

**City of Bullhead City – Section 10 Wastewater Treatment Plant
 Aquifer Protection Permit #102392
 Place ID #1877, LTF #63061
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 Bullhead City
Mailing Address:	2355 Trane Road Bullhead City, Arizona, 86422
Facility Name and Location:	City of Bullhead City – Section 10 Wastewater Treatment Plant 901 Richardo Avenue Bullhead City, Arizona, 86442

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
Notice of Disposal (NOD)	n/a	12/14/1990

Type of license	License identifier	Effective date
Aquifer Protection Permit	P-102392	03/17/1992
Other Amendment (to classify the effluent to Class A+ reclaimed water)	P-102392	05/23/2002
Significant Amendment (to increase the treatment plant capacity in two phases from 4.0 mgd to 6.0 mgd)	P-102392 (30783)	07/10/2007
Other Amendment (to construct a new headworks facility and to upgrade the influent pump station and to add odor control units)	P-102392 (51240)	12/07/2010

An application for this significant permit amendment was received on May 3, 2016 to add two injections wells, effluent storage tanks and a new injection well pump station.

Facility Description

The permittee is authorized to operate the City of Bullhead City Section 10 Wastewater Treatment Plant (WWTP) with a maximum monthly average flow of 4.0 million gallons per day (mgd). The WWTP process consists of an influent pump station, headworks (includes two fine screens, and odor removal), one oxidation ditch with anoxic basins and bio-selectors, one aeration basin, two secondary clarifiers, a chemical polymer feed system, two tertiary sand filtration units and one tertiary disk filtration unit, two ultraviolet (UV) disinfection units, a back-up chlorination system, two aerobic sludge digesters, a belt filter press, two sludge drying beds, a lined holding pond, an effluent pump station, a reuse pump station, four new reclaimed water storage tanks and a new injection well pump station.

The effluent shall be stored in a lined storage pond and then disposed by reuse (as regulated under a valid reclaimed water permit) or recharged through five rapid infiltration basins (RIBs) or two new injection wells. The WWTP is classified as producing Class A+ reclaimed water as specified in A.A.C. R18-11-303. Chemical feed facilities shall be available to add coagulants or polymers as needed to ensure the reclaimed water will meet the permit turbidity requirements for Class A+ reclaimed water.

Sludge generated at the WWTP shall be digested in the aerobic digester, dewatered in the belt filter press, and transported to a landfill for disposal. The sludge drying beds shall be retained as standby units.

Depth-to-groundwater at the site is approximately 18 feet below ground surface. The direction of groundwater flow is to the southwest. The facility is within the 100-year flood plain, but is protected by a flood-protection berm around the entire plant site.

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 change under this amendment:

- Addition of two injection wells for effluent disposal
- Addition of four effluent storage tanks and a new injection well pump station

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

1. Section 2.1, Facility/Site Description: Updated the facility description to incorporate the addition of new disposal method, effluent storage tanks and injection well pump station.
2. Section 2.2.1, Engineering Design: Added information about the injection well design and injection well pump station design engineer.
3. Section 2.2.3, Pre-operational Requirements: Added language pertaining to the Engineer's Certificate of Completion for the injection well pump station and added language pertaining to the submittal of well installation report.
4. Section 2.4 Point of Compliance (POC): Renumbered the conceptual POC location, POC #2 of the previous permit to POC #3 in this permit.
5. Section 3.0, Compliance Schedule:
 - Added the requirement for compliance schedule item to submit the Engineer's Certificate of Completion for an injection well pump station.
 - Added the requirement to submit a well installation report for replacement well POC #1, well installation report for injection wells #1 and #2 and a well abandonment report for monitor well if any well abandoned.
6. Section 4.2, Table II, Groundwater Monitoring:
 - Added water level monitoring and Nitrate as N, and Nitrite as N monitoring for MW #1, Table IIA.
 - Added groundwater monitoring table, Table IIB for MW-2.
7. Changed all references to the Water Permits Section to read "*Groundwater Section*".
8. Other changes include updating the permit language to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The City of Bullhead City Section 10 WWTP is designed to meet the treatment performance criteria for new facilities as specified in A.A.C. R18-9-B204.

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 shall be collected from the effluent/reuse pump station and is monitored daily for fecal coliform, monthly for total nitrogen, quarterly for metals, and semi-annually for volatile and semi-volatile organic compounds (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 same effluent sampling point as indicated above. 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).

To ensure that AWQS will be met at the POC in the aquifer, representative samples of the groundwater will be collected from POC #1 (MW-1) and POC #2 (MW-2) and will be sampled monthly for total coliform, total nitrogen, nitrate-nitrite as N, nitrate as N, nitrite as N, total Kjeldahl nitrogen (TKN) and water level, quarterly for metals, and semi-annually for volatile and semi-volatile organic compounds (see Section 4.2, Table IIA and IIB in the permit).

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
POC #1 (Replacement Well)	TBD	MW-1 is located down-gradient of the RIBs near the center of the facility	35° 03' 08.65" N	114° 36' 04.37" W
POC #2 (Irrigation Well)	55-559858	MW-2 is located downgradient of the two Injection Wells	35° 03' 5.70" N	114° 36' 5.64" W
POC #3 (conceptual)	Not applicable	Located at the southwest corner of the WWTP (no well)	35° 03' 1.5" N	114° 36' 8.9" W

The previous permit with LTF #51240 included two POC wells, POC #1 (MW-1) and POC #2. Monitor well POC #1 (MW-1) was damaged and will be replaced. Under this amendment, one conceptual POC location (POC #3) and two monitor wells (POC #1 and POC #2) have been approved as points of compliance.

The POC #1 shall be monitored for the discharge from the five RIBs. POC #2 shall be monitored for the discharge from the two injection wells. POC #3 is a conceptual POC location and is designated at the southwest corner of the WWTP, a monitor well is not required at this location. Groundwater monitoring is required at POC #1 and POC #2 under this permit per Section 4.2, Table IIA and Table IIB.

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

IV. HYDROGEOLOGIC SETTING

The City of Bullhead City Section 10 WWTP is located near the Colorado River in the Basin and Range Physiographic Province. Groundwater is primarily located in the Colorado River Terrace deposits. Based upon two borings advanced at the WWTP, sediments are relatively uniform across the site. From zero to 51 feet below ground surface (ft bgs), the sediment is fine to very fine sand. From 51 to 100 ft bgs, sediments are dominated by coarse sands and gravels. Depth to groundwater at the WWTP is approximately 18 ft bgs.

V. SURFACE WATER CONSIDERATIONS

The Section 10 WWTP is located approximately 2,750 feet east of the Colorado River. The Flood Insurance Rate Map (FIRM) for this area prepared by the Federal Emergency Management Agency (FEMA) indicates that the Fort Mohave Wash is located along the northern border of the Section 10 WWTP and the Richardo Wash is located along the southern border of the Section 10 WWTP. The southwest and west portions of the Section 10 WWTP is within the Zone AO floodplain with a flood depth of one to two feet. The injection wells and five RIBs should not be subject to flooding.

VI. COMPLIANCE SCHEDULE

The permit includes five compliance schedule items which require submittal of an Engineer's Certificate of Completion for injection well pump station, well installation report for replacement well, injection well #1 and #2 and a well abandonment report for any well which might be abandoned.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Bullhead City 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 Bullhead City 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 \$643,512. The permittee is expected to maintain financial capability throughout the life of the facility.

Zoning Requirements

The City of Bullhead City Section 10 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.

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.

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