ADEQ Arizona Department of Environmental Quality

DRAFT STATEMENT OF BASIS

STATEMENT OF BASIS FOR MODIFICATION OF AZPDES PERMIT NO. AZ0022357

Pursuant to A.C.C. R18-9-B906, on February 07, 2023, ADEQ received an application from the City of Goodyear to modify AZPDES Permit (No. AZ0022357, LTF No. 97807) for the City of Goodyear 157th Avenue Water Reclamation Facility (WRF), which is a publicly owned treatment works (POTW) in Maricopa County. The request would increase the permitted design flow from 6.0 million gallons per day (mgd) to 7.5 mgd. The permit became effective on March 15, 2022. This document gives pertinent information concerning the modification. The effluent limitations contained in this permit modification will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 *et seq*. The permit was issued for a period of 5 years and shall expire at midnight on March 14, 2027.

Purpose of Modification:
The City of Goodyear 157th Avenue WRF expansion to increase design flow from 6.0 mgd to 7.5 mgd

GENERAL FACILITY INFORMATION

Facility Information:
The City of Goodyear 157th Avenue WRF is a POTW that treats domestic wastewater from residential, commercial, and industrial sources. There are six (6) significant industrial dischargers.

The treatment process consists of an influent pump station with three (3) pumps, headwork with two mechanical screens, a grit chamber, three (3) aeration basins with anoxic zones, five (5) secondary sedimentation basins, four (3) disc filters, a chlorine contact basin for sodium hypochlorite disinfection. Treated effluent may be sent to an emergency storage basin, reused at the plant (not applied to the ground), or to a discharge outfall.

The WRF receives the waste activated sludge from City of Goodyear – Corgett Wash WRF (AZPDES Individual Permit No. AZ0023582) for treatment and dewatering. Sludge is digested in two (2) aerobic digesters, thickened by polymer addition and dewatered using three (3) centrifuges. Processed sludge is hauled off-site for disposal in accordance with state and federal regulations. At the time of this permit modification the sludge is disposed of at Northwest Regional Landfill in Surprise, AZ.

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. Due to the increase in design capacity, a 208 Plan Consistency Review was required. The facility was determined to be consistent with the Maricopa Association of Governments (MAG) 208 Water Quality Management Plan approval of an ultimate design capacity of 22.0 mgd through the year 2040 (MAG 2014).

RECEIVING WATER

Receiving Water and Facility Outfalls:
The facility discharge outfalls for treated wastewater and the corresponding receiving waters are shown in Table 1. The receiving water for the City of Goodyear 157th Avenue WRF for both Outfall 001 and 003 is the Gila River (EDW) - From the confluence with the Salt River to Gillespie Dam in the Middle Gila River Basin. No discharge to the Gila River from either Outfall 001 or 003 is expected in the future. The designated uses for Gila River (EDW) - From the confluence with the Salt River to the Gillespie Dam, Middle Gila River Basin are Aquatic and Wildlife effluent dependent water (A&Wedw), Partial Body Contact (PBC), Fish Consumption (FC), Agricultural Irrigation (AgI), and Agricultural Livestock watering (AgL).

The receiving water for Outfall 002 is the Buckeye Irrigation District (BID) Canal, which is classified in AAC R18-11 Appendix B as "A Phoenix Area Canal - Below municipal WTP intakes and all other locations" in the Middle Gila River Basin. The discharge flow at Outfall 002 is continuous. The designated uses for this receiving water are Agricultural Irrigation (AgI) and Agricultural Livestock watering (AgL).

Table 1. Facility Outfalls and Corresponding Receiving Water.

ID	Location	Receiving Water	Designated Uses	Discharge Pattern
001	Latitude 33° 23' 42" N, Longitude 112° 23' 30" W Township 1N, Range 1W, Section 30	Gila River (EDW) - From the confluence with the Salt River to the Gillespie Dam, Middle Gila River Basin	A&Wedw PBC FC AgI AgL	Intermittent - The permittee does not intend on discharging at this location in the future.
002	Latitude 33° 23' 56" N, Longitude 112° 24' 03" W Township 1N, Range 1W, Section 30	Buckeye Irrigation District (BID) Canal, a Phoenix Area Canal - Below municipal WTP intakes and all other locations, Middle Gila River Basin	AgI AgL	Continuous - Buckeye Irrigation District canal is the only discharge location at the time of this permit modification.
003	Latitude 33° 23' 41" N, Longitude 112° 24' 3.9" W Township 1N, Range 1W, Section 30	Gila River (EDW) - From the confluence with the Salt River to the Gillespie Dam, Middle Gila River Basin	A&Wedw PBC FC AgI AgL	Intermittent - The permittee does not intend to discharge at this location during permit term as the outfall is not constructed

Total Maximum Daily Load and 303(d) Listing Status:
The Gila River segment that is the receiving water for outfalls 001 and 003 is not listed on the 303(d) list (ADEQ 2018). This segment of the Gila River was previously listed as impaired for DDT, metabolites, toxaphene and chlordane in fish tissue. On August 7, 2015, the EPA approved the delisting of these impairments. The Buckeye Irrigation District (BID) canal, which is the receiving water for Outfall 002 is not listed on the 303 (d) list (ADEQ 2018). However, this outfall has been assigned a waste load allocation (WLA) in the Gila River Centennial Wash to Gillespie Dam TMDL that was approved on December 23, 2015 due to boron and selenium impairments (ADEQ 2015).

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TMDL: Applicable Water Quality Standards for Selenium and Boron
Water quality standards (WQS) for a stream reach are based upon the designated uses assigned to it according to the A.A.C. Title 18, Chapter 11. The applicable WQS considered by the TMDL are numeric standards for both boron and selenium. Both may be found in Appendix A of Arizona's WQS. The total boron standard for the AgI designated use is 1,000 µg/L. The A&Wedw chronic standard for selenium is 2.0 µg/L.

At the time of the TMDL determination by ADEQ, Goodyear 157th Avenue WRF was an existing point source discharger in compliance with the established facility permit limits for boron and selenium. ADEQ determined that the effluent from Goodyear 157th Avenue WRF contributed to the selenium impairment through the BID canal system to the Gila River's impaired reach where effluent discharge concentrations were calculated to exceed the Gila River WQS by 57% based on a long-term average flow rate of 3.0 mgd (ADEQ 2015). It was determined that the effluent from Goodyear 157th Avenue WRF met the most stringent WQS for boron, which was for the AgI designated use.

TMDL: Impact of increased design flow on for Selenium and Boron
The TMDL analysis is a concentration-based analysis and consequently, the TMDL adopted a concentration-neutral premise. The premise asserts that if all dischargers are assumed to be discharging at the impaired reach's WQS concentrations for the analytes of concern then the total loading of the system will be consistent with the WQS in the reach of concern regardless of flow variability. In cases where the TMDL recommended discharge concentrations above the WQS, additional loading attributable to the higher concentrations were offset by a buffer of additional assimilative capacity of the receiving water elsewhere in the computation. The selenium and boron permit limits recommended for Goodyear 157th Avenue WRF Outfall 002 in the TMDL are shown in Table 2.

Table 2. Recommended concentration-based permit limits for Outfall 002 in the TMDL.

Parameter	Average Monthly Limit (µg/L)	Maximum Daily Limit (µg/L)
Boron	1,000	1,459
Selenium	5	11

STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT

Date of Most Recent Inspection	01/19/2023, ID 413729, Announced Inspection
Discharge Monitoring Reports Reviewed	04/2021 through 03/2023
DMR Exceedances	*E. coli* November 2022, Outfall 002
Notice of Violation Issued	None
Notice of Violation Closed	N/A
Formal Enforcement Actions	None

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PROPOSED PERMIT CHANGES

Design Flow Increase:
The City of Goodyear 157th Avenue WRF expansion from 6.0 mgd to 7.5 mgd design flow is proposed to attain the increased operational level in March 2024. This increased design capacity will apply during the current permit term, which expires at midnight on March 14, 2027. ADEQ has reviewed the request and proposes to modify the permit as follows:

Due to the change in design flow rate from 6.0 mgd to 7.5 mgd, mass limits for the WWTP have been revised in the draft permit as shown in Part I.A Table 1.a. and Table 1.b. Associated footnotes remain unaltered. The major changes from the previous permit in this permit are numbered 1-8 below.

1. Changes to Part I.A. Table 1.a. mass limits for Outfalls 001 and 003 are as follows:

Table 1.a. - Effluent Limitations and Monitoring Requirements for Outfall 001 and 003

Parameter	Maximum Allowable Discharge Limitations					
	Mass Limits (1) *(Previous Permit)*			**Mass Limits (1)** *(Modified Permit)*		
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum
Discharge Flow (MGD)	REPORT (4)	- - -	REPORT	REPORT (4)	- - -	REPORT
Biochemical Oxygen Demand (BOD) (5-day)	680 kg/day	1,000 kg/day	- - -	850 kg/day	1,200 kg/day	- - -
Total Suspended Solids (TSS)	680 kg/day	1,000 kg/day	- - -	850 kg/day	1,200 kg/day	- - -
Chlorine, Total Residual (TRC) (8) (9)	0.2 kg/day	- - -	0.41 kg/day	0.3 kg/day	- - -	0.5 kg/day
Oil & Grease	230 kg/day	- - -	340 kg/day	280 kg/day	- - -	430 kg/day
Boron (11)	23 kg/day	- - -	33 kg/day	28 kg/day	- - -	41 kg/day
Copper (10) (11)	0.55 kg/day	- - -	1.1 kg/day	0.68 kg/day	- - -	1.4 kg/day
Cyanide	0.18 kg/day	- - -	0.36 kg/day	0.22 kg/day	- - -	0.45 kg/day
Selenium	0.05 kg/day	- - -	0.07 kg/day	0.06 kg/day	- - -	0.09 kg/day
Bromodichloromethane	0.39 kg/day	- - -	0.56 kg/day	0.48 kg/day	- - -	0.71 kg/day
Bromoform	3.02 kg/day	- - -	4.41 kg/day	3.78 kg/day	- - -	5.51 kg/day
Dibromo chloromethane	0.30 kg/day	- - -	0.43 kg/day	0.37 kg/day	- - -	0.54 kg/day

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.

4 Monitoring and reporting required. No limit set at this time. In addition to the average and maximum flows reported on the Discharge Monitoring forms, daily discharge flow shall be recorded on the **Discharge Flow Record** provided in Appendix B. See Part II.B for reporting requirements.

8 Sample when chlorine or bromine compounds are used for disinfection. See Part II.A.7 for specific monitoring requirements for chlorine.

9 pH and TRC must be measured at the time of sampling and do not require use of a certified laboratory. Measurements must be obtained in accordance with the applicable method and must meet all method quality assurance/quality control requirements to be considered valid data.

10 All metals effluent limits are for total recoverable metals.

11 Limits listed are based on the maximum allowed hardness of 400 mg/L as CaCO3. The effluent and receiving water, if any, must be tested for hardness at the same time that these metal samples are taken. Please see the hardness definition in Appendix A. Part B.

2. Changes to Part I.A. Table 1.b. mass limits for Outfall 002 are as follows:

Table 2.b. - Effluent Limitations and Monitoring Requirements for Outfall 002

Parameter	Maximum Allowable Discharge Limitations					
	Mass Limits (1) *(Previous Permit)*			**Mass Limits (1)** *(Modified Permit)*		
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum
Discharge Flow (MGD)	REPORT (4)	- - -	REPORT	REPORT (4)	- - -	REPORT
Biochemical Oxygen Demand (BOD) (5-day)	680 kg/day	1,000 kg/day	- - -	850 kg/day	1,200 kg/day	- - -
Total Suspended Solids (TSS)	680 kg/day	1,000 kg/day	- - -	850 kg/day	1,200 kg/day	- - -
Chlorine, Total Residual (TRC) (8) (9)	0.2 kg/day	- - -	0.41 kg/day	0.3 kg/day	- - -	0.5 kg/day
Oil & Grease	230 kg/day	- - -	340 kg/day	280 kg/day	- - -	430 kg/day
Selenium (10)	0.07 kg/day	- - -	0.17 kg/day	0.14 kg/day	- - -	0.31 kg/day
Boron (10)	15.1 kg/day	- - -	22.0 kg/day	28.0 kg/day	- - -	41.0 kg/day

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.

4 Monitoring and reporting required. No limit set at this time.

8 Sample when chlorine or bromine compounds are used for disinfection. See Part II.A.7 for specific monitoring requirements for chlorine.

9 pH and TRC must be measured at the time of sampling and do not require use of a certified laboratory. Measurements must be obtained in accordance with the applicable method and must meet all method quality assurance/quality control requirements to be considered valid data.

10 The limits are consistent with the waste load allocations (WLA) as described in the December, 2015 TMDL for Outfall 002.

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3. Additional changes to Part I.A. Effluent Limitations and Monitoring Requirements are as follows:

Parameter	Existing Permit	Proposed permit	Reason for change
Monitoring Frequency: BOD, TSS	2x/Month	1x/Week	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency: pH, Total Residual Chlorine	1x/Week	5x/Week	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency: Boron, Copper, Cyanide, Selenium, Hardness, Hydrogen Sulfide, Sulfides	1x/Quarter	1x/Month	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Whole Effluent Toxicity effluent limitation for Outfall 001 and 003 in Table 1.a	Whole Effluent Toxicity (WET) with a footnote in Table 3	Chronic Toxicity *Pseudokirchneriella subcapitata* (Green algae)	Make clear which indicator species has effluent limitations monitoring requirements for Outfall 001 and 003.
Hardness ($CaCO_3$)	Limitations Monitoring Table 1.b for Outfall 002	Limitations Monitoring Removed	There are no required effluent limitations monitoring requirements for hardness-dependent metals.

4. Changes to Part I.B. Trace Substance Monitoring are as follows:

Parameter	Existing Permit	Proposed permit	Reason for change
Ammonia, Sulfides, Hydrogen Sulfide, Temperature – receiving water	Assessment Level Monitoring Table 2.b for Outfall 002	Effluent Characterization Monitoring Only	There are no aquatic and wildlife designated uses for the receiving water which is the BID Canal.
Hardness ($CaCO_3$)	No Assessment Level Monitoring Table 2.b for Outfall 002	Add Assessment Level Monitoring	There are assessment level monitoring requirements for hardness-dependent metals.

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5. Changes to Part I.C. Whole Effluent Toxicity Monitoring

Parameter	Existing Permit	Proposed permit	Reason for change
Monitoring Frequency for Parameters with Action Levels	1x/Quarter	1x/6 Months	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.

6. Changes to Part I.D. Effluent Characterization Monitoring are as follows:

Parameter	Existing Permit	Proposed permit	Reason for change
Monitoring Frequency Table 4.a: Dissolved Oxygen	1x/Year in 2022, 2023, 2024 of permit term	1x/Year	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency Table 4.b: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Chromium VI, Copper, Iron, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Zinc, Hardness, and Cyanide	1x/6 Months	1x/Quarter	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency Table 4.b: Whole Effluent Toxicity	3x/Permit term; 1x /Year in years 2022,2023,2024 of permit term	4x/Permit term; 1x /Year in years 2022,2023,2024, 2025 of permit term	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency Volatile Organic Compounds Table 4.c	1x /Year in years 2022,2023,2024 of permit term	1x/Year	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency Acid Extractable Compounds Table 4.d	1x /Year in years 2022,2023,2024 of permit term	1x/Year	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Monitoring Frequency Base Neutral Compounds Table 4.e	1x /Year in years 2022,2023,2024 of permit term	1x/Year	Appropriate monitoring requirements for facilities of this size to have enough data that can be used in developing discharge limitations.
Table 4.f Asbestos	Effluent Characterization Monitoring	Monitoring Requirement Removed	There are no domestic water source designated uses for the receiving waters.

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7. Changes to Part II.A. Sample Collection and Analysis are as follows:

Add the following language as Part II.A.7 “Chlorine Monitoring - Because of the short holding time for chlorine, samples may be analyzed on-site using Hach Method No. 10014. Other methods are also acceptable for chlorine if the Method has a LOQ lower than discharge limits specified in this permit.”

8. Changes to Part II.C. Twenty-four Hour Reporting of Noncompliance are as follows:

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.

Permit Effective Time frame and Impact on Monitoring Requirements

This permit modification will not change the permit effective time frame from March 15, 2022 through midnight on March 14, 2027. All modifications to required monitoring frequencies are backdated to the date of permit issuance on March 15, 2022 and are based on the appropriate monitoring frequencies required for wastewater treatment plants of this size that treat domestic waste from residential, commercial, and industrial sources. Consequently, changes to monitoring frequencies set on an annual basis are backdated appropriately to the year 2022 and account for compliance monitoring that was required during the time period between permit issuance on March 15, 2022 and issuance of the modified permit. The resulting data set will provide enough data to calculate reasonable potential for a pollutant to cause or contribute to an exceedance of a numeric water quality standard and discharge limitations during the next permit renewal process.

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. Limits are retained in the permit for parameters where reasonable potential (RP) for an exceedance of a standard was calculated to exist or be indeterminate at the time of the March 15, 2022 permit issuance. In those cases, limits were recalculated using the most current Arizona WQS. For this permit modification new mass limits are calculated based on an increase in the permitted design flow rate.

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

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

The discharge from the City of Goodyear 157th Avenue WRF from Outfall 002 will be to a canal which is subject to Tier 1 antidegradation protection.

Effluent quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable WQS and the concentration-based limits recommended in the TMDL. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the increase of design flow from 6 mgd to 7.5 mgd from the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107.

ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907):
The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908):
Rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-A908(B)):
A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

EPA Review (A.A.C. R18-9-A908(C)):
A copy of this draft permit modification 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.

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ADDITIONAL INFORMATION

Contact 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: Corin Hammond
1110 West Washington Street
Phoenix, Arizona 85007

Or by contacting Corin Hammond at (602) 771 – 4144 or by e-mail at hammond.corin@azdeq.gov.

Information Sources:

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

1. AZPDES Permit Application Forms 2A and 2S, received February 7, 2023, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. ADEQ files on Goodyear 157th Ave WRF.
3. Maricopa Association of Governments (MAG). MAG 208 Water Quality Management Plan Point Source Update. (June 2014). https://azmag.gov/Programs/Environmental/Water-Quality-Management-Planning
4. Maricopa Association of Governments (MAG). 208 Water Quality Management Plan Final. (October 2002). https://azmag.gov/Programs/Environmental/Water-Quality-Management-Planning
5. ADEQ Geographic Information System (GIS) Web site
6. ADEQ Arizona's 2018 303(d) List of Impaired Waters.
7. Information provided to ADEQ staff during a virtual inspection visit with the facility on March 24, 2021.
8. Arizona Administrative Code (A.A.C.) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted December 31, 2016.
9. A.A.C. Title 18, Chapter 9, Article 9. Arizona Pollutant Discharge Elimination System rules.
10. 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*.
11. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.
12. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.
13. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).
14. U.S. EPA NPDES Permit Writers' Manual, September 2010.
15. ADEQ Gila River - Centennial Wash to Gillespie Dam TMDL - Boron & Selenium (2015)

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