

## 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 classified as a concentrated aquatic animal production (CAAP) facility and has a maximum flow rate 3,750,000 gallons per day (3.75 mgd). Due to the nature of the discharge, it has been determined to be a minor facility under NPDES program. The discharge limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 *et seq.* This permit is proposed to be issued for a period of 5 years.

<b>I. PERMITTEE INFORMATION</b>	
Permittee's Name:	Arizona Game and Fish Department (AZGFD)
Permittee's Mailing Address:	5000 W. Carefree Highway Phoenix, Arizona 85086
Facility Name:	Canyon Creek Fish Hatchery (CCFH)
Facility Address or Location:	Young Road south from State Highway 260, Three (3) miles to Forest Road 33, turn left, five (5) miles to hatchery.
County:	Gila County
Contact Person(s): Phone/e-mail address	Jade Dickens, Water Quality Program Manager (623) 236-7260 / jdickens@azgfd.gov
AZPDES Permit Number:	AZ0021229
Inventory Number:	101555
LTF Number:	96261

<b>II. STATUS OF PERMIT(s)</b>	
AZPDES permit applied for:	Renewal
Date application received:	September 12, 2022
Date application was determined administratively complete:	November 2, 2022
Previous permit number (if different):	N/A
Previous permit expiration date:	March 26, 2023

**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.

208 Plan consistency is not required for industrial facilities.

The AZGFD has the following permits issued by ADEQ applicable to the CCFH:

**Type of Permit**

Aquifer Protection Permit (APP)	P101555	Regulates discharges to the local aquifer
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**III. GENERAL FACILITY INFORMATION**

Type of Facility:	The CCFH is a cold-water trout hatchery located on the land. It is owned and operated by the Arizona Game and Fish Department (AZGFD).
Facility Location Description:	The facility is located in Gila County, on Forest Service Road 33 about five miles south of Young Road. This location is about 39 miles east of Payson, Arizona, in the Tonto National Forest.
Discharge Flow:	Estimated maximum average monthly flow through the facility is 3,300,480 gallons per day (gpd), with a maximum daily flow of 3,750,000 gpd.
Applicable Treatment Processes:	There is no treatment given to the water. Fish waste is not considered a biosolid under the 40 CFR 503 provisions.
Nature of facility discharge:	This facility is a flow-through hatchery that diverts some, but not all, of the water from the spring for use in the facility's rearing operation and then discharges at the end of the process back in to the stream.
Average flow per discharge:	2.72 mgd
Continuous or intermittent discharge:	Continuous discharge
Discharge pattern summary:	Daily maximum flow rate is approximately 3.75 mgd per day. Discharge to the stream is continuous through a single outflow structure.

The CCFH is situated near the headwaters of Canyon Creek below the Mogollon Rim. Water for the hatchery is obtained from a natural spring and discharged through a single outfall to Canyon Creek. This is a flow-through hatchery that diverts some, but not all, of the water from the spring for use in the facility's rearing operation and then discharges at the end of the process back into the stream. The inflow is directed through three underground fiberglass tanks that provide sediment removal by the reduction of flow velocity. The clarified water is routed through a surge tank and hydroelectric generation system for the facility before going to the indoor facilities to be used for incubation and fish production and the outdoor raceways.

The hatchery contains a total of 39 production raceways. The raceways are constructed of concrete (12 concrete outdoor raceways), and fiberglass (20 fiberglass indoor tanks). Seven (7) circular fiberglass tanks are designed to facilitate solids settlement at the terminal ends. During regular cleaning of the raceways, the solids are flushed to a reinforced concrete settling basin designed for final solids removal. All water discharged from the production portion of the hatchery, which includes the indoor and outdoor raceways and a show pond, is routed through the settling basin prior to final discharge back into Canyon Creek.

**IV. RECEIVING WATER**

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

Receiving Water (Federal):	The Water of the U.S. Protected Surface Water (WOTUS PSW) for facility/ outfall is Canyon Creek, Headwaters to the White Mountain Apache Reservation Boundary.
River Basin:	Salt River Basin
Outfall Location(s):	Outfall 001: Township 11 N, Range 14 E, Section 36 Latitude 34° 17' 25" N, Longitude 110° 48' 26" W
Designated uses for the receiving water listed above:	Aquatic and Wildlife cold water (A&Wc) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Irrigation (Agl) Agricultural Livestock watering (AgL) Domestic Water Supply (DWS)
Applicable nutrient standards A. A.C. R 18-11-109 (F) (3)	In addition to the above, the Salt River and its perennial tributaries above Roosevelt Lake for any segments that are not located on tribal lands are subject to nutrient standards for total nitrogen and total phosphorus. The standards include a total nitrogen annual mean of 0.60 mg/L and with single sample maximum of 2.0 mg/L and a total phosphorus annual mean of 0.12 mg/L and with single sample maximum of 1.0 mg/L.
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.

**V. DESCRIPTION OF DISCHARGE**

Available DMR data from the period April 2018 through October 2022 were reviewed. The following is the measured discharge quality reported for the regulated parameters.

Parameters	Units	Current Concentration Limitation	Range of Reported Values
Total Suspended Solids (TSS)	mg/L	Daily Maximum - 15	Range Reported: < 3.0 to 8.7
pH	s.u.	Minimum- 6.5 Maximum- 9.0	Range Reported: 6.6 to 8.2
Total Nitrogen (as N)	mg/L	Single Sample Maximum – 2.0	0.3 -1.51
Total Phosphorus (as P)	mg/L	Single Sample Maximum – 1.0	0.07 – 0.44
Total Kjeldahl Nitrogen (TKN)	mg/L N	N/A	0.15 – 1.34

Data submitted for total nitrogen do not exceed the single sample maximum nutrient standard of 2.0 mg/L but does exceed the annual average standard of 0.6 mg/L. Data submitted for total phosphorus do not exceed the single sample maximum standard of 1.0 mg/L but does exceed the annual average standard of 0.12 mg/L. The total nitrogen and total phosphorus annual mean limits in this permit were determined with the use of a mixing zone.

**VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT**

Date of Most Recent Inspection:	August 29, 2013; no potential violations were noted as a result of this inspection.
DMR Files Reviewed:	April 2018 through October 2022
Lab Reports Reviewed:	April 2018 through October 2022
DMR Exceedances:	There were no exceedances of the interim limits for nitrogen and phosphorus.
NOVs Issued:	None
NOVs Closed:	N/A
Compliance Orders:	None

**VII. PROPOSED PERMIT CHANGES**

The following table lists the major changes from the previous permit in this 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.
Noncompliance Reporting Hotline	(602) 771-2330	Noncompliance resulting in imminent threat to human health or the environment must be reported to (602) 771-2330, while all other noncompliance must be reported to (602) 771-1440.	Routing emergency calls to the emergency hotline, but all other calls to a non-emergency number.

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. In these cases, limits will be recalculated using the most current Arizona Water Quality Standards (WQS). If less stringent limits result due to a change in the WQS then backsliding is allowed in accordance with 303(d)(4) if the new limits are consistent with antidegradation requirements and the receiving water is in attainment of the new standard; see Section XII for information regarding antidegradation requirements. There are no limits that are less stringent due to a change in the WQS in this permit.

**VIII. DETERMINATION OF EFFLUENT LIMITATIONS**

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

**Technology-based Limitations (TBEL):**

The 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) discharge limitations in the current permit are based on best professional judgement (BPJ) and are included in this renewal permit.

Environmental Protection Agency (EPA) promulgated effluent limitation guidelines and standards for aquaculture facilities in June 2004 (See 40 CFR Part 451) and became effective on September 22, 2004. The national technology-based regulations 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 CCFH

produces at least 100,000 pounds per year; therefore, the facility is subject to the effluent limitation guidelines. AZGF has implemented a BMP plan consistent with the discharge limitation guidelines applicable in 40 CFR Part 451 at the Canyon 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 permit. See permit Part IV, Section C.

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

Few contaminants are introduced in the rearing process. Based on the designated uses for this segment of Canyon 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 data indicate reasonable potential for exceedances of the applicable standards, and limits are set.

Data submitted indicate that ammonia monitoring is 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 provided in the DMRs, the TKN measure in the CCFH outflow is 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 is lower than the ammonia standard calculated using pH and temperature. Therefore, the total nitrogen standard will be exceeded before the ammonia standard is even approached and ammonia sampling is not required in the permit.

**Mixing Zone**

The nitrogen and phosphorus annual mean limits in this permit were determined with 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. The permittee applied for and is granted a mixing zone for nitrogen and phosphorus. See Part IV.A. in the permit.

ADEQ evaluated the request and approved the establishment of the nitrogen and phosphorus mixing zone. The following factors in Arizona mixing zone rules listed in A.A.C. R18-11-114(D) were considered upon approving the request:

Mixing Zone Factor	Consideration
Assimilative capacity of the receiving water	ADEQ previously completed field water quality analysis of the stream below the hatchery Outfall. The pH, DO and % plant cover on the streambed indicate that nutrients are not negatively impacting the water quality of the stream.
Likelihood of adverse human health effects	As per A.A.C. R18-11-109 (F) (3), nutrient standards are applied to the Salt River and its perennial tributaries above Roosevelt Lake. The annual mean surface water standard of 0.60 mg/L is well below the drinking water standard for nitrate plus nitrite, which is 10 mg/L.
Location of drinking water plant intakes and public swimming areas	The annual average total nitrogen and phosphorus concentrations in the effluent are well below the FBC and DWS standards.
Predicted exposure of biota and the likelihood that resident biota will be adversely affected	The likelihood of adverse effects is low, given in-stream measurements of % plant cover on the stream bed in this study reach.
Bioaccumulation	Nitrogen and phosphorus are not toxics and don't bioaccumulate.

Size of the zone of initial dilution	Due to the location of the outfall immediately downstream of the portion of the stream that flows around the hatchery - rapid and complete mixing will occur.
Known or predicted safe exposure levels for the pollutant for which the mixing zone is granted	Effluent concentrations are well below safe exposure levels for nitrogen and phosphorus.
Size of the mixing zone	Rapid and complete mixing is assumed downstream of the outfall. The permittee will continue to sample the ambient surface water at 500 meters downstream of the outfall.
Location of the mixing zone relative to biologically sensitive areas in the surface water	A complete and rapid mix is assumed at the discharge point with the downstream concentration being below the aquatic and wildlife standard 500 meters downstream, where hatchery trout are stocked regularly.
Concentration gradient of the pollutant within the mixing zone	A complete and rapid mix is assumed
Sediment deposition	None
Potential to attracting aquatic life to the mixing zone	None
Cumulative impacts of other mixing zones and other discharges to the surface water	Not applicable

Complete mixing is assumed at the confluence of the hatchery discharge and Canyon Creek because of the stream flow dynamics and mixing that occur at this location. Therefore, the steady state dilution model is used to calculate the mixing zone. Based on previous nitrogen and phosphorus ambient data, there is a reasonable potential for nitrogen and phosphorus to exceed the standard. The following steady-state mass balance formula was used to determine the end-of-pipe limits in consideration of the applicant's request for a mixing zone:

$$Q_s C_s + Q_d C_d = Q_r C_r$$

Where:  $Q_s$ =stream flow above discharge point;  
 $C_s$ =background in-stream concentration;  
 $Q_d$ =effluent flow;  
 $C_d$ = effluent concentration;  
 $Q_r$ = resultant in-stream flow after discharge; and  
 $C_r$ =resultant in-stream concentration after complete mixing.

AZGF collects flow and nutrient concentration data from the hatchery discharge and 500 meters downstream. The following data represent the annual averages of the data submitted since 2018. The annual average data was used for all the critical flow and concentration data inputs in the model. The basis for this decision is that both the phosphorus and nitrogen standards are prescribed as an annual mean in the Arizona water quality standards rule.

See also the Appendix A in the factsheet for a further breakdown of the data.

**Nitrogen Data:**

**$Q_s = 4.21$  mgd** : calculated from downstream measurements ( $Q_r$ ) and discharge data from hatchery ( $Q_d$ ).

( $Q_s = Q_r - Q_d$ )

**$C_s = 0.14$  mg/L** : Annual average data obtained from annual reports

**$Q_d = 2.48$  mgd** : Annual average data obtained from annual reports

$C_d = 0.73 \text{ mg/L}$  : Annual average data obtained from annual reports  
 $Q_r = 6.69 \text{ mgd}$  : Annual average data obtained from annual reports  
 $C_r = 0.60 \text{ mg/L}$  : Annual average data obtained from annual reports

Model calculated end-of-pipe nitrogen limit

$$C_d = ((Q_r C_r - Q_s C_s)) / Q_d$$

$C_d = 0.93 \text{ mg/L} **$

\*\* The Nitrogen limit in the previous permit was 0.85 mg/L, which was an interim limit based on 2009 EPA approved variance. A variance was not approved in this permit. The mass-balance results of “effluent pollutant concentration ( $C_d$ )” based on the annual average flow data was 0.93 mg/L. Because the current average “downstream nitrogen concentration” ( $C_r = 0.43 \text{ mg/L}$ ) is below the standard, ADEQ will cap the mixing zone N limit at 0.85 mg/L - the same limit as in the previous permit.

**Phosphorus Data:**

$Q_s = 4.21 \text{ mgd}$ : calculated from downstream measurements ( $Q_r$ ) and discharge data from hatchery ( $Q_d$ ).  
 $(Q_s = Q_r - Q_d)$   
 $C_s = 0.04 \text{ mg/L}$  : Annual average data obtained from annual reports  
 $Q_d = 2.48 \text{ mgd}$ : Annual average data obtained from annual reports  
 $C_d = 0.13 \text{ mg/L}$ : Annual average data obtained from annual reports  
 $Q_r = 6.69 \text{ mgd}$ : Annual average data obtained from annual reports  
 $C_r = 0.09 \text{ mg/L}$  : Annual average data obtained from annual reports

Model calculated end-of-pipe phosphorus limit

$$C_d = ((Q_r C_r - Q_s C_s)) / Q_d$$

$C_d = 0.17 \text{ mg/L} **$

\*\* The Phosphorus limit in the previous permit was 0.15 mg/L, which was an interim limit based on a variance. A variance was not approved in this permit. The mass-balance results of  $C_d$  based on the annual average flow data was 0.17 mg/L. Because the current “average downstream phosphorus concentration ( $C_r = 0.09 \text{ mg/L}$ )” is below the standard, ADEQ will establish the mixing zone P limit at 0.15 mg/L - the same limit as in the previous permit.

**Permit Limitations and Monitoring Requirements**

Table 1 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*.



**Table 1. Permit limitations and monitoring requirements.**

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)	8.7 mg/L	86	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 (2)	Minimum: 6.5 Maximum: 9.0 A&Wc and FBC A.A.C. R18-11-109(B)	Minimum: 6.6 Maximum: 8.2	53	N/A	N/A	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.
Total Nitrogen	Annual Mean: 0.60 mg/L Single Sample Maximum: 2.0 mg/L A.A.C. R18-11-109(F)(3)	1.23 mg/L	45	N/A	RP Exists	Mixing Zone established for the annual mean. End-of-pipe limit for the annual mean of 0.85 mg/L remains in the permit. There is no dilution allowance for single sample maximum and a limit remains in the permit.
Total Phosphorus	Annual Mean: 0.12 mg/L Single Sample Maximum: 1.0 mg/L A.A.C. R18-11-109(F)(3)	0.20 mg/L	45	N/A	RP Exists	Mixing Zone established for the annual mean. End-of-pipe limit for the annual mean of 0.15 mg/L remains in the permit. There is no dilution allowance for single sample maximum and a limit remains in the permit.

Footnotes:

1. The monitoring frequencies are as specified in the permit.

### 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 B of the 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 with respect of the water from the spring for use in the facility's rearing operation.

Monitoring locations are specified in the permit (Part II.A.1 and Part IV.B) in order to ensure that representative samples of the fish hatchery process water discharge are consistently obtained. Piping from three close springs are combined in a juncture box, also known as the spring box. The spring water is split out in the box with some going through the hatchery and some bypassing the hatchery and continuing on as Canyon Creek. This spring box is the sole water source for the hatchery. However, since the hatchery is required to allow spring water to flow perennially in Canyon Creek, an open four (4) inch pipe from the spring box allows water to run continuously in the wash. The portion of the water diverted through the hatchery from the spring box is used in the process and then discharged to the Canyon Creek at the discharge point, which is Outfall 001.

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, Section 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 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.

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

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

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

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

**Mixing Zone**

A mixing zone for nitrogen and phosphorus has been granted for the duration of this permit. ADEQ evaluated the request and approved the establishment of the nitrogen and phosphorus mixing zone. The factors in the Arizona mixing zones rules listed in A.A.C. R18-11-114(D) were considered upon approving the request.

**Ambient Monitoring and Reporting**

The permittee shall monitor the flow and ambient surface water quality in Canyon Creek for total phosphorus, total nitrogen, pH and DO. Ambient monitoring shall be conducted quarterly with these events noted: drought, major winter precipitation, snow melt, summer monsoon, and fall precipitation. The downstream ambient monitoring data is required to confirm the mixing model results and to assess if the stream is negatively impacted by the nutrient loading from the hatchery.

**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 CCFH is to Canyon Creek, a perennial water currently in attainment with the Surface Water Quality Standards. This is a flow-through hatchery and the data indicate that hatchery operations have no impact on the stream integrity with the possible exception of nitrogen and phosphorus. A mixing zone for nitrogen and phosphorus and monitoring requirements have been established under the proposed permit in addition to the applicable standards listed in the rule. Field water quality measurements (pH, DO, and % plant cover on the stream bed) taken downstream of the hatchery indicate the stream is healthy and assimilating the nutrient loading from the hatchery. 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 permit and any revisions made to this draft as a result of public comments received will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.

#### XV. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality  
Water Quality Division – Surface Water Permits Unit  
Attn: Swathi Kasanneni  
1110 West Washington Street  
Phoenix, Arizona 85007

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

#### XVI. INFORMATION SOURCES

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

1. AZPDES Permit Application Form(s) 1 and 2B, received September 12, 2022, 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 October 3, 2022 and December 7, 2022.
3. ADEQ files on Canyon Creek Fish Hatchery.
4. ADEQ Geographic Information System (GIS) Web site.
5. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted December 31, 2016.
6. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
7. 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*.
8. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.
9. U.S. EPA NPDES Permit Writers' Manual, September 2010.

**APPENDIX A**

Nitrogen Mixing Zone Calculations								
Nitrogen		(Cs) Upstream - Annual Average			(Cd) Effluent - Annual Average			
N - Annual Mean Standard = 0.60 mg/L		Year	N (mg/L)	P mg/L		Year	N (mg/L)	P mg/L
Mixing Zone Solver		2022	0.29	0.04		2022	0.6	0.1
		2021	0.1	0.03		2021	0.75	0.14
QsCs + QdCd = QrCr		2020	0.09	0.03		2020	0.75	0.12
		2019	0.12	0.04		2019	0.81	0.12
Qs = Stream Flow above point of discharge		2018	0.09	0.04		2018	0.75	0.15
Cs = Background in-stream pollutant concentration		Average	0.138			Average	0.732	
Qd = Effluent Flow			0.14				0.73	
Cd = Effluent pollutant concentration		(Cr) 500 Meters Downstream - Annual Average						
Qr = Resultant in-stream flow after discharge					Year	N (mg/L)	P mg/L	
Cr = Resultant in-stream pollutant concentration (after complete mixing occurs)					2022	0.35	0.08	
					2021	0.48	0.1	
					2020	0.33	0.09	
End of Pipe Limits Calculator					2019	0.41	0.07	
Qs = Qr - Qd		4.21 mgd			2018	0.59	0.13	
Cs =		0.14 mg/L				0.432		
Qd =		2.48 mgd						
Cd =		0.73 mg/L	(Qd) Effluent Flow - Annual Average			(Qr) Downstream Flow Data		
Qr =		6.69 mgd	Year	Flow (mgd)		Year	Flow (mgd)	
Cr =		0.43 mg/L	2022	2.55		2022	13.37	
			2021	2.31		2021	5.14	
			2020	2.71		2020	4.56	
** Model calculated end-of-pipe nitrogen limit			2019	2.75		2019	7.3	
			2018	2.09		2018	3.07	
Cd = ((QrCr) - (Qs Cs))/Qd		Average	2.482			Average	6.688	
Cd = 0.93 mg/L			2.48				6.69	
					Qs = Qr - Qd			
Downstream Test					4.206			
Cr = ((QsCs) + (QdCd))/Qr					4.21			
Cr = 0.36 mg/L								

