

## ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a Water Reclamation Plant (WRP) with a design capacity of 6 million gallons per day (mgd) 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>            |   |
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| Permittee's Name:                          | City of Flagstaff - Water Services                    |
| Permittee's Mailing Address:               | 2323 N. Walgreens St., Suite 1, Flagstaff, AZ 86004   |
| Facility Name:                             | Wildcat Hill Water Reclamation Plant                  |
| Facility Address or Location:              | 2800 N. El Paso-Flagstaff Rd, Flagstaff, AZ 86004     |
| County:                                    | Coconino  |
| Contact Person(s):<br>Phone/e-mail address | Brad Hill - Water Services Director<br>(928) 213-2420 |
| AZPDES Permit Number:                      | AZ0020427   |
| Inventory Number:                          | 100760  |
| LTF Number:                                | 79298   |

| <b>II. STATUS OF PERMIT(S)</b>                             |            |
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| AZPDES permit applied for:                                 | Renewal    |
| Date application received:                                 | 11/18/2019 |
| Date application was determined administratively complete: | 11/21/2019 |
| Previous permit number (if different):                     | N/A        |
| Previous permit expiration date:                           | 05/18/2020 |

**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.

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.

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| City of Flagstaff - Water Services has the following permits issued by ADEQ applicable to the Wildcat Hill WRP: |            |  |
| <b>Type of Permit</b>   |            |  |
| Aquifer Protection Permit (APP)   | P-100760   | Regulates discharges to the local aquifer                                    |
| Reuse Permit  | R-511384   | Regulates the practice of reusing treated wastewater for beneficial purposes |
| Multi-Sector General Permit (MSGP)  | AZMSG-6244 | Regulates stormwater discharge   |

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| <b>III. GENERAL FACILITY INFORMATION</b>             |  |
| Type of Facility:                                    | Publicly owned treatment works (POTW)  |
| Facility Location Description:                       | The facility is located approximately 7 miles northeast of Flagstaff, 1 mile north of I-40, and 100 feet south of the Rio de Flag River.   |
| Permitted Design Flow:                               | 6 mgd  |
| Treatment level (WRP):                               | Tertiary   |
| Treatment Processes :                                | The treatment process consists of influent screening, four primary clarifiers, an integrated fixed film activated sludge (IFAS) treatment, secondary clarifiers, disc filtration, with back up gravity filters, and chlorination and dechlorination.   |
| Sludge Handling and Disposal:                        | Sludge is pumped through two anaerobic digesters, further stabilized in two basins, and injected into the soil of a dedicated land disposal site.  |
| Nature of facility discharge:                        | Domestic wastewater from residential, commercial and industrial sources.   |
| Total Number of significant industrial Users (SIUs): | <p>6 Significant Industrial Users</p> <p><b>W.L. Gore &amp; Associates, Inc.</b><br/>Medical device manufacturing and science lab with animals. PTFE fabrication, wire quenching, plastic catheter extrusion.</p> <p><b>Northern Arizona University</b><br/>Research labs, food production, residential life services, and physical plant operations.</p> <p><b>Flagstaff Medical Center</b><br/>Laboratory, food, laundry, and health care services.</p> <p><b>Wis-Pak of Flagstaff</b><br/>Manufacture, bottling, warehousing, and distribution of soft drinks. Reverse osmosis process to bottle water.</p> <p><b>Nestle Purina Petcare Company</b><br/>Produces dry pet food, warehouse and distribution of product. Maintenance on equipment and machinery. Physical plant operations.</p> <p><b>Mission Linen Industrial Services</b><br/>Laundry facility that reuses grey water for washing. Hot water boiler.</p> |
| Average flow per discharge:                          | 3.032 mgd  |

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| Service Area:                                   | City of Flagstaff   |
| Service Population:                             | 74,000  |
| Reuse / irrigation or other disposal method(s): | Treated effluent from the Wildcat Hill WRP is reused in a city-wide reuse distribution system. Wildcat also sends treated effluent to Continental Country Club (which has their own separate AZPDES permit AZ0025895).                          |
| Continuous or intermittent discharge:           | Discharge is continuous from Outfall 001 and intermittent from Outfall 005.   |
| Discharge pattern summary:                      | Discharge flow records submitted during the existing permit term indicate the facility generally discharges daily for 365 days per year from Outfall 001 and approximately 13 days per year, mostly during the summer months, from Outfall 005. |

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| <b>IV. RECEIVING WATER</b>   |  |
| 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 :  | <p>Outfall 001: Rio de Flag River -<br/>(From the Flagstaff WRP outfall to the confluence with the San Francisco Wash)</p> <p>Outfall 005: Rio de Flag River -<br/>(Headwaters to City of Flagstaff WRP outfall at 35°12'21"/111°39'17")</p> |
| River Basin:   | Little Colorado River Basin  |
| Outfall Location(s):   | <p>Outfall 001: Township 21 N, Range 8 E, Section 4<br/>Latitude 35° 13' 34", Longitude 111° 33' 13"</p> <p>Outfall 005: Township 21 N, Range 7 E, Section 16<br/>Latitude 35° 12' 21", Longitude 111° 39' 17"</p>                           |
| 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:  | <p>Outfall 001:<br/>Aquatic and Wildlife effluent dependent water (A&amp;Wedw)<br/>Partial Body Contact (PBC)</p> <p>Outfall 005:<br/>Aquatic and Wildlife ephemeral (A&amp;We)<br/>Partial Body Contact (PBC)</p>                           |
| <p>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&amp;Wedw standards.</p> <p>Therefore, the following uses are being applied to the receiving water:</p> <ul style="list-style-type: none"> <li>• Aquatic and Wildlife effluent dependent water (A&amp;Wedw)</li> <li>• Partial Body Contact (PBC)</li> </ul> |  |

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| 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. |  |
| In addition to the above, the Colorado River has a salinity standard. Per A.A.C. R18-11-110, the flow-weighted average annual concentration of total dissolved solids shall not exceed 723 milligrams per liter (mg/L) in the river below Hoover Dam and above Parker Dam. In order to meet this standard, discharges must meet the plan of implementation requirements developed by the Colorado River Basin Salinity Control Forum.   |  |

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| <b>V. DESCRIPTION OF DISCHARGE</b>   |                             |  |
| 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. |                             |  |
| <b>Parameters</b>  | <b>Units</b>                | <b>Maximum Daily Discharge Concentration</b> |
| Biochemical Oxygen Demand (BOD)  | mg/L                        | 15   |
| Total Suspended Solids (TSS)   | mg/L                        | 4  |
| Total Kjeldahl Nitrogen (TKN)  | mg/L                        | 5  |
| <i>E. coli</i>   | cfu / 100 mL                | 104  |
| Facility design removal rates:   | BOD 85%<br>TSS 85%<br>N 85% |  |

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| <b>VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT</b> |   |
| Date of most recent inspection:                                 | 5/16/2019; no potential violations were noted as a result of this inspection.   |
| DMR files reviewed:   | 5/2015 through 2/2020   |
| Lab reports reviewed:   | 6/2015 through 01/2020  |
| DMR Exceedances:  | Chlorine (June 2016, and May/June 2018); Nitrogen (March 2019).<br>No other exceedances were noted.   |
| NOVs issued:  | NOV # 177494: Discharge Monitoring Results (DMR) reported an exceedance of Total Residual Chlorine (TRC) in May & June 2018 from Outfall 001.   |
| NOVs closed:  | NOV # 177494: The June 20, 2018 5-day noncompliance response identified the cause of the June 2018 TRC exceedance was a result of adjustments being made to the Sulfur Dioxide feeder. The Permittee corrected the issues at the time of noncompliance with adjustments to the feed, then reported below detection limit follow-up sample result. |
| Compliance orders:  | None  |

**VII. 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   |
|--------------------------------|---|--|---|
| Reporting Location             | Mail in hard copies of DMRs and other attachments                                   | DMRs and other reports to be submitted electronically through myDEQ portal | Language added to support the NPDES electronic DMR reporting rule that became effective on December 21, 2015. |
| Iron and Sulfides              | Assessment Level  | Effluent characterization  | Data submitted indicated no reasonable potential (RP) for an exceedance of a standard.                        |
| Mercury                        | Limited   | Effluent characterization  | Data submitted indicated no reasonable potential (RP) for an exceedance of a standard.                        |
| Monitoring Frequency of Metals | Previous permit had error for the monitoring frequency of metals of 1x per quarter. | Current permit revised to 1x month monitoring as required by design flow.  | Error made on permit during previous permitting term.   |
| Reporting                      | Report to the MDL or LOD  | NODI Q codes   | New guidance made by ADEQ   |

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 Mercury (Outfall 001) 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:

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 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. Therefore, technology-based effluent limitations (TBELs) have been established in the permit for these parameters. Additionally, oil & grease will be monitored with a TBEL 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 WRPs. This level is also considered protective of the narrative standard at A.A.C. R18-11-108(B).

**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.

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.

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 WRPs 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 WRP 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 170 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, lead, nickel, silver and zinc). Copper limits are based on the standard set in A.A.C. R18-11-115, Appendix C, and are not hardness dependent.

### **Whole Effluent Toxicity (WET)**

WET testing is required in the draft permit (Parts I.C and IV.E.) 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

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/or 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 24-hour composite samples be collected for WET testing. WET sampling must coincide with testing for all the parameters in Parts I.A and I.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 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*.



| 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<br>45 mg/L 7-day average/<br>Technology-based limits<br>40 CFR 133.102   | BOD: 15 mg/L<br>TSS: 4 mg/L  | BOD: 460<br>TSS: 460 | N/A                     | TBELs for BOD and TSS are always applicable to WRPs.                  | 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   | 202 µg/L                     | 1,155                | 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:<br>126 cfu /100 mL (4 sample minimum)<br>Single sample maximum:<br>575 cfu /100 mL/ PBC  | 104                          | 1,555                | N/A                     | RP always expected for WRPs. See explanation above.                   | <i>E. coli</i> is to be monitored as a discrete sample and a WQBEL remains in the permit.  |
| pH  | Minimum: 6.5<br>Maximum: 9.0<br>A&Wedw and PBC<br>A.A.C. R18-11-109(B)<br><br>Minimum: 6.0<br>Maximum: 9.0<br>Technology-based limits<br>40 CFR 133.102 | 7.5                          | 1,155                | N/A                     | WQBEL or TBEL is always applicable to WRPs.                           | 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   | R18-11-109C the discharge shall cause no more than 3.0°C increase in the ambient water temperature for A&Wedw uses.                                     | 25.9°C                       | 108                  | 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   | Estimated Maximum Value | RP Determination               | Proposed Monitoring Requirement/ Rationale (1)  |
|---|---|-----------------------------------|------------------|-------------------------|--------------------------------|---|
| Total Dissolved Solids (TDS)                    | Colorado River Basin Salinity Control Forum requirements apply above Imperial Dam | 550 mg/L                          | 19               | N/A                     | N/A                            | Monitoring required and an assessment level is set; both the source water and the effluent shall be monitored for TDS to determine compliance with Colorado River Basin Salinity Control Forum requirements.  |
| Ammonia   | Standard varies with temperature and pH   | 16.6 mg/L (< WQS)<br><br>AIR: 3.3 | 108              | N/A                     | RP Exists                      | 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) | No applicable standards   | N – 13<br>P – 5.4                 | N – 19<br>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   | 3 mg/L                            | 19               | N/A                     | RP Indeterminate (4)           | Monitoring required and an assessment level remains in the permit.  |
| Antimony  | 600 µg/L/ A&Wedw chronic  | 1.1 µg/L                          | 19               | 2.86 µg/L               | No RP                          | Monitoring required for effluent characterization.  |
| Arsenic   | 150 µg/L/ A&Wedw chronic  | 3.6 µg/L                          | 19               | 9.36 µg/L               | No RP                          | Monitoring required for effluent characterization.  |
| Beryllium                                       | 5.3 µg/L/ A&Wedw chronic  | <0.6 µg/L                         | 19               | N/A                     | No RP                          | Monitoring required for effluent characterization.  |
| Boron   | 186,667 µg/L/ PBC   | 360 µg/L                          | 5                | 1,692 µg/L              | No RP                          | Monitoring required for effluent characterization.  |
| Cadmium (2)                                     | 3.31 µg/L/ A&Wedw chronic   | <0.2 µg/L                         | 19               | N/A                     | No RP                          | Monitoring required for effluent characterization.  |
| Chromium (Total)                                | No Applicable Standard  | 5.4 µg/L                          | 19               | 14.04 µg/L              | No RP                          | Monitoring required as an indicator parameter for Chromium VI.  |
| Chromium VI                                     | 11 µg/L/ A&Wedw chronic   | N/A                               | N/A              | N/A                     | No RP                          | If total chromium exceeds 8 µg/L, the permittee must conduct sampling for chromium VI for the remainder of the permit.  |
| Copper (6)                                      | 36 µg/L/ Site Specific Standard A.A.C. R18-11-113.F Appendix C                    | 9.5 µg/L                          | 19               | 15.2 µg/L               | No RP (Site Specific Standard) | Site-specific standard. Monitoring required and a WQBEL remains in the permit.  |
| Cyanide   | 9.7 µg/L/ A&Wedw chronic  | 7.5 µg/L                          | 19               | 19.5 µg/L               | RP Exists                      | Monitoring is required and a WQBEL remains.   |

| 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. | 231 mg/L                                    | 19             | 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 170 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 µg/L / A&Wedw chronic  | 120 µg/L                                    | 53             | 216 µg/L                | No RP                      | Monitoring required for effluent characterization.  |  |
| Lead (2)                      | 4.5 µg/L / A&Wedw chronic  | 1.9 µg/L                                    | 36             | 3.61 µg/L               | No RP                      | Monitoring required for effluent characterization.  |  |
| Mercury                       | 0.01 µg/L/ A&Wedw chronic  | 0.002 µg/L                                  | 19             | 0.005 µg/L              | No RP                      | Monitoring required for effluent characterization.  |  |
| Nickel (2)                    | 81.5 µg/L/ A&Wedw chronic  | 3.5 µg/L                                    | 19             | 9.1 µg/L                | No RP                      | Monitoring required for effluent characterization.  |  |
| Selenium                      | 2 µg/L/ A&Wedw chronic   | 0.9 µg/L                                    | 19             | 2.86 µg/L               | RP Exists                  | Monitoring required and a WQBEL remains.  |  |
| Silver (2)                    | 8.0 µg/L/ A&Wedw acute   | 0.5 µg/L                                    | 19             | 1.3 µg/L                | No RP                      | Monitoring required for effluent characterization.  |  |
| Sulfides                      | No applicable standard   | <50 µg/L                                    | 19             | N/A                     | No RP                      | 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   | <0.2 µg/L                                   | 19             | N/A                     | No RP                      | Monitoring required for effluent characterization.  |  |
| Zinc (2)                      | 184 µg/L/ A&Wedw acute & chronic   | 93 µg/L                                     | 19             | 130 µg/L                | No RP                      | Monitoring required for effluent characterization.  |  |
| Whole Effluent Toxicity (WET) | No toxicity (A.A.C. R18-11-108(A)(6))  | <i>Pseudo-kirchneriella subcapitata</i> (3) | 1.0 TUc        | 9                       | N/A                        | RP Indeterminate (4)  | Monitoring required and an action level is set.  |
|                               |  | <i>Pimephales promelas</i>                  | 1.0 TUc        | 9                       | N/A                        | RP Indeterminate (4)  | Monitoring required and an action level remains. |
|                               |  | <i>Ceriodaphnia dubia</i>                   | 1.0 TUc        | 9                       | N/A                        | RP Indeterminate (4)  | Monitoring required and an action level remains. |

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 WRPs 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) Copper limits are based on a site specific standard set in A.A.C. R18-11-115 Appendix C and are not hardness dependent.

### **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 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 II.A) 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.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.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.C.3 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)**

**Pretreatment**

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

**Operation**

This permit condition requires the permittee to ensure that the WRP 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 WRP operator is based on the class (Water 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 Wildcat Hill WRP will be to 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: Jessica Kohls  
1110 West Washington Street  
Phoenix, Arizona 85007

Or by contacting Jessica Kohls at (602) 771 – 0391 or by e-mail at [kohls.jessica@azdeq.gov](mailto:kohls.jessica@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 Forms 2A and 2S, received November 18, 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 February 4, 2020.
3. ADEQ files on Wildcat Hill WRP.
4. 208 Consistency Review Form dated July 9, 2014.
5. ADEQ Geographic Information System (GIS) Web site, ECHO database, MONGO / MyDEQ records center.
6. Information provided to ADEQ staff during a site visit on September 20, 2019.
7. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted December 31, 2016.
8. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
9. 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*.



10. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.
11. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.
12. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).
13. U.S. EPA NPDES Permit Writers' Manual, September 2010.

DRAFT