



DRAFT PERMIT

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ADEQ Inventory No. 101363
LTF No. 63278

Permit No. AZ0000132
Place ID No. 9716

AUTHORIZATION TO DISCHARGE UNDER THE ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Article 3.1; the Federal Water Pollution Control Act, (33 USC §1251 et. seq., as amended), and Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 9 and 10, and amendments thereto,

United States Fish and Wildlife Service
Willow Beach National Fish Hatchery
25808 N. Willow Beach Road
Willow Beach, Arizona 86445

is authorized to discharge process water from the fish hatchery located 14 miles south of Hoover Dam off highway 93 in Mohave County, Arizona to the Colorado River in the Colorado River Basin at:

Outfall No.	Latitude	Longitude	Legal
001- discharge of process water back to Colorado River	35°52' 32"	114°39' 54"	Township 29 N, Range 22 W, Sections 20 & 29

in accordance with discharge limitations, monitoring requirements and other conditions set forth herein, and in the attached "Standard AZPDES Permit Conditions."

The annual registration fee for this permit is payable to ADEQ each year. For the purposes of the annual fees, this permit is a Minor permit. If the facility is not yet constructed or is incapable of discharge at this time, the permittee may be eligible for reduced fees under rule. Send all correspondence requesting reduced fees to the Water Quality Division of ADEQ. Please reference the permit number, LTF number and why reduced fees are requested under rule.

This permit shall become effective on _____, 2016.

This permit and the authorization to discharge shall expire at midnight, _____, 2021.

Signed this _____ day of _____, 2016.

Trevor Baggiore, Director
Water Quality Division
Arizona Department of Environmental Quality

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PART I. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

A. Discharge Limitations and Monitoring Requirements

The permittee shall limit and monitor discharges from Outfall 001 as specified in Table 1. These requirements are based on a maximum daily flow rate of 8.64 million gallons per day (MGD).

TABLE 1 – DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS

Parameter	Maximum Allowable Discharge Limitations				Monitoring Requirements	
	Mass Limits (1)		Concentration Limits			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monitoring Frequency	Sample Type
Discharge Flow (MGD)	---	---	REPORT (2)	REPORT (2)	Weekly	Meter
Total Suspended Solids (TSS)	330 kg/day	490 kg/day	10 mg/L	15 mg/L	Monthly	Discrete
Total Dissolved Solids (TDS) – Intake water (3)	---	---	REPORT in mg/L	REPORT in mg/L	Monthly	Discrete
Total Dissolved Solids (TDS) – Discharge (3)	---	---	REPORT in mg/L	REPORT in mg/L	Monthly	Discrete
Total Dissolved Solids (TDS) (3)	Incremental increase shall not exceed 100 mg/L.				Monthly	Discrete
pH (4)	Not less than 6.5 standard units nor greater than 9.0 standard units.				Monthly	Discrete

Footnotes:

- (1) Mass values are to be calculated and reported using the following formulas: 1) Mass in kilograms per day = 3.785 x flow in MGD x concentration in mg/L, and 2) mass in grams per day = 3.785 x flow in MGD x concentration in µg/L.
- (2) Monitoring and reporting required. No limit set at this time.
- (3) The permittee shall monitor and report both the intake water and the discharge for total dissolved solids and calculate and report the difference as the net value. The difference between the two is the "incremental increase", i.e. the increase between the intake source water and the discharge discharge. These requirements are consistent with the *Policy for Implementation of Colorado River Salinity Standards Through the NPDES Permit Program for Fish Hatcheries* as adopted by the Colorado River Basin Salinity Control Forum (2005 and 2008).
- (4) The permittee shall monitor and report the discharge for pH. The pH samples do not require use of a certified laboratory.

B. Trace Substance Monitoring

The permittee shall monitor discharges from Outfall 001 as specified in Table 2. Monitoring results above the Assessment Levels (ALs) listed below do not constitute a permit violation, but may trigger evaluation of Reasonable Potential (RP) by ADEQ. The permittee shall use an approved analytical method with a Limit of Quantitation (LOQ) lower than the AL values as described in Part II.A.4.

TABLE 2 – ASSESSMENT LEVEL MONITORING REQUIREMENTS

Parameter	Assessment Levels (1)		Monitoring Requirements	
	Average Monthly	Maximum Daily	Monitoring Frequency	Sample Type
Ammonia Impact Ratio (AIR) (3)	1		1x /every 6 months	Discrete
Ammonia (2)	Report in mg/L		1x /every 6 months	Discrete
Temperature (2)	Report in °C		1x /every 6 months	Discrete
pH (2)	Report in S.U.		1x /every 6 months	Discrete

Footnotes:

- (1) ug/L = micrograms per liter; mg/L = milligrams per liter; C = Celsius; S.U. = standard units.
- (2) The ammonia assessment level is dependent on pH and temperature. In addition to reporting the ammonia values on the DMRs the ammonia data log (Appendix B) shall also be completed including values of pH and temperature at the time the ammonia sample is taken. See Part II.B.3. Temperature and pH sampling do not require use of a certified laboratory.
- (3) The Ammonia Impact Ratio (AIR) is calculated as the ratio of the reported discharged water ammonia concentration and the calculated ammonia standard as determined by comparing concurrent measurement of the discharged water pH and temperature with the values in the ammonia criteria table in Appendix B. In addition to reporting the AIRs on the DMRs, the ammonia data log in Appendix B shall also be completed. See Part II.B of the permit.

C. The discharge shall be free from pollutants in amounts or combinations that:

1. Settle to form bottom deposits that inhibit or prohibit the habitation, growth or propagation of aquatic life;
2. Cause objectionable odor in the area in which the surface water is located;
3. Cause off-taste or odor in drinking water;
4. Cause off-flavor in aquatic organisms;
5. Are toxic to humans, animals, plants or other organisms;
6. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth or propagation of other aquatic life or that impair recreational uses;
7. Change the color of the surface water from natural background levels of color.

D. The discharge shall be free from oil, grease and other pollutants that float as debris, foam, or scum; or that cause a film or iridescent appearance on the surface of the water; or that cause a deposit on a shoreline, bank or aquatic vegetation.

E. The discharge shall not cause an increase in the ambient water temperature of more than 1.0 degrees Celsius.

- F. The discharge shall not cause the dissolved oxygen concentration in the receiving water to fall below 7 mg/L unless the percent saturation of oxygen remains equal to or greater than 90%.
- G. The discharge shall not cause the receiving water to exceed 25 mg/L for suspended sediment concentration.
- H. Samples taken for the monitoring requirements shall be collected at the following locations:
 - 1. Intake monitoring for parameters shall be taken after the intake water from the Colorado River comes onto the station but before contact with any hatchery fish, and prior to the use or addition of any materials.
 - 2. Discharge samples for parameters shall be taken at Outfall 001 to the Colorado River.

PART II. MONITORING AND REPORTING

A. Sample Collection and Analysis

- 1. The permittee is responsible for the quality and accuracy of all data required under this permit.
- 2. Quality Assurance (QA) Manual

The permittee shall keep a QA Manual on site that describes the sample collection and analyses processes. If the permittee collects samples or conducts sample analyses in house, the permittee shall develop a QA Manual that addresses these activities. If a third party collects and/or analyzes samples on behalf of the permittee, the permittee shall obtain a copy of the applicable QA procedures. The QA Manual shall be available for review by ADEQ upon request. The QA Manual shall be updated as necessary to reflect current conditions, and shall describe the following:

- a. Project Management, including:
 - Purpose of sample collection and sample frequency;
 - When and where samples will be collected;
 - How samples will be collected;
 - Who will collect samples and their qualifications;
 - Laboratory(s) that will perform analyses;
 - Any field tests to be conducted (detail methods and specify equipment, including a description of any needed calibrations); and
 - Pollutants or analytes being measured and for each, the permit-specific limits, Assessment Levels, or thresholds, (e.g. the associated detection limits needed.)
- b. Sample collection procedures including
 - Equipment to be used;
 - Type and number of samples to be collected including QA/QC samples (i.e., background samples, duplicates, and equipment or field blanks);
 - Types, sizes, and number of sample bottles needed;

- Preservatives and holding times for the samples (see methods under 40 CFR 136 or 9 A.A.C. 14, Article 6 or any condition within this permit that specifies a particular test method); and
 - Chain of custody procedures.
- c. Specify approved analytical method(s) to be used and include;
- Limits of Detection (LOD) and Limits of Quantitation (LOQs);
 - Required quality control (QC) results to be reported (e.g., matrix spike recoveries, duplicate relative percent differences, blank contamination, laboratory control sample recoveries, surrogate spike recoveries, etc.) and acceptance criteria; and
 - Corrective actions to be taken by the permittee or the laboratory as a result of problems identified during QC checks.
- d. How the permittee will perform data review; complete DMRs and records used to report results to ADEQ; resolve data quality issues; and identify limitations on the use of the data.
3. Sample collection, preservation and handling shall be performed as described in 40 CFR 136 including the referenced Edition of *Standard Methods for the Examination of Water and Wastewater*, or by procedures referenced in A.R.S Title 9, Chapter 14 of the Arizona Department of Health Services (ADHS) Laboratory Licensure rules. The permittee shall outline the proper procedures in the QA Manual, and samples taken for this permit must conform with these procedures whether collection and handling is performed directly by the permittee or contracted to a third-party.
4. Analytical requirements
- a. The permittee shall use a laboratory licensed by the ADHS Office of Laboratory Licensure and Certification that has demonstrated proficiency within the last 12 months under R9-14-609, for each parameter to be sampled under this permit. However, this requirement does not apply to parameters which require analysis at the time of sample collection as long as the testing methods used are approved by ADHS or ADEQ in accordance with A.R.S. 36-495.02(A)(3). (These parameters may include flow, dissolved oxygen, pH, temperature, and total residual chlorine.)
- b. The permittee must utilize analytical methods specified in this permit. If no test procedure is specified, the permittee shall analyze the pollutant using:
- i. A test procedure listed in 40 CFR 136 which is also approved under A.A.C. R9-14-610;
 - ii. An alternative test procedure approved by EPA as provided in 40 CFR 136 and which is also approved under A.A.C. R9-14-610;
 - iii. A test procedure listed in 40 CFR 136, with modifications allowed by EPA or approved as a method alteration by ADHS under A.A.C. R9-14-610(C); or
 - iv. If no test procedure for a pollutant is available under (3)(b)(i) through (3)(b)(iii) above, any Method approved under A.A.C. R9-14-610(B) for wastewater may be used, except the use of field kits is not allowed unless otherwise specified in this permit. If there is no approved wastewater method for a parameter, any other method

identified in 9 A.A.C. 14, Article 6 that will achieve appropriate detection and reporting limits may be used for analyses.

- c. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods.
- d. The permittee shall use analytical methods with a Limit of Quantitation (LOQ) that is lower than the discharge limitations, Assessment Levels, Action Levels, or other water quality criteria, if any, specified in this permit. If all methods have LOQs higher than the applicable water quality criteria, the Permittee shall use the approved analytical method with the lowest LOQ.
- e. The permittee shall use a standard calibration curve when applicable to the method, where the lowest standard point is equal to or less than the LOQ.
- f. If requested, the permittee shall participate in the annual NPDES DMR/QA study and submit the results of this study to ADEQ and ADHS for all laboratories used in monitoring compliance with this permit.

B. Reporting of Monitoring Results

1. The permittee shall report monitoring results on Discharge Monitoring Report (DMR) forms supplied by ADEQ, to the extent that the results may be entered on the forms. The permittee shall submit results of all monitoring required by this permit in a format that will allow direct comparison with the limitations and requirements of this permit. If no discharge occurs during a reporting period, the permittee shall specify "No discharge" on the DMR. The results of all discharge analyses conducted during the monitoring period shall be included in calculations of the monthly average and daily maximums reported on the DMRs if the analyses were by methods specified in Part II.A above.
2. DMRs and attachments are to be submitted (see Appendix A- definitions) by the 28th day of the month following the end of a monitoring period. For example, if the monitoring period ends January 31st, the permittee shall submit the DMR by February 28th. The permittee shall submit original copies of these and all other reports required in this Part, signed by an authorized representative, to the address or fax number listed below or by any other alternative mode of submittal specified by ADEQ.

Arizona Department of Environmental Quality
Data Unit, Water Quality Compliance Section
1110 W. Washington St.
Phoenix, AZ 85007
Fax: 602-771-4505

For each month, the permittee shall complete and submit a copy of the DMR for that month, along with copies of the original lab results for all parameters monitored during the reporting period.

3. When sampling the discharge for ammonia, the pH and temperature of the discharge water must be recorded at the time of sample collection. Results for all three parameters as well as the applicable ammonia standard and the calculated Ammonia Impact Ratio shall be recorded on

the **Ammonia Data Log** provided in Appendix B. The discharge ammonia concentrations, discharge water pH and temperature, and calculated ammonia impact ratio shall also be recorded on DMRs. The ammonia data log shall be submitted to ADEQ annually to the address information listed in Part II.B.2, above.

- If requested to participate, the permittee shall submit the results of the annual NPDES DMR/QA Study to ADEQ and ADHS for all laboratories used in monitoring compliance with this permit by December 31st of each year. The permittee shall also conduct any proficiency testing required by the NPDES DMR-QA Study for those parameters listed in the study that the permittee analyzes in house or tests in the field at the time of sampling (these parameters may include pH and total residual chlorine). All results of the NPDES DMR-QA Study shall be submitted to address listed below, or submit by any other alternative mode of submittal specified by ADEQ:

Arizona Department of Environmental Quality
 AZPDES Individual Permits Unit, Mailcode: 5415B-3
 1110 W. Washington St.
 Phoenix, AZ 85007

Arizona Department of Health Services
 Attn: Office of Laboratory Licensure and
 Certification
 250 N 17th Avenue
 Phoenix, AZ 85007

- For the purposes of reporting, the permittee shall use the Limit of Quantitation.
- For parameters with Daily Maximum Limits or Daily Maximum Assessment Levels in this permit, the permittee shall review the results of all samples collected during the reporting period and report as follows:

For Daily Maximum Limits/Assessment Levels	The Permittee shall Report on the DMR
When the maximum value of any analytical result is greater than or equal to the LOQ	The maximum value of all analytical results
When the maximum value detected is greater than or equal to the laboratory's LOD but less than the LOQ (1)	The numeric result with E4 flag as applicable (AZ qualifier)
When the maximum value is less than the laboratory's LOD (2)	"< LOD" with E8 flag as applicable (AZ qualifier) (specify the LOD level, i.e., < 10 µg/L)

Footnotes:

- Not Quantifiable
- Below Detection

- For parameters with Monthly Average Limits or Monthly Average Assessment Levels in this permit, the permittee shall review the results of all samples collected during the reporting period and report:

For Monthly Average Limits/Assessment Levels		The Permittee shall Report on the DMR
If only one sample is collected during the reporting period (monthly, quarterly, annually, etc.) (In this case, the sample result is the	When the value detected is greater than or equal to the LOQ	The analytical result
	When the value detected is greater than or equal to the laboratory's LOD, but less than the LOQ	The numeric result with E4 flag as applicable (AZ qualifier)

For Monthly Average Limits/Assessment Levels		The Permittee shall Report on the DMR
monthly average.)	When the value is less than the laboratory's LOD	"< LOD" with E8 flag as applicable (AZ qualifier) (specify the LOD level, i.e., < 10 µg/L)
If more than one sample is collected during the reporting period	All samples collected in the same calendar month must be averaged. § When all results are greater than or equal to the LOQ, all values are averaged § If some results are < LOQ, use the LOD value in the averaging § Use '0' for values less than the LOD	The highest monthly average which occurred during the reporting period

8. For all field testing, or if the information below is not included on the laboratory reports required by Part II.B.2, the permittee shall attach a bench sheet or similar documentation to each DMR that includes, for all analytical results during the reporting period:
- a. The analytical result.
 - b. The number or title of the approved analytical method, preparation and analytical procedure utilized by the laboratory, and LOD and the LOQ for the analytical method for the pollutant.
 - c. any applicable data qualifiers using the most current revision of the Arizona Data Qualifiers (available on line at <http://www.azdhs.gov/lab/license/resources/resources.htm>).

C. Twenty-four Hour Reporting of Noncompliance

The permittee shall orally report any noncompliance which may endanger the environment or human health within 24 hours from the time the permittee becomes aware of the event to:

ADEQ 24 hour hotline at (602) 771-2330

by phone call or voice mail by 9 a.m. on the first business day following the noncompliance. The permittee shall also notify the ADEQ Water Quality Compliance Section in writing within 5 days of the noncompliance event. The permittee shall include in the written notification: a description of the noncompliance and its cause; the period of noncompliance, including dates and times, and, if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

D. Monitoring Records

The permittee shall retain records of the following monitoring information:

1. Date, exact location and time of sampling or measurements performed, preservatives used;
2. Individual(s) who performed the sampling or measurements;

3. Date(s) the analyses were performed;
4. Laboratory(s) which performed the analyses;
5. Analytical techniques or methods used;
6. Chain of custody forms;
7. Any comments, case narrative or summary of results produced by the laboratory. These comments should identify and discuss QA/QC analyses performed concurrently during sample analyses and should specify whether analyses met project requirements and 40 CFR 136. If results include information on initial and continuing calibration, surrogate analyses, blanks, duplicates, laboratory control samples, matrix spike and matrix spike duplicate results, sample receipt condition, or holding times and preservation, these records must also be retained.
8. Summary of data interpretation and any corrective action taken by the permittee.

PART III. BIOSOLIDS/ SEWAGE SLUDGE REQUIREMENTS

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

PART IV. SPECIAL CONDITIONS

A. Special Reporting

The permittee shall perform the following activities and submit an annual progress report to ADEQ by January 31st of each year which shall include the following:

1. Solids control. The permittee must:
 - a. Employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth in order to minimize potential discharges of uneaten feed and waste products to waters of the U.S.
 - b. In order to minimize the discharge of accumulated solids from settling ponds and basins and production systems, identify and implement procedures for routine cleaning of rearing units and off-line settling basins, and procedures to minimize any discharge of accumulated solids during the inventorying, grading and harvesting aquatic animals in the production system.
 - c. Remove and dispose of aquatic animal mortalities properly on a regular basis to prevent discharge to waters of the U.S., except in cases where the permitting authority authorizes such discharge in order to benefit the aquatic environment.

2. Materials storage. The permittee must:
 - a. Insure proper storage of drugs, pesticides, and feed in a manner designed to prevent spills that may result in the discharge of drugs, pesticides or feed to waters of the U.S.
 - b. Implement procedures for properly containing, cleaning, and disposing of any spilled material.
3. Structural maintenance. The permittee must:
 - a. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
 - b. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.
4. Recordkeeping. The permittee must:
 - a. In order to calculate representative feed conversion ratios, maintain records for aquatic animal rearing units documenting the feed amounts and estimates of the numbers and weight of aquatic animals.
 - b. Keep records documenting the frequency of cleaning, inspections, maintenance and repairs.
5. Training. The permittee must:
 - a. In order to ensure the proper clean-up and disposal of spilled material adequately train all relevant facility personnel in spill prevention and how to respond in the event of a spill.
 - b. Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment.
6. Chemical Usage. The permittee must:
 - a. Submit annually by January 31st each year a list of all chemicals added to water in the fish hatchery during the preceding year.
 - b. 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.

7. Send this report to the following address:

Arizona Department of Environmental Quality
AZPDES Individual Permits Unit, Mailcode: 5415B-3
1110 W. Washington St.
Phoenix, AZ 85007

NOTE: It is not the same address as for the DMR submittals.

B. Reopener

This permit may be modified per the provisions of A.A.C. R18-9-B906, and R18-9-A905 which incorporates 40 CFR Part 122. This permit may be reopened based on newly available information; to add conditions or limits to address demonstrated discharge 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.

APPENDIX A PART A: ACRONYMS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
EQ	Exceptional Quality (biosolids)
AZPDES	Arizona Pollutant Discharge Elimination System
A.R.S.	Arizona Revised Statutes
CFR	Code of Federal Regulations
CFU	Colony Forming Units
Director	The Director of ADEQ or any authorized representative thereof
DMR	Discharge Monitoring Report
EPA	The U.S. Environmental Protection Agency
kg/day	kilograms per day
MGD	Million Gallons per Day
mg/L	milligrams per Liter, also equal to parts per million (ppm)
MPN	Most Probable Number
NPDES	National Pollutant Discharge Elimination System
PFU	Plaque-Forming Unit
QA	Quality Assurance
SSU	Sewage Sludge Unit
ug/L	micrograms per Liter, also equal to parts per billion (ppb)

APPENDIX A PART B: DEFINITIONS

AMMONIA IMPACT RATIO (AIR) is the ratio of the concentration of ammonia in the discharge and the calculated ammonia standard as determined by the use of discharge water pH and temperature.

COMPOSITE SAMPLE means a sample that is formed by combining a series of individual, discrete samples of specific volumes at specified intervals. Composite samples characterize the quality of a discharge over a given period of time. Although, composite samples can be time-weighted or flow-weighted, this permit requires the collection of flow-proportional composite samples. This means that samples are collected and combined using aliquots in proportion to flow rather than time. Also see Flow-Proportional Composite.

DAILY MAXIMUM CONCENTRATION LIMIT means the maximum allowable discharge of a pollutant in a calendar day as measured on any single discrete sample or composite sample.

DAILY MAXIMUM MASS LIMIT means the maximum allowable total mass of a pollutant discharged in a calendar day.

DISCRETE or GRAB SAMPLE means an individual **sample of at least 100 mL** collected from a single location, or over a period of time not exceeding 15 minutes.

HARDNESS means the sum of the calcium and magnesium concentrations, expressed as calcium carbonate (CaCO₃) in milligrams per liter.

LIMIT OF QUANTITATION (LOQ) means the minimum levels, concentrations, or quantities of a target variable such as an analyte that can be reported with a specific degree of confidence. The calibration point shall be at or below the LOQ. The LOQ is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all of the method-specified sample weights, volumes, and processing steps have been followed.

LIMIT OF DETECTION (LOD) means an analyte and matrix-specific estimate of the minimum amount of a substance that the analytical process can reliably detect with a 99% confidence level. This may be laboratory dependent and is developed according to R9014-615(C)(7).

METHOD DETECTION LIMIT (MDL) - See LOD.

MIXING ZONE is an area where an discharge discharge undergoes initial dilution and may be extended to cover the secondary mixing in the ambient waterbody. A mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as acutely toxic conditions are prevented.

MONTHLY OR WEEKLY AVERAGE CONCENTRATION LIMIT, other than for bacteriological testing, means the highest allowable average calculated as an arithmetic mean of consecutive measurements made during calendar month or week, respectively. The "monthly or weekly average concentration limit" for *E. coli* bacteria means the highest allowable average calculated as the geometric mean of a minimum of four (4) measurements made during a calendar month or week, respectively. The geometric mean is the nth root of the product of n numbers. For either method (CFU or MPN), when data are reported as "0" or non-detect then input a "1" into the calculation for the geometric mean.

MONTHLY OR WEEKLY AVERAGE MASS LIMITATION means the highest allowable value that shall be obtained by taking the total mass discharged during a calendar month or week, respectively, divided by the number of days in the period that the facility was discharging. Where less than daily sampling is required by this permit, the monthly or weekly average value shall be determined by the summation of all the measured discharges by mass divided by the number of days during the month or week, respectively, when the measurements were made.

SIGNIFICANT DIFFERENCE is defined as statistically significant difference (e.g., 95% confidence level) in the means of two distributions of sampling results.

SOURCE WATER is defined as untreated water from streams, rivers, lakes or underground aquifers that is used to provide public drinking water as well as to supply private wells used for human consumption.

SUBMIT, as used in this permit, means post-marked, documented by other mailing receipt, or hand-delivered to ADEQ.

APPENDIX B - AMMONIA SPECIAL REPORTING REQUIREMENTS

The Arizona Administrative Code, Title 18, Chapter 11 Department of Environmental Quality Water Quality Standards contains acute and chronic ammonia standards that are contingent upon temperature and/or pH values. The chronic criteria are more stringent than the acute ammonia criteria, so the discharge ammonia will be compared to the chronic ammonia standards. The table for chronic Aquatic and Wildlife designated uses follows below. The permittee shall refer to this table to determine the ammonia standard that applies each time an ammonia sample is taken. The required minimum discharge sampling frequency for these parameters may be found in Table 1 or 2 of this permit. The permittee shall record all sampling results for discharge ammonia, discharge water pH and temperature at the time of sampling, as well as the applicable ammonia standards, ammonia impact ratios, and sampling dates in the Ammonia Data Log. Additionally, the ammonia impact ratio shall be calculated by dividing the ammonia value by the corresponding ammonia standard. Anytime an ammonia impact ratio is found to be above the limit of 1.0 for the pH and temperature at the time the sample was taken, the permittee shall highlight this on the ammonia data log. These results shall also be reported on DMRs with any exceedances noted. Annual submittal of the ammonia data log is required (See Part II.B.3)

A&W Designated Uses

<u>Determination of Chronic Total Ammonia Criteria as N in mg / L</u>										
<u>Based on pH and Temperature at Time of Sampling (1) (2)</u>										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.5	3.07	2.7	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.3	3.78	3.32	2.92	2.57	2.25
7	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.5	3.08	2.7	2.38	2.09
7.2	5.39	5.39	4.9	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.3	3.78	3.33	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.9	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.5	1.32

<u>Determination of Chronic Total Ammonia Criteria as N in mg / L</u>										
<u>Based on pH and Temperature at Time of Sampling (1) (2)</u>										
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.8	2.8	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.1	2.1	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.7	0.615	0.541	0.475
8.5	1.09	1.09	0.99	0.87	0.765	0.672	0.591	0.52	0.457	0.401
8.6	0.92	0.92	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.48	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9	0.486	0.486	0.442	0.389	0.342	0.3	0.264	0.232	0.204	0.179

Footnotes:

- (1) pH and temperature are field measurements taken at the same time and location as the water samples destined for the laboratory analysis of ammonia.
- (2) If field measured pH and/or temperature values fall between the Chronic Total Ammonia tabular values, round field measured values according to standard scientific rounding procedures to nearest tabular value to determine the ammonia standard.