

SARIVAL WATER RECLAMATION FACILITY (WRF)

Aquifer Protection Permit No. P-513981

Place ID 224864, LTF No. 95217

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 conceptual 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 Sarival WRF is located at 1570 N. Sarival Ave. in Goodyear, Arizona located in Maricopa County. The permittee, Liberty Utilities (Litchfield Park Water & Sewer) Corporation, is located at 14920 W. Camelback Rd. in Litchfield, Arizona, also in Maricopa County and is in "good standing" with the Arizona Corporation Commission.

III. Facility Description:

The permittee is authorized to operate the Sarival WRF, with a maximum average monthly flow of 4.4 mgd. The ADEQ 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.

The Phase 1 Sarival WRF includes an existing influent pump station (IPS) which includes three (3) new 5.0 mgd pumps that lift influent to a headworks consisting of two (2) 6mm mechanical coarse screens, two (2) vortex grit removal units and classifiers, and two (2) perforated 2mm fine screens. The IPS and headworks are fully enclosed with a 4,000 CFM activated carbon media odor control system equipped with a mist eliminator (with spare element) and redundant fan. From the headworks, influent is mixed with return activated sludge (RAS) in a trough prior to being sent to two (2) Closed Loop Reactor (CLR) secondary treatment process trains. Each CLR contains an anoxic zone with two low-speed geared mixers, a swing zone and aeration zone with fine bubble diffusion. From the CLRs, mixed liquor suspended solids (MLSS) flows, via equalizer pipes, to a feed trough. From the feed trough, four (4) dedicated 9.1 mgd feed pumps feed MLSS to four (4) membrane bio-reactor (MBR) separation tanks. From the MBR trains, four (4) permeate pumps deliver effluent to two (2) chlorine contact basins that utilize sodium hypochlorite, and a final effluent reclamation pump station with three (3) recycled water pumps. Two (2) Waste Activated Sludge (WAS) pumps will convey sludge and scum from the MBR separation tanks/WAS Collection Pit to the Sludge Holding Tank (SHT) located at the Bio-solids Dewatering Building. The dewatering equipment will consist of an aerated SHT and two (2) centrifuges, as part of a packaged skid system, which will dewater sludge to a cake. The aerated WAS storage tank will have a nominal capacity of 12,000 gallons and a connection for emergency liquid hauling. In an emergency, liquid sludge can be transported to the Liberty's Palm Valley WRF (APP Inventory #100310) for storage and dewatering prior to disposal. The dewatered solids will be

discharged to an off-loading conveyor and transferred to 20-ton roll-off bins. Dewatered solids, screenings and grit will be hauled off to an approved landfill for disposal. The biosolids dewatering building is fully enclosed with a 12,000 CFM activated carbon media odor control system equipped with a redundant fan.

The new Sarival WRF will utilize the existing Liberty effluent reuse distribution system, which currently supplies customers with Class A+ recycled water under valid reuse permits, and also provides groundwater recharge at Liberty's Sustainable Effluent Aquifer Project (SEAP) site (APP Inventory #514107) located at Northwest corner of Camelback Rd. and Bullard Ave. The existing Palm Valley effluent distribution system has an AZPDES permit (AZ0025712) and agreement with Roosevelt Irrigation District (RID) to discharge treated effluent (not requiring dechlorination) to their irrigation canal where it crosses under North Bullard Ave. Additionally, the Sarival WRF will have a new, second discharge point to the RID canal under a valid AZPDES permit (AZ0026425). This new discharge point will be located on the north side of the new treatment plant site and on the south side of the existing canal and will be designed to accommodate the full capacity of the effluent discharge pump station. Dechlorination is not required under this permit.

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 Sarival 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).

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 MBR membrane technology to produce a class A+ effluent;
- Will disinfect through chlorine contact basins utilizing sodium hypochlorite. Dechlorination is not included as part of this permit.
- Two activated carbon odor control systems will capture odors from the fully enclosed IPS, headworks, and biosolids dewatering facility.

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

To ensure that site operations do not violate the Reclaimed Water Quality Standards for the beneficial use of Class A+ reclaimed water, the permittee will monitor the reclaimed water at effluent auto sampler, downstream of the chlorine contact chamber. (see Section 4.2, Table 7: ROUTINE DISCHARGE MONITORING, in the permit). The permittee will monitor the reclaimed water daily for flow rate, fecal coliform and turbidity, monthly for total nitrogen, and on a monthly/suspended basis for enteric virus.

Facility inspection and operational monitoring will be performed on a routine basis (see Section 4.2, Table 9: FACILITY INSPECTION AND OPERATIONAL MONITORING, in the permit).