

**Beardsley Road Water Reclamation Facility (WRF)  
Aquifer Protection Permit No. P-100091  
Place ID 652 LTF No. 93158  
Significant Amendment**

**I. Introduction:**

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an 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. 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 (AWQS) at the Point of Compliance (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose 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.

**II. Permittee & Facility Location:**

Permittee: City of Peoria  
  
Facility Location: 19980 N. 111<sup>th</sup> Ave.  
Sun City, AZ 85373

**III. Facility Description:**

The permittee is authorized to operate the Beardsley Road Water Reclamation Facility (WRF), with a maximum average monthly flow of 6.0 million gallons per day (mgd) upon modification of the treatment plant. The Department has graded this facility as a Grade 4 wastewater treatment plant. The facility shall have an operator in direct responsible charge who is certified for the grade of the facility and inspects the facility "Daily" for a Grade 4 WWTP.

**Existing Phase:** The Existing WRF is rated at 4.0 mgd capacity and consists of headworks with two parallel screen channels, one new and one existing bar screen with washer and compactor, two grit chambers, a septage receiving station, an influent pump station, aeration basins with anoxic and aerobic zones with nitrification and denitrification, three secondary clarifiers, three travelling bridge filters, ultraviolet (UV) disinfection, and an effluent pump station. All the sludge generated is pumped to the sanitary sewer for treatment at the Butler WRF (APP# 105401). The WRF is classified as producing Class A+ reclaimed water pursuant to A.A.C. R18-11, Article 3. The effluent is recharged to a series of rapid infiltration basins (RIBs) located at the WRF site or reused under a valid Recycled Water Permit. The WRF consists of twelve RIBs from which effluent is discharged to eight active RIBs. Effluent is discharged through RIBs #5, #6, #7, #8, #9, #12, #13 and #14. RIBs #12 and #13 have three permeability trenches each and RIB #14 has eight drain holes to increase the recharge efficiency. The RIBs #1 through #4 are not in operation, but may be used as contingency for disposal of treated effluent. All twelve of these RIBs must be maintained.

**Upgraded Phase:** The Upgraded WRF will be rated at 6.0 mgd. Upon completion, the upgraded WRF will consist of a headworks with two parallel channels, each with a mechanical bar screen, washer and compactor, a bypass channel with a manual bar screen, two grit chambers, a septage receiving station, an influent pump station with five 2,080 gpm submersible centrifugal pumps, aeration basins with anoxic and aerobic zones for nitrification and denitrification, hydrocyclones for sludge densification, four new 4,000 scfm blowers, four secondary clarifiers, two RAS/WAS pump stations, two AquaDiamond cloth media filters, ultraviolet (UV) disinfection unit, and an effluent pump station. The effluent will be chlorinated prior to discharging to the reclaimed water lines. All the sludge generated will be pumped by the solids pump station to the sanitary sewer for treatment at the Butler WRF (APP# 105401). The WRF is classified as producing Class A+ reclaimed water pursuant to A.A.C. R18-11, Article 3. The effluent is recharged to a series of rapid infiltration basins (RIBs) located at the WRF site or reused under a valid Recycled Water Permit. The WRF consists of twelve RIBs from which effluent is discharged to eight active RIBs. Effluent is discharged through RIBs #5, #6, #7, #8, #9, #12, #13 and #14. RIBs #12 and #13 have three permeability trenches each and RIB #14 has eight drain holes to increase the recharge efficiency. The RIBs #1 through #4 are not in operation, but may be used as contingency for disposal of treated effluent. All twelve of these RIBS must be maintained.

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the applicable federal, state or local regulations.

#### **IV. Amendment Description:**

The purpose of this amendment is to upgrade the existing treatment train capacity from 4.0 mgd to 6 mgd by retrofitting or existing treatment units.

The existing treatment train will be upgraded to add new treatment components including an influent flow meter, bar screen with a washer and compactor, a bypass channel with a manual screen, two grit chambers, upgrade the influent pump station by replacing existing pumps with five new submersible centrifugal pumps, replace diffuser membranes in the aeration basins, add hydrocyclones for sludge densification, replace existing blowers with four new blowers, add a new fourth secondary clarifier, add a new RAS/WAS pump station, retrofit the existing travelling bridge filters with two AquaDiamond cloth media filters, add a new UV disinfection unit, add a new effluent pump station with recharge flow pumps, reclaimed water pumps and non-potable water pumps.

The permit category for this amendment was determined to be “Significant Amendment” as per A.A.C. R18-9-A211(B)(2)(b) for an increase in the design flow that is greater than 10% for the existing permitted capacity.

#### **V. Regulatory Status**

The facility was found in compliance per the last inspection. This amendment was received on April 27, 2022.

**VI. Best Available Demonstrated Control Technology (BADCT):**

The WRF 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).

**VII. Compliance with Aquifer Water Quality Standards (AWQS):**

Table 8 and Table 9 in the permit requires monitoring of flow and discharges required for Existing Phase and Upgraded Phase. Table 10 requires monitoring the discharge from the both phases, monthly for Total Nitrogen, daily for fecal coliform, quarterly for metals, and semi-annually for volatile organic compounds (VOCs). Table 11 requires monitoring the Class A+ reclaimed water continuously for turbidity, daily for fecal coliform and monthly for total nitrogen. Groundwater monitoring shall be conducted monthly for Total Coliform and Nitrogen species, quarterly for metals, and semi-annually for VOCs.