

City of Cottonwood Wastewater Treatment Plant
Aquifer Protection Permit #101434
Place ID #582, LTF #60143
SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to the 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. 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 (POC); 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., 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.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	City of Cottonwood
Mailing Address:	1480 West Mingus Avenue Cottonwood, Arizona, 86326
Facility Name and Location:	City of Cottonwood Wastewater Treatment Plant 1480 West Mingus Avenue Cottonwood, Arizona, 86326

Regulatory Status

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
APP	P-101434 (14477)	03/12/1996

Type of license	License identifier	Effective date
Major modification	P-101434 (14843)	04/08/2000
Major modification	P-101434 (14839)	08/04/2000
Significant Amendment (to add reuse as a method of effluent disposal and to classify effluent to Class A+)	P-101434 (23648)	08/14/2002

An application for this significant permit amendment was received on February 26, 2016 to add injection wells to recharge the effluent, to add new POC well (POC #4) and to accept the waste activated sludge from the waste activated sludge from City of Cottonwood – Riverfront WRF #511220.

The latest inspection report (dated May 25, 2016), indicates that the facility was found to be in compliance with the APP and Arizona rules and statutes.

Facility Description

The permittee is authorized to operate City of Cottonwood Wastewater Treatment Plant (WWTP) with a maximum monthly average flow of 1.5 million gallons per day (mgd). The treatment process consists of headworks with automatic bar screens, anaerobic basins, anoxic basins and aerobic basins, clarifiers, tertiary filtration, ultra-violet (UV) disinfection, and enhanced biologic nutrients removal process (for nitrogen and phosphorus). The sludge is digested in aerobic digesters, conditioned with a polymer, and pumped to centrifuges for dewatering. The WWTP will be accepting waste activated sludge from the City of Cottonwood – Riverfront WRF #511220. The waste activated sludge from Riverfront WRF will flow to an existing lift station #3 and then pump to headworks of the WWTP for treatment.

Effluent may be discharged to the Del Monte Wash under AZPDES permit, reused for beneficial purposes under a valid reclaimed water permit, recharged through injection wells or land applied at the Cottonwood Municipal Airport clear zone area. The effluent may be stored in an effluent storage pond which is lined with a high density polyethylene liner.

In addition to the APP conditions pertaining to treatment and disposal of sewage sludge, the permittee must also comply with the requirements for any sewage sludge disposal in 40 Code of Federal Regulations (CFR) Part 503 and 18 A.A.C. Ch. 9, Art. 10.

Amendment Description

ADEQ has reviewed and approved the following changes in the permit:

- Installation of three injection wells to recharge the effluent
- Acceptance of waste activated sludge from City of Cottonwood – Riverfront Water Reclamation Facility #511220.
- Addition of a new POC well (POC #4)

Listed below are the changes to the permit as a result of this amendment:

1. Section 2.1, Facility/Site Description: Updated the discharging facilities list. Added sections on Annual Registration Fee and Financial Capability.
2. Section 2.2.3, Pre-operational Requirements: Added language pertaining to the well installation report for the new injection wells.
3. Section 2.4, Point of Compliance (POC): Added a new POC well (POC #4) information which is located east of the injection well 1 and 2.
4. Section 2.6.1.1, Water Level Monitoring for POC #4 and Injection Well Contingencies: Added the language pertaining to contingency for water level monitoring for injection wells and POC #4.
5. Section 3.0, Compliance Schedule: Added compliance schedule items to submit well installation report for injection wells and POC #4, to commence ambient groundwater monitoring for POC #4, to submit an amendment application to set alert levels (ALs) and aquifer quality limits (AQLs) at POC #4 and to commence routine groundwater monitoring at POC #4.
6. Section 4.2, Table II, Groundwater Monitoring:
 - Added Table IIB, Ambient Groundwater monitoring for POC #4.
 - Added Table IIC, Groundwater Monitoring for POC #4
 - Added Table IID, Water Level Monitoring for Injection Wells
7. Other changes include updating the permit language to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The treatment facility is 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.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not result in violation of Aquifer Water Quality Standards at the point of compliance, representative samples of the effluent is collected from the downstream of the UV disinfection unit. The permittee shall monitor the effluent daily for fecal coliform, monthly for total nitrogen, semi-annually for metals, and annually for VOCs (see Section 4.2, Table IA in the permit).

To ensure that site operations do not result in violation of Reclaimed Water Quality Standards for the beneficial use of Class A+ reclaimed water, the permittee shall monitor the reclaimed water at the downstream of the UV disinfection unit. The permittee shall monitor the reclaimed water daily for fecal coliform and turbidity and monthly for total nitrogen (see Section 4.2, Table IB in the permit).

Groundwater monitoring is required at POC #2, POC #3 and POC #4 (See Section 4.2, Table IIA and IIC in the permit). The permittee will monitor the groundwater monthly for nitrate/nitrite as N, Total Kjeldahl Nitrogen (TKN), total nitrogen, total coliform and water level, quarterly for metals, and semi-annually for organic compounds (see Section 4.2, Table IIA and IIC). The water levels for injection well will be monitored per Table IID.

Facility inspection and operational monitoring shall be performed on a routine basis (see Section 4.2, Table III in the permit).

Point of Compliance

The POC for this facility is designated at the following location:

POC #	ADWR Registration #	POC Location	Latitude	Longitude	Screen Interval (ft bgs)
POC #1 (conceptual)	Not applicable	Conceptual - Southeast corner of the WWTP	34° 43' 37" N	112° 02' 34" W	NA
POC #2	55-586302	Located east of the WWTP	34° 44' 02" N	112° 02' 26" W	59-125
POC #3	55-586301	Located west of the WWTP	34° 19' 43.9" N	112° 50' 37.9" W	125-245
POC #4	Not installed yet	Located east of Injection Wells 1 and 2	34° 43' 50.7" N	112° 02' 20.5" W	520-970

POC #1 has been designated as a conceptual POC location. POC #2 is located east of the WWTP and POC #3 is located west of the WWTP. Routine groundwater monitoring is required at POC #2 and POC #3 per Section 4.2, Table IIA.

One additional POC well (POC #4) is being added under this amendment. The new POC well location was designed to monitor groundwater in the same portion of the aquifer as the three injection wells and is located based upon a primarily east groundwater flow direction. Ambient groundwater monitoring and routine groundwater monitoring are required at POC #4, per Section 4.2, Tables IIB and IIC.

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

IV. HYDROGEOLOGIC SETTING

The City of Cottonwood WWTP is located within the Verde Valley and is underlain by a sequence of nearly horizontal sedimentary rocks which are overlain in places by volcanic rocks and alluvium. Rock units in the Verde Valley are grouped by age into four major groups: Precambrian rocks, Paleozoic rocks, Tertiary and Quaternary rocks and Tertiary and Quaternary basin-fill alluvium.

The regional aquifer is comprised of the alluvium along the Verde River, the Verde Formation, Coconino Sandstone, Schnebly Hill Formation, Supai Group, Redwall Limestone and Tapeats Sandstone. The rock units of the regional aquifer are hydraulically connected and groundwater flows from one unit to the next as it moves down-gradient.

The Verde Formation aquifer includes limestone, sandstone and mudstone along with localized inter-strata basalt flows. Most of the groundwater is obtained from the limestone and sandstone facies. The groundwater flow direction near the City of Cottonwood WWTP generally flows east toward a local groundwater depression. The depth to groundwater is approximately 346 feet below land surface (ft bls). Depth to groundwater is generally declining approximately 0.6 feet per year.

V. SURFACE WATER CONSIDERATIONS

The facility is located in Map Panel 04025C1756G. The facility is located near Del Monte Wash in Zone X. The facility is located in Zone X which is the area of 0.2% annual chance of flood. The Flood Insurance Rate Map (FIRM) indicates the 100-year flood plain created by Del Monte Wash is confined to the banks of the wash and will not impact the facility.

VI. COMPLIANCE SCHEDULE

A compliance schedule is included in Section 3.0 of the permit which include submittal of well installation report for injection wells and POC #4, commencement of ambient groundwater monitoring for POC #4, submittal an amendment application to set alert levels (ALs) and aquifer

quality limits (AQLs) at POC #4 and commencement of routine groundwater monitoring at POC #4.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Cottonwood 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 Cottonwood 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(B)(1)and(2). The estimated dollar amount demonstrated for financial capability is \$509,007. The permittee is expected to maintain financial capability throughout the life of the facility.

Zoning Requirements

The City of Cottonwood WWTP 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

Public Notice (A.A.C. R18-9-108(A))

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.

The public notice was published in the newspaper on XXXX, under public notice No. XXXX.

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

The Department shall accept written comments from the public prior to granting the significant amendment. 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.

No comments were received during the public notice period.

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.

A public hearing was deemed to be unnecessary for this permit application.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - APP Unit
Attn: Shivani Shah
1110 W. Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-4465