

## ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a fish hatchery and has a maximum flow rate of 2,740,000 gallons per day (2.74 MGD). Due to the nature of the discharge, it has been determined to be a minor facility under the NPDES program. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 et. seq. This permit is proposed to be issued for a period of 5 years.

Permittee's Name:	Arizona Game and Fish Department (AZGFD)
Permittee's Mailing Address:	5000 W. Carefree Highway Phoenix, Arizona 85086
Facility Name:	Tonto Creek Fish Hatchery (TCFH)
Facility Address or Location:	North end of Forest Service Road 289 Off State Highway 260, east of Payson
County:	Gila
Contact Person(s): Phone/e-mail address	Marc Dahlberg, Water Quality Program Manager, (623) 236-7260, <a href="mailto:mdahlberg@azgfd.gov">mdahlberg@azgfd.gov</a>
AZPDES Permit Number:	AZ0021211
Inventory Number:	101556

### I. STATUS OF PERMIT(S)

AZPDES permit applied for:	Renewal
Date application received:	11/29/2017
Date application was determined administratively complete:	12/18/2017
Previous permit expiration date:	6/12/2018

#### **208 Consistency:**

208 Plan consistency is not required for industrial facilities.

AZGFD has the following permits issued by ADEQ applicable to the TCFH:		
Type of Permit	Permit Number	Purpose
Aquifer Protection Permit (APP)	P 101556	Regulates discharges to the local aquifer

<b>II. GENERAL FACILITY INFORMATION</b>	
Type of Facility:	The TCFH was established for the production of fingerling and catchable trout for the Mogollon Rim and White Mountain area. Trout species raised are primarily Rainbow, with some Apache and Brook.
Facility Location Description:	The facility is located on Forest Service Road 289 about 20 miles east of Payson, Arizona, in the Tonto National Forest.
Estimated Flow:	Flow-through fish hatchery with a maximum flow rate of 2.74 million gallons per day (mgd)
Treatment Processes (include sludge handling and disposal/use):	There is no treatment given to the water. Fish waste is not considered biosolids under the 40 CFR 503 provisions.
Nature of facility discharge:	The hatchery is situated near the headwaters of Tonto Creek below the Mogollon Rim. Water for the hatchery is obtained from the natural spring and discharged through a single outfall to Tonto Creek in the Salt River Basin.
Average flow per discharge:	1.73 mgd
Continuous or intermittent discharge:	Continuous
Discharge pattern summary:	Daily maximum flow rate is approximately 2.74 mgd per day. Discharge to the stream is continuous through a single outflow structure.
Historical Note: No variances were granted in the previous permit (6/13/2013 – 6/12/2018) for nitrogen or phosphorus.	

<b>III. 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 :	Tonto Creek, headwaters to confluence with unnamed tributary
River Basin:	Salt River
Outfall Location(s):	Outfall 001: Township 12N, Range 12E, Section 33 Latitude 34° 22' 59", Longitude 111° 05' 47"

The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.	
Designated uses for the receiving water listed above:	Aquatic and Wildlife cold water (A&Wc) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Irrigation (AgI) Agricultural Livestock watering (AgL)
Is the receiving water on the 303(d) list?	Tonto Creek is listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1. This segment of Tonto Creek (from the headwaters to the confluence with the unnamed tributary at latitude 34° 18' 11", longitude 111° 04' 18") was listed as impaired on the 303(d) list in 2012/2014 for nitrogen. Although it was delisted in 2016 based on more recent or accurate data, it continues to have a total maximum daily load (TMDL) for nitrogen.
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.F(2) 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.	

<b>IV. 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>
pH	s.u.	8.2
Total Suspended Solids (TSS)	mg/L	4.6
Total Nitrogen (as N)	mg/L	0.98
Total Phosphorus (as P)	mg/L	0.18

<b>V. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT</b>	
Date of most recent inspection:	1/19/2016; no potential violations were noted as a result of this inspection.
DMR files reviewed:	1/1//2013 through 9/30/2017
Lab reports reviewed:	9/1/2016 through 10/19/2017

DMR Exceedances:	Nitrogen – 2015 (0.52 mg/L) and 2016 (0.54 mg/L) annual averages exceeded at outfall. The annual average concentrations 500 meters downstream of the outfall were below the water quality standard.
NOVs issued:	None
NOVs closed:	N/A
Compliance orders:	None

**VI. PROPOSED PERMIT CHANGES**

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

Parameter	Existing Permit	Proposed permit	Reason for change
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.

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

No limits have been removed from the permit. If less stringent limits result due to a change in the WQS then backsliding is allowed in accordance with 303(d)(4) if the new limits are consistent with antidegradation requirements and the receiving water is in attainment of the new standard; see Section XII for information regarding antidegradation requirements. No limits are less stringent due to a change in the WQS in this permit.

**VII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS**

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

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

This fish hatchery is regulated under 40 CFR 122.24 as a concentrated aquatic animal production facility and is not an animal or concentrated animal feeding operation (AFO or CAFO, respectively). There are no promulgated technology-based limitations for fish hatcheries. The total suspended solids (TSS) solids discharge limitations in the current permit are based on best professional judgment.

The regulations at 40 CFR Part 451 became effective September 22, 2004, and apply to the discharge of pollutants from a concentrated aquatic animal production facility that produces 100,000 pounds or more per year of aquatic animals in a flow-through or recirculating system. The Tonto Creek fish hatchery produces 55,092 pounds per year in a flow-through system. AZGFD has implemented Best Management Practices (BMPs) consistent with the discharge limitation guidelines applicable in 40 CFR451 at the Tonto Creek Hatchery. ADEQ has therefore established permit requirements based upon Best Practicable Technology (BPT) and Best Available Technology (BAT) discharge limitation guidelines which have been incorporated into the proposed permit.

**Numeric Water Quality Standards:**

Few contaminants are introduced in the rearing process. Based on the designated uses for this segment of Tonto Creek, ammonia, phosphorus and nitrogen are considered to be the only pollutants of concern due to the fish feed and waste products. Phosphorus and nitrogen indicate reasonable potential for exceedances of the applicable standards, and limits are set.

In previous years, additional data submitted indicated that ammonia monitoring was unnecessary for the following reasons. Total Kjeldahl Nitrogen (TKN) is the sum of the organic nitrogen and total ammonia, which means that the ammonia concentrations in the samples must be equal to or less than the TKN concentrations. Based on the TKN data and the Ammonia Data Logs provided at the time, the TKN measured in the TCFH outflow was much lower than the ammonia standards for the corresponding pH and temperature. In addition, the total nitrogen standard (nitrate + nitrite + organic nitrogen + ammonia) applicable to the discharge was lower than the ammonia standard calculated using pH and temperature. Therefore, the total nitrogen standard would be exceeded before the ammonia standard is even approached and, therefore, ammonia sampling is not required in the draft permit.

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, all water quality criteria are applied at end-of-pipe.

### **Total Maximum Daily Load (TMDL)**

ADEQ's TMDL Program is designed to help an impaired stream or lake meet its water quality standards and support its designated uses, such as (in the case of Tonto Creek) protection of aquatic life, human and livestock contact, and fish consumption. Section 303(d) of the Clean Water Act established authority for the TMDL Program and guides states on how to develop these plans for waters that do not meet water quality standards.

A TMDL is the maximum amount (load or mass) of a water quality parameter (nitrogen, in the case of Tonto Creek) which can be carried by a surface waterbody on a daily basis without causing an exceedance of surface water quality standards. TMDL calculations are made for waters listed as impaired on the state's 303(d) list. Every two years, states submit a list of impaired waters and a schedule to establish TMDLs to the EPA. The EPA reviews and approves the 303(d) lists and schedules. The Tonto Creek headwaters to Haigler Creek has been delisted as impaired for nitrogen in the State's *20016 Status of Ambient Surface Water Quality in Arizona 303(d) List*.

A Total Maximum Daily Load (TMDL) study for nitrogen in Tonto Creek was completed on June 20, 2005. Because the TMDL was developed as a flow-based calculation, the permit table has a report-only requirement to accommodate fluctuations. Mass shall continue to be reported on the discharge monitoring report (DMR) and be calculated as the annual average concentration in kilograms per day times the maximum daily flow rate in million gallons per day times 3.785 (water conversion multiplier).

### **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.
Total Suspended Solids (TSS)	15 mg/L maximum daily 10 mg/L average monthly Best Professional Judgment (BPJ)	18.9 mg/L (2)	48	N/A	N/A	A January 2002 EPA memo indicated that settleable solids monitoring was no longer required as long as TSS monitoring is required. TSS is therefore set as a TBEL in the permit based on BPJ.
pH	Minimum: 6.5 Maximum: 9.0 A&Wc A.A.C. R18-11-109(B)	8.07 S.U.	48	N/A	N/A	pH is to be monitored using a discrete sample of the discharge and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH.
Total Nitrogen	Annual Mean Nitrogen: 0.50 mg/L Single Sample Maximum: 2.0 mg/L A.A.C. R18-11-109F.2	0.72 mg/L	48	N/A	N/A	TMDL developed as a flow-based calculation and the permit table has a report-only requirement to accommodate fluctuations.
Total Phosphorus	Annual Mean Phosphorus: 0.10 mg/L Single Sample Maximum: 0.80 mg/L A.A.C. R18-11-109F.2	0.11 mg/L	48	N/A	N/A	Monitoring required and a limit remains in the permit.

Footnotes:

- (1) The monitoring frequencies are as specified in the permit.
  - (2) During settling basin cleaning operations.
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### **VIII. NARRATIVE WATER QUALITY STANDARDS**

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

For the purposes of this permit, discrete (i.e., grab) samples are specified in the permit for all parameters. The quality of the discharge is not expected to be highly variable.

Monitoring locations are specified in the permit (Part I.A and Part I.G) in order to ensure that representative samples of the fish hatchery process water discharge are consistently obtained. The water from the springs is directed through an underground pipe to a "Teacup" apparatus which provides sediment removal. The clarified water is then piped through a small building where it is aerated to remove nitrogen and provide oxygen before being piped into a building where incubation and fry production takes place. All water discharged from the production portion of the hatchery, which includes the indoor and outdoor raceways, is routed through the settling basin and into four wetlands constructed in a series before discharge to Tonto Creek.

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

The permit (Part II.A.2) requires the permittee to keep a Quality Assurance (QA) manual at the facility, describing sample collection and analysis processes; the required elements of the QA manual are outlined.

Reporting requirements for monitoring results are detailed in Part II, Sections B.1 and 2 of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs). 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 requires 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.

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



**X. BIOSOLIDS REQUIREMENTS (Part III in Permit)**

Not applicable because fish wastes are not considered biosolids under the 40 CFR 503 provisions.

**XI. SPECIAL CONDITIONS (Part V in Permit)**

**Ambient Surface Water Monitoring**

The permittee shall monitor the flow and ambient surface water quality in Tonto Creek for total phosphorus and total nitrogen. Ambient monitoring shall be conducted quarterly with these events noted: drought, major winter precipitation, snow melt, summer monsoon, and fall precipitation. Samples shall be collected at a point upstream of Outfall 001 from the spring box and at points 500 and 1500 meters downstream of Outfall 001. The downstream ambient monitoring data is required to assess if the stream is negatively impacted by the nutrient loading from the hatchery. The results shall be reported by January 31<sup>st</sup> of each year to ADEQ for the previous year.

**Best Management Practices**

The permittee shall submit an annual progress report to ADEQ by January 31st of each year which shall include information regarding best management practices implemented.

Chemical Usage. ADEQ has retained the following requirement to document chemical usage at the site. ADEQ continues to believe that Whole Effluent Toxicity (WET) testing is not necessary due to the absence of a reasonable potential for the effluent to cause in stream toxicity. However, the reporting requirements for chemical usage may be evaluated in the future to determine if WET testing is required. The permittee must: (1) Submit annually by January 31st each year a list of all chemicals added to water in the fish hatchery during the preceding year. (2) The chemical list shall include antibiotics, fungicides, detergents, and other cleaning agents, disinfectants and any other chemicals added to the water. The submittal shall include information on frequency and duration of use, purpose, and amounts.

**Special Progress Reporting**

The permittee shall submit an annual progress report to ADEQ by January 31st of each year which shall include data collected, information regarding any facility upgrades and/or process improvements, and a list of chemicals used.

**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 of process water from the TCFH is to Tonto Creek, a perennial water currently in attainment with the Surface Water Quality Standards. This is a flow-through hatchery and the data indicated that hatchery operations have no impact on the stream integrity with the

possible exception of nitrogen and phosphorus. As long as the permittee maintains consistent compliance with the permit limits as prescribed, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet the applicable Tier 2 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 – AZPDES Individual Permits Unit  
Attn: Jacqueline Maye  
1110 West Washington Street  
Phoenix, Arizona 85007

Or by contacting Jacqueline Maye at (602) 771 – 4607 or by e-mail at [jpm@azdeq.gov](mailto:jpm@azdeq.gov).

## **XVI. INFORMATION SOURCES**

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

1. AZPDES Permit Application Form(s) 1 and 2B, received November 29, 2017, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. ADEQ files on Tonto Creek Fish Hatchery.
3. ADEQ Geographic Information System (GIS) Web site.
4. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted December 31, 2016.
5. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
6. 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*.
7. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.
8. U.S. EPA NPDES Permit Writers' Manual, September 2010.