ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

Aquifer Protection Permit 100655
Place ID #1033, LTF #62698
SIGNIFICANT AMENDMENT
Agua Nueva Water Reclamation Facility

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:	Pima County Regional Wastewater Reclamation Department (PCRWRD)
Mailing Address:	2955 W. Calle Agua Nueva Tucson, Arizona 85745
Facility Name and Location:	Agua Nueva Water Reclamation Facility 2947 West Calle Agua Nueva Tucson, Arizona 85745 Pima County

Regulatory Status

This is an existing facility. An application for this significant permit amendment was received on July 6, 2015. The following table includes APP, AZPDES, and Reuse amendments. At the time of permit issuance, there are no active Notices of Violation (NOVs).

Amendment Type	Effective date	Amendment Item
Individual Aquifer Protection	May 1, 2013	Individual Aquifer Protection Permit (APP) No. 100655
Type 2 Reclaimed Water General Permit - Class B+ (Renewal)	June 20, 2013	Reclaimed Wastewater Reuse Permit No. R100655
AZPDES Permit	July 11, 2013	AZPDES permit no. AZ0026107
Other Amendment (APP)	August 13, 2014	(APP) No. 100655
Significant Amendment	September 18, 2014	(APP) No. 100655

Facility Description

The Pima County Regional Wastewater Reclamation Department (PCRWRD) is authorized to operate the Agua Nueva Water Reclamation Facility (WRF) with a maximum average monthly flow of 35.2 million gallons per day (mgd). The Agua Nueva WRF is a new facility which began operation in 2013 and was constructed to replace the Roger Road WRF which is now permanently closed.

The Agua Nueva WRF consists of an influent pump station, headworks, dissolved air flotation units, grit removal/flocculation system, four aeration basins with anoxic and aerobic zones for 5-stage Bardenpho process, four clarifiers, seven disk filters and two chlorine contact basins, de-chlorination and thickened sludge tanks. The effluent will be discharged to the Santa Cruz River under AZPDES permit no. AZ0026107, will be delivered to the City of Tucson's reclaimed water system, and may be used for other beneficial purposes under a valid reclaimed water permit. The materials removed at the headworks are dewatered and transported to a state-approved facility for disposal. The sludge will be thickened and pumped to the Tres Rios WRF (APP #100630) for treatment and disposal.

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the applicable federal, state or local regulations.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Agua Nueva WRF	32° 17' 11" North	111° 01' 43" West
Outfall to the Santa Cruz River	32° 17' 05" North	111° 01' 41" West

Amendment Description

This permit amendment is to change:

- Set the Aquifer Quality Limits (AQLs) and Alert Levels (ALs) for Total Nitrogen and Nitrate/Nitrite (as N) in Point of Compliance (POC) Well #1 (Well SC-01R) initially as "Reserved".
- Add a compliance schedule item to the permit that provides a time period for monthly groundwater data collection to assess the impact of upgradient recharge activities by Tucson Water on POC#1. At the end of the three year period, the compliance schedule shall require a report that will propose a statistically based AQL to be set in the permit for the two nitrogen parameters evaluated.
- For (POC) Well #1 (Well SC-01R), change the AQL in the APP for Total Nitrogen and Nitrate/Nitrite (as N)to site specific AQLs based on the analysis of ambient nitrogen levels impacting this well.

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

1. Section 2.1, Facility/Site Description: Changed the description of the permit to include the purpose of this amendment.

2. Section 2.3, Discharge Limitations: Item #4 – Changed the Tables from IA, IB-I and IB-II to IA, IB-1 and IB-2.

3. Section 2.5.2, Discharge Monitoring: Changed sampling point for flow from sampling point 2 and 3 to 1 and 2. Changed representative sampling points for discharge monitoring from 4 and 5 to 3 and 4.

4. Section 2.5.3, Reclaim Water Monitoring: Changed the Tables from IB-I and IB-II to IB-1 and IB-2. Changed the sampling point from 5 to 4.

5. Section 2.5.4, Groundwater Monitoring and Sampling Protocols: Added -The permittee shall monitor the groundwater according to Section 4.2, Table IIA and IIB.

6. Section 2.6.3, Discharge Limitations Violations: Changed the Tables from IA, IB-I and IB-II to IA, IB-1 and IB-2.

7. Section 2.7.1, Self Monitoring Form: Added the following to be contained in Section 4. 0 list the parameters to be monitored and the frequency for reporting results on the SMRFs:
   - Table IA, Routine Discharge Monitoring
   - Table IB-1, Reclaimed Water Monitoring – Class B+
   - Table IB-2, Reclaimed Water Monitoring – Class A+
   - Table IIA, Groundwater Monitoring for POC Well SC-01R
   - Table IIB, Groundwater Monitoring for POC Well SC-02R
   - Table III - Facility Inspection (Operational Monitoring)

8. Section 3.0, Compliance Schedule: Updated the compliance schedule – see Section V of this Factsheet.

9. Section 4.0, Tables of Monitoring Requirements: Under 4.2 changed Table IBI to Table IB1 and Table IB-II to Table IB-2.

10. Other changes include updating the permit language to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The Agua Nueva 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 WRF will meet the performance requirement for industrial pre-treatment as per A.A.C. R18-9-B204(B)(6)(b).

The treatment facility will not exceed a maximum seepage rate of 550 gallons per day per acre for all containment structures within the treatment works.

The permittee has provided 350 feet of setback from the nearest adjacent property line which is appropriate for the WRF with full noise and odor control. All the treatment units upstream of the secondary clarifiers will be covered with concrete covers. The permittee has submitted a study which shows that the new clarifiers are not odor producing. The permittee agreed to monitor hydrogen sulfide (H_2S) near the secondary clarifiers to demonstrate that the clarifiers do not

produce odors. Odor control monitoring will be performed to ensure that the clarifiers do not produce odors. The hydrogen sulfide (H_2S) levels will be measured through H_2S monitors at two locations such as the bio filter and final clarifiers.

III. HYDROGEOLOGIC SETTING

The general groundwater flow direction beneath the WRF is to the northwest, parallel to the Santa Cruz River. Based on data presented by Groundwater Resources Consultants (1987, 1988), the groundwater gradient in January 1986 was about 0.0033 ft/ft and varied from approximately 0.0018 to 0.0040 ft/ft in spring 1988. Groundwater levels in monitoring wells within a ½-mile radius of the site range from 106 feet below ground surface (bgs) to 133 feet bgs.

To the north of the facility there is a shallow subsurface bedrock constriction known as the Rillito Narrows. This feature lies about seven miles to the north of the study area and acts as a hydrologic barrier to groundwater movement and consequently creates relatively shallow groundwater levels.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The Agua Nueva WRF is located within the Upper Santa Cruz sub-basin of the Tucson Active Management Area. The major surface drainage is the Santa Cruz River and its tributaries: Canada del Oro Wash, Rillito Creek, and Sopri Wash. The WRF lies in the alluvial fill of the Santa Cruz River floodplain. The river is an ephemeral stream that flows in a generally north-northwest direction through the Tucson Basin. Beginning at the WRF outfall, the riverbed is partially filled with effluent.

The Agua Nueva WRF is located outside of the 100-yr flood plain.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations meet new facility BADCT, representative samples of the effluent will be collected from the outfall box downstream of dechlorination (for metals and VOCs), and from the chlorine contact basin upstream of dechlorination (for total nitrogen and *E. coli*).

To ensure that site operations meet the Reclaimed Water Quality Standards for the beneficial use of Class B+ reclaimed water, the permittee will monitor the reclaimed water from the chlorine contact basin upstream of dechlorination. The permittee will monitor the reclaimed water daily for *E. coli* and monthly for total nitrogen.

To ensure that site operations meet the Reclaimed Water Quality Standards for the beneficial use of Class A+ reclaimed water, the permittee will monitor the reclaimed water from the chlorine contact basin upstream of dechlorination. The permittee will monitor the reclaimed water continuously for turbidity, daily for *E. coli*, and monthly for total nitrogen.

To ensure that Aquifer Water Quality Standard will be met at the points of compliance in the aquifer, representative samples of the groundwater will be collected from Monitor Well SC-01R (MW-1) and Monitor Well SC-02R (MW-2) and will be sampled monthly for total coliform, total nitrogen, nitrate-nitrite as N, and total Kjeldahl nitrogen (TKN), quarterly for metals, and semi-annually for volatile and semi-volatile organic compounds.

Facility inspection and operational monitoring shall be performed on a routine basis.

Point of Compliance (POC)

Points of Compliance (POCs) are located near the Santa Cruz River, northwest and down-gradient of the effluent discharge point. The following groundwater monitoring wells are designated as POCs:

POC #	POC Locations	Latitude	Longitude
1	POC Well SC-01R is located approximately ¾-mile downstream of the facility, near the east bank of the Santa Cruz River	32° 17’ 23” N	111° 02’ 04” W
2	POC Well SC-02R is located approximately 2.0 miles downstream from the discharge outfall into the Santa Cruz River	32° 18’ 32” N	111° 02’ 59” W

The nitrogen Aquifer Quality Limits (AQLs) of 18.6 mg/l and 30.53 mg/l for POC wells SC-01R and SC-02R respectively, will be retained based on the determination that the origin of elevated nitrogen observed in the wells is unrelated to effluent discharged from the Roger Road Wastewater Treatment Plant (which has been decommissioned) or the Agua Nueva WRF.

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

VI. COMPLIANCE SCHEDULE

CSI	Description	Due by:	Permit Amendment
3.1	Submit written notification of the intent to begin production of Class A+ reclaimed water.	Prior to implementation of Class A+ reclaimed water monitoring under Table IB-2.	No
3.2	Prior to transitioning to Class A+ reclaimed water the permittee shall notify the ADEQ Data Unit to request the SMRFs for Section 4.2, Table IB-2.	Within 15 days of implementation of Class A+ reclaimed water monitoring under Table IB-2	No
3.3	The permittee shall evaluate the nitrogen species concentrations in POC #1 for three years, beginning at permit issuance as per Section 4.2, Table IIA. At the end of the three year groundwater monitoring period the permittee shall submit a permit amendment with a statistical analysis of the last 12 months of groundwater sampling that is consistent with the method of Lieberman (1958) to set the AQLs for nitrogen species at POC #1 The data gathered from the statistical analysis shall reflect any trends (temporal, seasonal, or aligned with recharge/recovery operation). Trend shall be portrayed graphically with key activities such as recharge events or extraction pumping noted.	Within 30 days of obtaining the results of the evaluation.	Yes

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The Pima County Regional Wastewater Reclamation Department 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 Pima County Regional Wastewater Reclamation Department 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 permittee is expected to maintain financial capability throughout the life of the facility.

Zoning Requirements

The Agua Nueva WRF 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 XXXXXXXXX, under public notice No. 16-XX.

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 – Water Permits Section – APP Unit
Attn: Monica Phillips
1110 West Washington Street, Mail Code 5500E-3
Phoenix, Arizona 85007
Phone: (602) 771-2253