitoring to the permit, including a design report for a groundwater monitoring well at POC #2.	Within three (3) months after the third (3 rd) consecutive month of discharge exceeding 250,000 gpd to the Gila River at Outfall 001.
APP Amendment to Install a Groundwater Monitoring Well at POC #3	
The permittee shall submit an application for an APP amendment to add groundwater monitoring to the permit, including a design report for a groundwater monitoring well at POC #3.	Within three (3) months after the third (3 rd) consecutive month of discharge exceeding 250,000 gpd to the Gila River at Outfall 002.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The applicant has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

The WRF was designed as per the design report prepared and stamped, dated, and signed (sealed) by James P. Albu, P.E. (Professional Engineer), Malcolm Pirnie, Inc dated September 13, 2005 and subsequent sealed submittals that served as additions to the design report.

Financial Capability

The City of Goodyear has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203(B)(1) and (2). The estimated dollar amount demonstrated for financial capability is \$1,300,000 for operations and maintenance, and \$1,000,000 for closure and post-closure care. The permittee shall maintain financial capability throughout the life of the facility.

Zoning Requirements

City of Goodyear WRF has been properly zoned for the permitted use and the permittee has complied with all zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(B)(3).

VIII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit.

The public notice for this permit was published in the (enter name of publication) on (enter date) under public notice no. (enter public notice number).

Public Comment Period (A.A.C. R18-9-109(A))

The Department shall accept written comments from the public before a significant permit amendment is made. The written public comment period begins on the publication date of the public notice and extends for 30 calendar days. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

A public hearing was deemed to be (un)necessary for this significant permit amendment. (If a public hearing was held, include the details (location and date) in the final factsheet.)

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - Groundwater Section - APP and Reuse Unit
Attn: Bob Manley
1110 West Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-4498