ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a wastewater treatment plant (WWTP) with a design capacity of 63 million gallons per day (mgd) and is considered to be a major facility under the AZPDES program. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 *et seq*. This permit is proposed to be issued for a period of 5 years.

I. PERMITTEE INFORMATION	
Permittee's Name:	City of Phoenix
Permittee's Mailing Address:	2474 South 22nd Avenue – Building 31 Phoenix, AZ 85009
Facility Name:	23rd Avenue Wastewater Treatment Plant (WWTP)
Facility Address or Location:	2470 South 22nd Avenue Phoenix, AZ 85009
County:	Maricopa
Contact Person(s): Phone/e-mail address	Berai Kimball (Environmental Programs Manager) (602) 495-7478 / Berai.Kimball@phoenix.gov
AZPDES Permit Number:	AZ0020559
Inventory Number:	100578
LTF Number:	100972

II. STATUS OF PERMIT(s)	
AZPDES permit applied for:	Renewal
Date application received:	**2/5/2024**
Date application was determined administratively complete:	2/12/2024
Previous permit expiration date:	8/4/2024
208 Consistency: In accordance with A.A.C. R18-9-A903(6), a permit cannot be issued for any discharge inconsistent with a plan or plan amendment approved under section 208(b) of the Clean Water Act.	

DRAFT

Based on review of the application, there are no changes to the facility that require a new determination of consistency with the Regional Water Quality Management Plan.		
City of Phoenix has the following permits issued by ADEQ applicable to the 23rd Avenue WWTP:		
Type of Permit		
Aquifer Protection Permit (APP)	P-100578	Regulates discharges to the local aquifer
Reuse Permit	LTF98853	Regulates the practice of reusing treated wastewater for beneficial purposes
Multi-Sector General Permit (MSGP)	AZMS-80180	Regulates stormwater discharge

III. GENERAL FACILITY INFORMATION	
Type of Facility:	Publicly owned treatment works (POTW)
Facility Location Description:	Approximately one mile north of the Salt River between 22nd and 23rd Avenues in Phoenix, Arizona.
Proximity to Tribal Nations	23rd Avenue WWTP Outfall's are approximately 8 miles upstream of the Gila River Indian Reservation.
Permitted Design Flow:	63 MGD
Treatment Level (WWTP):	Tertiary
Treatment Processes:	Preliminary treatment (sedimentation basins), primary treatment, solids handling, biological and nutrient removal, secondary treatment (activated sludge and sedimentation), tertiary filtration, chlorination and dechlorination.
Sludge Handling and Disposal:	Land application
Nature of Facility Discharge:	Domestic wastewater from residential, commercial, and industrial sources.
Total Number of Significant Industrial Users (SIUs):	29
Average Flow Per Discharge:	Outfall 002: No discharge since 2014 Outfall 004: The applicant indicates the average flow per discharge is 20.28 MGD
Service Area:	City of Phoenix Metropolitan Area
Service Population:	507,636
Reuse / Irrigation or other disposal method(s):	The proposed AZPDES permit will authorize discharge of Class B+ effluent to the Roosevelt Irrigation District (RID) canal system at Outfall 004 for irrigation use.
Continuous or Intermittent Discharge:	Outfall 002: Intermittent Outfall 004: Continuous

DRAFT

Discharge Pattern Summary:	Outfall 002: No specific discharge pattern. There have been no discharges since 2014, however, discharge may occur in the event that there is no option to discharge to RID and it is not possible to divert effluent to 91st Avenue WWTP. Outfall 004: Discharge is continuous except during RID's annual dry-up, which typically occurs in November, when all effluent is diverted to the 91st Avenue WWTP (NPDES Permit AZ0020524).

IV. RECEIVING WATER

The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by designated use depending on the level of protection required to maintain that use.

Receiving Water (Federal):	The Water of the U.S. Protected Surface Water (WOTUS PSW) for 23rd Avenue WWTP are: Outfall 002: Salt River (From City of Phoenix 23rd Avenue WWTP outfall to confluence with Gila River) Outfall 004: Roosevelt Irrigation District (RID) Canal System (a Phoenix Area Canal) (Below municipal WTP intakes and all other locations)
River Basin:	Outfall 002 & Outfall 004: Middle Gila River Basin
Outfall Location(s):	Outfall 002: Township 1N, Range 2E, Section 23 Latitude 33° 24' 44" N, Longitude 112° 07' 59" W Outfall 004: Township 1N, Range 2E, Section 13 Latitude 33° 25' 22" N, Longitude 112° 06' 45" W
Designated uses for the receiving water listed above:	Outfall 002: Aquatic and Wildlife effluent dependent water (A&Wedw) Partial Body Contact (PBC) Fish Consumption (FC) Agricultural Irrigation (AgI) Agricultural Livestock watering (AgL) Outfall 004: Agricultural Irrigation (AgI) Agricultural Livestock watering (AgL)
Is the receiving water on the 303(d) list?	No, and there are no TMDL issues associated.

Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108, and the applicable numeric water quality standards are listed in A.A.C. R18-11-109 and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. In developing AZPDES permits, the standards for all applicable designated uses are compared and limits that will protect for all applicable designated uses are developed based on the standards.

DRAFT

V. DESCRIPTION OF DISCHARGE

Because the facility is in operation and discharges have occurred, effluent monitoring data are available. The following is the measured effluent quality reported in the application.

Parameters	Units	Maximum Daily Discharge Concentration
Carbonaceous Biochemical Oxygen Demand (CBOD)	mg/L	>19
Total Suspended Solids (TSS)	mg/L	6.8
Total Kjeldahl Nitrogen (TKN)	mg/L	11
E. coli	cfu/100 mL	240
Facility Design Removal Rates:		CBOD 85 % TSS 85 %

VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT

Date of Most Recent Inspection:	01/16/2024; no potential violations were noted as a result of this inspection.
Discharge Monitoring Reports (DMR) Reviewed:	10/2019 through 12/2023
Lab Reports Reviewed:	10/2019 through 12/2023
DMR Exceedances:	No exceedances noted.
Notice(s) of Violation (NOV) Issued:	None
NOVs Closed:	N/A
Formal Enforcement Action(s):	None
Whole Effluent Toxicity (WET) Detected	Chronic WET test failures: *Selenastrum capricornutum* – Fail for growth (February 2021) *Ceriodaphnia dubia* – Fail for reproduction (February 2021) Facility was not discharging to Outfall 002 at the time of the failures. No WET limit imposed on Outfall 004.
Sufficiently Sensitive Test Methods	To be protective of the receiving water designated uses, the limit of quantitation for each monitoring parameter must be low enough to allow comparison of the results to the lowest applicable water quality standard. Sufficiently sensitive test methods (SSM) were consistently not used and an appropriate limit of quantitation was often exceeded for the following parameters: • Total Residual Chlorine (TRC) • Cadmium • Chromium VI • Mercury • Selenium

DRAFT

VII. PROPOSED PERMIT CHANGES

The following table lists the major changes from the previous permit in this permit.

Parameter	Existing Permit	Proposed Permit	Reason for Change
Noncompliance Reporting Hotline	(602) 771-2330	Noncompliance resulting in imminent threat to human health or the environment must be reported to (602) 771-2330, while all other noncompliance must be reported to (602) 771-1440.	Routing emergency calls to the emergency hotline, but all other calls to a non-emergency number.
Reporting Location for Effluent Characterization Monitoring	Submit results through DMRs	Report results on the EC Monitoring Data Sheet Excel form provided by ADEQ and submit annually to azpdes_data@azdeq.gov by January 28th following each annual reporting period. See Part I.D.2 and Part II.B.3 of permit.	ADEQ is implementing this new procedure to facilitate data analysis by ADEQ and reporting by permittees. Outcomes include expedited data processing and improved data quality review, per ADEQ Surface Water Protection Quality Assurance Program Plan (2022).
Influent Sample Location	Influent samples shall be taken after the last addition to the collection system and prior to the first treatment process.	Influent samples shall be taken after the last addition to the collection and just downstream of the bar screens.	City of Phoenix requested change so that the permit better reflects the actual influent sample location.
Use of Metal Translators to Calculate Total Recoverable Permit Limits from Dissolved Criteria (Applicable to Cadmium, Chromium VI, Copper, Lead, Mercury, Nickel, Silver, and Zinc).	No metal translators were used. Assumed the ratio of dissolved to total recoverable is 1 to 1 for all metals with water quality criteria expressed as dissolved.	WQBELs and ALs were converted from dissolved to total recoverable using the default metal translators from the EPA's *The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit from A Dissolved Criterion.*	New procedure for ADEQ to incorporate default metal translators when calculating total recoverable WQBELs and ALs from dissolved criteria.

DRAFT

VII. PROPOSED PERMIT CHANGES *(Continued)*			
Parameter	**Parameter**	**Parameter**	**Parameter**
Sufficiently Sensitive Test Methods and Limit of Quantitation (LOQ) reporting requirements	Limited explanation of analytical requirements for LOQ and no sufficiently sensitive test method requirements.	Analytical test sensitivity requirements are specified in the footnotes of Part I Tables 1-4 of the permit and associated definitions in Appendix A. Part B. The requirement to use sufficiently sensitive test methods is specified in Part II.A.5.	The Limit of Quantitation (LOQ) must be low enough to allow comparison of the results to the applicable water quality standards (WQS) to be protective of the receiving water designated uses. New language clarifies the requirement that parameters must be analyzed using sufficiently sensitive test methods in accordance with 40 CFR 136.1(c).
Pretreatment Conditions	Standard conditions, including instructions for submission of annual reports via email and annual report requirements.	Updated standard conditions, including instructions to submit annual reports using ADEQ's Annual Report Form via email or myDEQ (when available), updated annual report requirements, and a requirement to complete a local limit evaluation within 180 days of permit reissuance.	ADEQ has updated the pretreatment conditions for consistency with 40 CFR 403 and the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule.
Endosulfan (Total), Methoxychlor (Outfall 002)	Effluent Characterization	Monitoring required and a limit is set. See Table 1.a	Data submitted indicated reasonable potential (RP) for an exceedance of a standard.
Whole Effluent Toxicity (WET) Ceriodaphnia dubia (Water Flea) and Pseudokirchneriella subcapitata (Green algae) (Outfall 002)	Action Level Monitoring 1x/6 Months	Monitoring required and a limit is set. Monitoring 1x/Quarter See Table 3	Data submitted indicates RP for an exceedance of a standard. Increased monitoring in accordance with limit.

DRAFT

VII. PROPOSED PERMIT CHANGES *(Continued)*

Parameter	Parameter	Parameter	Parameter
Cadmium, Selenium, Chromium VI (Outfall 002)	Effluent Characterization	Monitoring required and an assessment level set. See Table 2.a	RP indeterminate based on use of insufficiently sensitive methods with LOQ above surface water standards.
Heptachlor, Hexachlorocycle hexane alpha (alpha BHC)	Limited	Monitoring for effluent characterization only.	Data submitted indicates no RP for an exceedance of a standard.

Anti-backsliding considerations — "Anti-backsliding" refers to statutory (Section 402(o) of the Clean Water Act) and regulatory (40 CFR 122.44(l)) requirements that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the previous permit. The rules and statutes do identify exceptions to these circumstances where backsliding is acceptable. This permit has been reviewed and drafted with consideration of anti-backsliding concerns.

Limits for the following parameter have been removed from the permit because evaluation of current data allows the conclusion that no reasonable potential (RP) for an exceedance of a standard exists:

•Heptachlor (Outfall 002)

•Hexachlorocyclohexane alpha (Outfall 002)

This is considered allowable backsliding under 303(d)(4). The effluent limitations in the current permit for these two parameters were based on state standards, the respective receiving waters are in attainment for these parameters, and the revisions are consistent with antidegradation requirements. See Section XII for information regarding antidegradation requirements.

No limits are less stringent due to a change in the WQS in this permit.

VIII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS

When determining what parameters need monitoring and/or limits included in the permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.

Technology-based Limitations: As outlined in 40 CFR Part 133:

The regulations found at 40 CFR §133 require that POTWs achieve specified treatment standards for BOD, TSS, and pH based on the type of treatment technology available. Therefore, technology-based effluent limitations (TBELs) have been established in the permit for these parameters. Additionally, oil & grease will be monitored with an assessment level based on best professional judgment (BPJ). The average monthly assessment level of 10 mg/L and daily maximum of 15 mg/L are commonly accepted values that can be achieved by properly operated and maintained WWTPs. This level is also considered protective of the narrative standard at A.A.C. R18-11-108(B).

DRAFT

Water Quality-Based Effluent Limitations:

Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), discharge limits must be included in the permit for parameters with "reasonable potential" (RP), that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. Numeric water quality standards are outlined in A.A.C. R18-11-109 and Appendix A.

RP refers to an analysis, based on the statistical calculations using the data submitted or consideration of other factors, to determine whether the discharge may exceed the Water Quality Standards. The procedures used to determine RP are outlined in the *Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001). In most cases, the highest reported value for a parameter is multiplied by a factor (determined from the variability of the data and number of samples) to determine a "highest estimated value." This value is then compared to the lowest applicable Water Quality Standard for the receiving water. If the value is greater than the standard, RP exists and a water quality-based effluent limitation (WQBEL) is required in the permit for that parameter. RP may also be determined from BPJ based on knowledge of the treatment facilities and other factors. The basis for the RP determination for each parameter with a WQBEL is shown in the table below.

It is assumed that RP exists for exceedance of water quality criteria for the pollutants *E. coli* and, if chlorine or bromine is used in the treatment process, total residual chlorine (TRC). These parameters have been shown through extensive monitoring of WWTPs to fluctuate greatly and thus are not conducive to exclusion from limitation due to a lack of RP. Therefore, the permit contains WQBELs for *E. coli* and TRC.

Since there was use of insufficiently sensitive methods, RP could not be calculated for multiple potential pollutants that are subject to numeric water quality standards. Instead of WQBELs, assessment levels (ALs) were established for Trace Substances (Table 2.a, and 2.b in the permit). ALs and relatively frequent monitoring are necessary for these parameters because they are commonly present in WWTP effluents at variable concentrations and at a level that could exceed the applicable water quality criteria for them. (See discussion under "Assessment Levels" below for further details.) For a number of other pollutants, Effluent Characterization (EC) monitoring is required at a lesser frequency and without established ALs or numeric limits (Tables 4.a. – 4.f in the permit). (See discussion under "Effluent Characterization" below for further details.)

The proposed permit limits were established using a methodology developed by EPA. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect all uses. This methodology takes into account criteria, effluent variability, and the number of observations taken to determine compliance with the limit and is described in Chapter 5 of the TSD. Limits based on A&W criteria were developed using the "two-value steady state wasteload allocation" described on page 99 of the TSD. When the limit is based on human health criteria, the monthly average was set at the level of the applicable standard and a daily maximum limit was determined as specified in Sections 5.4.4 and 5.5.3 of the TSD.

Mixing Zone

Arizona water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies and is approved for a mixing zone. Since the receiving stream for discharges to Outfall 002 (Salt River) is ephemeral prior to the discharge, no water is available for a mixing zone and all water quality criteria are applied at end-of-pipe. This means that the effluent concentration must meet stream standards, and the limits in this permit for Outfall 002 were determined without the use of a mixing zone. With respect to Outfall 004 (Roosevelt Irrigation District Canal), Arizona state water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies for and is approved for a mixing zone. Since a mixing zone was not applied for or granted, all water quality criteria are applied at end-of-pipe.

DRAFT

Assessment Levels (ALs)

ALs are listed in Part I.B of the permit. An AL differs from a discharge limit in that an exceedance of an AL is not a permit violation. Instead, ALs serve as triggers, alerting the permitting authority when there is cause for re-evaluation of RP for exceeding a water quality standard, which may result in new permit limitations. The AL numeric values also serve to advise the permittee of the analytical sensitivity needed for meaningful data collection. Trace substance monitoring is required when there is uncertain RP (based on non-detect values or limited datasets) or a need to collect additional data or monitor treatment efficacy on some minimal basis. A reopener clause is included in the permit should future monitoring data indicate water quality standards are being exceeded.

Ammonia water quality criteria vary based on the effluent pH and temperature at the time of effluent sampling. As a result, no single ammonia concentration can be included as a permit assessment level. To overcome this, an Ammonia Impact Ratio (AIR) of 1 for the monthly average and a value of 2 for the maximum daily limit has been established as the permit assessment level for ammonia. The AIR is calculated by dividing the ammonia concentration in the effluent by the applicable ammonia standard based on the effluent pH and temperature at the time of sampling. AIR values will be reported on DMRs and on the Ammonia Data Log which is included as Appendix B in the permit.

The requirement to monitor for these parameters is included in the permit according to A.A.C. R18-11-104(C) and Appendix A. Except for oil and grease, ALs listed for each parameter were calculated in the same manner that a limit would have been calculated (see Numeric Water Quality Standards Section above). The ALs for oil and grease were determined based on BPJ as described above.

Hardness – (Outfall 002)

The permittee is required to sample hardness as $CaCO_3$ at the same time the trace metals are sampled because the water quality standards for some metals are calculated using the water hardness values. The hardness value of 255 mg/L (the average hardness of the effluent as supplied in the application) was used to calculate the applicable water quality standards and any assessment levels or limits for the hardness dependent metals (cadmium, chromium III, copper, lead, nickel, silver and zinc).

Whole Effluent Toxicity (WET) – (Outfall 002)

WET testing is required in the permit (Parts I.C and IV) to evaluate the discharge according to the narrative toxic standard in A.A.C. R18-11-108(A)(5), as well as whether the discharge has RP for WET per 40 CFR 122.44(d)(iv). At a minimum, the results reported on an AZPDES application must include quarterly testing for a 12-month period within the past year using multiple species or the results from four tests performed at least annually in the 4.5 years prior to the application.

WET testing for chronic and/or acute toxicity is required. The requirement to conduct chronic toxicity testing is contingent upon the frequency or duration of discharges. Since completion of the chronic WET test requires a minimum of three samples be taken for renewals, the chronic WET test is not required during any given monitoring period in which the discharge does not occur over seven consecutive calendar days and is not repeated more frequently than every thirty days.

WET testing for chronic toxicity shall be conducted using the following three surrogate species:

- *Ceriodaphnia dubia* (water flea) – for evaluating toxicity to invertebrates
- *Pimephales promelas* (fathead minnow) – for evaluating toxicity to vertebrates
- *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata)* (a green alga) – for evaluating toxicity to plant life

DRAFT

Whole Effluent Toxicity (WET) – (Outfall 002) *(Continued)*

ADEQ does not have a numeric standard for Whole Effluent Toxicity. However, ADEQ adopted the EPA recommended chronic toxicity benchmark of 1.0 Toxic Unit-Chronic (TUc) for a four day exposure period. Using this benchmark, the limitations and/or action levels for WET included in the permit were calculated in accordance with the methods specified in the *TSD*. The species chosen for WET testing are as recommended in the *TSD* and in *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*.

An exceedance of a limit or action level will trigger follow-up testing to determine if effluent toxicity is persistent. If toxicity above a limit or action level is found in a follow-up test, the permittee will be required to conduct a Toxicity Reduction Evaluation (TRE) and possibly a Toxicity Identification Evaluation (TIE) to identify the source of toxicity and reduce toxicity. These conditions are required to ensure that toxicants are not discharged in amounts that are toxic to organisms [A.A.C. R18-11-108(A)(5)]. A reopener clause is included in accordance with 40 CFR Parts 122 and 124 and AAC R18-9-B906.

The permit requires 24-hour composite samples be collected for WET testing. WET sampling must coincide with testing for all the parameters in Parts I.A and B of the permit, when testing of those parameters is required, to aid in the determination of the cause of toxicity if toxicity is detected. Additional procedural requirements for the WET test are included in the proposed permit.

The required WET monitoring frequency for this facility is consistent with the WET testing frequency required for facilities with a similar design flow. The permit requires WET test results to be reported on discharge monitoring reports and submittal of the full WET lab report to ADEQ.

Whole Effluent Toxicity (WET) – (Outfall 004)

ADEQ does not require WET testing if the receiving water has no aquatic and wildlife designated uses. Although the narrative standard prohibiting the discharge of toxic pollutants applies to all discharges, the test species are not appropriate for these receiving waters and no alternative tests are readily available. Therefore, WET testing is not required in this permit for discharges from Outfall 004.

Effluent Characterization (EC)

In addition to monitoring for parameters assigned either a limit or an AL, sampling is required to assess the presence of pollutants in the discharge at certain minimum frequencies for additional suites of parameters, whether the facility is discharging or not. This monitoring is specified in Tables 4.a. through 4.f., *Effluent Characterization Testing,* as follows:

• Table 4.a.—General Chemistry and Microbiology: ammonia, BOD-5, *E. coli*, total residual chlorine (TRC), dissolved oxygen, total Kjeldahl nitrogen (TKN), nitrate/nitrite, oil and grease, pH, phosphorus, temperature, total dissolved solids (TDS), and total suspended solids (TSS)

• Table 4.b. —Selected Metals, Hardness, Cyanide, and WET

• Table 4.c. —Selected Volatile Organic Compounds

• Table 4. d. —Selected Acid-Extractable Compounds

• Table 4. e. —Selected Base-Neutral Compounds

• Table 4.f. —Additional Parameters Based on Designated Uses (from Arizona Surface Water Quality Standards, Appendix A, Table 1)

NOTE: Some parameters listed in Tables 4.a-4.f are also listed in Tables 1.a and 1.b or 2.a and 2.b. In this case, the data from monitoring under Tables 1.a and 1.b or 2.a and 2.b may be used to satisfy the requirements of Tables 4.a-f, provided the specified sample types are the same. In the event the facility does not discharge to a Protected Surface Water during the life of the permit, EC monitoring of representative samples of the effluent is still required.

DRAFT

Effluent Characterization (EC) *(Continued)*

The purpose of EC monitoring is to characterize the effluent and determine if the parameters of concern are present in the discharge and at what levels. This monitoring will be used to assess RP per 40 CFR 122.44(d)(1)(iii)). EC monitoring is required in accordance with 40 CFR 122.43(a), 40 CFR 122.44(i), and 40 CFR 122.48(b) as well as A.R.S. §49-203(A)(7). If pollutants are noted at levels of concern during the permit term, this permit may also be reopened to add related limits or conditions.

Permit Limitations and Monitoring Requirements

Table 1 summarizes the parameters that are limited in the permit and the rationale for that decision. Also included are the parameters that require monitoring without any limitations or that have not been included in the permit at all and the basis for those decisions. The corresponding monitoring requirements are shown for each parameter. In general, the regulatory basis for monitoring requirements is per 40 CFR §122.44(i) *Monitoring requirements,* and 40 CFR §122.48(b), *Required monitoring*; all of which have been adopted by reference in A.A.C. R18-9-A905, *AZPDES Program Standards*.

Data submitted in the application was verified and validated against the certified laboratory reports. For results to be considered valid for use in RP analysis and calculation of WQBELs sample analysis must be performed by a laboratory licensed by the ADHS Office of Laboratory Licensure and Certification that has demonstrated proficiency within the last 12 months under A.A.C. R9-14-609, for each parameter with the exception of parameters that require analysis at the time of sampling in accordance with A.A.C. 36-495.02(A)(3). All analytical work, including those tests conducted by the permittee at the time of sampling, must meet quality control standards specified in the approved methods. Test procedures used must be listed in 40 CFR 136 which is also approved under A.A.C. R9-14-610 and is sufficiently sensitive in accordance with 40 CFR 136.1(c). Alternative or modified test procedures may be used if approved by EPA as provided in 40 CFR 136 and also approved under A.A.C. R9-14-610. If there is no approved wastewater method for a parameter, any other method identified in 9 A.A.C. 14, Article 6 that will achieve appropriate detection and reporting limits may be used for analyses. Monitoring results that did not meet all of the data usability criteria were excluded from analysis. Exclusion is reflected in Table 1 under No. of samples.

DRAFT

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Outfall 002						
Flow	- - -	- - -	- - -	- - -	- - -	Discharge flow is to be monitored on a continual basis using a flow meter.
Carbonaceous Biological Oxygen Demand (CBOD) and Total Suspended Solids (TSS) (2)	CBOD: 25 mg/L 30-day average 40 mg/L 7-day average/ TSS: 30 mg/L 30-day average 45 mg/L 7-day average/ Technology-based limits 40 CFR 133.102	CBOD: >19 mg/L TSS: 6.8 mg/L	CBOD: 1655 TSS: 1655	N/A	TBELs for CBOD and TSS are always applicable to WWTPs.	Monitoring for influent and effluent CBOD and TSS to be conducted using composite samples of the influent and the effluent. The sample type required was chosen to be representative of the discharge. The requirement to monitor influent CBOD and suspended solids is included to assess compliance with the 85% removal requirement in this permit. CBOD will be monitored and reported in lieu of BOD due to concerns over complete denitrification in effluent.
Chlorine, Total Residual (TRC)	11 µg/L A&Wedw chronic	<25.8 µg/L	336	N/A	RP always expected when chlorine or bromine is used for disinfection.	TRC is to be monitored as a discrete sample and a WQBEL remains in the permit. 40 CFR Part 136 specifies that discrete samples must be collected for chlorine. At least one sample per month must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
E. coli	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 575 cfu /100 mL/ PBC	240 cfu/100 mL	328	N/A	RP always expected for WWTPs. See explanation above.	*E. coli* is to be monitored as a discrete sample and a WQBEL remains in the permit.
pH (2)	Minimum: 6.5 Maximum: 9.0 A&Wedw and PBC A.A.C. R18-11-109(B) Minimum: 6.0 Maximum: 9.0 Technology-based limits 40 CFR 133.102	Min: 6.83 Max: 8.09	1656	N/A	WQBEL or TBEL is always applicable to WWTPs.	pH is to be monitored using a discrete sample of the effluent and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected. pH sampling must also coincide with ammonia sampling when required.

DRAFT

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Temperature	R18-11-109C the discharge shall not cause an increase in the ambient water temperature. A&Wedw: no more than 3.0°C	34.1ºC	985	N/A	N/A	Effluent temperature is to be monitored for effluent characterization by discrete sample. 40 CFR Part 136 specifies that discrete samples must be collected for temperature. Temperature sampling must also coincide with ammonia sampling when required.
Total Dissolved Solids (TDS)	No applicable standard	868 mg/L	5	N/A	N/A	Monitoring required for effluent characterization.
Ammonia	Standard varies with temperature and pH	3.1 mg/L (< WQS)	21	N/A	RP Indeterminate (4)	Ammonia is to be monitored by discrete sample and a WQBEL in the form of an ammonia impact ratio (AIR) of 1 is set in the permit (6). An ammonia data log with concurrent pH and temperature monitoring is also required. One sample must coincide with WET sampling to aid in the determination of the cause of toxicity, if toxicity is detected.
Nutrients (Total Kjeldahl Nitrogen and Total Phosphorus)	No applicable standards	TKN: 11 mg/L TP: 12 mg/L	TKN: 20 TP: 20	N/A	N/A	Monitoring required for effluent characterization.
Oil & Grease	BPJ Technology-Based Level of 10 mg/L monthly average and 15 mg/L daily maximum.	<6.7 mg/L	23	N/A	RP Indeterminate (4)	Monitoring required and an assessment level / limit remains in the permit.
Antimony	600 µg/L A&W edw chronic	<5 µg/L	20	1.44 µg/L	No RP	Monitoring required for effluent characterization.
Arsenic	80 µg/L FC	<5 µg/L	20	1.57 µg/L	No RP	Monitoring required for effluent characterization.
Beryllium	5.3 µg/L A&Wedw chronic	1 µg/L	20	2.30 µg/L	No RP	Monitoring required for effluent characterization.
Boron	1,000 µg/L AgI	374 µg/L	20	441 µg/L	No RP	Monitoring required for effluent characterization.
Cadmium (2)	4.5 µg/L A&Wedw chronic	<5 µg/L	20	N/A	RP Indeterminate (High LOQ)	Monitoring required and an assessment level is set.
Chromium (Total)	1,000 µg/L AgI	14.2 µg/L	20	79 µg/L	No RP	Monitoring required as an indicator parameter for Chromium VI.
Chromium VI	11 µg/L A&Wedw chronic	<15 µg/L	6	N/A	RP Indeterminate (High LOQ)	Monitoring required and an assessment level remains in the permit.
Copper (2)	19.9 µg/L A&Wedw chronic	<10 µg/L	20	13.6 µg/L	No RP	Monitoring required for effluent characterization.
Cyanide	9.7 µg/L A&Wedw chronic	12 µg/L	38	29 µg/L	RP Exists	Monitoring is required and a WQBEL is set.

DRAFT

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	305 mg/L	20	N/A	N/A	A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on the average effluent of 255 mg/L. Monitoring for hardness is required whenever monitoring for hardness dependent metals is required.
Hydrogen sulfide	2 µg/L A&Wedw chronic	No Data	0	N/A	RP Indeterminate (No Data)	Monitoring is required for sulfides as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Iron	1,000 ug/L A&Wedw chronic	124 µg/L	20	214 µg/L	No RP	Monitoring required for effluent characterization.
Lead (2)	6.9 µg/L A&Wedw chronic	<5 µg/L	20	1.79 µg/L	No RP	Monitoring required for effluent characterization.
Mercury	0.01 µg/L A&Wedw chronic	<0.2 µg/L	28	0.37 µg/L	RP Exists (High LOQ)	Monitoring required and a WQBEL remains in the permit.
Nickel (2)	115 µg/L A&Wedw chronic	<20 µg/L	20	35.1 µg/L	No RP	Monitoring required for effluent characterization.
Selenium	2 µg/L A&Wedw chronic	<5 µg/L	20	N/A	RP Indeterminate (High LOW)	Monitoring required and an assessment level is set.
Silver (2)	16 µg/L A&Wedw acute	<5 µg/L	20	N/A	No RP	Monitoring required for effluent characterization.
Sulfides	No applicable standard	<50 µg/L	8	N/A	N/A	Indicator parameter for hydrogen sulfide. Monitoring required. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Thallium	7.2 µg/L FC	<5 µg/L	20	1.64 µg/L	No RP	Monitoring required for effluent characterization.
Zinc (2)	259 µg/L A&Wedw chronic	57 µg/L	20	80.1 µg/L	No RP	Monitoring required for effluent characterization.
Benzo (a) Pyrene	0.02 µg/L FC	<10 µg/L	20 (6)	N/A	No RP	Monitoring required for effluent characterization.
Bromodichloromethane	17 µg/L FC	31 µg/L	84	48.2 µg/L	RP Exists	Monitoring is required and a WQBEL is set.
Dibromochloromethane	13 µg/L FC	11 µg/L	84	18.1 µg/L	RP Exists	Monitoring is required and a WQBEL is set.
Bis (2-Ethylhexyl) Phthalat	3 µg/L FC	<10 µg/L	23	6.1 µg/L	RP Exists	Monitoring is required and a WQBEL is set.
p,p - DDD	0.0002 µg/L FC	<1 µg/L	17 (6)	N/A	No RP	Monitoring required for effluent characterization.
p,p - DDT	0.0002 µg/L FC	<1 µg/L	17 (6)	N/A	No RP	Monitoring required for effluent characterization.
Endosulfan, Total	0.06 µg/L A&Wedw chronic	<0.1 µg/L	17	0.13 µg/L	RP Exists	Monitoring is required and a WQBEL is set.
Methoxychlor	0.03 µg/L A&Wedw chronic	<1 µg/L	9	0.76 µg/L	RP Exists	Monitoring is required and a WQBEL is set.

DRAFT

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A) (6)	*Pseudo-kirchneriella subcapitata (3)*	>8.0 TUc	11	N/A	RP Exists	Monitoring required and a WQBEL is set.
		Pimephales promelas	1 TUc	10	N/A	RP Indeterminate (4)	Monitoring required and an action level is set.
		Ceriodaphnia dubia	1.3 TUc	11	N/A	RP Exists	Monitoring required and a WQBEL is set.
Outfall 004							
Flow	---		---	---	---	---	Discharge flow is to be monitored on a continual basis using a flow meter.
Carbonaceous Biological Oxygen Demand (CBOD) and Total Suspended Solids (TSS) (2)	CBOD: 25 mg/L 30-day average 40 mg/L 7-day average/ TSS: 30 mg/L 30-day average 45 mg/L 7-day average/ Technology-based limits 40 CFR 133.102		CBOD: >19 mg/L TSS: 6.8 mg/L	CBOD: 1632 TSS: 1655	N/A	TBELs for CBOD and TSS are always applicable to WWTPs.	Monitoring for influent and effluent CBOD and TSS to be conducted using composite samples of the influent and the effluent. The sample type required was chosen to be representative of the discharge. The requirement to monitor influent CBOD and suspended solids is included to assess compliance with the 85% removal requirement in this permit. CBOD will be monitored and reported in lieu of BOD due to concerns over complete denitrification in effluent.
pH (2)	Minimum: 6.5 Maximum: 9.0 AgL A.A.C. R18-11-109(B) Minimum: 6.0 Maximum: 9.0 Technology-based limits 40 CFR 133.102		Min: 6.83 Max: 8.09	1656	N/A	WQBEL or TBEL is always applicable to WWTPs.	pH is to be monitored using a discrete sample of the effluent and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH.
Oil & Grease	BPJ Technology-Based Level of 10 mg/L monthly average and 15 mg/L daily maximum		<6.7 mg/L	23	N/A	RP Indeterminate (4)	Monitoring required and an assessment level / limit remains in the permit.
Arsenic	200 µg/L AgL		<5 µg/L	20	1.57 µg/L	No RP	Monitoring required for effluent characterization.
Boron	1,000 µg/L AgI		374 µg/L	20	441 µg/L	No RP	Monitoring required for effluent characterization.
Cadmium	50 µg/L AgI & AgL		<5 µg/L	20	N/A	No RP	Monitoring required for effluent characterization.
Chromium (Total)	1,000 µg/L AgI & AgL		14.2 µg/L	20	79 µg/L	No RP	Monitoring required for effluent characterization.

DRAFT

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Copper	500 µg/L AgL		<10 µg/L	20	13.6 µg/L	No RP	Monitoring required for effluent characterization.
Cyanide	200 µg/L AgL		12 µg/L	38	29 µg/L	No RP	Monitoring required for effluent characterization.
Lead	100 µg/L AgL		<5 µg/L	20	1.79 µg/L	No RP	Monitoring required for effluent characterization.
Mercury	10 µg/L AgL		<0.2 µg/L	28	0.37 µg/L	No RP	Monitoring required for effluent characterization.
Selenium	20 µg/L AgI		<5 µg/L	20	N/A	No RP	Monitoring required for effluent characterization.
Zinc	10,000 µg/L AgI		57 µg/L	20	80.1 µg/L	No RP	Monitoring required for effluent characterization.
p,p-DDD	0.001 µg/L AgI		<1 µg/L	17 (6)	N/A	No RP	Monitoring required for effluent characterization.
p,p-DDT	0.001 µg/L AgI		<1 µg/L	17 (6)	N/A	No RP	Monitoring required for effluent characterization.
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A) (6)	*Pseudo-kirchneriella subcapitata (4)*	N/A	N/A	N/A	N/A	Monitoring is not required. WET testing is not required for discharges to canals.
		Pimephales promelas	N/A	N/A	N/A	N/A	
		Ceriodaphnia dubia	N/A	N/A	N/A	N/A	

Footnotes:

1. The monitoring frequencies are as specified in the permit.
2 Hardness-dependent metal - the standard is for this parameter is based on the average hardness value of the effluent or receiving water as indicated above.
3 Formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata.*
4 Monitoring with ALs or Action Levels always required for WWTPs for these parameters unless RP exists and limits are set.
5 An AIR will be calculated by dividing effluent ammonia concentration by the applicable standard using the receiving water pH and temperature.
6 Five (5) data points per parameter were omitted from the dataset due to duplication and utilization of EPA Method 525.2, which is not approved in 40 CFR 136 for wastewater analysis for the selected parameters. The laboratory automatically tested for these parameters when they tested for Atrazine, Endrin, Heptachlor, Methoxychlor, and Simazine, all of which are approved in 40 CFR 136 to use EPA Method 525.2. Data that is not required to be submitted by the permit that does not use approved methods for wastewater will not be included in the dataset used for determining RP.

DRAFT

VIII. NARRATIVE WATER QUALITY STANDARDS

All narrative limitations in A.A.C. R18-11-108 that are applicable to the receiving water are included in Part I, Section E of the permit.

IX. MONITORING AND REPORTING REQUIREMENTS (Part II of Permit)

Section 308 of the Clean Water Act and 40 CFR Part 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Monitoring frequencies for some parameters may be reduced in subsequent permits if all monitoring requirements have been met and the limits or ALs for those parameters have not been exceeded during the first permit term.

For the purposes of this permit, a "24-hour composite" sample has been defined as a flow-proportioned mixture of not less than three discrete samples (aliquots) obtained at equal time intervals over a 24-hour period

These criteria for composite sampling are included in order to obtain samples that are representative of the discharge given the potential variability in the duration, frequency and magnitude of discharges from this facility.

Discrete (i.e., grab) samples are specified in the permit for parameters that for varying reasons are not amenable to compositing.

Monitoring locations are specified in the permit (Part I.A, Part II.A, and Part III.J) in order to ensure that representative samples of the influent and effluent are consistently obtained.

The requirements in the permit pertaining to Part II, Monitoring and Reporting, are included to ensure that the monitoring data submitted under this permit is accurate in accordance with 40 CFR 122.41(e). The permittee has the responsibility to determine that all data collected for purposes of this permit meet the requirements specified in this permit and is collected, analyzed, and properly reported to ADEQ.

The permit (Part II.A.3) requires the permittee to keep a Quality Assurance (QA) manual at the facility, describing sample collection and analysis processes; the required elements of the QA manual are outlined.

Reporting requirements for monitoring results are detailed in Part II, Section B of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs), Ammonia Data Logs, and AZPDES Flow Record forms.

The permittee is responsible for conducting all required monitoring and reporting the results to ADEQ on DMRs or as otherwise specified in the permit.

Electronic reporting

The US EPA has published a final regulation that requires electronic reporting and sharing of Clean Water Act National Pollutant Discharge Elimination System (NPDES) program information instead of the current paper-based reporting (Federal Register, Vol. 80, No. 204, October 22, 2015). Beginning December 21, 2016 (one year after the effective date of the regulation), the Federal rule required permittees to make electronic submittals of any monitoring reports and forms called for in their permits. ADEQ has created an online portal called myDEQ that allows users to submit their discharge monitoring reports and other applicable reports required in the permit.

The permit also requires annual submittal of an Ammonia Data Log that records the results for temperature, pH, and ammonia samples and date of sampling (Part II.B.4). Because the ammonia standards in 18 A.A.C. 11, Article 1, Appendix A are contingent upon the pH and temperature at the time of sampling for ammonia, the permittee must determine the applicable ammonia standard using the ammonia criteria table(s) and calculate the Ammonia Impact Ratio for that ammonia sample result. The AIR is recorded on the DMR.

DRAFT

Requirements for retention of monitoring records are detailed in Part II.D.1 of the permit.

X. BIOSOLIDS REQUIREMENTS (Part III in Permit)

Standard requirements for the monitoring, reporting, record keeping, and handling of biosolids, as well as minimum treatment requirements for biosolids according to 40 CFR Part 503 are incorporated in the permit.

XI. SPECIAL CONDITIONS (Part V in Permit)

Operation

This permit condition requires the permittee to ensure that the WWTP has an operator who is certified at the appropriate level for the facility, in accordance with A.A.C. R18-5-104 through -114. The required certification level for the WWTP operator is based on the class (Wastewater Treatment Plant) and grade of the facility, which is determined by population served, level of treatment, and other factors.

Pretreatment

Standard requirements for implementing and enforcing an approved pretreatment plan are included in the permit.

Permit Reopener

This permit may be modified based on newly available information; to add conditions or limits to address demonstrated effluent toxicity; to implement any EPA-approved new Arizona water quality standard; or to re-evaluate reasonable potential (RP), if assessment levels in this permit are exceeded [A.A.C. R18-9-B906 and 40 CFR Part 122.62 (a) and (b)].

XII. ANTIDEGRADATION

Antidegradation rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected. The discharge from the 23rd Avenue WWTP will be to an effluent-dependent water or to a canal, both of which are subject to Tier 1 antidegradation protection. Effluent quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable water quality standards. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107.

XIII. STANDARD CONDITIONS

Conditions applicable to all NPDES permits in accordance with 40 CFR, Part 122 are attached as an appendix to this permit.

XIV. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES permit or application. The basic intent

DRAFT

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. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)

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. 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-A908(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.

EPA Review (A.A.C. R18-9-A908(C)

A copy of this permit and any revisions made to this draft as a result of public comments received will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.

XV. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – Surface Water Permits Unit
Attn: Lesley Davidson
1110 West Washington Street
Phoenix, Arizona 85007

Or by contacting Lesley Davidson at (520) 628 - 5018 or by e-mail at Davidson.Lesley@azdeq.gov.

XVI. INFORMATION SOURCES

While developing effluent limitations, monitoring requirements, and special conditions for the permit, the following information sources were used:

1. AZPDES Permit Application Form(s) 2A and 2S, received February 5, 2024, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. Supplemental information to the application received by ADEQ on March 18, 2024.
3. ADEQ files on City of Phoenix – 23rd Avenue WWTP.
4. ADEQ Geographic Information System (GIS) Web site
5. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters,* adopted December 31, 2016.
6. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
7. Code of Federal Regulations (CFR) Title 40:

DRAFT

Part 122, *EPA Administered Permit Programs: The National Pollutant Discharge Elimination System.*

Part 124, *Procedures for Decision Making*.

Part 133. *Secondary Treatment Regulation.*

Part 503. *Standards for the Use or Disposal of Sewage Sludge*.

8. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.

9. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.

10. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).

11. U.S. EPA NPDES Permit Writers' Manual, September 2010.

12. The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion, US EPA, June 1996.

DRAFT