ADEQ Arizona Department of Environmental Quality

DRAFT PERMIT

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ADEQ Inventory No. 104147
LTF No. 62982

Permit No. AZ0024341
Place ID No. 21715

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,

Salt River Project
Salt River Valley Water Users' Association Groundwater Wells
P.O. Box 52025, Mailstop PAB 352
Phoenix, AZ 85072-2025

is authorized to discharge untreated groundwater from specified wells located in the Salt River Valley to the South Canal, Arizona Canal, Grand Canal, Tempe Canal, Consolidated Canal, Eastern Canal, Western Canal and other laterals of the Salt River Project water delivery system in the Salt River Basin.

Outfall No.	Latitude	Longitude	Legal
Approximately 294 Wells	See Appendices B and C	See Appendices B and C	See Appendices B and C

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

Annual Registration Fee [A.R.S. 49-255.01 and A.A.C. R18-14-104]
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
Department of Environmental Quality

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PART I. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

A. The permittee shall limit and monitor discharges from outfalls identified in Appendix B as specified in Table 1 which follows.

TABLE 1: Discharge Limitations and Monitoring Requirements for Outfalls above WTPs

Parameter	Monitoring Requirement (1)		
	Concentration Limits (2) Daily Maximum	Monitoring Frequency for Outfalls identified in Appendix B	Sample Type
Dibromochloropropane (DBCP) (3)	0.2 ug/L	2x /year	Discrete
Tetrachloroethylene (PCE)	5 ug/L	2x /year	Discrete
Arsenic (As) (4)	10 ug/L	2x /year	Discrete
Boron (B) (5)	1000 ug/L	2x /year	Discrete
Chromium (Cr) (Total)	100 ug/L	2x /year	Discrete
Chromium VI (Cr VI) (6)	21 ug/L	2x /year	Discrete
Lead (Pb) (6)	15 ug/L	2x /year	Discrete
Nitrate (NO3) (7)	10 mg/L	2x /year	Discrete
Fluoride	4 mg/L	2x /year	Discrete

Footnotes:
(1) See Appendix B for specific outfalls with limits and required monitoring.
(2) All metals limits are for total recoverable metals, except for chromium VI which is dissolved.
(3) A mixing zone has been granted for DBCP. See Part III.B. Analyze using SDWA Method 504.1.
(4) A mixing zone has been granted for arsenic and special conditions are included. See Part III.B.
(5) A mixing zone has been granted for boron. See Part III.B.
(6) A mixing zone has been granted for chromium VI and lead but special mixing conditions apply. See Part III.B.
(7) A mixing zone has been granted for nitrate and Best Management Practices are included to assure mixing zone conditions are met. See Part III.A .

B. The permittee shall limit and monitor discharges from outfalls identified in Appendix C as specified in Table 1A which follows.

TABLE 1A: Discharge Limitations and Monitoring Requirements for Outfalls below WTPs

Parameter	Monitoring Requirement (1)		
	Concentration Limits (2) Daily Maximum	Monitoring Frequency for Outfalls identified in Appendix C	Sample Type
Boron (B)	1000 ug/L	2x /year	Discrete
Selenium (Se)	20 ug/L	2x /year	Discrete

Footnotes:
(1) See Appendix C for specific outfalls with limits and required monitoring.
(2) All metals limits are for total recoverable metals.

C. The permittee shall limit and monitor discharges as specified in Table 2 for the wells specified in Table 2A which follow.

TABLE 2: Discharge Limitations and Monitoring Requirements for Wells in TMDL Project Area (1)

Parameter	Maximum Allowable Interim Discharge Limitations (1) (2)	Monitoring Requirement	
	Concentration Limits		
	Daily Maximum	Monitoring Frequency	Sample Type
Boron	1000 µg/L	1x /year	Discrete
Selenium	10 µg/L	1x /year	Discrete

Footnotes:
(1) Values are based on the Gila River Total Maximum Daily Limit (TMDL) Study for Selenium and Boron dated December 23, 2015.
(2) All data shall be reported in the annual report or submitted by any other alternative mode as specified by ADEQ.

TABLE 2A: Wells in TMDL Project Area (1)

00.0E-05.5N	04.0E-04.2N
00.4W-03.3N	03.0E-01.0N
01.0E-06.0N	03.0E-02.3N
02.0E-04.9N	03.0E-04.0N
02.3E-01.3N	03.5E-06.0N
04.0E-05.0N	

Footnote:
(1) Note that these wells are not listed in Appendices B and C.

D. New Well Discharge Characterization Testing

The permittee shall monitor all new wells in Appendices B and C after they are added and when they are discharging for the parameters listed in Tables 3.a – c to obtain 8 data points. This monitoring is required for water quality assessment. No limits or ALs are established, but the LOQ must be low enough to allow comparison of the results to the applicable surface water quality standards (SWQS). If a LOQ below the SWQS cannot be achieved, then the permittee shall use the method expected to achieve the lowest LOQ, as defined in Appendix A of this permit. See also Part III. F below.

TABLE 3.a: Additional Water Quality Assessment Testing

Parameter	Reporting Units	Monitoring Requirements	
		Monitoring Frequency (1)	Sample Type
Antimony	µg/L	1x/ 3 months	Discrete
Arsenic	µg/L	1x/ 3 months	Discrete
Beryllium	µg/L	1x/ 3 months	Discrete
Cadmium	µg/L	1x/ 3 months	Discrete

TABLE 3.a: Additional Water Quality Assessment Testing

Parameter	Reporting Units	Monitoring Requirements	
		Monitoring Frequency (1)	Sample Type
Chromium (Total)	µg/L	1x/ 3 months	Discrete
Chromium VI	µg/L	1x/ 3 months	Discrete
Copper	µg/L	1x/ 3 months	Discrete
Lead	µg/L	1x/ 3 months	Discrete
Mercury	µg/L	1x/ 3 months	Discrete
Nitrate	µg/L	1x/ 3 months	Discrete
Nickel	µg/L	1x/ 3 months	Discrete
pH	s.u.	1x/ 3 months	Discrete
Selenium	µg/L	1x/ 3 months	Discrete
Silver	µg/L	1x/ 3 months	Discrete
Thallium	µg/L	1x/ 3 months	Discrete
Zinc	µg/L	1x/ 3 months	Discrete

Footnote:
(1) Sample all new wells in Appendices B and C after they are added and when they are discharging for the parameters listed in Table 3.a in order to obtain 8 data points.

TABLE 3.b: Additional Water Quality Assessment Testing
Selected Volatile Organic Compounds

Parameter	Reporting Units	Monitoring Requirements	
		Monitoring Frequency	Sample Type
Acrolein	µg/L	1x/ 3 months	Discrete
Acrylonitrile	µg/L	1x/ 3 months	Discrete
Benzene	µg/L	1x/ 3 months	Discrete
Bromoform	µg/L	1x/ 3 months	Discrete
Carbon tetrachloride	µg/L	1x/ 3 months	Discrete
Chlorobenzene	µg/L	1x/ 3 months	Discrete
Chlorodibromomethane	µg/L	1x/ 3 months	Discrete
Chloroethane	µg/L	1x/ 3 months	Discrete
2-chloroethylvinyl ether	µg/L	1x/ 3 months	Discrete
Chloroform	µg/L	1x/ 3 months	Discrete
Dichlorobromomethane	µg/L	1x/ 3 months	Discrete
1,1-dichloroethane	µg/L	1x/ 3 months	Discrete
1,2-dichloroethane	µg/L	1x/ 3 months	Discrete
Trans-1,2-dichloroethylene	µg/L	1x/ 3 months	Discrete
1,1-dichloroethylene	µg/L	1x/ 3 months	Discrete
1,2-dichloropropane	µg/L	1x/ 3 months	Discrete
1,3-dichloropropylene	µg/L	1x/ 3 months	Discrete

Ethylbenzene	µg/L	1x/ 3 months	Discrete
Methyl bromide	µg/L	1x/ 3 months	Discrete
Methyl chloride	µg/L	1x/ 3 months	Discrete
Methylene chloride	µg/L	1x/ 3 months	Discrete
1,1,2,2-tetrachloroethane	µg/L	1x/ 3 months	Discrete
Tetrachloroethylene (PCE)	µg/L	1x/ 3 months	Discrete
Toluene	µg/L	1x/ 3 months	Discrete
1,1,1-trichloroethane	µg/L	1x/ 3 months	Discrete
1,1,2-trichloroethane	µg/L	1x/ 3 months	Discrete
Trichloroethylene (TCE)	µg/L	1x/ 3 months	Discrete
Vinyl chloride	µg/L	1x/ 3 months	Discrete

Footnote:
(1) Sample all new wells in Appendices B and C after they are added and when they are discharging for the parameters listed in Table 3.b in order to obtain 8 data points.

TABLE 3.c: Additional Water Quality Assessment Testing Based on Designated Uses

Additional Parameters from the Arizona Surface Water Quality Standards, Appendix A: Tables 1 & 2

Parameter	Reporting Units	Monitoring Requirements (1)	
		Monitoring Frequency	Sample Type
1,2-Dibromo-3-chloropropane (DBCP) (2)	µg/L	1x/ 3 months	Discrete
1,2-Dibromoethane (EDB) (2) Ethylene dibromide	µg/L	1x/ 3 months	Discrete
Fluoride	µg/L	1x/ 3 months	Discrete
Total Trihalomethanes	µg/L	1x/ 3 months	Discrete

Footnote:
(1) Sample all new wells in Appendices B and C after they are added and when they are discharging for the parameters listed in Table 3.c in order to obtain 8 data points.
(2) Analyze using SDWA Method 504.1.

E. 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.

F. 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. In accordance with A.A.C. R18-11-117.B, the discharge of lubricating oil that is associated with the start-up of well pumps is not a violation of this provision.

G. Samples taken in compliance with the monitoring requirements specified above shall be taken at the point of discharge after the last treatment process, if applicable, and prior to entering the canal or lateral. The exceptions are arsenic, boron, DBCP, nitrate, chromium VI and lead which have the point of compliance at the water treatment plant (WTP) intake. Additional monitoring is required for well discharges subject to mixing zone and/or best management requirements (See Part III).

H. Samples taken in compliance with the monitoring requirements specified above shall be taken as frequently as specified when wells are discharging.

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 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. <u>Analytical requirements</u>

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 A.A.C. 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, including those tests conducted by the permittee at the time of sampling (see Part II.A.4.a), 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.

5. Monitoring for DBCP and EDB shall be analyzed using SDWA Method 504.1 or 524.3.

6. Metals Analyses

In accordance with 40 CFR 122.45(c), all discharge metals concentrations with the exception of chromium VI, shall be measured as "total recoverable metals". Discharge Limits and Assessment Levels, if any, in this permit are for total metals, except for chromium VI for which the levels listed are dissolved.

B. Reporting of Monitoring Results

1. The permittee shall report all monitoring results from monitoring conducted for each calendar year of the permit in an annual report. The annual report shall contain the results of all monitoring required by this permit in a format that will allow direct comparison with the limitations and requirements of this permit.

2. The permittee shall submit the annual report by February 28th of the year following the year the monitoring was conducted. The permittee shall submit original copies of these and all other reports required herein, signed by an authorized representative, to ADEQ at the following addresses or submit by any other alternative mode as specified by ADEQ.

ADEQ Water Quality Compliance Section
Data Unit Mailcode: 5415B-1
1110 W. Washington St.
Phoenix, AZ 85007

ADEQ Water Quality Division
AZPDES Individual Permits Unit, Mail Code: 5415B-3
1110 W. Washington St.
Phoenix, AZ 85007

3. 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 the following addresses or submit by any other alternative mode as 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

4. For the purposes of reporting, the permittee shall use the Limit of Quantitation.

5. For parameters with Daily Maximum Limits 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
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:
(1) Not Quantifiable
(2) Below Detection

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

For Monthly Average Limits		The Permittee shall Report
If only one sample is collected during the reporting period (monthly, quarterly, annually, etc.) (In this case, the sample result **is** the monthly average.)	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)
	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 less than the 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

7. If the information below is not included on the laboratory reports required in Part II.B.1, the permittee shall attach a report 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 report any noncompliance which may endanger the environment or human health orally 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 Water Quality Compliance Section in writing within 5 days of the noncompliance event. The permittee shall include in the 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 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. The summary of results must include information on initial and continuing calibration, surrogate analyses, blanks, duplicates, laboratory control samples, matrix spike and matrix spike duplicate results, sample receipt condition, holding times and preservation.

8. Summary of data interpretation and any corrective action taken by the permittee.

PART III. SPECIAL CONDITIONS

A. BEST MANAGEMENT PRACTICES

1. Discharge of Nitrates upstream of water treatment plants (WTPs)

   a. Instream Nitrate Monitoring

      i. Nitrate monitoring will be conducted at all WTP intakes.

      ii. Nitrate sensors will be installed upstream of the Gilbert and Chandler WTP intakes where the nitrate concentration is found to exceed 7 mg/l as N.

      iii. Sensors installed in accordance with Part III.A.1.a.ii above shall be monitored via the Supervisory Control and Data Acquisition system (SCADA) at SRP's central operating center. The sensors shall be equipped with alarms that signal when nitrate concentrations in the canal reach 7 mg/l as N. The sensors shall be routinely calibrated and maintained according to the manufacturer's procedures. Door alarms or other security measures shall be provided on the remote sensor cabinets to provide protection against tampering.

   b. Well Operation and Scheduling for High Nitrate Wells

      When nitrate concentrations are less than 7 mg/l at any of the above sensors, SRP shall operate wells with the lowest nitrate concentrations first and turn on higher nitrate wells as demand for ground water increases. Higher nitrate wells may be operated out of sequence to meet operational needs to stabilize canal flows and accommodate short-time changes in water demand provided that daily average nitrate concentrations at WTP intakes do not exceed 9 mg/l unless otherwise provided for in this permit.

   c. Response Actions at Specified Nitrate Levels

      The following actions shall be taken whenever sensor readings above WTP intakes exceed the specified nitrate concentrations:

      i. 7 mg/L

         - Turn off all wells upstream of the WTP(s) that are discharging nitrate at concentrations greater than 15 mg/L nitrate, unless there is an agreement with the affected WTP to continue discharging;

         - Immediately contact the WTP operator(s) to confirm that nitrate concentrations at WTP intakes are 7 mg/L or greater;

         - Review any recent changes in well operations;

- Dispatch field personnel to conduct a visual inspection of potential nitrate sources into the canal upstream of WTP intakes and to confirm accuracy of sensor readings;

- Monitor sensor readings every 30 minutes until nitrate concentrations decrease or increase to next response level.

ii. 8 mg/L

- Continue communications with WTP operators;

- Turn off all wells upstream of the WTP that are discharging nitrate at concentrations greater than 10 mg/L, unless there is an agreement with the affected WTP to continue discharging;

- Continue field inspections;

- If field test analyses indicate that nitrate concentrations at the intake of the WTP are less than 8 mg/L the sensor shall be recalibrated and no subsequent field analysis is required;

- If the field analyses confirm that nitrate concentrations at the intake to a WTP are 8 mg/L or higher, continue daily field test analyses at the WTP intake. Daily field tests shall continue until concentrations at the WTP intake are less than 8 mg/L.

iii. 9 mg/L

- Turn off all wells upstream of the WTP that are discharging nitrate at concentrations greater than 10 mg/L

- Work with WTP operators to achieve their operating plans for nitrates;

- Continue field inspections;

- Collect and analyze (i.e. field tests or laboratory analyses) samples from wells and canals to assist in determining the source of the higher than anticipated nitrate levels; and

- Collect and analyze daily grab samples from WTP intakes when nitrate concentrations in canals upstream of WTPs until lab analyses indicate that canal concentrations have decreased to less than 8 mg/L.

2. Discharge from wells containing TCE or PCE

a. Well water shall not be discharged into canals or laterals upstream of WTPs if the concentrations of TCE or PCE at the point of discharge exceed the corresponding domestic water source (DWS) water quality standard or if the quality of the water at the point of discharge is not known, except as provided in b and c below.

b. Wells with water containing TCE or PCE at concentrations exceeding the corresponding DWS water quality standard at the point of discharge or with water of unknown quality at the point of discharge shall be operated only for the purposes of well purging, water quality testing, or capacity testing (in accordance with Section E).

c. Well water containing TCE or PCE at concentrations exceeding the corresponding DWS water quality standard at the point of discharge may be discharged to laterals above WTPs if the discharge is used only for agricultural purposes.

3. Ambient Canal Monitoring

SRP shall collect monthly samples upstream of WTP intakes to analyze for arsenic, boron, chromium (total), chromium VI, DBCP, lead, nitrates, PCE, and TCE.

B. MIXING ZONE CONDITIONS

1. Upstream of WTPs

A mixing zone has been granted in the canals and laterals for discharges from wells with nitrate, boron, DBCP, arsenic, chromium VI, and/or lead concentrations above the respective standard.

Recognizing the unique character of the SRP canal system with multiple well discharge locations of highly variable quality and duration, individual mixing zones for arsenic (except as allowed in Part B.4), nitrates, chromium VI, lead, and DBCP have been approved following dilution of well discharges with canal flows. In many locations, the distance between individual well sites will result in the overlap of the allowable 500 meter mixing zones. Therefore, the point of compliance for the DWS arsenic, nitrate, and DBCP limitation on each canal shall be in the canal immediately upstream of WTP intake(s).

2. The AgI standard for boron shall apply prior to any delivery of irrigation water from the canals. Monitoring shall be conducted in the canal immediately upstream of WTP intake(s).

3. Blending Flow Calculation Formula

The following formulas shall be used to assure that sufficient flow is available in a canal or lateral to meet the mixing zone requirements in Part III. B. 1 and 2.

$$F_bC_b + F_wC_w = F_cC_c$$
$$F_bC_b + F_wC_w = (F_b + F_w)C_c$$
Set C_c = WQS and solve for F_b
$$F_b = [(F_b + F_w)WQS - F_wC_w]/ C_b$$

Where:
F_b = Volume or flow in the canal or lateral prior to discharge (the volume or flow of water available for blending)
F_c = Volume or flow in the canal or lateral after discharge
F_w = Volume of water to be discharged from well
C_b =concentration of contaminant in the canal or lateral prior to discharge (blending water concentration)

Cc + concentration of contaminant in canal or lateral after discharge (final blended concentration). This value must equal to or less than the applicable Water Quality Standard (WQS) for the contaminant.
C_w = Concentration of the contaminant in the well water discharge
All flows and concentrations must be in the same units.

4. Arsenic Special Mixing Zone Condition

Background concentrations shall be calculated on a daily basis using a blending calculation as per below. Wells shall be operated so the arsenic concentration at the water treatment plant intakes does not exceed 10 ppb or the background concentration at the head of the canal, whichever is higher.

The background concentration of arsenic in the canals shall be the concentration at the head of the Arizona canal and the head of the South canal before any well water is added. The most recent arsenic values from the SRP database shall be used in the calculation.

The background concentration shall be calculated on a daily basis using the blending calculation:

$$CB= (Cv*Fv + Cs*Fs)/ (Fv+Fs)$$

Where:
CB = Canal arsenic background concentration
Cv= arsenic concentration in Verde River
Cs= arsenic concentration in Salt River
Fv = flow of Verde River
Fs= flow of Salt River

5. Chromium VI and Lead Special Mixing Zone Condition

When the wells listed below are discharging for the purpose of delivering water, samples shall be collected for chromium VI and/or lead at the point of compliance WTP intake location. The sampling shall be timed such that the well has discharged long enough for the water to reach the WTP intake where the sample shall be taken. If the sample taken to meet the requirements for Table 1 also meets the condition discussed here, it may be used to meet this special condition requirement. If not, then another sample during the quarter must be taken to meet the requirements of this special condition.

Well	Constituent
05.1E-16.2N	Pb
05.4E-17.1N	Cr VI
06.0E-15.3N	Pb
07.0E-15.6N	Cr VI
22.6E-10.0N	Cr VI
22.9E-10.8N	Cr VI
23.5E-10.6N	Cr VI & Pb
24.0E-10.5N	Cr VI
25.0E-03.1N	Pb
28.5E-04.0N	Pb
29.0E-03.8N	Pb
30.5E-05.0N	Pb

30.5E-06.0N	Pb
30.8E-06.2N	Pb
31.1E-00.3N	Pb
31.1E-01.1S	Pb
31.4E-00.0S	Pb
31.5E-06.4N	Pb
31.8E-06.5N	Pb
32.0E-02.6N	Pb
32.5E-03.5S	Pb
32.9E-03.1S	Pb
33.1E-07.3N	Pb

C. DELIVERY OF AGRICULTURAL WATER ONLY

During times when no drinking water deliveries are being made to a WTP, compliance with the DWS limitations for nitrate, DBCP, chromium VI, lead, and arsenic upstream of that WTP and implementation of BMPs in Part III.A are not required if all the following are met:

1. SRP receives notification from the WTP that the plant will be off-line for a specified period of time;

2. SRP notifies ADEQ of its intent to pump high nitrate and/or boron wells upstream of the WTP and provides copies of the WTPs notification that the plant will be offline and the specified time period prior to ceasing BMPs;

3. The permittee provides notification (including voice, voice message, electronic mail or facsimile) to the WTP that a high nitrate well will be operated at least 6 hours prior to operating the well during the specified time period;

4. When the WTP places an order for water, the permittee shall immediately take actions to resume implementation of the BMPs in Part III and bring the well system into compliance with all permit limits.

D. WELL MONITORING AND PURGING REQUIREMENTS

Discharges from wells exceeding the standard for TCE and/or PCE, or discharges from wells of unknown water quality (for any parameter) may be discharged for purposes of well purging and water quality sampling only when the following conditions are met:

1. The duration of the discharge does not exceed 56 hours.

2. The frequency of the discharge shall not exceed twice in a calendar year, unless more frequent testing is requested by a federal, state or tribal environmental or resource agency. If more frequent discharge is required, the permittee shall submit a written request to the ADEQ Surface Water Permits Unit stating the reasons that the discharge is necessary. Additional discharges shall not occur until the permittee has received written approval from ADEQ.

3. For wells discharging upstream of WTPs, blending practices are used to ensure that DWS water quality standards are not exceeded at the WTP intake.

4. For wells not discharging upstream of WTPs, blending practices are used to ensure that AgI and AgL standards are not exceeded at a distance greater than 500 meters from the discharge point or at the first water delivery point, whichever is less.

5. Blending flows shall be calculated as specified in Part III.B.3.

6. If analytical results are not available for a well within the last 18 months, SRP shall base blending flows on an assumption that the contaminant of concern is present at a concentration 5 times the applicable standard.

E. PROHIBITION ON DISCHARGES TO OTHER WATERS

This permit authorizes discharges from the outfalls (wells) listed in Appendices B and C to the canals and/or laterals as specified. Discharges to any Waters of the United States other than the specified canals and laterals are not authorized by this permit and require a separate AZPDES permit.

F. INCLUSION OF NEW WELLS

Additional wells may be included under this permit. Discharges required during well construction and monitoring are allowed provided appropriate BMPs to reduce sediment levels in the discharge are implemented. The flow rate and duration of flow for discharges resulting from well construction shall be recorded and the discharges shall be monitored for turbidity and any constituent which is of concern, based on data from wells in the area. When a new well is added to the SRP water delivery system, the well identification number, latitude and longitude location of the well, its receiving water, whether it is above or below a WTP, and the results of the initial monitoring for all the parameters listed in Part I.D Tables 3a-c shall be submitted electronically or to the AZPDES Individual Permit Unit (address in Part II.B.2). At that time, based on the initial well data submitted, ADEQ may add monitoring requirements to Appendix B or C accordingly and send the revised Appendix to SRP electronically. Subsequently, the discharge from the well shall be monitored for all the parameters listed in Tables 3a-c to obtain 8 data points and submitted electronically or to the AZPDES Individual Permit Unit (address in Part II.B.2) for review. At that time, based on the data submitted, ADEQ may add monitoring requirements to Appendix B or C accordingly and send the revised Appendix to SRP electronically. If no exceedances are noted, then SRP may submit a request electronically to ADEQ requesting that monitoring for that well no longer be required.

G. URBAN LAKES MONITORING

Monitoring requirements and assessment levels have been set in order to evaluate the impacts of the discharges on downstream uses. Monitoring results above the Assessment Levels (ALs) listed in Table 4 do not constitute a permit violation.

The permittee shall monitor once per year when deliveries occur during the peak groundwater pumping period for the parameters in Table 4 at the point of entry to the lake from the canal as identified in Appendix D. The data and any other applicable information shall be submitted as per Part II.B.2 above.

TABLE 4: Assessment Level Monitoring Requirements for Urban Lakes

Parameter	ASSESSMENT LEVELS (1) (2)	Monitoring Requirements	
	Daily Maximum Concentration (µg/L) unless otherwise specified	Monitoring Frequency	Sample Type
Arsenic	80	Monitoring required 1x /year at the point of entry to the lake from the canal in **Appendix D**.	Discrete
Boron	186667		
Cadmium	2.56		
Chromium (Total)	100		
Chromium VI	11		
Copper	10.47		
Lead	3.07		
Mercury	0.01		
Nickel	60.68		
Selenium	2		
Silver	4.40		
Zinc	137		
Dibromochloropropane (DBCP) (3)	Report		
Tetrachloroethylene (PCE)	261		
Trichloroethylene (TCE)	29		

Footnotes:
(1) Concentration values are based on Arizona Water Quality Standards. Monitoring and reporting required.
(2) All metals discharge assessment levels are for total recoverable metals, except for chromium VI, for which the assessment level listed is dissolved.
(3) Analyze using SDWA Method 504.1.

H. 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
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
QA	Quality Assurance
ug/L	micrograms per Liter, also equal to parts per billion (ppb)
WQBEL	Water quality-based effluent limitation

APPENDIX A PART B: DEFINITIONS

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 collected from a single location or over a period of time not exceeding 15 minutes.

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 effluent 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.

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