

City of Peoria- Butler Drive Water Reclamation Facility
Aquifer Protection Permit #105401
PLACE ID 19869, LTF 64507
SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to the Aquifer Protection Permit (APP) for the subject facility that covers the life of the facility, including operational, closure, and post closure periods unless suspended or revoked pursuant to Arizona Administrative Code (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 (POC); 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., the local subsurface geology); to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer; or to prevent pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	City of Peoria
Mailing Address:	8401 W. Monroe Street Peoria, Arizona 85345
Facility Name and Location:	City of Peoria- Butler Drive Water Reclamation Facility 8660 N. 79th Avenue Peoria, Arizona 85345 Maricopa County

Regulatory Status

This Significant amendment application was received on April 23, 2018. An Aquifer Protection Permit (APP) was issued for this facility on July 28, 2006.

The latest inspection dated September 26, 2016 indicates that the facility was found to be in compliance with the APP and Arizona rules and statutes.

Facility Description

The permittee is authorized to operate an 11.5 million gallons per day (MGD) water reclamation facility (WRF), based on a maximum monthly average. The WRF treatment process consists of an influent pump station, a headworks facility that includes grit removal and fine screens,

activated sludge secondary treatment with de-nitrification, membrane filtration, and ultraviolet disinfection. Sludge from the aeration basins will be thickened by using a polymer and dewatered in centrifuges. The dewatered sludge will be discharged to roll-off type transport containers, and ultimately disposed off-site.

The effluent may be used under a valid reclaimed water permit or discharged to the New River under emergency conditions as regulated under AZPDES permit No. AZ0025119. The effluent may be conveyed to the off-site Salt River Project (SRP) New River-Agua Fria River Underground Storage project (NAUSP) for recharge under APP permit No. P-105479. Effluent may also be directed to a new ASR well (ASR-1), installed at the Butler Drive WRF. The permittee may amend this permit to discharge effluent off-site for future recharge using vadose zone wells located within the City limits or to Aquifer Storage and Recovery wells, under a separate permits

Amendment Description

ADEQ reviewed and approved the addition of a new ASR-1 well as a new discharge point.

BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The Water Reclamation Facility has been designed, constructed, operated, and maintained to meet the treatment performance criteria for new facilities as specified in Arizona Administrative Code R18-9-B204.

Underground storage and recovery projects are exempt from BADCT as per A.A.C. R18-9-A201(C). The treatment facilities supplying the effluent for recharge under this permit have an APP and meet BADCT requirements.

The facility shall meet the requirements for the pretreatment program by conducting monitoring as per: R18-9-B204(B)(6)(b)(ii). All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the applicable federal, state or local regulations.

III.COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

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 shall be collected at the point of discharge from the ultra violet disinfection channel. The permittee shall monitor the effluent daily for *E.coli*, monthly for total nitrogen, quarterly for metals, and semi-annually for VOCs (see Section 4.2, Tables IA in the permit). Effluent flows will be measured at the flow meters for the NAUSP, ASR-1, and Reuse. Discharges to the AZPDES outfall are under emergency conditions. If the total flow for the AZPDES discharges in a calendar year exceeds 300 million gallons (mg) per year (10.0 mgd, yearly average flow, x 30 days), the facility shall request a significant permit amendment, within 30 days of such an exceedance to install a monitor well located at POC #3

below the discharge into the New River, All discharges to the New River will be monitored daily for Nitrate, total Nitrogen and E.coli as per Section 4.2, Table IC, Contingency Monitoring per Section 2.6.2.1.1.

The WRF is rated to produce reclaimed water meeting the Class A+ Reclaimed Water Quality Standards and can be used for any allowable use in that class under a valid reclaimed water permit (A.A.C. R18-9, Article 7).

To ensure that site operations do not result in violation of Aquifer Water Quality Standards at the point of compliance, the permittee will monitor the groundwater at the POC-1 well monthly for nitrogen species and Total Coliform, and quarterly for metals, semi-annually for VOCs and SVOCs. Groundwater monitoring will be conducted as per Section 4.2, Table II, in the permit. Piezometer Well PZ-1 shall monitor the water level within the screened interval with the AL set at 50 ft-bgs. Water levels shall be monitored quarterly and recorded in the logbook.

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

Point of Compliance

The Points of Compliance (POCs) have been established at the following locations:

POC #	POC Location	Latitude	Longitude	ADWR #
1	Approximately 210 feet downgradient of ASR- Well	33° 33' 44" N	112° 13' 57" W	55-225723
2	Northwest corner of the WRF (Conceptual well)	33° 33' 46" N	112° 13' 59" W	TBD
3	Within 750 feet of the discharge point into the New River (Conceptual well)	33° 31' 52" N	112° 31' 17" W	TBD

Routine groundwater monitoring is required at POC well # 1 to monitor the aquifer within the zone of aquifer injection by the ASR well. Groundwater monitoring is not required at the Conceptual POC Wells #2 and #3, except as a contingency action.

Piezometer Well

PZ #	POC Location	Latitude	Longitude	ADWR #
1	Approximately 75 feet Northwest of the ASR-1 Well	33° 33' 45" N	112° 13' 54" W	55-916665

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

IV. HYDROGEOLOGIC SETTING

The facility is located in the West Salt River Basin, within the Sonoran Desert Section of the Basin and Range physiographic province, which is typified by broad alluvial valleys separated by steep, discontinuous, subparallel mountain ranges. The mountain ranges generally trend north-south and northwest-southeast. The basin floors consist of alluvium with thickness extending to several thousands of feet. The basins and surrounding mountains were formed approximately 10 to 13 million years ago during the mid to late Tertiary. Extensional tectonics resulted in the formation of horsts (mountains) and grabens (basins) with vertical displacement along high-angle normal faults. Intermittent volcanic activity also occurred during this time. The surrounding basins filled with alluvium from the erosion of the surrounding mountains as well as from deposition from rivers. Coarser-grained alluvial material was deposited at the margins of the basins near the mountains. The surficial geology of the site is described as late to middle Pleistocene basin-floor deposits consisting of sand, silt, clay and fine gravel with substantial soil clay accumulation. Groundwater is encountered at approximately 180 feet below land surface (bls).

The facility is located over groundwater of the Phoenix Active Management Area. The depth to groundwater is approximately 180 feet bls and the direction of groundwater flow is generally to the northwest (toward a local cone of depression due to groundwater pumping). The nearest points of use in the aquifer are two production wells located approximately 1/3 mile northwest of the facility. There is also an irrigation well located approximately 1/3 mile south of the discharge into New River. Three points of compliance were selected to be protective of all downgradient uses of the aquifer.

There are no known earth-fissures present at the surface of the WRF site. The closest documented earth fissure is located five miles to the west of the site, where groundwater levels have dropped 100 to 300 feet.

V. SURFACE WATER CONSIDERATIONS

Storm water / surface water considerations considered included whether the facility was located within the 100-year flood plain and whether the discharge had the potential to impact adjacent surface water drainages located downgradient of the WRF and recharge facility.

The facility is located in the Paisano Wash - Middle Gila River (HUC-10) sub-basin within the Middle Gila River Surface Water Basin. The nearest surface water features include an unnamed ephemeral wash trending north to south located ~0.5 miles east of the WRF; the North Side Canal which flows from northeast to southwest located ~1.0 mile south of the WRF; and the ephemeral Gila River, trending northeast to southwest located approximately 12 miles south of the WRF. The ephemeral wash and the North Side Canal drain into the Gila River.

The facility is not located in a 100-year flood plain and will be protected from run-on during storm events.

VI. COMPLIANCE SCHEDULE

The compliance schedule item is located on page 15 in the permit.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Peoria, 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 permit requires that appropriate documents be sealed by an Arizona-registered geologist or professional engineer. This requirement is part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The City of Peoria, has demonstrated the financial responsibility 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-A203. The estimated dollar amount demonstrated for financial capability is \$159,600.00. The financial capability was demonstrated through A.A.C. R18-9-A203 (B)(2). The permittee is expected to maintain financial capability throughout the life of the facility.

Zoning Requirements

The Butler WRF has been properly zoned for the permitted use and the permittee has complied with all City of Peoria zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(A)(2)(c).

VIII. ADMINISTRATIVE INFORMATION

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.

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

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - APP Unit and Reuse Unit 1
Attn: Monica Phillips
1110 W. Washington Street, Mail Code 5560D
Phoenix, Arizona 85007
Phone: (602) 771-2253