

## ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the issuance of the AZPDES permit listed below. This facility is a wastewater treatment plant (WWTP) with a design capacity of four (4) million gallons per day (mgd) and thus is considered to be a major facility under the NPDES 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.

<b>I. PERMITTEE INFORMATION</b>	
Permittee / Owner's Name:	Johnson Utilities, L.L.C. ("JU")
Permittee / Owner's Mailing Address:	5230 East Shea Blvd., Suite 200 Scottsdale, Arizona 85254
Permittee / Interim Manager's Name:	EPCOR Water Arizona, Inc. ("EPCOR")
Permittee / Interim Manager's Mailing Address:	2355 W. Pinnacle Peak Road, Suite 300 Phoenix, Arizona 85027
Facility Name:	Pecan Water Reclamation Facility (WRF)
Facility Address or Location:	38539 North Gantzel Road San Tan Valley, Arizona 85143
County:	Pinal County
Contact Person(s): Phone/e-mail address	Mr. John Calkins, Director of Compliance (EPCOR) (623) 445-2406 / jcalkins@epcor.com
AZPDES Permit Number:	AZ0026204
Inventory Number:	105324
LTF Number:	76337

<b>II. STATUS OF PERMIT(s)</b>	
AZPDES permit applied for:	New
Date application received:	April 10, 2019, Application addendum received on July 26, 2019, August 16, 2019, and September 6, 2019.

<b>II. STATUS OF PERMIT(s)</b>	
Date application was determined administratively complete:	May 22, 2019
Previous permit number (if different):	AZ0025445
Previous permit expiration date:	This facility previously had a permit that was terminated at the request of the permittee on March 23, 2011.

**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.

JU previously had an AZPDES permit for the Pecan WRF that was voluntarily terminated in 2011. The factsheet for the previous permit indicated the applicable sections of the Central Arizona Association of Governments' (CAG) 208 Water Quality Management Plan specified the discharges from the Pecan WRF must be subsurface only in order to be consistent with the plan.

ADEQ requested an updated consistency review from CAG as part of this application. CAG replied with a memo dated May 28, 2019, that stated a subsurface discharge from the Pecan WRF is consistent with an approved 2006 amendment for their consolidated service area and also consistent with the 2016 Area-wide Water Quality Management Plan. The proposed discharge through Outfall 001 to Queen Creek by subsurface leach field associated with this permit is consistent with the CAG Water Quality Management Plan.

As part of an application addendum ADEQ received on July 26, 2019, JU is also requesting the addition of two outfalls with a direct discharge to Queen Creek. ADEQ determined the discharges to Queen Creek through proposed Outfalls 002 and 003 may not be consistent with the approved Section 208 Water Quality Management Plan (208 plan). ADEQ included a special condition in the permit that requires JU to coordinate with CAG to complete any necessary 208 plan amendment process and obtain a 208 consistency review determination. The permittee shall not discharge from Outfalls 002 or 003 until the discharge is consistent with the CAG 208 plan.

Johnson Utilities L.L.C. has the following permits issued by ADEQ applicable to the Pecan WRF:

<b>Type of Permit</b>		
AZPDES Biosolids General Permit	AZGP2013-001; Authorization# AZBG26492	Authorization to prepare biosolids for land application
Aquifer Protection Permit (APP)	P 105324	Regulates discharges to the local aquifer
Reuse Permit	R 105778	Regulates the practice of reusing treated wastewater for beneficial purposes

<b>III. GENERAL FACILITY INFORMATION</b>	
Type of Facility:	Privately owned wastewater treatment plant (WWTP)
Facility Location Description:	Plant is located at 38539 North Gantzel Road, approximately 0.7 miles northeast of the intersection of N. Gantzel Road and W. Combs Road and is situated about 300 feet south of the Queen Creek Wash.

<b>III. GENERAL FACILITY INFORMATION</b>	
Permitted Design Flow:	Four (4) million gallons per day (mgd)
Treatment level (WWTP):	Tertiary treatment level
Treatment Processes :	Treatment processes at the WRF consist of influent screening, grit removal, activated sludge biological treatment (Aero-Mod), solids settling in a secondary clarifier, and tertiary filtration. Disinfection is by sodium hypochlorite.
Sludge Handling and Disposal:	Sludge is either hauled to an approved landfill for disposal or land applied as biosolids to permitted land application sites.
Nature of facility discharge:	Domestic wastewater from residential and commercial sources in Queen Creek.
Total Number of significant industrial Users (SIUs):	N/A
Average flow per discharge:	The applicant indicates that the average daily discharge flow through three outfalls is expected to be 0.08 mgd
Service Area:	Serves residential and commercial sources in Queen Creek.
Service Population:	Approximately 50,609 people
Reuse / irrigation or other disposal method(s):	Currently, all treated effluent from the Pecan WRF is reused for irrigation or recharged through recharge basins. The proposed AZPDES permit will authorize discharge of treated effluent to Queen Creek.
Continuous or intermittent discharge:	Intermittent discharge.
Discharge pattern summary:	The applicant indicate the facility generally discharges 30 days in a year in the months December through April. Discharge events are generally associated with periods of extended precipitation when beneficial reuse (irrigation) cannot occur.
<b>Permit History and Background Info:</b>	
<p>The Pecan WRF primary disposal options are to reuse facilities, e.g. irrigation water to golf courses and groundwater recharge through recharge basins / wells. In September, 2005, JU submitted an AZPDES permit application for a surface water discharge to Queen Creek as another disposal option. The application was revised in June 2006 changing the proposed discharge method from direct surface water discharge to a subsurface discharge through a leach disposal field located in Queen Creek. Queen Creek is a tributary to the East Maricopa Floodway (EMF), which is a tributary to the Gila River in Pinal County. The AZPDES permit #AZ0025445 for the Pecan WRF to JU was issued in October 2007.</p> <p>ADEQ received a letter dated March 9, 2011, from JU in which they requested to voluntarily terminate the AZPDES permit # AZ0025445. In addition to the letter, JU also submitted a plan to the ADEQ APP program to close the</p>	

### III. GENERAL FACILITY INFORMATION

subsurface leach field. On March 23, 2011, ADEQ sent a letter to JU indicating the request has been processed and the AZPDES permit was terminated.

JU is a private water utility that is regulated by the Arizona Corporation Commission (“ACC”). In early 2018 the ACC opened an emergency action investigation into the billing and water quality issues of JU. On July 24, 2018, the ACC ordered JU to immediately commence efforts to obtain an agreement with an Interim Manager to assume operation of JU facilities. EPCOR was installed as Interim Manager of JU by the Arizona Corporation Commission on or about August 31, 2018. As interim Manager of JU, EPCOR is the current operator and permittee of the Pecan WRP. So long as EPCOR is the operator of the Pecan WRP, EPCOR is responsible for environmental compliance at the Pecan WRP, including compliance with this permit. Any future operator or operators of the Pecan WRP shall also be responsible for environmental compliance at the facility, including compliance with this permit during their tenure as operator.

The Pecan WRF permitted disposal options are to groundwater or reuse and are regulated through the ADEQ APP program. On January 6, 2019, 0.4 to 0.5 million gallons (MG) were discharged from the Pecan WRF via an uncontrolled release due to a berm failure of one of the recharge basins. On January 11, 2019, ADEQ inspectors observed effluent being pumped from the Pecan WRF into Queen Creek from shallow depressions identified as pecan groves in APP permit P-105324. At the time of the inspection, the quantity of effluent discharged to Queen Creek was approximately 2,750 gallons per minute. On January 9, 2019, through January 17, 2019, EPCOR reported 15.36 MG were discharged via a controlled release to Queen Creek. ADEQ issued a Notice of Violation (“NOV”) (Case ID 180944) to JU in response to the unpermitted discharges. The compliance conditions in the NOV required JU (through EPCOR as the interim manager) to submit documentation of corrective actions taken to stop future unpermitted discharges and to submit an application for an AZPDES permit to allow for future surface water discharges.

ADEQ was notified by EPCOR in early 2019 that another unpermitted discharge of treated effluent into Queen Creek was necessary due to a decreased demand of irrigation water and increased levels of effluent in the recharge basins. Citing a potential berm failure and/or overtopping of the recharge basins, EPCOR performed a control release of treated effluent to Queen Creek. EPCOR estimated a total release of 19.8 million gallons were discharged to Queen Creek between February 20 and February 28, 2019. ADEQ required EPCOR to sample and analyze for the applicable water quality standards of Queen Creek during the discharge; data submitted by EPCOR did not report any surface water quality exceedances. EPCOR submitted an AZPDES permit application on April 10, 2019. In the application, EPCOR is proposing to reopen the subsurface discharge leach field that is directly underneath Queen Creek and also added two other new outfalls (Outfalls 002 and 003) that discharge into Queen Creek. Until permittee(s) can prove with certainty there will be no effluent surfacing in to Queen Creek, all discharges through Outfall 001 to the leach field will be considered a discharge to Queen Creek and will need to meet the effluent limits set in this permit at the point of discharge.

### 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 :	The receiving water for the Pecan WRF Outfalls 001, 002 and 003 is Queen Creek, tributary to the East Maricopa Floodway, which is a tributary to the Gila River.
River Basin:	Middle Gila River Basin

#### IV. RECEIVING WATER

Outfall Location(s):	Outfall 001: Township 2 S, Range 8 E, Section 29 Latitude 33° 13' 53.97" N, Longitude 111° 33' 26.63" W Outfall 002: Township 2 S, Range 8 E, Section 29 Latitude 33° 13' 51.05" N, Longitude 111° 33' 40.15" W Outfall 003: Township 2 S, Range 8 E, Section 29 Latitude 33° 13' 50.94" N, Longitude 111° 33' 49.62" W
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The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.

Designated uses for the receiving water listed above:	This segment of Queen Creek – below Whitlow Dam to confluence with Gila River has the following designated uses:  Aquatic and Wildlife ephemeral (A&We) Partial Body Contact (PBC)
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Per A.A.C. R18-11-113(D), the water quality standards that apply to effluent-dependent waters (EDWs) will be applied to derive discharge limitations for any point source discharge of wastewater to an ephemeral water. The draft AZPDES permit includes discharge limitations and monitoring requirements designed to achieve compliance with A&Wedw standards.

Therefore, the following uses are being applied to the receiving water:

- Aquatic and Wildlife effluent dependent water (A&Wedw)
- Partial Body Contact (PBC)

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.	

#### V. DESCRIPTION OF DISCHARGE

Because the facility has been in operation, and no authorized discharges have occurred to Queen Creek, limited representative monitoring data is available. The following is the measured effluent quality reported in the application received on April 10<sup>th</sup>, 2019.

Parameters	Units	Maximum Daily Discharge Concentration
Biochemical Oxygen Demand (BOD)	mg/L	182
Total Suspended Solids (TSS)	mg/L	246
Total Kjeldahl Nitrogen (TKN)	mg/L	2.7

<b>V. DESCRIPTION OF DISCHARGE</b>		
<i>E. coli</i>	cfu / 100 mL	490
Facility design removal rates:	BOD 85 % TSS 85 % N 77 %	

<b>VI. COMPLIANCE STATUS</b>
NOV – February 20, 2019, (Case ID 180944) for unpermitted discharge to Queen Creek. Case still open.

<b>VII. PROPOSED PERMIT CHANGES</b>
Not Applicable

<b>VIII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS</b>
When determining what parameters need monitoring and/or limits included in the draft permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.
<p><b>Technology-based Limitations:</b> 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. The Pecan WRF is a privately owned plant using the same technology for treatment of domestic sewage as a POTW. Therefore, technology-based effluent limitations (TBELs) have been established in the permit for these parameters based on Best Professional Judgment (BPJ). Additionally, oil &amp; 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).</p>

## VIII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS

**Numeric Water Quality Standards:** As outlined in A.A.C. R18-11-109 and Appendix A:

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. RP refers to the possibility, 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.

However, since limited effluent data is available, reasonable potential (RP) could not be calculated for some of the trace metals and Whole Effluent Toxicity (WET). Instead of limits, assessment levels are ALs were established for trace substances and Whole Effluent Toxicity (Tables 2 and 3 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.) ALs also alert the permitting authority if the discharge may have the potential to exceed water quality criteria. In such a case, the permit could be reopened and modified to include limit(s) if RP is shown. In any event, RP will be re-evaluated based on the collected data before a renewal of this permit could be issued in the future. 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 draft permit). (See discussion under “Effluent Characterization” below for further details.)

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 draft permit contains WQBELs for *E. coli* and TRC.

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 Section 5.4.4 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 this discharge 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.

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### 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 reopen clause is included in the draft 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 limit. To overcome this, an Ammonia Impact Ratio (AIR) of 1 for the monthly average and a value of 2 for the maximum daily limits has been established as the permit limits 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 draft 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.

The following trace substances were not included as limits or assessment levels in the draft permit due to a lack of RP based on best professional judgment (BPJ): barium, nitrites, nitrates, and manganese. The numeric standards for these pollutants are well above what would be expected from a WWTP discharge.

### Hardness

The permittee is required to sample hardness as  $\text{CaCO}_3$  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 212 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)

WET testing is required in the draft 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. However, since Pecan WRF is a new discharger, the permittee can be allowed to report these required WET test results up to two years after submitting the initial application for an AZPDES permit.

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 / acute toxicity shall be conducted using the following three / two surrogate species:

- *Ceriodaphnia dubia* (water flea) – for evaluating toxicity to invertebrates



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- *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

ADEQ does not have a numeric standard for Whole Effluent Toxicity. However, ADEQ adopted the EPA recommended chronic toxicity benchmark of 1.0 TUc for a four day exposure period. Using this benchmark, the action levels for WET included in the draft 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 an action level will trigger follow-up testing to determine if effluent toxicity is persistent. If toxicity above an 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 reopen clause is included in accordance with 40 CFR Parts 122 and 124 and AAC R18-9-B906.

The draft 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 draft 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 draft permit requires WET test results to be reported on discharge monitoring reports and submittal of the full WET lab report to ADEQ.

#### **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-Extractible 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. and 4.b. are also listed in Tables 1 or 2. In this case, the data from monitoring under Tables 1 or 2 may be used to satisfy the requirements of Tables 4.a. and / or 4.b., provided the specified sample types are the same. In the event the facility does not discharge to a water of the U.S. during the life of the permit, EC monitoring of representative samples of the effluent is still required.

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

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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**

The table that follows 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.

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Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples (1)	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (2)
Flow	---	---	---	---	---	Discharge flow is to be monitored on a continual basis using a flow meter.
Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS)	30 mg/L 30-day average 45 mg/L 7-day average/ Technology-based limits 40 CFR 133.102	BOD: 182 mg/L TSS: 246 mg/L	BOD: 2 TSS: 4	N/A	TBELs for BOD and TSS are always applicable to WWTPs.	Monitoring for influent and effluent BOD 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 BOD and suspended solids is included to assess compliance with the 85% removal requirement in this permit. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
Chlorine, Total Residual (TRC)	11 µg/L A&Wedw chronic	No Data	0	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.
<i>E. coli</i>	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 575 cfu /100 mL/ PBC	490 MPN/100mL	350	N/A	RP always expected for WWTPs. See explanation above.	<i>E. coli</i> is to be monitored as a discrete sample and a WQBEL is included in the permit.
pH	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: 6.3 s.u. Min: 8.9 s.u.	1,085	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.
Temperature	No applicable numeric standard	Temp (Oct. – Mar.) - 92°C Temp (Apr. – Sep.) - 94°C	1,089	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.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples (1)	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (2)
Total Dissolved Solids (TDS)	No applicable standard	811 mg/L	6	N/A	N/A	Monitoring required for effluent characterization.
Ammonia	Standard varies with temperature and pH	1 mg/L	2	N/A	RP Indeterminate (3)	Ammonia is to be monitored by discrete sample and an Assessment Level in the form of an ammonia impact ratio (AIR) of 1 is set in the permit (4). 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 Nitrogen and Total Phosphorus)	No applicable standards	P - 14.3 mg/L N - 3.9 mg/L	N - 2 P - 19	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	5 mg/L	1	N/A	RP Indeterminate (4)	Monitoring required with an assessment level.
Antimony	600 µg/L / A&Wedw chronic	0.6 µg/L	6	2.28 µg/L	No RP	Monitoring required for effluent characterization.
Arsenic	150 µg/L/ A&Wedw chronic	2.4 µg/L	6	9.12 µg/L	No RP	Monitoring required for effluent characterization.
Beryllium	5.3 µg/L/ A&Wedw chronic	< 2 µg/L	6	N/A	No RP	Monitoring required for effluent characterization.
Boron	186,667 µg/L/ PBC	230 µg/L	1	3,036 µg/L	No RP	Monitoring required for effluent characterization.
Cadmium (5)	3.9 µg/L/ A&Wedw chronic	< 0.1 µg/L	6	N/A	No RP	Monitoring required for effluent characterization.
Chromium (Total)	No applicable standard	< 5 µg/L	6	N/A	N/A	Monitoring required as an indicator parameter for Chromium VI.
Chromium VI	11 µg/L/ A&Wedw chronic	No Data	N/A	N/A	RP Indeterminate (No data)	Monitoring required with an assessment level.
Copper (5)	17 µg/L/ A&Wedw chronic	< 10 µg/L	1	N/A	RP Indeterminate (Limited Data)	Monitoring required with an assessment level.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples (1)	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (2)
Cyanide	9.7 µg/L A&Wedw chronic	No Data	N/A	N/A	RP Indeterminate (No Data)	Monitoring required with an assessment level.
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	212 mg/L (Effluent)	4	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 hardness value of 212 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	< 50 µg/L	3	N/A	No RP	Monitoring required for effluent characterization.
Lead (5)	5.6 µg/L A&Wedw chronic	< 1 µg/L	3	N/A	RP Indeterminate (Limited Data)	Monitoring required with an assessment level.
Mercury	0.01 µg/L A&Wedw chronic	< 0.2 µg/L	6	N/A	RP Indeterminate (High LOQ)	Monitoring required with an assessment level.
Nickel (5)	98 µg/L A&Wedw chronic	< 20 µg/L	6	N/A	No RP	Monitoring required for effluent characterization.
Selenium	2 µg/L A&Wedw chronic	< 2 µg/L	6	N/A	RP Indeterminate (High LOQ)	Monitoring required with an assessment level.
Silver (5)	6.9 µg/L A&Wedw acute	< 0.1 µg/L	1	N/A	RP Indeterminate (Limited Data)	Monitoring required with an assessment level.
Sulfides	No applicable standard	40 µg/L	1	528 µg/L	RP Indeterminate (Limited Data)	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	75 µg/L PBC	< 0.5 µg/L	5	N/A	No RP	Monitoring required for effluent characterization.
Zinc (5)	221 µg/L A&Wedw acute and chronic	51 µg/L	1	N/A	RP Indeterminate (Limited Data)	Monitoring required with an assessment level.

Parameter	Lowest Standard / Designated Use		Maximum Reported Daily Value	No. of Samples (1)	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (2)
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A)(6 )	<i>Pseudo-kirchneriella subcapitata</i> (6)	No Data	0	N/A	RP Indeterminate (3)	Monitoring required and an action level is set.
		<i>Pimephales promelas</i>	No Data	0	N/A	RP Indeterminate (3)	Monitoring required and an action level is set.
		<i>Ceriodaphnia dubia</i>	No Data	0	N/A	RP Indeterminate (3)	Monitoring required and an action level is set.

Footnotes:

- (1) Samples for all parameters that were submitted along with the application are the grab samples. A Grab sample is a single sample collected at a particular time and place that represent the composition of the waste stream only at that time and place. Grab sample is appropriate when the quality and flow of the wastestream being sample is not likely to change over time i.e for pH, temperature, dissolved oxygen, chlorine, sulfides oil and grease, pathogens, and cyanide which reflects performance only at the point in time that the sample was collected, and then only if the sample was properly collected.
- (2) The monitoring frequencies are as specified in the permit when the facility is discharging through Outfalls 001, 002, and 003.
- (3) Monitoring with ALs or Action Levels always required for WWTPs for these parameters unless RP exists and limits are set.
- (4) An AIR will be calculated by dividing effluent ammonia concentration by the applicable standard using the receiving water pH and temperature.
- (5) Hardness-dependent metal - the standard is for this parameter is based on the average effluent hardness value of 212 mg/L.
- (6) Formerly Known as *Selenastrum Capricornutum* or *Raphidocelis Subcapitata*

**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, Sections E and F of the draft 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. The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling.

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 and Part I.I) 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.2) 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, Sections B.1 and 2 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.

**IX. MONITORING AND REPORTING REQUIREMENTS (Part II of 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.3). 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.

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

**XI. SPECIAL CONDITIONS (Part V in Permit)****Special Condition – CWA 208 Consistency**

JU and CAG shall coordinate their efforts in regards to obtaining approval of the 208 Water Quality Management Plan for surface discharges into Queen Creek (through Outfalls 002 and 003) for the Pecan WRF. The special condition prohibits JU from discharging from Outfall 002 and 003 until the discharge is consistent with the 208 plan.

**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.

**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 Pecan WRF will be to an ephemeral wash which will become (for purposes of this permit) an effluent-dependent water. Except for flows resulting from rain events, the only water in the wash will be the effluent. Therefore, the discharge and the receiving water will normally be one and the same. 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 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 draft 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: Swathi Kasanneni  
1110 West Washington Street  
Phoenix, Arizona 85007

Or by contacting Swathi Kasanneni at (602) 771 – 4577 or by e-mail at [kasanneni.swathi@azdeq.gov](mailto:kasanneni.swathi@azdeq.gov).

**XVI. INFORMATION SOURCES**

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

1. AZPDES Permit Application Form(s) 2A and 2S (or insert other forms submitted), received April 10, 2019, 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 April 11, 2019, May 9, 2019, July 26, 2019, July 29, 2019, August 16, 2019, and September 6, 2019.
3. Arizona Corporation Commission DOCKET NO. WS-02987A-18-0050-Decision # 76785 – July 24, 2018 and DOCKET NO. WS-02987A-18-0050-Decision #76936 - October 31, 2018.
4. ADEQ files on Pecan Water Reclamation Facility (WRF).
5. ADEQ Geographic Information System (GIS) Web site
6. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted December 31, 2016.
7. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
8. Code of Federal Regulations (CFR) Title 40:
  - 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*.
9. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.
10. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.
11. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).
12. U.S. EPA NPDES Permit Writers' Manual, September 2010.