ADEQ Arizona Department of Environmental Quality

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 0.125 million gallons per day (mgd) and thus is considered to be a minor 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.

Permittee's Name:	Utility Source
Permittee's Mailing Address:	20525 E. Chandler Heights Rd. Queen Creek, Arizona 85142
Facility Name:	Flagstaff Meadows Wastewater Treatment Plant
Facility Address or Location:	I-40, Exit 185 Bellemont, Arizona 86015
Contact Person(s): Phone/e-mail address	Jeremy McCaleb (928) 699-2226 / wyldmon@gmail.com
AZPDES Permit Number:	AZ0024708
Inventory Number:	104083

I. STATUS OF PERMIT(s)	
AZPDES permit applied for:	Renewal
Date application received:	**2/13/2013**
Date application was determined administratively complete:	4/5/2013
Previous permit number (if different):	None
Previous permit expiration date:	7/24/2013

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<u>208 Consistency</u>: 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.

The Utility Source has the following permits issued by ADEQ applicable to the Flagstaff Meadow WWTP:		
Type of Permit	**Permit Number**	**Purpose**
Aquifer Protection Permit (APP)	P104083	Regulates discharges to the local aquifer
Reuse Permit	R104083	Regulates the practice of reusing treated wastewater for beneficial purposes

II. GENERAL FACILITY INFORMATION	
Type of Facility:	privately owned wastewater treatment plant (WWTP)
Facility Location Description:	The Flagstaff Meadows WWTP is located in Bellemont which is about 10 miles west of Flagstaff and once mile north of Volunteer Wash in Coconino County, Arizona.
Permitted Design Flow:	0.125 mgd
Constructed Design Flow:	0.125 mgd
County:	Coconino
Treatment level (WWTP):	Tertiary
Treatment Processes (include sludge handling and disposal/use):	Treatment processes at the WWTP consist of influent screening, grit removal, activated sludge biological treatment, solids settling in secondary clarifiers, tertiary filtration, chlorination and dechlorination. Sewage. Sludge is pumped into storage tanks for aeration and settled to dewater. The dewatered sludge is hauled away by an off-site service company and disposed of at the Wildcat Hill Wastewater Treatment Plant for further treatment.
Nature of facility discharge:	Domestic wastewater from residential and commercial sources.
Number of industrial dischargers:	None
Number of significant industrial dischargers (SIUs):	N/A
Average flow per discharge:	The applicant indicates that the average flow discharge through the outfall is 0.057mgd.
Service Area:	The Flagstaff Meadows development, a truck stop and local hotel
Service Population:	750 people
Reuse / irrigation or other disposal method(s):	Currently, most of the treated effluent from the WWTP is reused as irrigation in the development. The proposed AZPDES permit will authorize discharge of up to 0.125 mgd of the treated effluent to the unnamed wash, tributary to Volunteer Wash.

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Continuous or intermittent discharge:	Continuous.
Discharge pattern summary:	The effluent is first discharged to the wash and subsequently collected in a downstream pond to the south and east of the facility (Pond 1). From this pond it may be piped to another reuse storage pond to the north of the facility (Pond 2).

III. 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 :	Unnamed wash, tributary to Volunteer Wash, eventual tributary to the Verde River in the Verde River Basin.
River Basin:	Verde River
Outfall Location(s):	Outfall 001: Township 21 N, Range 5 E, Section 1 Latitude 35° 13' 59", Longitude 111° 48' 35"

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:	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.

IV. 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	Effluent Average	Effluent Maximum
Biochemical Oxygen Demand (BOD)	mg/L	7.5	26
Total Suspended Solids (TSS)	mg/L	5.1	20
Total Kjeldahl Nitrogen (TKN)	mg/L	3.4	7.2
E. coli	cfu / 100 mL	0.3	25

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Facility design removal rates:	BOD 90 % TSS 90 % N 75 %

V. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT	
Date of most recent inspection:	05/21/2012; no significant violation was noted during the course of inspection.
DMR files reviewed:	07/2009 through 03/2015
Lab reports reviewed:	07/2009 through 03/2015
DMR exceedances:	May 2012: Exceeded the maximum concentration and loading reported for total residual chlorine. July 2013 and July 2014: Exceeded the maximum concentration limit for total Nitrogen.
NOVs issued:	11/07/2011 - for the discharge of sludge from the clarifer, failure of reporting and adding a pollutant to navigable water without a permit; and 4/15/2013 – for failure of doing the required method detection level study for TRC.
NOVs closed:	03/22/2012 and 6/17/13, respectively.
Compliance orders:	None

VI. PROPOSED PERMIT CHANGES

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

Parameter	**Existing Permit**	**Proposed permit**	**Reason for change**
Copper and Lead	Assessment level	Limited	Data submitted indicated a reasonable potential (RP) for an exceedance of a standard.
Beryllium and cadmium,	Assessment level	Effluent characterization	Data submitted indicated no reasonable potential (RP) for an exceedance of a standard.
Ammonia	Effluent characterization	Monitoring with limit using an Ammonia Impact Ratio (AIR).	Data submitted indicated a reasonable potential (RP) for an exceedance of a standard. The AIR is a trackable and enforceable numeric limit. See Section VII

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			for details.
Total Residual Chlorine	Concentration Limits: Monthly Avg.: 4 µg/L Daily Max: 8 µg/L Mass Limits: Monthly Avg.: 0.5g/day Daily Max: 1.0/g/day	Concentration Limits: Monthly Avg.: 9 µg/L Daily Max: 18 µg/L Mass Limits: Monthly Avg.: 4.3 g/day Daily Max: 8.5 g/day	Concentration limits were revised to reflect the new applicable 2009 standard.

Interim limits - Nitrogen	Single sample max concentration: 6.0 mg/L Single sample maximum (mass): 2.8 kg/day	Single sample max concentration: 5.6 mg/L Single sample maximum (mass): 2.6 kg/day	Proposed interim limits based on 2009 – 2012 discharge monitoring data.
Interim limits - phosphorus	Single sample max concentration: 3.0 mg/L Single sample maximum (mass): 1.4 kg/day	Single sample max concentration: 2.7 mg/L Single sample maximum (mass): 1.3 kg/day	Proposed interim limits based on 2009 – 2012 discharge monitoring data.
Annual mean interim limits - nitrogen	Not included	4.8 mg/L (concentration) 2.3 kg/day (mass)	Proposed interim limits based on 2009 – 2012 discharge monitoring data.
Annual mean interim limits - phosphorus	Not included	2.2 mg/L (concentration) 1.0 kg/day (mass)	Proposed interim limits based on 2009 – 2012 discharge monitoring data.
Hydrogen sulfide	No monitoring required	Monitoring required only if sulfides detected.	New standard in 2009 – replaces standard for sulfides.
Iron	No monitoring required	Assessment level	New standard added in 2009 for A&Wedw use.
Pimephales promelas	Action level	Limited	Data submitted indicated a reasonable potential (RP) for an exceedance of a standard.
Best management plan implementation and pond monitoring	Special Condition	Not required	The facility is no longer applying algaecide in the reuse ponds. The

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			reuse permit R-104083 regulates the operation and maintenance of the storage ponds and water reuse for irrigation.

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.

No limits have been removed from the permit. Limits are retained in the draft permit for parameters where reasonable potential (RP) for an exceedance of a standard continues to exist or is indeterminate. In these cases, limits will be recalculated using the most current Arizona Water Quality Standards (WQS). If less stringent limits result due to a change in the WQS then backsliding is allowed in accordance with 303(d)(4) if the new limits are consistent with antidegradation requirements and the receiving water is in attainment of the new standard; see Section XII for information regarding antidegradation requirements. Limits for chlorine are less stringent because of a change in the standards in 2009.

VII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS

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.

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. The Flagstaff Meadow WWTP 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 & 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).

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Numeric Water Quality Standards: As outlined in A.A.C. R18-11-10 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.

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 one (1) has been established as a limit 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 C in the permit. Any AIR value in excess of 1 will indicate an exceedance of the limit.

Variances are granted for total nitrogen and total phosphorus. Interim limits are set in Part I.A. Table 1 of the permit. The annual mean and the single sample maximum interim limits are based on the mean and maximum reported concentrations of total nitrogen and total phosphorus from the 2009-2012 discharge monitoring data.

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.

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 draft permit should future monitoring data indicate water quality standards are being exceeded.

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, nitrates, nitrites, 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 $CaCO_3$ 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 120 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).

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
- *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 limitations and 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 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 draft permit requires 8-hour composite samples be collected for WET testing. An 8-hour composite sample type was chosen over the suggested 24-hour composite for WET testing in order to have consistency with the type of sample required for other parameters requiring monitoring in this permit. 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

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 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	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
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: 26 mg/L TSS: 20 mg/L	BOD: 12 TSS: 12	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	<20 µg/L	56	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	25	209	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	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	8.0	56	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	17ºC (Oct.–Mar.) 22.1 (Apr.–Sep.)	26 27	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	187 mg/L	4	N/A	N/A	Monitoring required for effluent characterization.

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Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Ammonia	Standard varies with temperature and pH	6.3 mg/L (> WQS)	4	N/A	RP Exists (5)	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 (5). 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)	Applicable Standards as per A.A.C. R18-11-109.F(1): Total nitrogen 3.0 mg/L single sample maximum 1.0 mg/L annual mean Total phosphorus 1.0 mg/L single sample maximum 0.1 mg/L annual mean	5.56 mg/L 2.74 mg/L	20 23	N/A N/A	RP Exists RP Exists	Variances are granted for total nitrogen and total phosphorus. Interim limits are set with monitoring required (see Part I.A. Table 1 of the permit). Reporting is required on Discharge Monitoring Reports (DMRs). The annual mean and the single sample maximum interim limits are based on the mean and maximum reported concentrations of total nitrogen and total phosphorus from the 2009-2015 discharge monitoring data.
Oil & Grease	BPJ Technology-Based Level of 10 mg/L monthly average and 15 mg/L daily maximum	<5 mg/L	6	N/A	RP Indeterminate	Monitoring required and an assessment level remains in the permit.
Antimony	600 µg/L/ A&Wedw chronic	<0.5 µg/L (4)	12	0.7 µg/L	No RP	Monitoring required for effluent characterization.
Arsenic	150 µg/L/ A&Wedw chronic	40 µg/L	12	112 µg/L	No RP	Monitoring required for effluent characterization.
Beryllium	5.3 µg/L/ A&Wedw chronic	<2 µg/L	12	2.8 µg/L	No RP	Monitoring required for effluent characterization.
Boron	No applicable standard.	100 µg/L	3	560 µg/L	No RP	Monitoring not required.
Cadmium (2)	2.6 µg/L/ A&Wedw chronic	<0.1 µg/L	12	0.19 µg/L	No RP	Monitoring required for effluent characterization.
Chromium (Total)	100 µg/L/ PBC	<5 µg/L	10	7.5 µg/L	No RP	Monitoring required as an indicator parameter for Chromium VI.
Chromium VI	11 µg/L/ A&Wedw chronic	<15 µg/L	1	<15 µg/L	No RP	Monitoring required for effluent characterization.
Copper (2)	11 µg/L/ A&Wedw chronic	50 µg/L	6	190 µg/L	RP Exists	Monitoring required and a WQBEL is set in the permit.
Cyanide	9.7 µg/L/ A&Wedw chronic	<10 µg/L	12	14 µg/L	RP Indeterminate (high LOQ)	Monitoring required and an assessment level remains in the permit.
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	120 mg/L	6	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 120 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	N/A	N/A	N/A	Monitoring 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.

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Parameter	Lowest Standard / Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Iron	1,000 ug/L / A&Wedw chronic		No Data	N/A	N/A	N/A	Monitoring required and an assessment level is set.
Lead (2)	3.1 µg/L / A&Wedw chronic		3 µg/L	12	8.4 µg/L	RP Exists	Monitoring required and a WQBEL is set in the permit.
Mercury	0.01 µg/L/ A&Wedw chronic		<0.2 µg/L	12	N/A	RP Indeterminate (high LOQ)	Monitoring required and an assessment level remains in the permit.
Nickel (2)	60.7 µg/L/ A&Wedw chronic		<20 µg/L	12	28 µg/L	No RP	Monitoring required for effluent characterization.
Selenium	2 µg/L/ A&Wedw chronic		<2 µg/L	12 (5)	2.8 µg/L	RP Indeterminate (high LOQ)	Monitoring required and an assessment level remains in the permit.
Silver (2)	4.4 µg/L/ A&Wedw acute		<10 µg/L	6	19 µg/L	RP Indeterminate (high LOQ)	Monitoring required and an assessment level remains in the permit.
Sulfides	No applicable standard		<40 µg/L	6	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	75 µg/L/ PBC		<0.5 µg/L	12	0.78 µg/L	No RP	Monitoring required for effluent characterization.
Zinc (2)	137 µg/L/ A&Wedw acute and chronic		30 µg/L	5	102 µg/L	No RP	Monitoring required for effluent characterization.
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A)(6)	*Pseudo-kirchneriella subcapitata (3)*	1 TUc	3	N/A	RP Indeterminate (4)	Monitoring required and an action level is set.
		Pimephales promelas	1.33 TUc	3	N/A	RP Exists (4)	Monitoring required and a WQBEL is set in the permit.
		Ceriodaphnia dubia	1 TUc	3	N/A	RP Indeterminate (4)	Monitoring required and an action level is set.

Footnotes:

(1) The monitoring frequencies are as specified in the permit.
(2) Hardness-dependent metal - the standard 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.

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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 second term 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, an "8-hour composite" sample has been defined as a flow-proportioned mixture of two or more discrete samples (aliquots) obtained at equal time intervals over an 8-hour period (if only two samples are collected, they should be taken approximately 8 hours apart). 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 all parameters. The quality of the discharge is not expected to be highly variable.
Monitoring locations are specified in the permit (Part I.A and Part I.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.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.
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,

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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)

Variance granted with Interim Limits

Variances have been granted for total nitrogen and total phosphorus. Interim limits in the permit for nitrogen and phosphorus are expressed as single sample maximum and annual mean concentrations to be consistent with Arizona numeric water quality standards listed in A.A.C. R18-11-109.F(1) and would be achievable based on data submitted. Because Arizona's nutrient water quality standards are expressed in single sample maximum and annual mean concentrations, it is impracticable to use the average weekly and average monthly concentrations pursuant to 40 CFR 122.45(d). The annual mean and the single sample maximum interim limits are based on the mean and maximum reported concentrations of total nitrogen and total phosphorus from the 2009 – 2012 discharge monitoring data and are more stringent than those in the previous permit. Data collected as required in Part I. of the permit are to be reported on Discharge Monitoring Reports (DMRs).

ADEQ is proposing to grant nutrient variances for total nitrogen and total phosphorus because controls more stringent than those required by sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact as identified in 40 CFR 131.10(g)(6) and A.A.C. R18-11-122.A.2. The Verde River is not impaired for nutrients, and there is no evidence that discharges from the Flagstaff Meadow WWTP have caused or contributed to increased nutrient concentrations in any downstream waters.

Utility Source submitted EPA Interim Economic Guidance Worksheets A, B, C, and D with the appropriate figures and calculations for the proposed expansions and annual operations and maintenance costs. The worksheets demonstrate that the facility would incur a substantial economic impact of a 2.54 % increase in cost to households if the upgrades described above are implemented as the control project.

A status report regarding the progress of the installation and/or operation of the proposed nutrient removal technologies at the facility is required to be submitted to ADEQ within thirty six (36) months from the effective date of the 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.

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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 Flagstaff Meadow WWTP is to an effluent-dependent water with Tier 1 antidegradation protection. 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.

With respect to total residual chlorine, standards for this permit were revised to reflect new water quality standards adopted in 2009. 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

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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 – AZPDES Individual Permits Unit
Attn: Richard Mendolia
1110 West Washington Street – Mail Code 5415B-3
Phoenix, Arizona 85007

Or by contacting Richard Mendolia at (602) 771 – 4374 or by e-mail at rjm@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 received February 13, 2013, along with a variance request for nitrogen and phosphorus, supporting data, and maps submitted by the applicant with the application forms.

2. Supplemental information to the application received by ADEQ on August 15, 2014 and April 3, 2015.

3. ADEQ files on Flagstaff Meadow WWTP.

4. ADEQ Geographic Information System (GIS) Web site

5. Information provided to ADEQ staff during a site visit to the future facility location on March 26, 2013.

6. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters,* adopted January 31, 2009.

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*

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(EPA /821-R-02-013).

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

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