

City of Chandler Regional Park Recharge Facility

Aquifer Protection Permit 103145

Place ID #49, LTF #64875

SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an Aquifer Protection Permit for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to A.A.C. R18-9-A213. This document gives pertinent information concerning the issuance of the permit. 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 at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	City of Chandler
Mailing Address:	975 E. Armstrong Way, Bldg L Chandler, Arizona 85286
Facility Name and Location:	City of Chandler Regional Park Recharge Facility (also known as the Tumbleweed Recharge Facility) West of McQueen Road, just south of Germann Road Chandler, Arizona 85286 Maricopa County

Regulatory Status

This significant amendment application was received on February 5, 2018.

Listed in the table below are various wastewater licenses issued by ADEQ to the permittee pertaining to the facility:

Type of License	License Identifier	Effective Date
Aquifer Protection Permit (APP) (original)	103145	6/5/1997
APP Modification	103145	7/21/1998
APP Modification	103145	4/24/2001
APP Significant Amendment	103145	8/28/2003
APP Other Amendment	103145	2/3/2004
APP Other Amendment	103145	2/16/2005
APP Significant Amendment	103145	1/23/2007

APP Other Amendment	103145	3/27/2015
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Facility Description

The permittee is authorized to operate an underground storage and recovery project for the recharge of up to 20 million gallons per day (mgd) of effluent. The effluent is delivered from the City of Chandler Airport Water Reclamation Facility (WRF), the City of Chandler Ocotillo WRF, and the City of Chandler Ocotillo Brine Reduction Facility. The effluent is recharged at the Chandler Regional Park Recharge Facility (also known as the Tumbleweed Recharge Facility) by means of aquifer storage and recovery (ASR) wells. The facility currently operates 10 ASR wells and will be adding five (5) more ASR wells. Each well is connected to existing reclaimed water and purge water system located throughout the facility.

The Airport and the Ocotillo WRFs produce tertiary treated effluent which meets Aquifer Water Quality Standards as regulated under Aquifer Protection Permit (APP) Nos. P-103170 and P-100140, respectively. The new source of effluent to be added to this permit for recharge emanates from the Ocotillo Brine Reduction Facility, which treats process water from the Intel Ocotillo Campus and produces effluent which meets Aquifer Water Quality Standards as regulated under APP No. P-102865.

The depth to groundwater is approximately 100 feet below the recharge facility and the direction of groundwater flow is to the northwest.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude	Screen Intervals (ft, bls)
ASR 1	33° 16' 12.0" N	111° 49' 56.7" W	60-222, 260-335
ASR 2	33° 16' 10.9" N	111° 49' 45.8" W	61-221, 261-336
ASR 3	33° 16' 11.8" N	111° 49' 38.7" W	60-220, 260-335
ASR 4	33° 16' 18.3" N	111° 49' 57.2" W	60-220, 260-335
ASR 5	33° 16' 34.7" N	111° 49' 57.3" W	60-260, 300-335
ASR 6	33° 16' 10.9" N	111° 50' 02.4" W	60-220, 260-335
ASR 7	33° 16' 10.8" N	111° 50' 11.4" W	60-221, 261-329
ASR 8	33° 16' 14.8" N	111° 49' 53.9" W	60-220, 260-335
ASR 9	33° 16' 15.4" N	111° 49' 57.2" W	60-220, 260-335
ASR 10	33° 16' 28.9" N	111° 50' 00.3" W	60-220, 260-335
Proposed ASR Wells:			
ASR 11	TBD	TBD	60-220, 260-335
ASR 12	TBD	TBD	61-221, 261-336
ASR 13	TBD	TBD	60-220, 260-335
ASR 14	TBD	TBD	60-220, 260-335
ASR 15	TBD	TBD	60-260, 300-335

Amendment Description

ADEQ has reviewed and approved the following changes under this amendment as follows:

- Increase the recharge flow from 10 mgd to 20 mgd.
 - Add five new ASR wells.
- Other changes include updating the permit language to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

Underground storage and recovery projects are exempt from BADCT as per A.A.C. R18-9-A201(C). The treatment facilities supplying effluent for recharge under this permit are regulated under separate Aquifer Protection Permits and meet BADCT requirements.

III. HYDROGEOLOGIC SETTING

The facility is located over groundwater in the East Salt River Valley Sub-Basin of the Phoenix Active Management Area (AMA) within the Basin and Range Physiographic Province and Middle Gila Watershed. The Basin and Range Physiographic Province is defined by uplifted blocks or mountain ranges with intervening alluvial basins or valleys, created by extensional (pull apart) faulting. The elongated basins and ranges typically trend northwest-southeast and parallel one another. The alluvial basin which comprises the East Salt River Valley is divided into three major subsurface alluvial units called the Upper, Middle and Lower Alluvial Units. Each alluvial unit consists of interbedded mixtures of gravel, sand and clay. Alluvium within the first 200 feet of the surface is typically a fine-grained/ silty sand grading to coarser sands with gravel with depth. Lenses of clay and silty clay are also present.

Groundwater may be present in three major subsurface alluvial units. Historically, groundwater flow in all three units appears to have been west-northwestward with the aquifer being found in all three units under unconfined to confined conditions. Currently flow in the Upper Alluvial Unit is northwest towards the Salt River at a depth of approximately 100 feet beneath the facility.

According to the hydrology report submitted in the application the additional volume is not anticipated to cause any major groundwater fluctuations. Also while reviewing the application there is one change to the POC wells OBS-3A was replaced by OBS-3A(R) due to submerged water level. OBS-3A(R) now has a screened interval of 50-80, 90-115 ft. bls. The screened interval of ARS 1 to ARS 10 range from 60-336 ft. bls and ARS 11 to ARS 15 will have the same screened interval as the other ARS wells.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

Storm water and surface water considerations include whether the facility is located within the 100-year flood plain and whether the discharge has the potential to impact nearby surface water drainages. The facility is located in the Middle Gila Surface Water Basin, approximately 0.5 to 1.0 miles west of the north-south trending East Branch of the Consolidated Canal. The Consolidated Canal diverts water from the Salt River to irrigation sites south of the facility. Surface water drainages in the area have been disturbed by irrigation practices but presumably

flowed southwestward in response to storm events to drain into the Gila River which is located about 12 miles to the southwest.

The Flood Insurance Rate Map (FIRM Maricopa County Panel 2665 of 4350, Map #04013C2665 E) was submitted showing a 100-year floodplain trending north-south along the east side of the Southern Pacific Railroad located on the northwestern and western half of the site. A second floodplain is located on the east side of the north-south trending East Branch of the Consolidated Canal located approximately 0.5 to 1.0 miles east of the project site. The ASR and monitor wells are protected from damage due to flooding by containing an annular seal to prevent water penetration and containment of wellhead equipment within a sealed concrete vault with access lids at least 1 foot above the base flood elevation.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

The Airport and Ocotillo WRFs produce tertiary treated effluent which meets Aquifer Water Quality Standards as regulated under Aquifer Protection Permit (APP) Nos. P-103170 and P-100140, respectively. The Ocotillo Brine Reduction Facility produces effluent which meets Aquifer Water Quality Standards as regulated under APP No. P-102865. Flow will be monitored as required by the permit prior to recharge. Groundwater monitoring is required under this permit as per Section 4.2, Tables IIA and IIB. In Table IIA, Aquifer Quality Limits (AQLs) were set equivalent to the applicable AWQS for parameters with numeric AWQS in OBS-2a. In Table IIB, AQLs were set equivalent to the numeric AWQS for all parameters except nitrogen in OBS-3a(R). ALs were set at 80% of the AQLs per standard industry practice.

Point of Compliance (POC)

The Points of Compliance (POCs) have been established at the following locations:

POC #	POC Location	Latitude	Longitude	ADWR #
1	180' west of the intersection of Germann Road and Hamilton Street Well - OBS-2a	33° 16' 35" N	111° 49' 59" W	55-582431
2	Northeast corner of the property boundary Well - OBS-3a(R)	33° 16' 35.7" N	111° 49' 32.1" W	55-226954

Routine groundwater monitoring is required at POCs 1 and 2. OBS-2a is a 6-inch diameter steel-cased well completed to 335 feet and screened from 100-330 feet. OBS-3a(R) is a 5-inch PVC-cased well completed to a depth of 167 feet and screened from 50-155 feet. The monitor wells are designed to monitor the aquifer within the zone of aquifer injection by the ASR wells.

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

VI. COMPLIANCE SCHEDULE

The permittee shall submit a signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department that confirms that the ASR Wellhead is constructed according to the Department-approved design report or plans and specifications, as applicable.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Chandler has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202 (B).

The permit requires that appropriate documents be sealed by an Arizona-registered geologist or professional engineer. This requirement is a part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The City of Chandler has demonstrated the financial responsibility necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The estimated dollar amount demonstrated for financial capability is \$616,269.00. The permittee is expected to maintain financial capability throughout the life of the facility.

Zoning Requirements

The City of Chandler Regional Park Recharge Facility has been properly zoned for the permitted use and the permittee has complied with applicable zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(B)(3).

VIII. ADMINISTRATIVE INFORMATION

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit.

Public Comment Period (A.A.C. R18-9-109(A))

The Department shall accept written comments from the public before a significant permit amendment is made. The written public comment period begins on the publication date of the public notice and extends for 30 calendar days. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality

Water Quality Division – Groundwater Protection Value Stream – APP and Reuse Unit 1

Attn: Monica Phillips

1110 West Washington Street, Mail Code 5600D-3

Phoenix, Arizona 85007

Phone: (602) 771-2253