

23rd Avenue Wastewater Treatment Plant
Aquifer Protection Permit #100578
Place ID #979, LTF #69512
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 Phoenix Water Services Department
Mailing Address:	2474 South 22nd Avenue-Building 31 Phoenix, Arizona 85009
Facility Name and Location:	23 rd Avenue Wastewater Treatment Plant 2470 South 22nd Avenue Phoenix, Arizona 85009

Regulatory Status

This Significant Amendment was received on January 5, 2018.

Type of license	License identifier	Effective date
Aquifer Protection Permit:	P-100578	12/22/1999
Aquifer Protection Permit "Major Modification":	P-100578	10/05/2000
Aquifer Protection Permit "Major" Amendment:	P-100578	01/17/2002
Clean closure of sludge drying beds:	P-100578	05/02/2002

Aquifer Protection Permit “Significant” Amendment:	P-100578	08/07/2003
Aquifer Protection Permit “Other” Amendment:	P-100578	09/28/2005
Aquifer Protection Permit “Other” Amendment:	P-100578	03/26/2013

The latest ADEQ inspection report (dated May 22, 2015), indicates that the facility was in compliance with the APP and Arizona rules and statutes.

Facility Description

The permittee is authorized to operate the 23rd Avenue Wastewater Treatment Plant (WWTP), a 63.0 million gallons per day (mgd) activated sludge nitrification-denitrification treatment facility. The treatment process consists of mechanical screens, influent pump station, parshall flume, odor control equipment, grit removal basins, four primary sedimentation tanks, four aeration/biological removal basins and four secondary sedimentation basins, chemical flocculation and tertiary filtration, and disinfection through step chlorination and/or chloramination process.

The effluent maybe be disposed under the valid Arizona Pollutant Discharge Elimination System (AZPDES) Permit AZ0020559 to the Salt River through outfall #002 or up to 60000 acre feet to the Roosevelt Irrigation District (RID) canal through outfall #004, and/or on-site reuse under a valid recycled water general permit R-105415. When the effluent is used for reuse the flows are diverted to the Reclaimed Water Basins. Effluent that is discharged under an AZPDES Permits shall be disinfected and dechlorinated prior to discharge Outfall #002. The sludge is digested in four digesters and then mechanically dewatered.

The WWTP will produce reclaimed water meeting Class B+ Reclaimed Water Standards (A.A.C. R18-11, Article 3) and may be delivered for beneficial use under a valid reclaimed water permit under A.A.C. R18-9, Article 7.

Amendment Description

ADEQ has reviewed and approved this significant permit amendment to:

- Replace Fecal Coliform parameter with *E.coli* in Routine Discharge Monitoring and Reclaimed Water Monitoring Tables, Table IA and Table IB respectively.
- Change the monitoring frequency for asbestos, metals from monthly to quarterly in Routine Discharge Monitoring Table IA.
- Remove the monitoring of turbidity from Routine Discharge Monitoring Table IA.
- Remove the monitoring of Nitrate as N and Nitrite from Routine Discharge Monitoring Table IA.
- Change the monitoring frequency for Volatile and Semi-Volatile Organic Compounds (VOCs and SVOCs), Radionuclides and Pesticides and PCBs from quarterly to semi-annually in Routine Discharge Monitoring Table IA.
- Change the disinfection process from chlorination to step chlorination and/or chloramination and add a new ammonium sulfate feed system for chloramination process.
- Change the sampling point for Reclaimed Water Monitoring sampling.

- Add *Escherichia coli* (*E. coli*) as a verification test of a Total coliform positive test to show an exceedance of the AQL at monitoring well APP-2, in the Groundwater Monitoring Table II.
- Change the frequency for monitoring Total Nitrogen, Nitrate-Nitrite, Nitrate, Nitrite, Total Kjeldahl Nitrogen, and Total Coliform from monthly to quarterly in the Groundwater Monitoring Table II.
- Change the frequency for monitoring VOCs, SVOCs, Radionuclides, Pesticides and PCBs from quarterly to semi-annual in the Groundwater Monitoring Table II.

The permit language has been updated to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The WWTP shall be designed, constructed, operated, and maintained to meet the treatment performance criteria for new facilities as specified in A.A.C. R18-9-B204. The facility shall meet the performance requirement for industrial pre-treatment as per A.A.C. R18-9-B204 (B) (6) (b).

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not result in violations of Aquifer Water Quality Standards at the POC, representative samples of the effluent will be collected at the junction box after the chlorination/dechlorination units and will be monitored daily for flow and *E.coli*, monthly for total nitrogen, metals and asbestos quarterly, for volatile and semi-volatile organic compounds, Radionuclides, Pesticides and Polychlorinated Biphenyls (PCBs) semi-annually.

To ensure that site operations do not result in violation of Reclaimed Water Standards for the beneficial use of Class B+ reclaimed water, representative samples of the reclaimed water will be collected at a sampling point located at Reclaimed Water Basin and will be monitored daily for *E.coli* and monthly for total nitrogen.

To ensure that Aquifer Water Quality Standards will be met at the POC in the aquifer, representative samples of the groundwater will be collected from Monitor Well # APP -2 and will be sampled quarterly for Asbestos, total coliform, total nitrogen, nitrate-nitrite as N, total Kjeldahl nitrogen (TKN), Nitrate as N, Nitrite as N, and metals; for volatile and semi-volatile organic compounds, Radionuclides, Pesticides, PCB and water level semi-annually.

Facility inspections and operational monitoring shall be performed on a routine basis.

IV. HYDROGEOLOGIC SETTING

Point of Compliance

The Points of Compliance are established by the following monitoring locations:

POC #	POC Locations	Latitude North	Longitude West
1	Monitor Well # APP-2 located less than ¼-Mile northwest of the 35 Avenue outfall #002	33° 24' 47.4" N	112° 08' 01.8" W
2	Down gradient from the WWTP. (Conceptual well)	33° 25' 47" N	112° 06' 37" W
3	Down gradient from the outfall at the 27th Avenue alignment's storm water drainage. (Conceptual well)	33° 24' 50" N	112° 06' 58" W

Groundwater monitoring is required at POC #1 (APP-2) only. POC #2 and POC #3 have been designated as Conceptual POCs, to be considered in the future if groundwater conditions change at the facility.

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

V. STORM WATER AND SURFACE WATER CONSIDERATIONS

There are no storm/surface water considerations for this facility. The facility is outside the 100-year flood plain.

VI. COMPLIANCE SCHEDULE

Not required at the time of permit issuance.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Phoenix 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 a 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 permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee will be required to maintain financial capability throughout the life of the facility. The estimated dollar amount demonstrated for financial capability is \$5,377,978.00. The financial capability has been demonstrated through R18-9-A203 (B) (1) and (2).

The financial capability demonstration was met through A.A.C. R18-9 a 203 (B) that applies to applicants that are a local government.

Zoning Requirements

The City of Phoenix 23rd Avenue WWTP has been properly zoned for the permitted use and the permittee has complied with all Maricopa County 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 process.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – APP and Reuse Unit 1
Attn: Monica Phillips
1110 W. Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-2253