

ASPC Yuma Wastewater Treatment Plant
Aquifer Protection Permit No. P-100225
Place ID 6138, LTF No. 98003
Significant Amendment

I. Introduction:

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. 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 (AWQS) at the Point of Compliance (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose 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.

II. Permittee

Arizona Department of Corrections

III. Facility Name & Location:

ASPC Yuma Wastewater Treatment Plant
7125 East Juan Sanchez Boulevard
San Luis, Arizona 85366
Yuma County

IV. Facility Description:

The permittee is authorized to operate the ASPC Yuma Wastewater Treatment Plant (WWTP) ("new WWTP"), with an average daily maximum monthly flow (ADMMF) of 1,220,000 gallons per day (1.22 million gallons per day [mgd]). Of the 1.22 mgd, 0.87 mgd may be domestic wastewater from the prison and up to 0.35 mgd may be evaporative cooler system blowdown water. The Department has graded this facility as a Grade 3 wastewater treatment plant. The facility shall have an operator in direct responsible charge who is certified for the grade of the facility and inspects the facility "Daily" for a Grade 3 WWTP.

The ASPC Yuma WWTP process consists of headworks with mechanical and manually cleaned screens, two aerobic basins with anoxic and aeration zones, two secondary clarifiers, chlorine disinfection using sodium hypochlorite and two aerobic digesters. The effluent from the new WWTP will be discharged to a lined storage pond (blended wastewater storage pond #1).

The former lagoon WWTP (herein referred to as "old WWTP") operated with five settling basins and five aeration lagoons, a chlorine contact basin, two percolation ponds and effluent storage pond #1 (herein referred to as "blended wastewater storage pond #1"). The first settling basins and five aeration lagoons from old WWTP were converted to effluent storage ponds as part of a clean closure under LTF 53437. When the new WWTP was put into operation, use of the old WWTP

settling basins and lagoons changed to eight blended wastewater storage ponds #2 through #9 and two sludge aerobic digester ponds #1 and #2. The two original percolation ponds (herein referred to as blended wastewater percolation ponds #1 and #2) continue to operate as percolation ponds in the new WWTP. Four additional percolation basins were then constructed (blended wastewater percolation ponds #3 through #6) as part of the new WWTP. All remaining features of the old WWTP are now considered to be part of the new WWTP. The WWTP is designed and constructed according to plans approved by ADEQ.

The permittee is authorized to discharge 0.31 mgd of reject water from the reverse osmosis (RO) water treatment plant to blended wastewater storage pond #1. The facility will be blending up to 0.31 mgd of RO reject water with up to 1.22 mgd of effluent in blended wastewater storage pond #1. The total blended wastewater flow to be discharged from this pond is 1.53 mgd. Blended wastewater may also be discharged for reuse under a valid reclaimed water permit under A.A.C. R18-9, Article 7. The facility maintains a separate Individual Industrial Reclaimed Water Permit, R100225, for the discharge of blended wastewater for application to irrigated pasture and prison landscaped areas located on the prison property. The permittee may also discharge blended wastewater to the six blended wastewater percolation ponds under this Individual APP.

Sludge from the clarifiers shall be digested in the sludge aerobic digester ponds #1 and #2. Treated sludge meeting B quality biosolids will be land applied on-site on pasture land. Waste sludge may be disposed of in a state-approved landfill.

V. Amendment Description:

The purpose of this amendment is to reduce the sampling frequency for analytes within the ambient groundwater monitoring program, relocate or remove compliance and/or operational sampling points, and to reduce the sampling frequency and analytes for operational and/or compliance sampling points. The proposed modifications are intended to address routine discharge monitoring alert level (AL) and discharge level (DL) exceedances of total dissolved solids (TDS) and total trihalomethane (TTHM), and DL exceedances for Blended Wastewater Storage Pond No. 1. The amendment also proposes to establish ALs and aquifer quality limits (AQLs) pursuant to compliance schedule item 3.3.e in APP P-100225 under licensing timeframe 48688. The application is supported by over 12 years of ambient monitoring data and a hydrogeologic re-evaluation study.

Summary of permit changes:

1. Section 1
 - a. Added permitted flow rate
 - b. Updated tables
2. Section 2
 - a. Section 2.1
 - i. Updated facility description
 - ii. Updated Table 1
 - b. Section 2.2
 - i. Updated reclaimed water classification information
 - ii. Removed text associate with a completed CSI

- c. Section 2.3
 - i. Updated discharge limitations information
- d. Section 2.4
 - i. Updated point of compliance Information
- e. Section 2.4
 - i. Remove references to ambient monitoring
- f. Section 2.5
 - i. Removed ambient monitoring requirement
 - ii. Pre-operation monitoring is no longer applicable
 - iii. Updated routine discharge monitoring information
 - iv. Updated reclaimed water monitoring information
 - v. Removed old WWTP monitoring
 - vi. Updated groundwater monitoring and sampling protocols
- g. Section 2.6
 - i. Updated contingency plan requirements information
- h. Section 2.7
 - i. Updated reporting and record keeping requirements information
 - ii. Removed Use Protection Limits Evaluation
 - iii. Removed recurring hydrogeologic evaluations
- 3. Section 3
 - a. Updated compliance schedule items to include only an annual operations and management report
 - b. Added a CSI for submittal of an operations and maintenance plan for the upgraded chlorination equipment.
 - c. Added a CSI for submittal of documentation that the upgraded chlorination equipment has been properly installed and calibrated.
- 4. Section 4
 - a. Removed table for old WWTP routine discharge monitoring
 - b. Table 7
 - i. Reduced metals monitoring and reporting frequency to semi-annual
 - ii. Reduced cyanide monitoring and reporting frequency to annual
 - iii. Reduced fluoride monitoring and reporting frequency to annual
 - iv. Reduced VOC and SVOC monitoring and reporting frequency to semi-annual
 - v. Increased total trihalomethanes monitoring to monthly
 - vi. Removed references to MPN for fecal coliform parameters
 - vii. Removed specific conductivity as a monitoring parameter
 - viii. Removed alkalinity as a monitoring parameter
 - ix. Removed calcium as a monitoring parameter
 - x. Removed chloride as a monitoring parameter
 - xi. Removed hydroxide as a monitoring parameter
 - xii. Removed iron as a monitoring parameter
 - xiii. Removed magnesium as a monitoring parameter
 - xiv. Removed manganese as a monitoring parameter
 - xv. Removed potassium as a monitoring parameter

- xvi. Removed sodium as a monitoring parameter
- xvii. Removed sulfate as a monitoring parameter
- xviii. Removed total organic carbon as a monitoring parameter
- c. Table 8
 - i. Reduced Specific Conductivity monitoring and reporting frequency to annual
 - ii. Removed references to MPN for fecal coliform parameters
 - iii. Reduced alkalinity monitoring and reporting frequency to annual
 - iv. Reduced hydroxide monitoring and reporting frequency to annual
 - v. Reduced sulfate monitoring and reporting frequency to annual
 - vi. TDS alert level set to 1450 mg/l, discharge limit set to 1500 mg/l, and monitoring frequency reduced to weekly
 - vii. Reduced Total Organic Carbon monitoring and reporting frequency to annual
 - viii. Reduced chloride monitoring and reporting frequency to annual
 - ix. Reduced sulfate monitoring and reporting frequency to annual
 - x. Reduced cyanide monitoring and reporting frequency to annual
 - xi. Reduced fluoride monitoring and reporting frequency to annual
 - xii. Reduced metals monitoring and reporting frequency to semi-annual
 - xiii. Removed VOC and SVOC monitoring and reporting
- d. Table 9
 - i. Consolidated table while maintaining the same parameters found on Individual Reclaimed Water Permit No. R100225
- e. Table 10
 - i. Reduced Specific Conductivity monitoring and reporting frequency to annual
 - ii. Reduced Total Organic Carbon monitoring and reporting frequency to annual
 - iii. Reduced chloride monitoring and reporting frequency to annual
 - iv. Reduced sulfate monitoring and reporting frequency to annual
 - v. Reduced alkalinity monitoring and reporting frequency to annual
 - vi. Reduced metals monitoring and reporting frequency to semi-annual
- f. Table 12
 - i. Removed Total Kjeldahl Nitrogen as a monitoring parameter
 - ii. Removed VOC and SVOC as a monitoring parameters
 - iii. Removed iron as a monitoring parameter
 - iv. Removed manganese as a monitoring parameter
 - v. Removed total organic carbon as a monitoring parameter
 - vi. Removed sodium as a monitoring parameter
 - vii. Removed potassium as a monitoring parameter
 - viii. Removed calcium as a monitoring parameter
 - ix. Removed magnesium as a monitoring parameter
 - x. Removed chloride as a monitoring parameter
 - xi. Removed sulfate as a monitoring parameter
 - xii. Removed alkalinity as a monitoring parameter

- xiii. Removed specific conductivity as a monitoring parameter
 - xiv. Reduced groundwater level monitoring and reporting frequency to annual
 - xv. Reduced monitoring and reporting frequency to annual
 - xvi. Reduced pH monitoring and reporting frequency to annual
 - xvii. Reduced total nitrogen monitoring and reporting frequency to annual
 - xviii. Reduced Nitrate-Nitrate as N monitoring and reporting frequency to annual
 - xix. Reduced Total Coliform monitoring and reporting frequency to annual
 - xx. Reduced Total Dissolved Solids monitoring and reporting frequency to annual
 - xxi. Reduced cyanide monitoring and reporting frequency to annual
 - xxii. Reduced fluoride monitoring and reporting frequency to annual
 - xxiii. Reduced antimony monitoring and reporting frequency to annual
 - xxiv. Reduced arsenic monitoring and reporting frequency to annual
 - xxv. Reduced barium monitoring and reporting frequency to annual
 - xxvi. Reduced beryllium monitoring and reporting frequency to annual
 - xxvii. Reduced cadmium monitoring and reporting frequency to annual
 - xxviii. Reduced chromium monitoring and reporting frequency to annual
 - xxix. Reduced lead monitoring and reporting frequency to annual
 - xxx. Reduced mercury monitoring and reporting frequency to annual
 - xxxi. Reduced nickel monitoring and reporting frequency to annual
 - xxxii. Reduced selenium monitoring and reporting frequency to annual
 - xxxiii. Reduced thallium monitoring and reporting frequency to annual
- g. Table 13
- i. Removed pH as a monitoring parameter
 - ii. Removed iron as a monitoring parameter
 - iii. Removed manganese as a monitoring parameter
 - iv. Removed total organic carbon as a monitoring parameter
 - v. Removed sodium as a monitoring parameter
 - vi. Removed potassium as a monitoring parameter
 - vii. Removed calcium as a monitoring parameter
 - viii. Removed magnesium as a monitoring parameter
 - ix. Removed chloride as a monitoring parameter
 - x. Removed sulfate as a monitoring parameter
 - xi. Removed alkalinity as a monitoring parameter
 - xii. Removed specific conductivity as a monitoring parameter
 - xiii. Removed total nitrogen as a monitoring parameter
 - xiv. Removed Nitrate-nitrite as N as a monitoring parameter
 - xv. Removed total kjeldahl nitrogen as a monitoring parameter
 - xvi. Removed total coliform as a monitoring parameter
 - xvii. Removed antimony as a monitoring parameter
 - xviii. Removed arsenic as a monitoring parameter
 - xix. Removed barium as a monitoring parameter
 - xx. Removed beryllium as a monitoring parameter
 - xxi. Removed cadmium as a monitoring parameter
 - xxii. Removed chromium as a monitoring parameter

- xxiii. Removed cyanide as a monitoring parameter
- xxiv. Removed fluoride as a monitoring parameter
- xxv. Removed lead as a monitoring parameter
- xxvi. Removed mercury as a monitoring parameter
- xxvii. Removed nickel as a monitoring parameter
- xxviii. Removed selenium as a monitoring parameter
- xxix. Removed thallium as a monitoring parameter
- xxx. Removed VOC and SVOC as a monitoring parameters
- xxxi. Reduced groundwater level monitoring and reporting frequency to annual
- xxxii. Reduced Total Dissolved Solids monitoring and reporting frequency to annual
- xxxiii. Reduced cyanide monitoring and reporting frequency to annual
- xxxiv. Reduced fluoride monitoring and reporting frequency to annual

- h. Table 14
 - i. Added inspection for POC and Monitoring wells
- 5. Miscellaneous Changes
 - a. Updated permit to current boiler plate language where applicable
 - b. All tables renamed numerically
 - c. Tables were consolidated where applicable
 - d. Various grammatical corrections
 - e. Updated references where applicable

VI. Regulatory Status

The Arizona Department of Corrections received a Consent Order, Docket No. APP-08-23 dated September 5, 2023 associated with APP P-100225 under LTF 60438. This amendment is in response to the consent order.

VII. Best Available Demonstrated Control Technology (BADCT):

There are no proposed changes to the wastewater treatment process or permitted flow rate(s) under LTF 98002. A prior BADCT analysis occurred under LTF 48688. Only operational changes were evaluated as part of LTF 98002.

Review of Operational Changes for Total Dissolved Solids (TDS)

ADEQ has determined that the operational changes to resolve TDS issues have not been effective based on monitoring data. ADEQ recommends that the permittee pursue other operational changes or a WWTP redesign to increase design capacity to allow RO reject water to be routed through the WWTP if operational changes cannot be implemented to successfully resolve TDS exceedances.

Operational Changes for Total Trihalomethanes (TTHM)

ADEQ agrees with the operational practices to reduce the concentration of TTHM in storage pond #1 because a review of recent monitoring data indicates compliance with permit limits.

Reduced sampling frequency and parameters

ADEQ agrees with elimination of sampling for the “old” WWTP lagoon at sampling point 1. ADEQ agrees with reducing the number of sampling parameters and frequency at sampling points 2, and 3. ADEQ agrees with reducing the sampling frequency at sampling point 5. A listing of changes can be found in the amendment description above.

VIII. Compliance with Aquifer Water Quality Standards (AWQS):

ADEQ staff reviewed a Hydrogeologic Re-Evaluation Study conducted for the Arizona State Prison Complex Yuma Wastewater Treatment Plant. The request for reduction of sampling frequency and analytes is supported by data indicating Total Dissolved Solids (TDS) levels are within acceptable limits while maintaining compliance, enhancing efficiency, and cost-effectiveness in groundwater monitoring. The request to relocate or removal compliance / operational sampling points optimizes monitoring efforts alongside other operational improvements, while maintains compliance. The data provided by the applicant demonstrates that no exceedances of Aquifer Water Quality Standards (AWQS) occurred in samples collected from MW-1 and MW-2. ADEQ approves the reduction in sampling frequency from monthly to annual for specified parameters in MW-1 and MW-2, and is contingent on continued monitoring and implementation of the contingency plan in case of any future exceedances. ADEQ agrees to remove VOCs and SVOCs from the required analytical suite for MW-1 and MW-2, and analytes without AWQS will no longer be analyzed. Additionally, ambient groundwater monitoring has been converted into routine groundwater monitoring.