ADEQ Arizona Department of Environmental Quality

# DRAFT FACT SHEET

## ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a wastewater treatment plant (WWTP) with a design capacity of 6 million gallons per day (mgd) and is considered to be a major facility under the NPDES program. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 et seq. This permit is proposed to be issued for a period of 5 years.

| **I. PERMITTEE INFORMATION** | |
|---|---|
| Permittee's Name: | City of Goodyear |
| Permittee's Mailing Address: | P. O. Box 5100<br>Goodyear, Arizona 85338 |
| Facility Name: | City of Goodyear 157th Water Reclamation Facility (WRF) |
| Facility Address or Location: | 5424 S. 157th Avenue<br>Goodyear, Arizona 85338 |
| County: | Maricopa County |
| Contact Person(s):<br>Phone/e-mail address | Todd Carpenter, Wastewater Superintendent<br>(623) 882-7643 / Todd.Carpenter@goodyearaz.gov |
| AZPDES Permit Number: | AZ0022357 |
| Inventory Number: | 101324 |
| LTF Number: | 86573 |

| **II. STATUS OF PERMIT(s)** | |
|---|---|
| AZPDES permit applied for: | Renewal |
| Date application received: | November 2, 2020 |
| Date application was determined administratively complete: | November 16, 2020 |
| Previous permit number (if different): | N/A |
| Previous permit expiration date: | May 1, 2021 |

**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.

| The City of Goodyear has the following permits issued by ADEQ applicable to the 157th Avenue Water Reclamation Facility: | | |
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| **Type of Permit** | | |
| Aquifer Protection Permit (APP) | P 101324 | Regulates discharges to the local aquifer |
| Reuse Permit | R 101324 | Regulates the practice of reusing treated wastewater for beneficial purposes |

| **III. GENERAL FACILITY INFORMATION** | |
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| Type of Facility: | Publicly owned treatment works (POTW) |
| Facility Location Description: | City of Goodyear 157th Avenue WRF is located at 5424 South 157th Avenue, Goodyear, less than one mile north of the Gila River, in Maricopa County, Arizona. |
| Permitted Design Flow: | 6.0 million gallons per day (mgd) |
| Treatment level (WWTP): | Tertiary |
| Treatment Processes : | The WRF will have capacity to treat 6 mgd of flow upon upgrades at WRF. The treatment process consists of a new influent pump station with three pumps, headwork with two mechanical fine screens, a grit chamber, three (3) aeration basins with anoxic zones and with new diffusers, five (5) clarifiers, three (3) cloth media disc filters and two (2) sand filters, a chlorine contact basin for chlorination with spray aeration system, a de-chlorination system, a new effluent pump station with three pumps and an emergency effluent storage basin. Sludge is digested in two (2) aerobic digesters, thickened using a gravity thickener, and dewatered using three (3) centrifuges. The WRF may receive the waste activated sludge from City of Goodyear – Corgett Wash WRF #102424 for treatment and dewatering. Dewatered and/or dried sludge is hauled off-site for management and disposal in accordance with state and federal regulations. The WRF is classified to produce Class A+ reclaimed water according to A.A.C. R18-11, Article 3. |
| Sludge Handling and Disposal: | Sludge is digested in two (2) aerobic digesters, thickened using a gravity thickener, and dewatered using two (2) centrifuges and hauled by a licensed contractor to landfill. |
| Nature of facility discharge: | Domestic wastewater from residential, commercial, and industrial sources. |
| Total Number of Significant Industrial Users (SIUs): | There are currently six (6) Significant Industrial dischargers connected to the treatment works: Global Organics (Bio-Flora), Perryville Prison, Snyder's – Lance Snacks AZ LLC., Inventure Foods, Inc. (UTZ), AerSale LLC., Microsoft Corporation PHX 10. Pretreatment requirements are in place for these industrial contributors. The pollutants of concern with these SIUs are pH, BOD, TSS, oil and grease, total nitrogen, total phosphorus, ammonia, sulfate, sulfite, silver, metals, phosphate, TKN, and total toxic organics (TTOs). Standard requirements for implementing and enforcing an approved pretreatment plan are included in the draft permit. |
| Service Area: | City of Goodyear |
| Service Population: | Approximately 37,000 people |

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| Reuse / irrigation or other disposal method(s): | All treated effluent is delivered to the Palo Verde Nuclear Generating Station, sent to Palm Valley WRF (APP No. P-100310) via pipeline, recharged at the City of Goodyear Soil Aquifer Treatment (SAT) Site (APP No. P-511420), or recharged at the City of Goodyear – Vadose Injection Project (VIP) (APP No. P-511440). All treated effluent from City of Goodyear 157th Avenue WRF may also be beneficially reused under a valid reclaimed water permit. The proposed AZPDES permit will authorize discharge of treated effluent to the Gila River (Outfalls 001 or 003) or the Hassayampa River via the Buckeye Irrigation District (BID) canal (Outfall 002). |
| Continuous or intermittent discharge: | Outfall 001 & 003: Intermittent<br><br>Outfall 002: Continuous |

In 2019 the City of Goodyear 157th requested a Major Modification for a plant expansion that increased the design flow from 4 to 6 mgd. In addition, the following changes to their outfalls were made:

**Outfall - 001:**
The Palo Verde outfall was dismantled as a result of 2019's Major Modification and the discharge has ceased. The permittee does not intend on discharging at this location in the future.

**Outfall – 002:**
Buckeye Irrigation District canal is the primary (and only) discharge location at the moment.

**Outfall – 003:**
The permittee does not intend to discharge at this location during permit term as the outfall is not constructed.

**IV. RECEIVING WATER**

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

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| Receiving Water : | **Outfalls 001 (not currently in use) and 003 (not constructed):**<br>Gila River. The receiving segment of the Gila River is from the confluence with the Salt River to the Gillespie Dam at Latitude 33˚ 13' 45" N and Longitude 112˚ 46' 07" W.<br><br>**Outfall 002:**<br>Hassayampa River. The BID canal is a continuous channelized conveyance to the Hassayampa River, a Water of the U.S., approximately 21 miles away from the location of Outfall 002. The receiving segment of the Hassayampa River is below Buckeye Irrigation Company canal to the Gila River. |
| River Basin: | Middle Gila River Basin |
| Outfall Location(s): | Outfall 001: Township 1N, Range 1W, Section 29<br>Latitude 33° 23' 42" N, Longitude 112° 23' 30" W<br><br>Outfall 002: Township 1N, Range 1W, Section 30<br>Latitude 33° 23' 56" N, Longitude 112° 24' 03" W<br><br>Outfall 003: Township 1N, Range 1W, Section 30<br>Latitude 33° 23' 41" N, Longitude 112° 24' 3.9" W |

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| Designated uses for the receiving water(s) listed above: | **Outfalls 001 and 003:**<br>Aquatic and Wildlife effluent dependent water (A&Wedw)<br>Partial Body Contact (PBC)<br>Fish Consumption (FC)<br>Agricultural Irrigation (AgI)<br>Agricultural Livestock watering (AgL)<br><br>**Outfall 002:**<br>Aquatic and Wildlife warm water (A&Ww)<br>Full Body Contact (FBC)<br>Fish Consumption (FC)<br>Agricultural Livestock watering (AgL) |
| Is the receiving water on the 303(d) list? | The receiving water for Outfall 002 (Hassayampa River) is listed as impaired for *E. coli*. The downstream receiving water (Gila River) is listed as impaired for boron and selenium.<br><br>Outfall 002 has been assigned a waste load allocation (WLA) in the Gila River TMDL that was approved in December 23, 2015 for boron and selenium impairments. .<br><br>There are no TMDL issues associated with Outfalls 001 and 003.<br><br>The Gila River segment that is the receiving water of Outfalls 001 and 003 is not listed on the 303(d) list. This segment of the Gila River was previously listed as impaired for DDT, metabolities, toxaphene and chlordane in fish tissue. On August 7, 2015, the EPA approved the delisting of these impairments. |
| Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108, and the applicable numeric water quality standards are listed in A.A.C. R18-11-109 and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. In developing AZPDES permits, the standards for all applicable designated uses are compared and limits that will protect for all applicable designated uses are developed based on the standards. | |

**V. DESCRIPTION OF DISCHARGE**

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

| **Parameters** | **Units** | **Maximum Daily Discharge Concentration** |
|---|---|---|
| Biochemical Oxygen Demand (BOD) | mg/L | 1.01 |
| Total Suspended Solids (TSS) | mg/L | 8 |
| Total Kjeldahl Nitrogen (TKN) | mg/L | 3.08 |
| *E. coli* | cfu / 100 mL | 200 |
| Facility design removal rates: | | BOD 95%<br>TSS 95%<br>N 80% |

| VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT | |
|---|---|
| Date of most recent inspection: | 3/24/2021; no potential violations were noted as a result of this inspection. |
| DMR files reviewed: | 05/2016 through 03/2021 |
| Lab reports reviewed: | 05/2016 through 03/2021 |
| DMR Exceedances: | June 2017 (Total Cyanide, and Total Recoverable Selenium), September 2018 (Total Recoverable Selenium) Daily Max and Monthly Average, December 2018 (*Pseudokirchneriella subcapitata* - Green algae), and July 2020 (*E. coli*) Daily Max and Monthly Average. No other exceedances were noted. |
| NOVs issued: | **Case ID 169616**<br>4/21/2017 NOV Issued: Failure to inspect and sample effluent of all SIU's in accordance with 40 CFR 403.8(f)(2)(v).<br><br>**Case ID 179346**<br>11/28/2018 NOV Issued:<br>Failure to report exceedances of a permit limit of Total Recoverable Selenium Monthly Average and Daily Maximum.<br><br>**Case ID 186132**<br>10/16/2019 NOV Issued:<br>Total recoverable selenium (TRS) Daily Maximum Concentration exceeded at Outfall 001. |
| NOVs closed: | **Case ID 169616**<br>12/14/2018 order terminated<br><br>**Case ID 179346**<br>1/9/2019 case closed<br><br>**Case ID 186132**<br>1/22/2020 case closed |
| Compliance orders: | N/A |

| VII. PROPOSED PERMIT CHANGES | | | |
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| 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. |
| Receiving Water: Outfall 002 | Buckeye Irrigation District (BID) Canal (Phoenix area canal) | Hassayampa River (Below Buckeye Irrigation Company canal to the Gila River) | Applied the receiving water that is regulated post Navigable Waters Protection Rule. |
| Designated Uses: Outfall 002 | Agricultural Irrigation (AgI)<br>Agricultural Livestock watering (AgL) | Aquatic and Wildlife warm water (A&Ww)<br>Full Body Contact (FBC)<br>Fish Consumption (FC)<br>Agricultural Livestock watering (AgL) | Applied the designated uses for the regulated receiving water post-NWPR. |
| Antidegradation: Outfall 002 | Buckeye Irrigation District Canal: Effluent-dependent receiving water with Tier 1 protection | Hassayampa River: Perennial receiving water with Tier 2 protection | Tier 2 antidegradation protection criteria are applied to ensure the existing water quality of the Hassayampa River is maintained and protected. |
| Hardness: Outfall 002 | Hardness-dependent metals based on effluent hardness | Hardness-dependent metals based on receiving water hardness | If the receiving water has an A&Ww designated use, then the hardness is based on the hardness of the receiving water (Hassayampa River), therefore the default value 120 mg/L was applied for hardness-dependent metals assessment levels and limits. |
| pH and temperature sampling for Outfall 002 | pH and temperature samples for the ammonia impact ratio were taken from the effluent. | pH and temperature samples for ammonia impact ratio should be taken from the receiving water. | If the receiving water has an A&Ww designated use, then the pH and temperature samples for the ammonia impact ratio must be sampled from the receiving water (Hassayampa River). |
| Outfall 001 | Outfall active | Outfall deconstructed | While this outfall was deconstructed, the permittee has asked for it to remain in the permit should it be needed in the future. |
| Significant Industrial Users | Seven recorded SIU's | Six recorded SIU's | Cornell Cookson became a zero discharger and was therefore removed from total SIU's. |

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| Outfalls 001 and 003: Bromodichloromethane,Bromoform, and Dibromochloromethane (Chlorodibromomethane) | No Limit | Limit Set | Data submitted indicated a reasonable potential (RP) for an exceedance of a standard. |
| Outfalls 001 and 003: Acrolein, Acrylonitrile, Carbon tetrachloride, Benzidine, Benz(a)anthracene (PAH), Benzo(a)pyrene (PAH), Benzo(k)fluoranthene (PAH), 3,4-Benzofluoranthene or benzo(b)fluoranthene (PAH), Bis(2-chloroethyl) ether, Chrysene (PAH), Dibenz(ah) anthracene (PAH), and 3,3'- Dichlorobenzidine | No Limit | Assessment Level Set | Data submitted indicated a reasonable potential (RP) for an exceedance of a standard. |
| Outfalls 001 and 003: Chromium Total and Chromium VI | Limit | Limit Removed | Data submitted indicated no reasonable potential (RP) for an exceedance of a standard. |
| Outfall 002: Arsenic, Cadmium, Bromodichloromethane, Dibromochloromethane (Chlorodibromomethane), and Bis (2-ethylhexyl)phthalate --In 122 App J Di (2-Ethylhexyl) Phthalate- In WQStd (DEHP)1,2-Benzenedicarboxylic Acid Bis(2-Ethylhexyl) Ester | No Limit | Limit Set | Data submitted indicated a reasonable potential (RP) for an exceedance of a standard. |
| Outfall 002: Copper, Hydrogen Sulfide, Lead, Zinc, Benzidine, Benz(a)anthracene (PAH), Benzo(a)pyrene (PAH), Benzo(k)fluoranthene (PAH), 3,4-Benzofluoranthene or benzo(b)fluoranthene (PAH), Dibenz(ah) anthracene (PAH), 3,3'-Dichlorobenzidine, 1,2-Diphenylhydrazine (Hydrazobenzene), Hexachlorobenzene, Hexachlorocyclopentadiene, and Indeno (1,2,3-cd) pyrene (PAH) | No Limit | Assessment Level Set | Data submitted indicated a reasonable potential (RP) for an exceedance of a standard. |
| Anti-backsliding considerations – "Anti-backsliding" refers to statutory (Section 402(o) of the Clean Water Act) and regulatory (40 CFR 122.44(l)) requirements that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the previous permit. The rules and statutes do identify exceptions to these circumstances where backsliding is acceptable. This permit has been reviewed and drafted with consideration of anti-backsliding concerns.<br>Limits for the following parameter have been removed from the permit because evaluation of current data allows the conclusion that no reasonable potential (RP) for an exceedance of a standard exists: | | | |

• Chromium VI (Outfall 001 and 003)
• Chromium Total (Outfall 001 and 003)

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 WWTPs. 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.

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**

The limits in this permit were determined without the use of a mixing zone. Arizona state water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies for and is approved for a mixing zone. Since a mixing zone was not applied for or granted for any outfalls, all water quality criteria are applied at end-of-pipe.

**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. 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).

Ammonia water quality criteria vary based on the effluent (Outfalls 001 and 003) and receiving water (Outfall 002) pH and temperature at the time of effluent sampling. As a result, no single ammonia concentration can be included as a permit limit. To overcome this, an Ammonia Impact Ratio (AIR) of 1 for the monthly average and a value of 2 for the maximum daily limits has been established as the permit limits for ammonia. The AIR is calculated by dividing the ammonia concentration in the effluent by the applicable ammonia standard based on the effluent pH and temperature at the time of sampling. AIR values will be reported on DMRs and on the Ammonia Data Log which is included as Appendix B in the permit.

The 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 400 mg/L (the average hardness of the effluent as supplied in the application for Outfalls 001 & 003) and 120 mg/L (default receiving water hardness for Outfall 002) was used to calculate the applicable water quality standards and any assessment levels or limits for the hardness dependent metals (cadmium, chromium III, copper, lead, nickel, silver and zinc).

**Whole Effluent Toxicity (WET)**

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

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 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: 14 mg/L<br>TSS: 8 mg/L | BOD: 105<br>TSS: 53 | 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 & A&Ww Chronic | <16 µg/L | 608 | 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:<br>126 cfu /100 mL (4 sample minimum)<br>Single sample maximum:<br>575 cfu /100 mL/ PBC<br><br>30-day geometric mean:<br>126 cfu /100 mL (4 sample minimum)<br>Single sample maximum:<br>235 cfu/100 mL FBC | 200 | 1,087 | 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<br>Maximum: 9.0<br>A&Wedw, A&Ww, PBC, and FBC<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 | Min: 7.01<br><br>Max: 7.86 | Min: 703<br><br>Max: 703 | 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 remains. 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. |

| Parameter | Lowest Standard / Designated Use | Maximum Reported Daily Value | No. of Samples | Estimated Maximum Value | RP Determination | Proposed Monitoring Requirement/ Rationale (1) |
|---|---|---|---|---|---|---|
| Temperature | R18-11-109C the discharge shall not cause an increase in the ambient water temperature.<br><br>A&Ww and A&Wedw:<br>no more than 3.0°C | 34ºC | 4,966 | 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 | 2,430 mg/L | 15 | N/A | N/A | Monitoring required for effluent characterization. |
| Ammonia | Standard varies with temperature and pH | 1.01 mg/L<br>(< WQS) | 31 | N/A | RP Indeterminate (unknown pH and temperature data associated with the max value)<br>(4) (5) | Ammonia is to be monitored by discrete sample and a WQBEL in the form of an ammonia impact ratio (AIR) of 2 is set in the permit (6). An ammonia data log with concurrent pH and temperature monitoring is also required. One sample must coincide with WET sampling to aid in the determination of the cause of toxicity, if toxicity is detected. |
| Nutrients (Total Nitrogen and Total Phosphorus) | No applicable standards | N- 3.08<br>P- 3.82 | 38 | N/A | N/A | Monitoring required for effluent characterization. |
| Oil & Grease | BPJ Technology-Based Level of 10 mg/L monthly average and 15 mg/L daily maximum | <5 mg/L | 14 | N/A | RP Indeterminate | Monitoring required and a TBEL remains. |
| Antimony | 30 µg/L/ A&Ww chronic<br>600 µg/L/ A&Wedw chronic | 2.2 µg/L<br><2.5 µg/L | 5<br>13 | 9.24 µg/L<br>N/A | No RP<br>No RP | Monitoring required for effluent characterization. |
| Arsenic | 30 µg/L/ FBC<br>80 µg/L/ FC | 22 µg/L<br>16 µg/L | 5<br>13 | 92.4 µg/L<br>43.2 µg/L | RP Exists<br>No RP | Monitoring is required and a limit has been set for Outfall 002. Monitoring required for effluent characterization for Outfall 001 and 003. |
| Beryllium | 5.3 µg/L/ A&Ww & A&Wedw chronic | <10 µg/L<br><0.2 µg/L | 16<br>5 | N/A<br>N/A | No RP<br>No RP | Monitoring required for effluent characterization. |
| Boron | 1,000 µg/L/ AgI | 890 µg/L<br>810 µg/L | 5<br>13 | 3,738 µg/L<br>2,187 µg/L | No RP<br>RP Exists | Monitoring required and a limit remains as a TMDL WLA for Outfall 002. Monitoring required and a limit remains for Outfall 001 and 003. |
| Cadmium<br>(2) | 2.56 µg/L/ A&Ww chronic<br>6.22 µg/L/ A&Wedw chronic | 0.83 µg/L<br>0.25 µg/L | 5<br>13 | 3.486 µg/L<br>0.675 µg/L | RP Exists<br>No RP | Monitoring required and a limit is set for Outfall 002. Monitoring required for effluent characterization for Outfall 001 and 003. |
| Chromium (Total) | 1,000 µg/L/ AgI and AgL | <25 µg/L<br><5 µg/L | 13<br>5 | N/A<br>N/A | No RP<br>No RP | Monitoring for effluent characterization required as an indicator parameter for Chromium VI. |
| Chromium VI | 11 µg/L/ A&Ww & A&Wedw chronic | <15 µg/L<br><8 µg/L | 5<br>14 | N/A<br>N/A | No RP<br>No RP | Monitoring required for effluent characterization. |

| Parameter | Lowest Standard / Designated Use | Maximum Reported Daily Value | No. of Samples | Estimated Maximum Value | RP Determination | Proposed Monitoring Requirement/ Rationale (1) |
|---|---|---|---|---|---|---|
| Copper (2) | 11 µg/L/ A&Ww chronic<br>29 µg/L/ A&Wedw chronic | <7 µg/L<br><50 µg/L | 5<br>14 | N/A<br>N/A | RP Indeterminate (High LOQ)<br>RP Indeterminate (High LOQ) | Monitoring required as an assessment level is set for Outfall 002. Monitoring is required for effluent characterization for Outfalls 001 and 003. |
| Cyanide | 9.7 µg/L/ A&Ww & A&Wedw chronic | 8 µg/L<br>11 µg/L | 6<br>11 | 30.4 µg/L<br>27.5 µg/L | RP Exists<br>RP Exists | Monitoring is required and a WQBEL remains for Outfall 001, 002, and 003. |
| Hardness | No applicable standard. Hardness is used to determine standards for specific metal parameters. | 840 mg/L<br>900 mg/L | 5<br>13 | 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 maximum allowed hardness value of 400 mg/L. Monitoring for hardness is required whenever monitoring for hardness dependent metals is required. |
| Hydrogen Sulfide | 2 µg/L/ A&Ww & A&Wedw chronic | <40 µg/L<br><100 µg/L | 5<br>13 | N/A<br>N/A | RP Indeterminate (High LOQ) | Monitoring is required as an assessment level for sulfides at Outfall 001, 002, and 003 as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term. |
| Iron | 1,000 ug/L/ A&Ww & A&Wedw chronic | <50 µg/L<br><250 µg/L | 2<br>9 | N/A<br>N/A | No RP | Monitoring is required for effluent characterization. |
| Lead (2) | 3.07 µg/L / A&Ww chronic<br>10.9 µg/L / A&Wedw chronic | <4 µg/L<br><5 µg/L | 5<br>13 | N/A<br>N/A | RP Indeterminate (High LOQ)<br>No RP | Monitoring required and an assessment level is set for Outfall 002. Monitoring required for effluent characterization for Outfall 001 and 003. |
| Mercury | 0.01 µg/L/ A&Ww & A&Wedw chronic | 0.00092 µg/L<br>0.001 µg/L | 3<br>13 | 0.005 µg/L<br>0.0035 µg/L | No RP<br>No RP | Monitoring required for effluent characterization. |
| Nickel (2) | 60.7 µg/L/ A&Ww chronic<br>168 µg/L/ A&Wedw chronic | <8.4 µg/L<br><100 µg/L | 5<br>14 | N/A<br>N/A | No RP<br>No RP | Monitoring required for effluent characterization. |
| Selenium | 2 µg/L/ A&Ww & A&Wedw chronic | 10 µg/L<br><br><br>3.8 µg/L | 23<br><br><br>6 | 22 µg/L<br><br><br>14.44 µg/L | RP Exists<br><br><br>RP Exists | The TMDL WLAs remain for Outfall 002. Monitoring required and a limit remains in the permit for Outfall 001 and 003. |
| Silver (2) | 4.40 µg/L/ A&Ww acute<br>34.9 µg/L/ A&Wedw acute | <0.2 µg/L<br><0.5 µg/L | 2<br>8 | N/A<br>N/A | No RP<br>No RP | Monitoring required for effluent characterization. |
| Sulfides | No applicable standard | <40 µg/L<br><100 µg/L | 5<br>13 | 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. |

| Parameter | Lowest Standard / Designated Use | | Maximum Reported Daily Value | No. of Samples | Estimated Maximum Value | RP Determination | Proposed Monitoring Requirement/ Rationale (1) |
|---|---|---|---|---|---|---|---|
| Thallium | 7.2 µg/L/ FC | | <0.3 µg/L<br><2.5 µg/L | 5<br>15 | N/A<br>N/A | No RP<br>No RP | Monitoring required for effluent characterization. |
| Zinc (2) | 137 µg/L/ A&Ww acute and chronic<br>379 µg/L/ A&Wedw acute and chronic | | 80 µg/L<br>75 µg/L | 2<br>9 | 592 µg/L<br>240 µg/L | RP Indeterminate<br>No RP | Monitoring is required and an assessment level is set for Outfall 002. Monitoring required for effluent characterization for Outfall 001 and 003. |
| | | | | | | | |
| Whole Effluent Toxicity (WET) | No toxicity (A.A.C. R18-11-108(A)(6 ) | *Pseudo-kirchneriella subcapitata (3)* | 2.0 TUc | 12 | N/A | RP Exists | Monitoring required and a WQBEL remains. |
| | | *Pimephales promelas* | 1.0 TUc | 12 | N/A | RP Indeterminate (4) | Monitoring required and an action level is set. |
| | | *Ceriodaphnia dubia* | 1.0 TUc | 12 | 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 is for this parameter is based on the average hardness value of the effluent or receiving water as indicated above.
(3) Formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata.*
(4) Monitoring with ALs or Action Levels always required for WWTPs for these parameters unless RP exists and limits are set.
(5) An AIR will be calculated by dividing effluent ammonia concentration by the applicable standard using the receiving water pH and temperature.

**VIII. NARRATIVE WATER QUALITY STANDARDS**

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

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

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

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

For the purposes of this permit, a "24-hour composite" sample has been defined as a flow-proportioned mixture of not less than three discrete samples (aliquots) obtained at equal time intervals over a 24-hour period. The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling.

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

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

Monitoring locations are specified in the permit (Part I.A and Part I.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, Section B.1. and B.2. of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs), Ammonia Data Logs, and AZPDES Flow Record forms if permittee is intermittently discharging. 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.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)

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

**Permit Reopener**

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

**XII. ANTIDEGRADATION**

Antidegradation rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected.

The discharge from the City of Goodyear 157th Ave WRF **Outfalls 001 and 003** will be to an effluent-dependent water. Except for flows resulting from rain events, the only water in the river will be the effluent.
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.

Discharges from **Outfall 002** from the City of Goodyear 157th Ave WRF are into the Buckeye Irrigation District Canal that flows to the perennial reach of the Hassayampa River, a Water of the U.S. (WOTUS). Discharges from the City of Goodyear 157th Ave WRF through the AZPDES permitted Outfall 002 will reach the receiving water, the Hassayampa River, which is subject to Tier 2 antidegradation protection. . Discharges will only occur during major storm events or during very wet seasons. Discharges during these conditions would be subject to an unknown amount of dilution in the receiving water. Reasonable potential to exceed surface water quality standards in the receiving water would exist if discharges occurred from the City of Goodyear 157th Ave WRF during dry weather when dilution is not available but such dry weather discharges are not likely to occur because of discharge volume (six (6) mgd) and distance through the BID canal to the receiving water. Determining reasonable potential to exceed standards during wet weather cannot be accomplished unless the in-stream flow rate is known and the dilution factor can be determined.

As described in this document, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone, therefore these limits will apply at the end of pipe without consideration of dilution in the receiving water. Considering the discharge volume and the distance of receiving water body, the likelihood of a discharge is not great. If such a discharge were to occur, it would be in response to a large precipitation event, resulting in large volume and limited duration. Therefore, the discharge is not expected to significantly affect receiving water body or result in any degradation of water quality.

## 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.

## 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 2, 2020, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.

2. Supplemental information to the application received by ADEQ on March 16, 2021 and March 24, 2021.

3. ADEQ files on Goodyear 157th Ave WRF.

4. 208 Consistency Review Form dated September 9, 2018.

5. ADEQ Geographic Information System (GIS) Web site

6. Information provided to ADEQ staff during a virtual inspection visit with the facility on March 24, 2021.

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.