

Trillium Water Reclamation Facility Interim Phase
Aquifer Protection Permit No. P-513922
Place ID 224802, LTF No. 94162
New Permit

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 will be located west of the Wagner Wash on the northwest corner of Wintersburg Parkway and Johnson Road in the Trillium at Douglas Ranch Community in Buckeye, Arizona 85396

III. Facility Description:

The permittee is authorized to operate the Trillium Water Reclamation Facility Interim Phase (TWRFIP) with a maximum average monthly flow of 300,000 gallons per day. The ADEQ has graded this facility as a Grade 2 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 Weekly.

During the initial start-up period, up to 24,000 gallons per day of influent may be vaulted and hauled off-site to an approved facility as per Section 4.1, Table 6: INITIAL START-UP PLAN.

The Trillium Water Reclamation Facility Interim Phase includes a six-foot diameter influent pump station (IPS) with two 530 GPM pumps on VFDs, which lifts influent from the IPS to a 0.75 mgd mechanical in-channel shaftless spiral screen with a bypass pipe that automatically bypasses flow to the package plants flow equalization basin. The screen has an automatic washer and screw press compactor that dump into a 4-yard roll-away dumpster. The package plant will consist of a 100,000-gallon equalization tank with three (2 duty, 1 standby) 104 gpm grinder pumps and a 15HP/300scfm blower. The three grinder pumps send flow to a splitter box that evenly distributes influent to two IFAS process trains with suspended activated sludge and HDPE media for attached biofilm growth. Each of the IFAS treatment trains consist of a pre-anoxic tank, two reaction tanks (Tank A/Tank B), a post anoxic tank, a circular clarifier, and a sludge holding tank. Both anoxic tanks have two mixers each. The reaction tanks for both trains share three 40HP/991scfm blowers (2 duty, 1 standby) that deliver air to coarse bubble diffusers. Activated sludge is returned from the clarifiers to the pre-anoxic tank where it is mixed with influent or wasted from the clarifiers to

the sludge holding tank via an air lift pump in each train. A separate airlift pump in each train also removes scum from the clarifier and sends it to the sludge holding tank. Airlift pumps are supplied by a single 5hp/75scfm blower that serves both trains. The two 17,000-gallon sludge holding tank are supplied air by a common 15HP/300scfm blower. Effluent from the clarifiers is sent to a disk filter unit with three disks and a capacity of 0.3 mgd. Effluent from the disk units travel through a 0.3 mgd UV system before being pumped by a reclaimed water pump station with two (1 duty, 1 standby) 245 gpm pumps. Trillium Water Reclamation Facility Interim Phase will produce an effluent meeting Class A+ Reclaimed Water Standards Treated effluent from the UV system will be discharged to the Reclaimed Water Pump Station, which will convey flows to the lake located in the Trillium Development and reused for irrigation within the Trillium at Douglas Ranch Community or discharged to the Wagner Wash under a valid Arizona Pollutant Discharge Elimination System (AZPDES) permit (No. AZ0026221). A sodium hypochlorite feed system will be utilized at the non-potable water pump station to maintain a chlorine residual when not discharging to Wagner wash. A polymer feed system is utilized during high turbidity events as required by A.A.C. R18-11-303.

Biosolids will be dewatered with a 1.0-meter belt filter press fed by a single 100 gpm pump. Biosolids and screenings will be hauled off-site, and disposed of an approved landfill in accordance with state and federal regulations.

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. Best Available Demonstrated Control Technology (BADCT):

The Trillium Water Reclamation Facility Interim Phase 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 facility will:

- Be constructed with parallel unit processes capable of treating raw wastewater with one unit out of service ultimately based around increased facility reliability and redundancy
- Denitrify the effluent to below 10.0 mg/l for total nitrogen. This treatment Plant technology is considered to meet BADCT requirements;
- Utilize biological denitrification, Disk filtration and UV disinfection to produce a class A+ effluent;
- Will disinfect through 0.75 MGD UV disinfection system. Chlorine facilities are available to add a chlorine residual after the discharge location to Wagner Wash to protect the reclaimed water distribution system. Dechlorination is not included as part of this permit.

Treatment Plant technology is considered to meet BADCT requirements.

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

The POC well for this facility is conceptual and well monitoring is not required except as a contingency action.