

**SUSTAINABLE EFFLUENT TO AQUIFER PROJECT (SEAP)**

Aquifer Protection Permit No. P-514107

Place ID 230271, LTF No. 96954

**New Individual APP**

**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 Liberty Utilities (Litchfield Park Water & Sewer) Corporation owns and operates the Sustainable Effluent to Aquifer Project located at 14920 West Camelback Road, Litchfield Park, Maricopa County, Arizona, 85395, over the groundwater of the Phoenix Active Management Area. The Litchfield Park Water & Sewer offices are located at 14920 W. Camelback Rd., Litchfield Park, Goodyear, Maricopa County, Arizona 85340.

**III. Facility Description:**

The permittee is authorized to operate the Sustainable Effluent to Aquifer Project (SEAP) to recharge up to an annual average of 5.4 million gallons per day (mgd).

The SEAP is 56.77 acres in size and receives effluent from the Palm Valley Water Reclamation Facility (WRF) (APP No. 100310), the Sarival WRF (APP No. 513981) and 157th WRF (APP No. 101324). An interconnection between the Palm Valley (which includes the Sarival WRF) reclaimed water distribution system and the City of Goodyear 157th Avenue WRF reclaimed water distribution system allows reclaimed water to flow either way between the systems. The effluent is treated at these three WRFS to Class A+ Standards. The SEAP facility shall also include flowmeters, pipeline distribution system and controls, and associated groundwater compliance monitoring points required by the Underground Storage Facility (USF). The Facility is located on 9.04 acres (basin floor area) consisting of four recharge basins which were designed with a recharge capacity of up to 5.4 mgd (6,000 acre feet per year).

Recharge Basin No. 3 includes eight trenches that are approximately 200 feet (ft) long and 50 ft apart. Each trench is 4 ft wide by 10 ft deep with an actuated valve and perforated pipe to discharge effluent along the trench. Each trench has 5 bores, 4 ft in diameter, 50 ft deep, 50 ft center-to-center. The bottom 15 ft of the bores (between 35 to 50 feet below ground surface (ft bgs)) is where the effective recharge is occurring, the design area produces 7,536 sq ft of effective recharge.

Recharge Basin No. 2 includes a total of ten trenches, each approximately 200 feet long, 45 feet apart. Each trench is 4 ft wide by 7.5 ft deep with an actuated valve and perforated pipe to discharge effluent along the trench. Trench 1 through 7 each have 6 bores 36 ft center-to-center, Trench 8, 9 and 10 each have 5 bores 42.5 ft center-to-center. Bore holes are 4 ft in diameter and 50 ft deep. The effective recharge zone is between 35 to 50 ft bgs, therefore the effective recharge area is 11,304 sq ft.

Recharge Basins No. 1 and No. 4 do not include trenches or bores.

#### **IV. Permit History:**

The Liberty Utilities Sustainable Effluent to Aquifer Project (SEAP) (previously referred to as the Litchfield Aquifer Replenishment Facility (LARF)) was previously permitted under the Palm Valley Water Reclamation Facility (WRF) APP # 100310. Liberty Utilities is seeking to separate the two facilities into their own APPs due to the distance between the facilities.

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

There are no open enforcement actions for the SEAP.

#### **VI. Financial Capability**

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The estimated dollar amount for facility closure is \$998,525. The financial capability was demonstrated through a Letter of Credit A.A.C. R18-9-A203(C)(5).

#### **VII. Best Available Demonstrated Control Technology (BADCT):**

The SEAP 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 receive effluent from an ADEQ permitted facilities that meets the performance requirement for industrial pre-treatment as per A.A.C. R18-9-B204(B)(6)(b).

Full-Scale Pilot Recharge at Liberty Aquifer Replenishment Facility was designed as per the design report and plans signed, dated, and sealed by Norman W. Fain III, P.E. (Civil #25969) with Fluid Solutions on November 12, 2019 and February 3, 2020.

The SEAP was designed and constructed as per the design report and plans signed, dated, and sealed by Thomas Anthony Martinez, P.E. (Civil #32983), with Westland Resources Inc. on July 14, 2015.

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

Flow monitoring is required at the SEAP, and effluent quality monitoring is conducted under the Palm Valley WRF (APP No. 100310), Sarival WRF (APP No. 513981), and 157th Ave WRF (APP No. 101324). The effluent is treated to Class A+ Standards before it is received at the SEAP from the combined reclaimed water system.

The direction of the groundwater is to the northwest and depth to groundwater ranges from 110 ft bgs to 125 ft bgs. Groundwater monitoring is required at POC Well #2.