

Aquifer Protection Permit #105932
Place ID #1424, LTF #61841
City of Tempe - Johnny G Martinez Water Treatment Plant
Surface Impoundment

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. 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 Tempe
Mailing Address:	31 E 5 th Street, Tempe, AZ 85281
Facility Name and Location:	Johnny G Martinez Water Treatment Plant 255 E Marigold Ln, Tempe, AZ 85281

Regulatory Status

Authorization to discharge under a Type 3.02 General APP was issued on November 28, 2007, and was renewed on November 28, 2012. The applicant is seeking an individual permit rather than Type 3.02 General APP because the City is seeking additional operational flexibility in utilizing the existing permitted impoundment. Also, the City is adding the capability of sending drain down waste streams from the basins directly to the impoundment, by-passing the recovery basin.

The waste streams from the drain down and cleaning cycles are discharged to the recovery basin, and periodically to the existing impoundment. Currently all flow to the impoundment must first pass through the recovery basin. Water in the recovery basin is normally recycled back into the treatment process stream. Periodically, flow is diverted from the recovery basin to the impoundment.

Facility Description

JGMWTP is a 50 million gallons per day (mgd) water treatment plant owned and operated by the City of Tempe and serves parts of the City. It is located at 255 E Marigold Lane in Tempe. Surface water is delivered via the SRP Crosscut Canal to the plant through inlet gates and flumes. Dosing of alum and powder activated carbon is provided prior to delivery to the pre-sedimentation basins to aid in suspended solids and Total Organic Carbon (TOC) removal. Larger solids settle out in the pre-sedimentation basins and are collected by sedimentation collectors and removed through blowdown valves. Water from the pre-sedimentation basin decants over weirs and is delivered to the flocculation and secondary sedimentation basins. Settled out solids and floc in the secondary sedimentation basin are collected by sedimentation collectors and blowdowns. Decant water from the secondary sedimentation basins flows to the gravity filters, through a mixed media including anthracite, sand and gravel. Filtered water flows to the UV disinfection chambers before it is delivered to the finished water reservoirs.

This application is for an existing unlined surface impoundment that is located on-site and permitted under an existing 3.02 general APP. This impoundment acts as a temporary holding impoundment to allow the flexibility in operation of the plant, and is used only occasionally.

The Impoundment is contained within the southernmost portion of the JGMWTP. Water collected in the Impoundment will be retained within the Impoundment for evaporation or recycled back to the treatment process stream. Flow to the recovery basins consists of various discharges including filter backwash water, facility basins drainage (during basin operation and maintenance), and rinse water from facility basins and channel rinsing (during rinse down of facilities). The impoundment will be receiving an average flow of 141,370 gpd.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Surface Impoundment	33° 26' 39" N	111° 56' 09" W

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The impoundment has been in operation since 1965, so the bottom of the impoundment has very low permeability and infiltration to the groundwater is insignificant. Any flow to the impoundment will be evaporated or recycled back to the treatment process. The water quality of the impoundment is of water quality that does not exceed any of the groundwater quality standards. The impoundment is designed with sufficient capacity for the design flow while keeping a minimum of 2 feet of freeboard plus the flows from the 100-year rain event on the surrounding area that drains into the impoundment.

The Unlined Surface Impoundment is an existing facility and no new construction is proposed as part of this permit submittal. The permit application's documents have been

prepared on July 14, 2015 by Carrie Cote, PE, Engineering and Environmental Consultants, Inc. (EEC). The permittee is expected to maintain technical capability throughout the life of the facility.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

No routine groundwater monitoring is required at this time. In the submitted APP application dated July 14, 2015; the applicant has justified that there is no need for routine groundwater monitoring for the reasons listed below:

- a) discharge to the impoundment is minimal (significantly less than 250,000 gallons average daily flow),
- b) grab representative samples of the discharge indicate that the liquid fraction contains no chemicals above the Aquifer Water Quality Standards (AWQS), and
- c) Toxic characteristic leaching procedure (TCLP) analyses for metals on the solid fraction of the discharge indicated that the solid fraction is inert. In addition, subsequent annual monitoring has not resulted in an exceedance in an AWQS for the liquid fraction, or in TCLP results for the solid fraction.

To ensure that site operations do not result in violation of AWQS the permittee shall monitor the discharge water according to Section 4.2, Table IA. Facility inspections and operational monitoring shall be performed on a routine basis. All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. Monitoring shall commence the first full monitoring period following permit issuance. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and Chain-of-Custody procedures shall be followed, in accordance with currently accepted standards of professional practice. Copies of laboratory analyses and Chain-of-Custody forms shall be maintained at the permitted facility. Upon request, these documents shall be made immediately available for review by ADEQ personnel.

Point of Compliance

This is a conceptual well location. There is no POC well installed at this time. The POC location is determined by an analysis of the pollutant management area (surficial area on which wastewater is treated and contained) at the Water Treatment Plant site. The hazardous/non-hazardous POC for this facility is designated at the following location:

POC No.	Location	Latitude	Longitude
1(Conceptual Location)	approximately 100 feet southeast of the impoundment	33° 26' 37.20" N	111° 56' 7.39" W

The Director may amend this permit to require installation of wells and initiation of groundwater monitoring at the POCs or to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

IV. HYDROGEOLOGIC SETTING

The Site is located in the north-western portion of the Eastern Salt River Valley (ESRV) sub-basin, which is part of Arizona's Basin and Range physiographic province. The direction of the groundwater flow in the vicinity of the site is toward the southeast of the impoundment. The depth to groundwater within the site is not well documented. However, based on the available hydrological information, the depth to groundwater is likely somewhere between 26 to 164 feet below ground surface (bgs).

According to ADWR records, there is only one registered well within one-half mile of the surface impoundment. This well is registered as cathodic protection well.

V. STORM WATER AND SURFACE WATER CONSIDERATIONS

Based on FEMA Panel 04013C2235L, the facility is outside the 100-year floodplain.

VI. COMPLIANCE SCHEDULE

A compliance schedule is included in Section 3.0 of the permit which includes the requirement to complete discharge (liquid and solid fraction) characterization.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Tempe Johnny G Martinez Water Treatment Plant 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 Unlined Surface Impoundment is an existing facility and no new construction is proposed as part of this permit submittal. The permit application's documents have been prepared on July 14, 2015 by Carrie Cote, PE, Engineering and Environmental Consultants, Inc. (EEC). The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The City of Tempe, 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 City of Tempe Johnny G Martinez Water Treatment Plant 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 permit. 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 – Mining, Industrial/Drywell Unit
Attn: Mohamed Hegazy, Ph.D., P.E.
1110 W. Washington Street, Mail Code 5410C
Phoenix, Arizona 85007
Phone: (602) 771-4615