

**Pecan Wastewater Reclamation Facility
Aquifer Protection Permit No. P-105324
Place ID 18583, LTF No. 77132
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:

The facility is located at 38539 N, Gantzel Road, in Queen Creek, Arizona in Pinal County.

III. Facility Description:

Johnson Utilities, LLC is authorized to operate the Pecan Water Reclamation Plant (WRP) with a maximum average monthly flow of 4.0 million gallons per day (mgd). The WRP shall be constructed in four (4) phases, designed as identical treatment trains intended to treat 1.0 mgd each. At the time of permit issuance, Phases 1, 2, and 3 have been constructed which limits the facility to a maximum monthly flow of 3.0 mgd. Raw wastewater enters the influent lift station and is pumped to the common headworks with bar screen, where it is diverted to the separate treatment trains.

Existing WRP: The treatment process in each train consists of extended aeration with nitrification and denitrification, clarifiers and sludge digester. In addition to the treatment trains, the treatment process also includes an existing filter and a new disk filter, a chlorine disinfection and de-chlorination system, two (2) sludge dewatering belt filter presses, and an effluent pump station. The effluent discharging to AZPDES outfalls will only be de-chlorinated. The discharge monitoring for TTHMs shall be conducted per Table 11: TOTAL TRIHALOMETHANE MONITORING. The sludge, including screenings, grit and scum, shall be hauled off site for management and disposal at a state approved facility.

Upgraded WRP: The treatment process in each train consists of extended aeration with nitrification and denitrification, clarifiers and sludge digester. In addition to the treatment trains, the treatment process also includes an existing filter and a new disk filter, a new ultraviolet (UV) disinfection unit, a backup chlorine disinfection and de-chlorination system, two (2) sludge dewatering belt filter presses, and an upsized effluent pump station. The effluent discharging to AZPDES outfalls will only be de-chlorinated when chlorine disinfection is used and at such time discharge

monitoring for TTHMs will be required per Section 2.6.1.1. The sludge, including screenings, grit and scum, shall be hauled off site for management and disposal at a state approved facility.

The effluent shall be reused under a valid Class A+ reclaimed water permit, recharged through recharge basins, vadose zone recharge wells and/or direct aquifer injection recharge wells, discharged to subsurface leach field located in Queen Creek Wash or discharged to Queen Creek Wash under a valid AZPDES permit. The discharge to the subsurface leach field and to the Queen Creek Wash outfalls are intended to occur on emergency basis and for temporary durations when other disposal or beneficial reuse options are unavailable.

IV. Amendment Description:

ADEQ reviewed and approved the following changes in the permit:

- Addition of a new cloth media disk filtration unit to provide additional capacity and redundancy.
- Replacement of the existing UV disinfection unit with a new UV unit. The existing UV unit is out of operation and currently the facility is chlorinating the effluent prior to discharge.
- Addition of a de-chlorination system for discharge going to Queen Creek Wash when a backup chlorine disinfection system is utilized for disinfection.
- Approval of existing recharge basins to discharge the effluent.
 - These basins were originally permitted as pecan groves. The facility no longer maintains the pecan groves and used these basins, in part, to recharge the effluent without an approval.
- Approval to discharge the effluent through subsurface leach field located within Queen Creek Wash
- Approval to discharge the effluent to Queen Creek Wash at Outfall 002 and Outfall 003
- Update the total number of 54 active vadose zone recharge wells to 55 at the site and allow the four (4) direct injection wells to be installed as one-to-one replacements for four (4) retired vadose zone recharge wells.

The permit category for this amendment was determined to be a ‘Significant Amendment’ as per A.A.C. R18-9-A211(B)(9) because these changes are a “material and substantial alteration or addition to a permitted facility, including a change in disposal method”.

V. Regulatory Status:

- Johnson Utilities, LLC was issued an Notice of Violation (NOV), Case ID 177207, on August 6, 2018 for violations including, but not limited to, exceedances of the reclaimed water turbidity standards; misapplication of reclaimed water; failure to submit permit compliance schedule items; unauthorized modifications in the treatment plant; and discharging to unpermitted recharge basins without an aquifer protection permit.

- Johnson Utilities, LLC was issued a NOV, Case ID 175167 on April 30, 2018 for unauthorized discharges of untreated sewage to Queen Creek in violation of Arizona's surface water regulations.
- On May 23, 2019, the ADEQ and the Arizona Attorney General's Office filed a civil case in the Arizona Supreme Court for violations against Johnson Utilities for drinking water, surface water, and groundwater violations, which included, but was not limited to, the Pecan Water Reclamation facility. The civil complaint was amended on August 5, 2019.
- This amendment, in part, is in response to the NOV to add filters to meet turbidity limits, to submit compliance schedule items, to approve disinfection system and to permit the recharge basins.

VI. Best Available Demonstrated Control Technology (BADCT):

The treatment facility 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).

The treatment facility shall not exceed a maximum seepage rate of 550 gallons per day per acre for all containment structures within the treatment works.

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

To ensure that site operations do not result in violation of Aquifer Water Quality Standards at the POC, representative samples of the effluent will be collected from the effluent pump station and will be monitored daily for *E. coli*, monthly for total nitrogen, quarterly for metals, semi-annually for volatile and semi-volatile organic compounds.

To ensure that site operations do not result in violation of Reclaimed Water Standards for the beneficial use of Class A+ reclaimed water, representative samples of the reclaimed water will be collected from the effluent pump station and will be monitored daily for *E. coli*, daily for turbidity, monthly for total nitrogen, and on a monthly/suspended basis for enteric virus.

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 MW-2, and will be sampled monthly for *E. coli*, total nitrogen, nitrate-nitrite as N, nitrate as N, nitrite as N, total Kjeldahl nitrogen (TKN) and minimum depth to water, quarterly for metals, semi-annually for volatile and semi-volatile organic compounds.

The Pollutant Management Area (PMA) is presented in Figure 1 below. There are four (4) associated PMA's for the Pecan WRP: the first PMA covers the extent of the Pecan WRP property boundary including the four recharge basins, the second and third PMAs cover the extent of the AZPDES outfalls 1 and 2 into Queen Creek, and the fourth PMA covers the extent of the leach line. The DIA extents with full build out flow of 4 mgd and with discharge through the recharge trains, vadose zone wells, the outfalls and leach field are presented on Figure 2, attached below, along with the groundwater mounding level contours for the maximum recharge scenario.

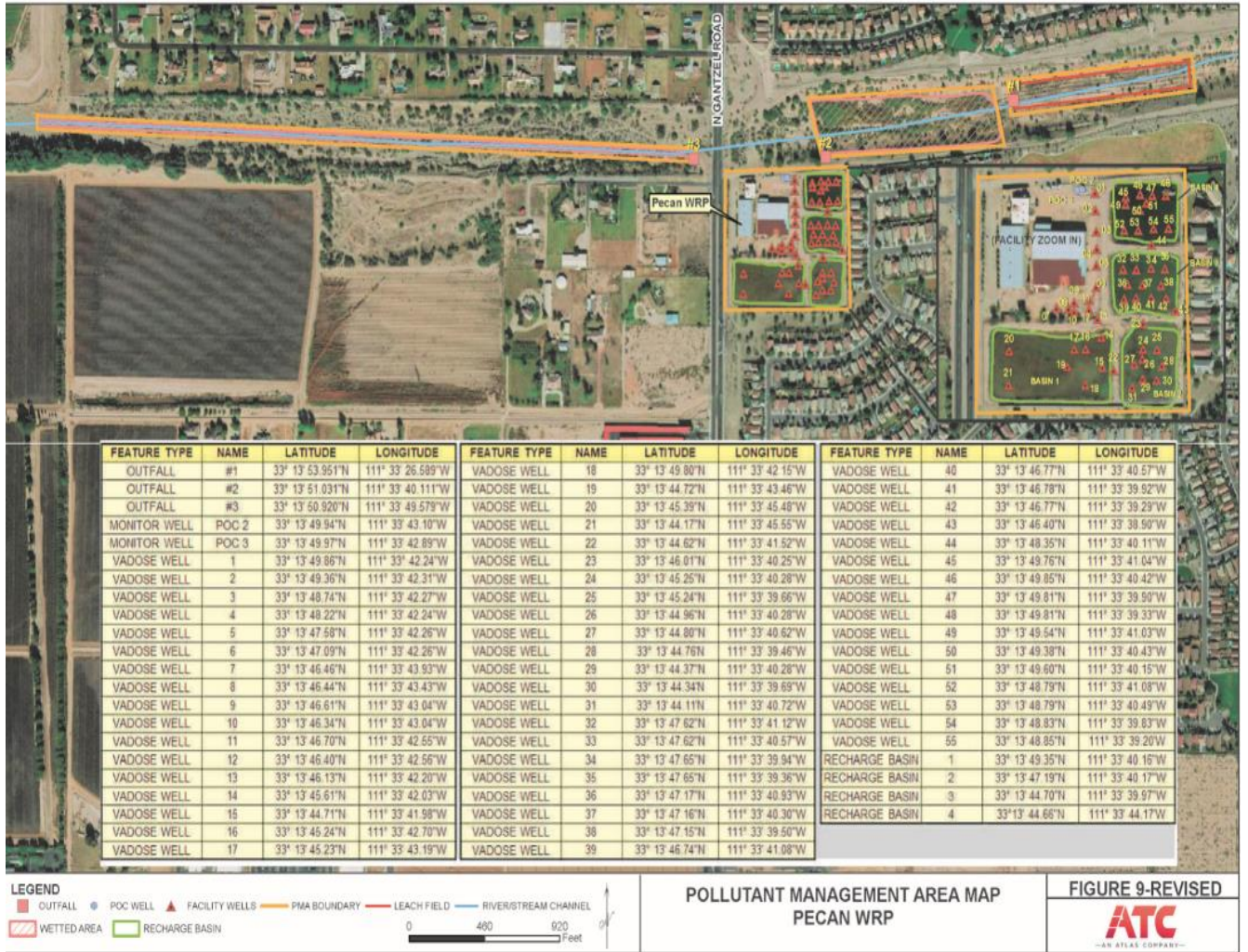


Figure 1- Pollutant Management Area Map

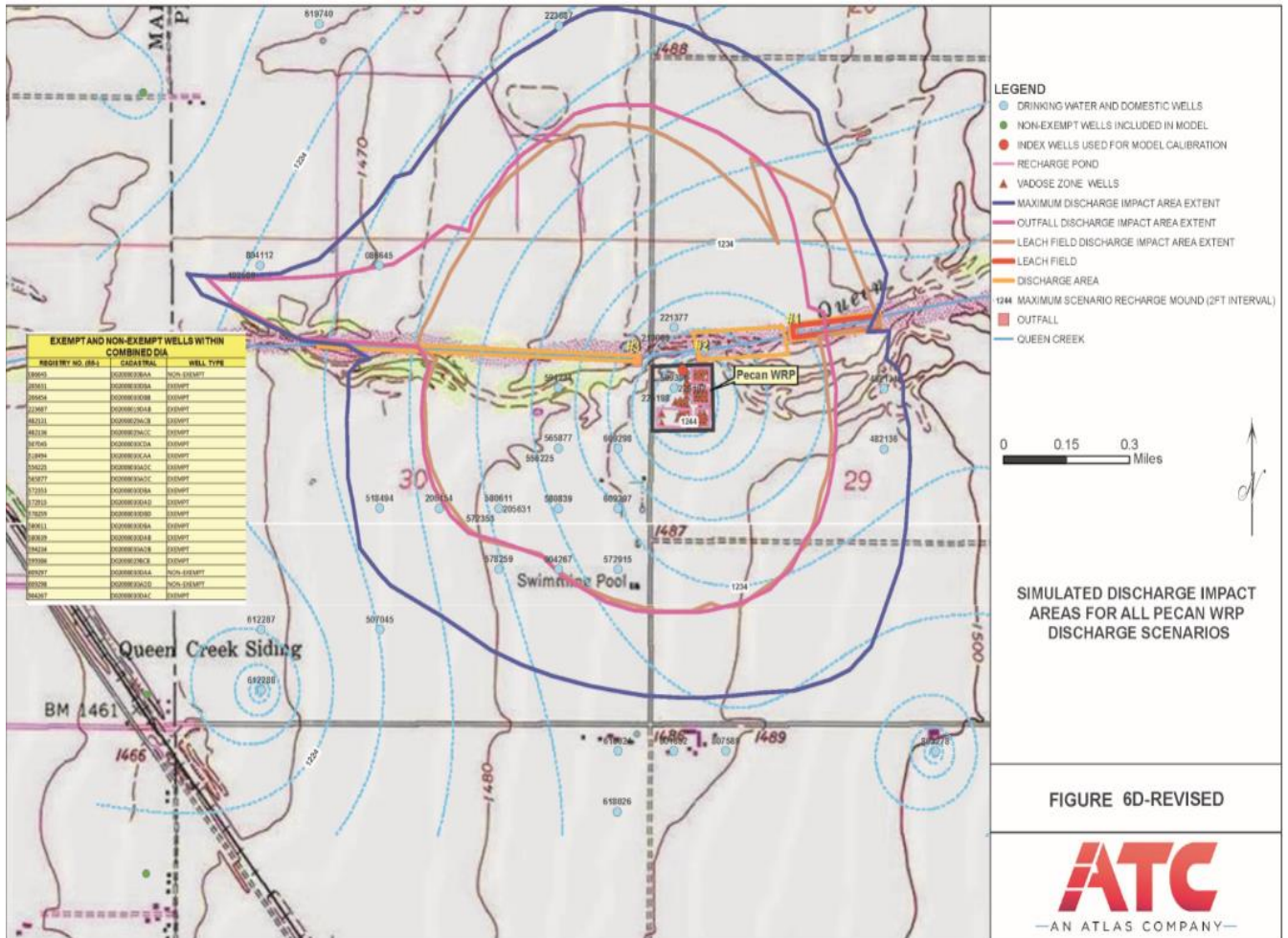


Figure - 2 Discharge Impact Area Map