

**DRAFT UPDATES TO 5MP INDUSTRIAL REGULATORY LANGUAGE**  
**Alternative Mining Conservation Program**  
**March 8, 2022**

**6.4 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING  
AND REPORTING REQUIREMENTS FOR ALL INDUSTRIAL USERS**

**6-401 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases used in this chapter shall have the following meanings:*

1. *"4MP" means Fourth Management Plan for the PhxAMA.*
2. *"5MP" means Fifth Management Plan for the PhxAMA.*
3. *"ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA" means the list of low water use & drought tolerant plants found on ADWR's website, <https://new.azwater.gov/conservation/landscaping> including any modifications to the list.*
4. *"Industrial process purposes" means water that is used by an industrial user directly in the creation or manufacture of a product.*
5. *"Industrial use" means a non-irrigation use of water not supplied by a city, town, or private water company, including animal industry use and expanded animal industry use.*
6. *"Industrial user" means a person who uses water for industrial uses.*
7. *"PhxAMA" means the Phoenix Active Management Area.*
8. *"Effluent" has the same definition as prescribed in A.R.S. § 45-101.*
9. *"Remedial groundwater" means groundwater withdrawn pursuant to an approved remedial action project under CERCLA or Title 49, Arizona Revised Statutes, but does not include groundwater withdrawn to provide an alternative water supply pursuant to A.R.S. § 49-282.03.*

10. *"Single-pass cooling and heating" means the use of water without recirculation to increase or decrease the temperature of equipment, a stored liquid, or a confined air space.*
11. *"Wastewater" means water that is discharged after an industrial or municipal use, excluding effluent.*
12. *"Publicly Owned Right-Of-Way" may include a highway, street, road, sidewalk, curb, or shoulder which is used for travel in any ordinary mode, including pedestrian travel. A publicly owned right-of-way does not include any portion of a residential lot that may extend into the right-of-way.*

#### **6-402 Conservation Requirements**

- A. *Beginning on January 1, 2025 or upon commencement of water use, whichever occurs later, and continuing until the legislature determines otherwise, an industrial user shall comply with the following requirements:*
  1. *Avoid waste; use only the amount of water from any source, including effluent, reasonably required for each industrial use; and make diligent efforts to recycle water.*
  2. *Do not use water for non-residential single-pass cooling or heating purposes unless the water is reused for other purposes.*
  3. *Use low-flow plumbing fixtures as required by Title 45, Chapter 1, Article 12, Arizona Revised Statutes, or any applicable county or city code, whichever is more restrictive.*
  4. *Use plants from the ADWR Low Water Use & Drought Tolerant Plants Lists for the PhxAMA for landscaping to the maximum extent feasible and water with a water-efficient irrigation system. Turf-related facilities and new large landscape users are exempt from this requirement.*
  5. *For landscapes planted on or after January 1, 2002, groundwater may only be used to water landscaping plants within any publicly owned right-of-way if those plants are listed on the ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA. If the industrial user demonstrates that plants listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA cannot grow in the publicly owned right-of-way because of high elevation or low-light conditions, such as a freeway underpass, the industrial user may request that the Director consider waiving this requirement.*

6. Do not serve or use groundwater for the purpose of maintaining water features, including fountains, waterfalls, ponds, water courses, and other artificial water structures, installed after January 1, 2002 within any publicly owned right-of-way. This requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.

*Beginning on January 1, 2025, or upon commencement of water use, whichever occurs later, and continuing until the legislature determines otherwise, an industrial user who uses water shall, except as provided for in subsection B below, include the following information in its annual report required by A.R.S. § 45-632:*

1. The total quantity of water by source, including effluent, withdrawn, diverted, or received during the reporting year for industrial process purposes, as measured with a measuring device in accordance with ADWR's measuring device rules. A.A.C. R12-15-901, et seq.
2. The total quantity of water by source, including effluent, withdrawn, diverted, or received during the calendar year for purposes other than industrial process purposes, as measured with a measuring device in accordance with ADWR's measuring device rules. A.A.C. R12-15-901, et seq.
3. An estimate of the quantity of wastewater generated during the calendar year.
4. An estimate of the quantity of wastewater recycled during the calendar year.
5. A description of the primary purposes for which water from any source, including effluent, is used.
6. The number of acres of land that were planted with plants listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA during the calendar year as a result of removal of plants not on ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA. An industrial user regulated as a turf-related facility under sections 6.5 or as a new large landscape user under section 6.12, is exempt from this requirement.

#### *B. Applicability*

*An industrial user is subject to the requirements set forth in subsection A of this section if the user:*

1. holds a Type 1 or Type 2 non-irrigation grandfathered right or a groundwater withdrawal permit in an amount more than 10 AF per year.

2. *holds more than one such right or permit in the aggregate amount of more than 10 AF per year and withdraws more than 10 AF of groundwater during the calendar year pursuant to those right or permits.*

*An industrial user who holds a Type 1 or Type 2 non-irrigation grandfathered right or a groundwater withdrawal permit in the amount of 10 or fewer AF per year is exempt from the requirements set forth in subsection A of this section.*

### *C. Audits of Conservation Requirements*

*ADWR may elect to conduct audits of reports, records, and/or practices pursuant to the conservation requirements contained in any section or sections of this chapter. If an audit is conducted, a report of the audit will be sent to the audited person or entity as required by applicable law (See, e.g., A.R.S. §45-633(D), 880.01(D), 1061(D), and/or A.A.C. R12-15-1102(E)).*

## **6-403 Remedial Groundwater Accounting for Conservation Requirements**

### *A. Accounting*

*For the purposes of determining compliance with a conservation requirement established under this chapter, Remedial Groundwater used by a person subject to the conservation requirement shall be accounted for consistent with the accounting for surface water, subject to the provisions of subsections B through D of this section B. Amount of Groundwater Eligible for Accounting*

*For each approved remedial action project, the annual amount of groundwater that is eligible for the remedial groundwater accounting provided in subsection A of this section is the project's annual authorized volume. For a remedial action project approved on or after June 15, 1999 the maximum annual volume of groundwater that may be withdrawn pursuant to the project, is as specified by the United States Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ) or in a consent decree or other approved document. The annual authorized volume for a project approved prior to June 15, 1999 is the highest annual use of groundwater withdrawn pursuant to the project prior to January 1, 1999, except that if a consent decree or other document approved by the EPA or ADEQ specifies the maximum annual volume of groundwater that may be withdrawn pursuant to the project, the project's annual authorized volume is the maximum annual volume of groundwater specified in that document. The Director may modify the annual authorized volume for a remedial action project as follows:*

1. *For an approved remedial action project associated with a treatment plant that was in operation prior to June 15, 1999, a person may request an increase in the*

- annual authorized volume at the same time the notice is submitted pursuant to subsection C of this section. The Director shall increase the annual authorized volume up to the maximum treatment capacity of the treatment plant if adequate documentation is submitted to the Director demonstrating that an increase is necessary to further the purpose of the remedial action project and the increase is not in violation of the consent decree or other document approved by the EPA or ADEQ.*
- 2. A person may request an increase in the annual authorized volume of an approved remedial action project at any time if it is necessary to withdraw groundwater in excess of the annual authorized volume to further the purpose of the project. The Director shall increase the annual authorized if adequate documentation justifying the increase is submitted to the Director and the increase is not in violation of the consent decree or other document approved by the EPA or ADEQ.*
  - 3. The Director shall modify the annual authorized volume of an approved remedial action project to conform to any change in the consent decree or other document approved by the EPA or ADEQ if written notice of the change is given to the Director within 30 days after the change. The notice shall include a copy of the legally binding agreement changing the consent decree or other document approved by the EPA or ADEQ.*

#### *B. Notification*

*To qualify for the remedial groundwater accounting provided in subsection A of this section, the Director must be notified in writing of the anticipated withdrawal of remedial groundwater pursuant to an approved remedial action project under CERCLA or Title 49, Arizona Revised Statutes, prior to the withdrawal. At the time the notice is given, the person desiring the accounting must be using remedial groundwater pursuant to the approved remedial action project or must have agreed to do so through a consent decree or other document approved by the EPA or ADEQ. The notice required by this subsection shall include all of the following:*

- 1. A copy of a document approved by ADEQ or the EPA, such as the Remedial Action Plan (RAP), Record of Decision (ROD) or consent decree, authorizing the remediated groundwater project. Unless specified in the document, the person shall include in the notice the volume of remedial groundwater that will be pumped annually pursuant to the project, the time period to which the document applies, and the annual authorized volume of remedial groundwater that may be withdrawn pursuant to the project.*

2. *The purpose for which the remedial groundwater will be used.*
3. *The name and telephone number of a contact person.*
4. *Any other information required by the Director.*

#### *C. Monitoring and Reporting Requirements*

*To qualify for the remedial groundwater accounting for conservation requirements as provided in subsection A of this section, remedial groundwater withdrawn pursuant to the approved remedial action project must be metered separately from groundwater withdrawn for the same or other end use. A person desiring the remedial groundwater accounting for conservation requirements shall indicate in its annual report under A.R.S. § 45-632 the volume of groundwater withdrawn and used during the previous calendar year that qualifies for the accounting.*

## **6.5 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR TURF-RELATED FACILITIES**

### **6-501 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, and section 6-401 of this chapter, unless the context otherwise requires, the following words and phrases used in sections 6-501 through 6-507 shall have the following meanings:*

1. *"Body of water" has the same meaning as prescribed by A.R.S. §45-131.*
2. *"Common area" means an area or areas that is owned and operated as a single integrated facility and that is used for recreational or open space purposes. A common area is maintained for the benefit of the residents of a housing development.*
3. *"Contiguous" means in contact at any point or part of the same master-planned community. Two parcels of land are contiguous even if they are separated by one or more of the following: a road, easement, or right-of-way.*
4. *"Direct use effluent" means effluent transported from a facility regulated pursuant to Title 49, Chapter 2, Arizona Revised Statutes, to an end user. Direct use effluent does not include effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes.*

5. *"Effluent recovered within the area of impact" means effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes, and recovered within the stored effluent's area of impact. For purposes of this definition, "area of impact" has the same meaning as prescribed by A.R.S. § 45-802.01.*
6. *"Golf course" means a turf-related facility used for playing golf with a minimum of nine holes and including any practice areas.*
7. *"Hole" means a component of a golf course consisting at a minimum of a tee and a green. A practice area or driving range is not a hole.*
8. *"Landscape watering" means the application of water from any source, at a turf-related facility to a water-intensive landscaped area, a low water use landscaped area, and revegetation acres.*
9. *"Low water use landscaped area" means an area of land at least one acre in aggregate, located in a turf-related facility, that is watered by a permanent water application system within the landscaped area and planted primarily with plants listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA. Mature vegetation planted in a low water use landscape area must cover at least 50 percent of the area.*
10. *"Newly turfed area" means, for a calendar year, an area of land planted with a warm-season grass species that was not planted with a warm-season grass species during the preceding calendar year.*
11. *"Non-ornamental turf acres" means an area of land within a turf-related facility that is watered with a permanent water application system and is used as a permanent athletic field or is otherwise a highly trafficked area that is not practical to convert into hard or low water use landscape.*
12. *"Non-overseeded" means an area of land not planted with a cool-season grass species that grows over dormant warm season grasses during the fall/winter period.*
13. *"Overseeded " means an area of land planted with a cool-season grass species that grows over dormant warm season grasses during the fall/winter period. The allotment is calculated based on an assumed number of acres and does not require annual overseeding.*
14. *"Park" has the same definition "public park" as prescribed in ARS 11-931(3), which is a park, parkway, trail, recreational area or playground established, maintained or administered by a county, city or town.*

15. "School" means either: (A) any public or private institution established for the purposes of offering instruction to pupils in programs for preschool children with disabilities, kindergarten programs or any combination of elementary grades or secondary grades one through twelve, as set forth in ARS 15-101(22); or (B) any accredited public or private postsecondary institution, where "accredited" has the same definition as ARS 15-1401(1).
16. "Total cemetery area" means an area of land being used for cemetery-related purposes, including any area of land covered by grave markers or by cemetery-related buildings, walks, pathways, and landscaping, but not including roads, parking lots, and any areas of land being held for future expansion of the cemetery.
17. "Total water surface area" means the total surface area of all bodies of water that are an integral part of the water-intensive landscaped area of a turf-related facility, but not including bodies of water used primarily for swimming purposes.
18. "Turf acres" means an area of land within a turf-related facility that is watered with a permanent water application system and planted primarily with plants not listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA. Turf acres may be overseeded or non-overseeded.
19. "Turf-related facility" means any facility, including cemeteries, golf courses under nine holes, golf courses over nine holes as defined by paragraph 5, parks, schools, or common areas within housing developments, with a water-intensive landscaped area of 10 or more acres.
20. "Water-intensive landscaped area" means, for a calendar year, the turf acres and the water surface acres within a turf-related facility.
21. "Water surface acres" are the number of acres of total water surface area, excluding the surface area of any bodies of water entirely filled and refilled with effluent. For purposes of this definition, a body of water allowed under an interim water use permit issued pursuant to A.R.S. § 45-133 shall be deemed to be filled and refilled entirely with direct use effluent or effluent recovered within the area of impact if the body of water will be filled and refilled entirely with direct use effluent or effluent recovered within the area of impact after the permit expires.

## **6-502 Conservation Requirements for All Turf-Related Facilities**

### **A. Maximum Annual Water Allotment**

*Beginning with calendar year 2025 or the first full calendar year after commencement of landscape watering, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a turf-related facility shall not withdraw, divert, or receive water for landscape watering purposes at the turf-related facility during a year in an amount that exceeds the turf-related facility's maximum annual water allotment for the year as calculated in sections 6-503 and 6-504.*

#### *B. Conservation Plan*

*No later than January 1, 2025 or 180 days after receiving official notice of conservation requirements, whichever occurs later, an industrial user who uses water at a turf-related facility shall prepare a conservation plan for the facility that contains an accurate and detailed description of the conservation technologies, including management practices, that are applied at the facility when water is used for landscape watering purposes. The industrial user shall maintain or update the conservation plan at least annually. The industrial user shall remain in compliance with this requirement pursuant to the SMP until the legislature determines otherwise.*

#### *C. Limiting Water-Intensive Landscaped Area*

- 1. Beginning on January 1, 2025 or upon commencement of landscape watering, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a turf-related facility that is not a cemetery shall design, construct, and maintain the grounds of the facility in a manner that minimizes the water-intensive landscaped area and is consistent with the use of the facility. All of the facility's water-intensive landscaping shall be planted in those areas directly associated with the turf-related facility's primary purposes, and the total water-intensive landscaped area shall be limited to 90 acres, or, for golf courses, to five acres per hole. Turf-related facilities with greater than 90 acres of water-intensive landscape prior to January 1, 2023 are exempt from the limitation on water-intensive landscaped area but are encouraged to reduce water-intensive landscaped area.*
- 2. Beginning on January 1, 2025 or upon commencement of landscape watering, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a turf-related facility that is a cemetery shall limit the water-intensive landscaped area within any portion of the cemetery that was neither in operation as of December 31, 1984 nor substantially commenced as of December 31, 1984 so that no more than 75 percent of the total cemetery area within that portion*

of the cemetery is planted with plants not listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA. This requirement shall not apply to any expanded portion of a cemetery in operation as of December 31, 1984 or substantially commenced as of December 31, 1984 if the expanded portion of the cemetery was under the same ownership as the cemetery as of December 31, 1984.

**6-503 Calculation of Maximum Annual Water Allotment for Turf-Related Facilities that are not Golf Courses**

- A. For each calendar year, the maximum annual water allotment for a turf-related facility that is not a golf course shall be calculated by multiplying the number of acres within the facility during the calendar year in each of type of landscaping by the applicable application rate for each facility category, both listed in Table 6-503-1 and then adding together the products. The facility categories are defined by the percent of water-intensive landscaped area. "High" facilities have more than 30 percent water-intensive landscaped area, while "Low" facilities have less than or equal to 30 percent water-intensive landscaped area.

**Table 6-503-1 Application Rates for Turf-Related Facilities that are not Golf Courses**

**From 2025 until the first compliance date for any substitute requirement after the SMP as established by the legislature**

<b>Facility Category</b>	<b>Type of Landscaping:</b>	<b>Application rate: (acre-feet per acre per calendar year)</b>
High (>30% water-intensive landscaped area)	1. Turf acres	4.43
	2. Total water surface area	6.2
	3. Low water use landscaped area	0.85
	1. Turf acres	4.75

Low (≤30% water-intensive landscaped area)	2. Total water surface area	6.2
	3. Low water use landscaped area	1.08

B. The owner or operator of a turf-related facility that is a park or school with greater than or equal to 30% water-intensive landscaped area may apply to the Director for an additional turf acres application rate of up to 4.75 acre-feet per acre per calendar year for non-ornamental turf acres. The director may consider the following information when establishing the additional application rate for non-ornamental turf acres:

- Historical water-use and compliance of the facility
- Evidence demonstrating highly trafficked areas including as-builds, list of events occurring at the facility, visitor use statistics, or other similar documentation.

#### **6-504 Calculation of Maximum Annual Water Allotment for Golf Courses**

For each calendar year, the maximum annual water allotment for a golf course shall be calculated by multiplying the number of acres in existence within the facility by the applicable application rate for each category, subject to the limitations all listed in Table 6-505-1 and footnote 1, and then adding together the products plus any allotment additions allowed under section 6-505.

The first 3.89 acres per hole of turf acres or the total number of turf acres in existence within the facility, whichever is less, will be calculated at the overseeded application rate listed in Table 6-505-1. The remaining turf acres in existence within the facility or turf acres in existence within the facility up to five acres per hole, whichever is less, will be calculated at the non-overseeded rate listed in Table 6-505-1. The number of turf acres used for the purposes of calculating the maximum annual allotment does not constitute a requirement related to overseeding. The total maximum annual allotment may be used within the facility as the facility operators deem appropriate, subject to the flexibility criteria in section 6-506.

#### **Table 6-505-1 Application Rates for Golf Courses**

**From 2025 until the first compliance date for any substitute requirement after the SMP established by the legislature**

<b>Type of Landscaping:</b>	<b>Application rate: (acre-feet per acre per calendar year)</b>	<b>Limitation</b>
<b>1. Turf acres (Overseeded)</b>	6.035	Up to and including 3.89 acres per hole
<b>2. Turf Acres (Non-overseeded)</b>	4.36	Between 3.89 and up to 5 acres per hole
<b>3. Low water use landscaped area</b>	0.74	Up to 1 acre per hole
<b>5. Total water surface area</b>	6.2	See footnote 1

<sup>1</sup> The number of acres of total water surface area in existence within the facility, shall be limited to an area calculated by multiplying the number of holes present within the facility during the year by 0.14 acre per hole, or the facility's total water surface area in existence prior to 1989, whichever is greater.

**6-505 Allotment Additions**

A. Newly Turfed Area Establishment Addition

For any year in which a warm-season turfgrass species is planted in an amount that does not increase total turfed area at a turf-related facility, the facility may apply to the Director for an allotment addition of 1.0 acre foot of water per acre of newly turfed area. For golf courses, the newly turfed area establishment addition shall not exceed an amount calculated by multiplying the number of holes present within the newly turfed area by five acre-feet of water. This allotment addition may be used for the purposes of renovation.

B. Revegetation Addition

The owner or operator of a turf-related facility may apply to the Director for an allotment addition to revegetate areas within or around the facility after initial construction or renovation. The Director may allow up to an additional 0.74 acre-feet of water per acre for up to three years if the following conditions apply to the acres for which the revegetation addition is sought:

1. The plants that are planted are listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for the PhxAMA, or were adapted to the site prior to construction;

2. *The aggregate area to be watered exceeds one acre and has at least 50 percent vegetative cover at maturity;*
3. *An allotment is not provided for the revegetation area under sections 6-503 and*
4. *All of the water applied is measured and reported as part of the total water use of the facility.*

*C. Body of Water Fill and Refill Addition*

1. *A turf-related facility shall receive a one-time body of water fill allotment addition equal to the volume of water used for the initial filling of any new body of water added after January 1, 2023 within the facility. The facility shall receive the allotment addition only for the calendar year in which the body of water is filled.*
2. *If a body of water at a turf-related facility is drained or partially drained to allow for repairs to reduce water losses, the owner or operator of the facility may apply to the Director for an addition to the facility's maximum annual water allotment in the amount of water necessary to refill the body of water. The Director shall grant the allotment addition only for the calendar year in which the body of water is filled if the Director determines that drainage of the body of water was necessary to allow for repairs to reduce water losses.*

*D. Leaching Allotment Addition*

*The owner or operator of a turf-related facility may apply to the Director for an allotment addition for leaching purposes. The Director shall approve the application if the water supply used for landscape watering at the facility contains at least 1,000 milligrams per liter of total dissolved solids. and shall calculate the additional allotment as follows:*

$$\left( \left( \frac{1}{1 - \left( \frac{EC_w}{5EC_e - EC_w} \right)} \right) - 1 \right) \times \left( \frac{CU}{0.85} \right)$$

*Where:*

*Ecw = Electrical conductivity of water used*

*Ece = Tolerance of the turfgrass species grown to the soil salinity in electrical conductivity of the soil saturation extract*

*CU = Consumptive use requirement for the turfgrass species*

*Any allotment addition granted under this subsection shall remain in effect until the water supply used for landscape watering at the facility contains less than 1,000 milligrams per liter of total dissolved solids or until the first compliance date for the facility's conservation requirements after the the 5MP, as established by the legislature whichever occurs first.*

*E. Combined Allotments for Contiguous Facilities*

*The maximum annual water allotments for contiguous turf-related facilities under one ownership or operation may be combined. All or a portion of the combined maximum water allotment may be applied to any part of the contiguous facilities.*

*F. Nothing in this section shall be construed as authorizing use of more groundwater or surface water than may be used pursuant to any groundwater or appropriable water rights or permits associated with the use. Nor shall this section be construed as authorizing use groundwater or surface water in any manner that violates Chapter 1 or Chapter 2 of Title 45, Arizona Revised Statutes.*

**6-506 Compliance with Maximum Annual Water Allotment**

*A. Effluent Use Adjustment*

*For purposes of determining compliance with the maximum annual water allotment requirement, the Director shall count each acre foot of direct-use effluent or effluent recovered within the area of impact used at the facility for landscape watering purposes during the calendar year as 0.6 acre-foot of water.*

*B. Flexibility Account*

*The Director shall determine if a turf-related facility is in compliance with its maximum annual water allotment through the maintenance of a flexibility account for the facility according to the following:*

- 1. Beginning with the first full calendar year after commencement of landscape watering, a flexibility account shall be established for a turf-related facility with a beginning balance of zero. The beginning balance in the flexibility account of a facility that was previously regulated shall be the ending balance*

*in the flexibility account maintained for the facility in the SMP, subject to the limitations in paragraph 3 of this section.*

2. *Following each calendar year in which groundwater is withdrawn, diverted, or received for landscape watering purposes at the facility, the Director shall adjust the turf-related facility's flexibility account as follows:*
  - a. *Subtract the total volume of water from any source, including effluent as adjusted under subsection A of this section, used by the facility for landscape watering purposes during that calendar year from the facility's maximum annual water allotment for that year.*
  - b. *If the result in subparagraph a of this paragraph is positive, credit the flexibility account by this volume.*
  - c. *If the result in subparagraph a of this paragraph is negative, debit the flexibility account by this volume.*
3. *The account balance existing in a turf-related facility's flexibility account, after the adjustment provided for in paragraph 2 of this subsection is made, shall carry forward, subject to the following limitations:*
  - a. *The maximum positive account balance allowed in the flexibility account of a turf-related facility after any credits are registered pursuant to paragraph 2, subparagraph b of this subsection, shall be calculated by multiplying the facility's maximum annual water allotment for the calendar year for which the credits are registered by 0.2. If the account balance exceeds the maximum positive account balance after the credits are registered, the balance carried forward shall be equal to the maximum positive account balance.*
  - b. *The maximum negative account balance allowed in the flexibility account of a turf-related facility after any debits are registered pursuant to paragraph 2, subparagraph c of this subsection shall be calculated by multiplying the facility's maximum annual water allotment for which the debits are registered by -0.2. If the account balance exceeds the maximum negative account balance after the debits are registered, the balance carried forward shall be equal to the maximum negative account balance.*

### **C. Compliance Status**

*If the adjustment to a turf-related facility's flexibility account at the end of a calendar year as provided for in subsection B, paragraph 2 of this section causes the account to have a negative account balance which exceeds the maximum negative account balance allowed in the flexibility account for the calendar year as calculated in subsection B, paragraph 3 of this section, the industrial users who use water at the facility are in violation of the facility's maximum annual water allotment for that calendar year in an amount equal to the difference between the facility's flexibility account balance and the maximum negative balance allowed in the facility's account for that year.*

### **6-507 Monitoring and Reporting Requirements for Turf-Related Facilities**

- A. *Beginning January 1, 2025, if turfed acres, low water use landscaped area, or water surface acres in a turf-related facility are added or removed, an industrial user shall submit to the Director documentation of the updated acres no later than 90 days after commencing of landscape watering those acres or receiving notice of these conservation requirements, whichever is later. The scale of the submitted documents, extent of turf acres, water surface acres, and low water use landscaped area must clearly be shown. The documentation must also include indication of the year the turf-related facility was established including labelling the year for any areas that were added after the initial construction. Documentation may consist of one or more of the following:*
- 1. As-built plans certified by a registered professional such as a civil engineer, golf course designer, or landscape architect.*
  - 2. Aerial photography at a scale no smaller than 1"=200'.*
  - 3. A survey of the facility certified by a registered professional such as a civil engineer or land surveyor.*
  - 4. Any other documentation upon approval by the Director.*
- B. *For calendar year 2025 or the calendar year in which landscape watering commences, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a turf-related facility shall include in the annual report required by A.R.S. § 45-632 the following information, regarding the turf-related facility characteristics and water use during the calendar year*
- 1. The total quantity of water by source, disaggregated by source, including effluent, withdrawn, diverted, or received for landscape watering purposes at the facility, as measured with a measuring device in accordance with the*

*Department's measuring device rules. A.A.C. R12-15-901, et seq.*

- 2. The total amount of effluent, disaggregated by direct use effluent, effluent recovered within the area of impact and effluent recovered outside the area of impact that was withdrawn or received for landscape watering purposes as measured with a measuring device in accordance with ADWR's measuring device rules, A.A.C. R12-15-901, et seq.*
- 3. The number of acres of total water surface area within the facility.*
- 4. The number of acres of low water use landscaped area within the facility.*
- 5. The number of acres of turf acres within the facility, not including newly turf area.*
- 6. The number of acres of newly turfed area within the facility.*
- 7. The number of turf acres removed within the facility.*
- 8. The number of acres of total water surface area added or removed within the facility.*
- 9. The number of acres of low water use landscaped area added or removed within the facility.*
- 10. If the facility is a golf course, the length of the course as measured from the back of each tee ground furthest from the associated green then down the center line of the hole to the center of the green.*
- 11. The number of acres approved by the Director for a revegetation addition pursuant to section 6-505, subsection B, within the facility.*
- 12. The quantity of water used to fill or refill a body of water within the facility for which an allotment addition is sought pursuant to section 6-503, subsection B.*
- 13. The number of acres of overseeded area within the facility.*
- 14. If the facility is a golf course, the number of holes within the facility.*
- 15. If the facility is a golf course, the number of holes added within newly turfed area.*
- 16. An estimate of the quantity of water from any source, including effluent, used*

*for each purpose other than landscape watering purposes at the facility. Any water used at the facility that is not measured separately from the water used for landscape watering shall be counted by the Director as water used by the facility for landscape watering for purposes of calculating the compliance with the maximum annual water allotment.*

- C. *A single annual report may be filed for contiguous turf-related facilities that are under the same ownership or operation if the allotments for the facilities are combined pursuant to section 6-505, subsection E. The annual report shall report water use and landscaped areas of the contiguous facilities as required in subsection B in this section.*

## **6.6 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR SAND AND GRAVEL FACILITIES**

### **6-601 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes and section 6-401 of this chapter, unless the context otherwise requires, the following words and phrases used in sections 6-602 and 6-603 shall have the following meanings:*

1. *“Sand and gravel facility” means a facility that produces sand and gravel and that uses more than 100 AF of water from any source per calendar year. For purposes of this definition, the annual water use shall include all water used by the facility regardless of the nature of the use.*
2. *“Rock out method” means agitating rock inside concrete truck mixer drums for the purpose of cleaning excess concrete from the drums.*
3. *“Wash water” means water used for washing or sorting sand, gravel, or other aggregates.*

### **6-602 Conservation Requirements**

- A. *Standard Conservation Requirements*

*Beginning on January 1, 2025 or upon commencement of water use, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a sand and gravel facility shall comply with the following conservation requirements:*

1. *If sufficient land area for construction and operation of disposal ponds is available at a reasonable price, the industrial user shall construct disposal ponds at the sand and gravel facility. All wash water, water used for wet scrubbers at asphalt plants, runoff from cleanup operations and drainage from sand and gravel piles shall be discharged or diverted into the disposal ponds unless prohibited by state or federal environmental regulations. The disposal ponds shall contain a barge pump or sump pump of sufficient capacity, together with any necessary additional equipment, to assure the maximum reclamation of the water. The water shall be reclaimed and reused at the sand and gravel facility unless prohibited by state or federal regulations.*
2. *If sufficient land area for the construction and operation of disposal ponds is not available at a reasonable price, clarifiers shall be used at the sand and gravel facility for reclaiming wash water, water used for wet scrubbers at asphalt plants, runoff from cleanup operations and drainage from sand and gravel piles. The clarifiers shall be designed and operated to assure the maximum reclamation of water.*
3. *At least one of the following techniques or technologies designed to reduce water use for dust control shall be implemented at the sand and gravel facility:*
  - a. *The placement of binding agents on all haul roads;*
  - b. *The paving of all haul roads;*
  - c. *The placement of recycled asphalt on all haul roads;*
  - d. *The placement of medium sized aggregate or "pea gravel" on all haul roads; or*
  - e. *A technology or technique designed to reduce water use for dust control that demonstrates water savings equivalent to any of the technologies or techniques listed in subparagraphs a through d, and that has been approved by the Director.*

*The industrial user shall have sole discretion in determining whether to implement more than one of the above technologies.*

1. *At least one of the following techniques or technologies designed to reduce water use for cleaning shall be implemented at the sand and gravel facility:*
  - a. *Use of metered timers for truck washing and other cleanup activities;*

- b. Use of the “rock out method” of cleaning concrete from truck mixer drums;
- c. Use of concrete set-arresting agent chemical applications to clean concrete from truck mixer drums; or
- d. A technology or technique designed to reduce water use for cleaning that demonstrates water savings equivalent to any of the measures listed in subparagraphs a through c and that has been approved by the Director.

The industrial user shall have sole discretion in determining whether to implement more than one of the above technologies.

#### B. Substitute Conservation Requirements

1. An industrial user who uses water at a sand and gravel facility may apply to the Director to use conservation technologies other than the standard conservation requirements prescribed in subsection A of this section. The Director may approve the use of substitute conservation technologies if both of the following apply:
  - a. The industrial user has submitted a detailed description of the proposed substitute technologies and the water savings that can be achieved by the use of those technologies, and
  - b. The Director determines that the proposed substitute conservation technologies will result in a water savings equal to or greater than the savings that would be achieved by the standard conservation requirements prescribed in subsection A of this section.
2. If the Director approves an industrial user’s request to use conservation technologies other than the standard conservation requirements, the industrial user shall comply with the substitute conservation technologies beginning on the date determined by the Director and continuing until the first compliance date for any substitute conservation requirement after the SMP as established by the legislature.

#### C. Conservation Plan

1. Not later than 180 days after receiving notice of these conservation requirements, an industrial user who uses water at a sand and gravel facility, including an industrial user who acquires ownership of an existing sand and

gravel facility after the first compliance date after the SMP as established by the legislature, shall submit to the Director a plan to improve the efficiency of water use at the facility. The plan shall analyze the economic feasibility of implementing all of the following at the facility:

- a. Disposal pond surface area reduction;
  - b. The use of clarifiers for recycling water;
  - c. Use of a renewable water supply if such a supply is available within a one mile radius of the facility.
2. The economic analysis must analyze the potential costs and savings associated with the following:
- a. Labor (including planning, construction, operation, maintenance, and management time);
  - b. Equipment (values amortized over the projected life of the equipment);
  - c. Land value (including value of mineral reserves);
  - d. Water costs (including pumping costs, well maintenance, and withdrawal taxes);
  - e. Costs for chemicals and raw materials,
  - f. Fuel or energy costs;
  - g. Industrial wastewater disposal costs;
  - h. Changes in revenue caused by changing production rate, minimizing "down-time" or increasing the size of reserves;
  - i. Regulatory permitting costs.

### **6-603 Monitoring and Reporting Requirements**

For calendar year 2025 or the calendar year in which the sand and gravel facility first commences using water, whichever occurs later, and for each calendar year thereafter until the legislature determines otherwise, an industrial user who uses water at a sand and gravel facility shall include the following information in its annual report required by A.R.S. § 45--632.

1. *The quantity of water reclaimed from disposal ponds or clarifiers during the calendar year, as measured with a measuring device in accordance with ADWR's measuring-device rules. A.A.C. R12-15-901, et seq.*
2. *The quantity of water from any source, including effluent, supplied to the wash plant during the calendar year, as measured with a measuring device in accordance with ADWR's measuring-device rules. A.A.C. R12-15-901, et seq.*
3. *The quantity of water from any source, including effluent, supplied to the asphalt plant during the calendar year, as measured with a measuring device in accordance with ADWR's measuring-device rules. A.A.C. R12-15-901, et seq.*
4. *The aggregate surface area of any disposal ponds.*
5. *The average depth of any disposal ponds.*
6. *The estimated quantity of water from any source, including effluent, used during the calendar year for:*
  - a. *Industrial process purposes. Water used for industrial process purposes includes water used for sanitary waste disposal, but does not include water for cooling and cleaning purposes*
  - b. *Non-domestic cooling purposes.*
  - c. *Non-domestic cleaning purposes. Water use for non-domestic purposes includes truck washing, truck mixer drum washing, or other non-domestic cleaning purposes.*
  - d. *Road dust control.*
  - e. *Landscape watering.*
  - f. *Other purposes.*
7. *The tonnage of material washed during the calendar year.*

## 6.7 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR LARGE-SCALE POWER PLANTS

### 6-701 Definitions

In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes and section 6-401 of this chapter, unless the context otherwise requires, the following words and phrases shall have the following meanings:

1. "Blowdown water" means water discharged from a cooling tower recirculating water stream to control the buildup of minerals or other impurities in the recirculating water.
2. "Combined-cycle electric power plant" or "combined-cycle power plant" means an industrial facility that produces or is designed to produce more than 25 megawatts of electricity by utilizing a combination of steam and combustion turbine power generation methods.
3. "Combustion turbine electric power plant" means an industrial facility that produces or is designed to produce more than 25 megawatts of electricity by utilizing an internal combustion engine in which the expanding gases from the combustion chamber drive the blades of a turbine which turns a generator to produce electricity.
4. "Conservative mineral constituent" means a component of recirculating water in a cooling tower, the concentration of which is not significantly modified by precipitation, loss to the atmosphere, or the addition of treatment chemicals.
5. "Continuous blowdown and make-up" means patterns in cooling tower operation that include continuous blowdown and make-up or frequent periodic blowdown and make-up of recirculating water.
6. "Cycles of concentration" means the ratio of the concentration of total dissolved solids, other conservative mineral constituent, or electrical conductivity in the blowdown water to the concentration of this same constituent or electrical conductivity in the make-up water. This can be calculated by dividing the total make-up water by the total blowdown water.
7. "Fully operational cooling tower" means a cooling tower that is functioning to dissipate heat from a large-scale power plant that is generating electricity.
8. "Large-scale power plant" means an industrial facility that produces or is

*designed to produce more than 25 megawatts of electricity including steam electric power plants, combustion turbine plants, and combined-cycle plants.*

9. *"Limiting constituent" means a chemical, physical, or biological constituent present in recirculating cooling tower water that, due to potential physical or biological factors or due to potential exceedance of any federal, state, or local environmental standards upon discharge as blowdown, should not be allowed to accumulate in recirculating cooling tower water above a certain concentration.*
10. *"Make-up water" means the water added to the cooling tower recirculating water stream to replace water lost to evaporation, blowdown, or other mechanisms of water loss.*
11. *"Effluent-served cooling tower" means a cooling tower served by a make-up water supply that on an annual average basis, consists of 50 percent or more effluent.*
12. *"Post-1984 power plant" means either:*
  - a. *A large-scale power plant that does not qualify as a pre-1985 power plant, and includes any expanded or modified portion of the power plant if the expansion or modification includes the construction or modification of one or more cooling towers, or*
  - b. *Any expanded or modified portion of a pre-1985 power plant if the expansion or modification includes the construction or modification of one or more cooling towers and was not substantially commenced as of December 31, 1984.*
13. *"Pre-1985 power plant" means a large-scale power plant that either produced electric power as of December 31, 1984 or was substantially commenced as of December 31, 1984 and includes any expanded or modified portion of such a power plant if the expansion or modification was substantially commenced as of December 31, 1984 and included the modification or construction of one or more cooling towers.*
14. *"Steam electric power plant" means an industrial facility that produces or is designed to produce more than 25 megawatts of electricity by utilizing the Rankin Steam Cycle in which water is heated, turns into steam and spins a steam turbine which drives an electrical generator.*

15. *“Substantially commenced as of December 31, 1984” means, with regard to the construction, expansion, or modification of a large-scale power plant, that all preconstruction permits and approvals required by federal, state, or local governments for the construction, expansion, or modification of the plant were obtained by December 31, 1984 or that a substantial capital investment in the physical on-site construction of the project was made within the 12 months prior to December 31, 1984.*

### **6-702 Conservation Requirements for All Power Plants**

1. *Plants should use zero liquid discharge systems where appropriate and economically feasible.*
2. *Users may apply to the director for an adjustment to cycles of concentration requirements to address quality considerations related to direct reuse of blowdown or industrial wastewater.*

### **6-703 Conservation Requirements for Pre-1985 Steam Electric Power Plants**

*Beginning on January 1, 2025, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a pre-1985 steam electric power plant shall comply with the following requirements:*

1. *An annual average of seven or more cycles of concentration shall be achieved at fully operational cooling towers during periods when the steam electric power plant is generating electricity.*
2. *Blowdown water shall be discharged on a continuous basis, and make-up water shall be provided on a continuous basis.*
3. *The maximum amount of wastewater feasible, excluding blowdown water and sanitary wastewater, shall be diverted to the cooling process.*

### **6-704 Conservation Requirements for Post-1984 Steam Electric Power Plants and for Combined-Cycle Power Plants**

*Beginning on January 1, 2025, or upon commencement of water use, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a post-1984 steam electric power plant or at a combined-cycle power plant shall comply with the following requirements:*

1. *An annual average of 15 or more cycles of concentration shall be achieved at fully operational cooling towers during periods when the power plant is generating electricity.*
2. *Blowdown water shall be discharged on a continuous basis, and make-up water shall be provided on a continuous basis.*
3. *The maximum amount of wastewater feasible, excluding blowdown water and sanitary wastewater, shall be diverted to the cooling process.*

#### **6-705 Cycles of Concentration Adjustment Due to the Quality of Recirculating Water**

- A. *An industrial user who uses water at a steam electric power plant or at a combined-cycle power plant may apply to the Director for an adjustment to the cycles of concentration requirements set forth in section 6-702 or section 6-703, whichever is applicable, for any year in which compliance with the cycles of concentration requirements would likely result in damage to cooling towers or associated equipment or exceedance of federal, state, or local environmental discharge standards because of the quality of recirculating water. To apply for an adjustment to the cycles of concentration requirements based on recirculating water quality, an industrial user shall submit a request in writing to the Director that includes the following information:*
  1. *Historic, current, and projected water quality data for the relevant constituent(s).*
  2. *Documentation describing the potential damage to cooling towers or associated equipment, or documentation of environmental standards that are likely to be exceeded, whichever applies.*
- B. *The Director shall grant the request if it is determined that compliance with the cycles of concentration requirements would likely result in damage to cooling towers or associated equipment or exceedance of federal, state, or local environmental discharge standards because of the quality of recirculating water. Any cycles of concentration adjustment granted shall apply only while the quality of recirculating water would cause compliance with the cycles of concentration requirements to likely result in damage to cooling towers or associated equipment or exceedance of federal, state, or local environmental discharge standards.*

## **6-706 Exemption and Cycles of Concentration Adjustment Due to the Quality of Effluent Make-up Water Supplies**

- A. *The cycles of concentration requirements do not apply to any effluent-served cooling tower at a steam electric power plant or at a combined-cycle power plant during the first 12 consecutive months in which more than 50 percent of the water supplied to the cooling tower is effluent.*
- B. *Within 30 days after the 12-month exemption period expires, the industrial user who uses water at the steam electric power plant or at a combined-cycle power plant may apply to the Director for a cycles of concentration adjustment to lower the cycles of concentration requirement for the effluent-served cooling tower if compliance with the requirement would not be possible due to the presence of a limiting constituent in the effluent supplying the tower. To apply for an alternative cycles of concentration requirement to address such a limiting constituent, an industrial user shall submit a request in writing to the Director which includes the following information:*
  - 1. *The limiting constituent that is present in the effluent supplying the tower that results in the need to blowdown a greater annual volume of water than that is required.*
  - 2. *Documentation describing the concentration at which this limiting constituent(s) should be blown down, and the reason for the alternative cycles of concentration.*

*The Director shall grant the request if it is determined that the presence of a limiting constituent in the effluent supplying the cooling tower results in the need to blowdown a greater annual volume of water than that is required. Any cycles of concentration adjustment granted pursuant to this paragraph shall apply only while the tower qualifies as an effluent-served cooling tower.*

## **6-707 Substitute Conservation Requirements**

- A. *An industrial user who uses water at a steam electric power plant or at a combined-cycle power plant may apply to the Director to use conservation technologies other than the standard conservation requirements prescribed in section 6-702 or section 6-703. The Director may approve the use of substitute conservation if both of the following apply:*
  - 1. *The industrial user has submitted a detailed description of the proposed substitute technologies and the water savings that can be achieved by the use of those technologies, and;*

2. *The Director determines that the proposed substitute conservation technologies will result in a water savings equal to or greater than the savings that would be achieved by the standard conservation requirements prescribed in subsection A.*
- B. *If the Director approves an industrial user's request to use conservation technologies other than the standard conservation requirements prescribed in subsection A of this section, the industrial user shall comply with the approved technologies beginning on the date determined by the Director, and continuing thereafter until the legislature determines otherwise.*

### **6-708 Waiver of Conservation Requirements if Blowdown Water Goes to a Direct Beneficial Reuse**

- A. *An industrial user who uses water at a steam electric power plant or at a combined-cycle power plant may apply to the Director for a waiver of any applicable conservation requirements by submitting a detailed, long-term plan for direct beneficial reuse of 100 percent of the blowdown water outside the cooling circuit, including an implementation schedule. Reuse of blowdown water includes the discharge of blowdown water into pipes, canals, or other means of conveyance if the discharged water is transported to another location at the plant or off the plant for reuse.*
- B. *The Director shall grant a waiver request if it is determined that implementation of the plan will result in the beneficial reuse of 100 percent of blowdown water outside the cooling circuit. If a waiver request is granted, the industrial user shall implement the plan in accordance with the schedule submitted to and approved by the Director.*

### **6-709 Conservation Requirements for Combustion Turbine Electric Power Plants**

- A. *Beginning on January 1, 2025 or upon commencement of water use, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a combustion turbine electric power plant shall comply with the following requirement:*

*Each fully operational cooling tower with greater than or equal to 250 tons of cooling capacity at the combustion turbine electric power plant facility shall achieve a cycles of concentration level that results in blowdown water being discharged at an average annual minimum of either 120 milligrams per liter (mg/L) silica, or 1,200 mg/L total hardness, or 2,400 mg/L total dissolved solids, whichever is reached first.*

- B. *Exemptions and Alternative Blowdown Standards*

1. *An industrial user who uses water at a combustion turbine power plant may apply to the Director for a waiver of any applicable conservation requirements by submitting a detailed, long-term plan for direct beneficial reuse of 100 percent of the blowdown water outside the cooling circuit, including an implementation schedule. Reuse of blowdown water includes the discharge of blowdown water into pipes, canals, or other means of conveyance if the discharged water is transported to another location at the plant or off the plant for reuse. The Director shall grant a waiver request if it is determined that implementation of the plan will result in the beneficial reuse of 100 percent of blowdown water outside the cooling circuit. If a waiver request is granted, the industrial user shall implement the plan in accordance with the schedule submitted to and approved by the Director.*
2. *The requirement this section does not apply to any effluent-served cooling tower at a combustion turbine electric power plant during the first 12 consecutive months in which more than 50 percent of the water supplied to the cooling tower is effluent.*

*Within 30 days after the 12-month period expires, the person using water at the effluent-served cooling tower may apply to the Director to use an alternative blowdown level from that required if compliance with the blowdown requirement would not be possible due to the presence of a limiting constituent other than silica, total hardness, or total dissolved solids in the effluent supplying the cooling tower. To apply for an alternative blowdown level to address such a limiting constituent, an industrial user shall submit a request in writing to the Director which includes the following information:*

- a. *The limiting constituent other than silica, total hardness, or total dissolved solids that is present in the effluent supplying the cooling tower which results in the need to blowdown a greater annual volume of water than that required.*
- b. *Documentation describing the concentration at which this limiting constituent should be blown down and the reason for the alternative blowdown level.*

*The Director shall grant the request if it is determined that the presence of a limiting constituent other than silica, total hardness, or total dissolved solids in the effluent supplying the cooling tower results in the need to blowdown a greater annual volume of water than that required. Any alternative blowdown level granted pursuant to this paragraph shall apply only while the cooling tower qualifies as an effluent-served cooling tower.*

1. *A combustion turbine electric power plant may apply to the Director to use an alternative blowdown level from that required if compliance with the*

requirement would likely result in damage to cooling towers or associated equipment or exceedance of federal, state or local environmental discharge standards because of the accumulation of a limiting constituent other than silica, total hardness, or total dissolved solids in recirculating water. To apply for an alternative blowdown level for such a limiting constituent, an industrial user shall submit a request in writing to the Director which includes the following information:

- a. Historic, current and projected water quality data for the relevant limiting constituent(s).
- b. Documentation describing the potential damage to cooling towers or associated equipment, or documentation of environmental standards that are likely to be exceeded.

The Director shall grant the request if it is determined that compliance with the blowdown level set forth in this section would likely result in damage to cooling towers or associated equipment or exceedance of federal, state, or local environmental discharge standards because of the accumulation of a limiting constituent other than silica, total hardness, or total dissolved solids in recirculating water.

### **6-710 Monitoring and Reporting Requirements**

#### **A. Monitoring and Reporting Requirements for Steam Electric Power Plants and Combined-Cycle Power Plants**

1. For calendar year 2025 or the calendar year in which water use first commences, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a steam electric power plant or at a combined-cycle power plant shall include in its annual report required by A.R.S. § 45-632 the following information:
  - a. Cooling capacity (in tons) of each cooling tower at the facility.
  - b. Frequency of use and use periods of each cooling tower at the facility.
  - c. Source of water providing make-up water to each cooling tower at the facility.
  - d. The percentage of effluent served to the tower during the year for each cooling tower at the facility that is exempt from cycles of concentration requirements pursuant to section 6-705, subsection A, or for which a cycles of concentration adjustment was granted pursuant to section 6-

705, subsection B

e. For all fully operational cooling towers subject to cycles of concentration requirements:

- i. The total quantity of blowdown water discharged from the cooling towers for each month or partial month when the facility was generating electricity during the calendar year.
- ii. The total quantity of make-up water used at cooling towers for each month or partial month when the facility was generating electricity during the calendar year.
- iii. The weighted average concentration of total dissolved solids or other conservative mineral constituent in make-up water and blowdown water at the cooling towers for each month or partial month when the facility was generating electricity during the calendar year, either:
  1. Determined by direct analysis, or
  2. Calculated based on average monthly electrical conductivity readings if the following conditions have been met: (a) correlations between electrical conductivity and total dissolved solids or between electrical conductivity and another conservative mineral constituent have been established over a period of one year or more in make-up and blowdown water and (b) documentation of these correlations has been provided to the Director.

f. For each large-scale steam electric power plant or combined-cycle power plant that is exempt from cycles of concentration requirements or for which an adjusted cycles of concentration requirement was granted:

- i. The total quantity of blowdown water discharged from the cooling tower for each month or partial month when the facility was generating electricity during the calendar year.
- ii. The total quantity of make-up water used at the cooling tower for each month or partial month when the facility was

*generating electricity during the calendar year.*

- iii. *The weighted average concentration of total dissolved solids or other conservative mineral constituent in make-up water and blowdown water at the cooling tower for each month or partial month when the facility was generating electricity during the calendar year, either:*
  - iv. *Determined by direct analysis, or*
  - v. *Calculated based on average monthly electrical conductivity readings if the following conditions have been met: (a) correlations between electrical conductivity and total dissolved solids or between electrical conductivity and another conservative mineral constituent have been established over a period of one year or more in make-up and blowdown water and (b) documentation of these correlations have been provided to the Director.*
- g. *All time periods when the facility was not generating electricity.*
- h. *The amount of electricity generated each month or each partial month when the facility was generating electricity during the calendar year.*
- i. *The estimated quantity of water from any source, including effluent, used during the calendar year for each purpose other than electric power generation purposes.*

#### *B. Monitoring and Reporting Requirements for Combustion Turbine Electric Power Plants*

*For calendar year 2025, or the calendar year in which water use first commences, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a large-scale electric power plant that is a combustion turbine electric power plant shall include in its annual reports required by A.R.S. § 45-632 the following information for all cooling towers with 250 tons or more of cooling capacity at the facility:*

1. *Capacity in tons of each cooling tower.*
2. *For each cooling tower at the facility that is exempt from the requirements of 6-703, or for which an alternative blowdown level has been granted, the percentage of water served to the cooling tower during the year that was effluent.*

3. *The quantity of water from any source, specified by source, that was used for make-up water on an annual basis during the calendar year as measured with a measuring device in accordance with ADWR's measuring device rules. A.A.C. R12-15-901, et seq.*
  4. *The quantity of water that was blown down on an annual basis during the calendar year as measured with a measuring device in accordance with ADWR's measuring-device rules. A.A.C. R12-15-901, et seq.*
  5. *The average annual concentrations of silica, total hardness, total dissolved solids, or other approved limiting constituent established under section 6-703, in make-up and blowdown water during the calendar year, reported in mg/L or other measurement units, and either:*
    - a. *Determined by direct analysis; or*
    - b. *Calculated based on average monthly electrical conductivity readings for those portions of each month when cooling towers were fully operational if the following conditions have been met:*
      - i. *correlations between electrical conductivity and silica, between electrical conductivity and total hardness, between electrical conductivity and total dissolved solids, or between electrical conductivity and another approved limiting constituent, have been established over a period of one year or more in make-up and blowdown water; and*
      - ii. *documentation of these correlations has been provided to the Director.*
- C. *A single annual report shall be filed for a pre-1985 power plant and a post-1984 power plant that are contiguous and owned by the same owner. The report shall describe the combined operations of the pre-1985 and post-1984 power plants as required in subsection A of this section.*
- D. *All water measurements required in this section shall be made with a measuring device in accordance with ADWR's measuring-device rules. A.A.C. R12-15-901, et seq.*

## 6.8 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR LARGE-SCALE COOLING FACILITIES

### 6-801 Definitions

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes and section 6-401 of this chapter, unless the context otherwise requires, the following words and phrases used in section 6-802 and 6-803 shall have the following meanings:*

- 1. "Blowdown water" means water discharged from a cooling tower recirculating water stream to control the buildup of minerals or other impurities in the recirculating water.*
- 2. "Conservative mineral constituent" means a component of recirculating water in a cooling tower, the concentration of which is not significantly modified by precipitation, loss to the atmosphere, or the addition of treatment chemicals.*
- 3. "Cycles of concentration" means the ratio of the concentration of a conservative mineral constituent or electrical conductivity in the blowdown water to the concentration of this same constituent or electrical conductivity in the make-up water.*
- 4. "Fully operational cooling tower" means a cooling tower that is functioning to dissipate heat.*
- 5. "Large-scale cooling facility" means a facility which has control over cooling operations with a total combined cooling capacity greater than or equal to 1,000 tons. For the purposes of this definition, the minimum cooling tower size which shall be used to determine total facility cooling capacity is 250 tons. A large-scale cooling facility does not include a large-scale power plant that utilizes cooling towers to dissipate heat.*
- 6. "Large-scale power plant" means an industrial facility that produces or is designed to produce more than 25 megawatts of electricity.*
- 7. "Limiting constituent" means a chemical, physical, or biological constituent present in recirculating cooling tower water that, due to potential physical or biological factors or due to potential exceedance of any federal, state, or local environmental standards upon discharge as blowdown, should not be allowed to accumulate in*

*recirculating cooling tower water above a certain concentration.*

8. *“Make-up water” means the water added back into the cooling tower recirculating water stream to replace water lost to evaporation, blowdown, or other mechanisms of water loss.*
9. *“Effluent-served cooling tower” means a cooling tower served by a make-up water supply that on an annual average basis consists of 50 percent or more effluent.*

## **6-802 Conservation Requirements**

### **A. Conservation Requirements for Large-Scale Cooling Facilities**

*Beginning on January 1, 2025 or upon commencement of water use, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a large-scale cooling facility shall comply with the following requirements:*

*Each fully operational cooling tower with greater than or equal to 250 tons of cooling capacity at the facility shall achieve a cycles of concentration level that results in blowdown water being discharged at an average annual minimum of either 120 mg/L silica, 1,200 mg/L total hardness, or 2,400 mg/L total dissolved solids whichever is reached first.*

### **B. Exemptions and Alternative Blowdown Standards**

1. *The requirement set forth in subsection A of this section does not apply to a large-scale cooling facility in any year in which 100 percent of facility blowdown water is beneficially reused.*
2. *The requirement does not apply to any effluent-served cooling tower at a large-scale cooling facility during the first 12 consecutive months in which more than 50 percent of the water supplied to the cooling tower is effluent.*

*After the 12-month period expires, the person using water at the effluent-served cooling tower may apply to the Director to use an alternative blowdown level from that required if compliance with the requirement would not be possible due to the presence of a limiting constituent other than silica, total hardness, or total dissolved solids in the effluent supplying the tower. To apply for an alternative blowdown, an industrial user shall submit a request in writing to the Director which includes the following information:*

- a. *The limiting constituent other than silica, total hardness, or total dissolved solids that is present in the effluent supplying the tower which results in the need to blow down a greater annual volume of water than that required under subsection A of this section.*

- b. Documentation describing the concentration at which this limiting constituent should be blown down, and the reason for the alternative blowdown level.

*The Director shall grant the request if it is determined that the presence of a limiting constituent other than silica, total hardness, or total dissolved solids in the effluent supplying the cooling tower results in the need to blowdown a greater annual volume of water than that required. Any alternative blowdown level granted shall apply only while the tower qualifies as an effluent-served cooling tower.*

1. An industrial user may apply to the Director to use an alternative blowdown level from that required if compliance with the blowdown requirement would likely result in damage to cooling towers or associated equipment or exceedance of federal, state, or local environmental discharge standards because of the accumulation of a limiting constituent other than silica, total hardness, or total dissolved solids in recirculating water. To apply for an alternative blowdown level for such a limiting constituent, an industrial user shall submit a request in writing to the Director which includes the following information:

- a. Historic, current, and projected water quality data for the relevant limiting constituent(s).
- b. Documentation describing the potential damage to cooling towers or associated equipment, or documentation of environmental standards that are likely to be exceeded.

*The Director shall grant the request if it is determined that compliance with the required blowdown level would likely result in damage to cooling towers or associated equipment or exceedance of federal, state, or local environmental discharge standards because of the accumulation of a limiting constituent other than silica, total hardness, or total dissolved solids in recirculating water.*

### **6-803 Monitoring and Reporting Requirements**

*For calendar year 2025 or the calendar year in which water use first commences, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a large-scale cooling facility shall include in its annual report required by A.R.S. § 45-632 the following information for all cooling towers with 250 tons or more of cooling capacity at the facility:*

1. Capacity in tons of each cooling tower.

2. *Number of days per month that each cooling tower was fully operational.*
3. *For each cooling tower at the facility that is exempt from cycles of concentration requirements under section 6-802, or for which an alternative blowdown level has been granted, the percentage of water served to the tower during the year that was effluent.*
4. *The quantity of water from any source, specified by source, which was used for make-up water on a monthly basis during the calendar year as measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R12-15-901, et seq.*
5. *The quantity of water which was blown down on a monthly basis during the calendar year as measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R12-15-901, et seq.*
6. *The average monthly concentrations of silica, total hardness, total dissolved solids, or other approved limiting constituent established under section 6-802, in make-up and blowdown water for those portions of each month when cooling towers were fully operational during the calendar year, reported in mg/L or other measurement units established, and either:*
  - a. *Determined by direct analysis; or*
  - b. *Calculated based on average monthly electrical conductivity readings for those portions of each month when cooling towers were fully operational if the following conditions have been met:*
    - i. *correlations between electrical conductivity and silica, between electrical conductivity and total hardness, between electrical conductivity and total dissolved solids, or between electrical conductivity and another approved limiting constituent established, have been established over a period of one year or more in make-up and blowdown water; and*
    - ii. *documentation of these correlations has been provided to the Director.*

## 6.9 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR DAIRY OPERATIONS

### 6-901 Definitions

In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases used in sections 6-902 through 6-905 of this chapter shall have the following meanings:

1. "Dairy animal" means a lactating cow or a non-lactating animal present at a dairy operation.
2. "Dairy operation" means a facility that houses a monthly average of 100 or more lactating cows per day during a calendar year as calculated in 6-902.
3. "Dairy wastewater" means any water that has been put to a beneficial use at the dairy operation, including water containing dairy animal wastes.
4. "Lactating cow" means any cow that is producing milk that is present on-site at a dairy operation and receives water through the dairy operation's watering system.
5. "Non-lactating animal" means a calf, heifer, mature dry cow, bull, or steer that is present on-site at a dairy operation and receives water through the dairy operation's watering system.

### 6-902 Maximum Annual Water Allotment Conservation Requirements

#### A. Maximum Annual Water Allotment

Beginning on January 1, 2025 or upon commencement of water use, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user shall not withdraw, divert, or receive water for use at a dairy operation during a calendar year in a total amount that exceeds the dairy operation's maximum annual water allotment for the year as calculated in subsection B below, unless the industrial user applies for and is accepted into the Best Management Practices Program described in section 6-904.

#### B. Calculation of Maximum Annual Water Allotment

A dairy operation's maximum annual water allotment for a calendar year shall be determined as follows:

1. Calculate the average daily number of lactating cows and non-lactating animals that are present during the calendar year. The average daily number

of lactating cows and non-lactating animals present during the calendar year shall be calculated as follows:

- a. Determine the total number of lactating cows and non-lactating animals present at the dairy operation on the last day of each month during the calendar year.
  - b. For each category of animal, add together the total number of such animals present at the dairy operation on the last day of each month during the year in question and then divide the result by 12. The quotient is the average daily number of lactating cows and non-lactating animals present during the calendar year.
2. Calculate the dairy operation's maximum annual water allotment for the calendar year as follows:
- a. Multiply the average daily number of lactating cows present during the calendar year by 105 gallons per animal per day (GAD) and then convert to AF per year as follows:

$$CL \times \frac{105 \text{ GAD}}{325,851 \text{ g/af}} \times d/\text{yr} = \text{Maximum annual water allotment for lactating cows (AF per year)}$$

Where:

CL = Average daily number of lactating cows

GAD = Gallons per animal per day

g/af = Gallons per acre-foot

d/yr = Days in the year

The result is the dairy operation's maximum annual water allotment for lactating cows for the calendar year.

- a. Multiply the average daily number of non-lactating animals present during the calendar year by 20 gallons per animal per day (GAD) and then convert to AF per year as follows:

$$AN \times \frac{20 \text{ GAD}}{325,851 \text{ g/af}} \times d/\text{yr} = \text{Maximum annual water allotment for non-lactating animals (AF per year)}$$

Where:

*AN = Average daily number of non- lactating animals*

*GAD = Gallons per animal per day*

*g/af = Gallons per acre-foot*

*d/yr = Days per year*

*The result is the dairy operation's maximum annual water allotment for non-lactating animals for the calendar year.*

- a. Add the dairy operation's maximum annual water allotment for non-lactating animals for the calendar year as calculated in subparagraph b of this paragraph and the dairy operation's maximum annual water allotment for lactating cows for the calendar year as calculated in subparagraph a of this paragraph. The sum is the maximum annual water allotment for the dairy operation for the calendar year, except as provided in subparagraph d of this paragraph.*
- b. Upon application, the Director may approve an additional allocation of water for the dairy operation consistent with industry health and sanitation objectives if the dairy operation requires more than its maximum annual water allotment because of one or more of the following:*
  - 1. Milkings per lactating cow occur more than three times daily;*
  - 2. Technologies are used to achieve industry health and sanitation objectives that require additional water use; and*
  - 3. Technologies are designed and/or implemented for cooling lactating cows and non-lactating animals, which increase milk production.*
- C. Nothing in this section shall be construed to authorize a person to use more water from any source than the person is entitled to use pursuant to a groundwater or appropriable water right or permit held by the person. Nor shall this section be construed to authorize a person to use water from any source in a manner that violates Chapter 1 or Chapter 2 of Title 45, Arizona Revised Statutes.*

### **6-903 Compliance with Maximum Annual Water Allotment**

*An industrial user who uses water at a dairy operation is in compliance for a calendar year with the dairy operation's maximum annual water allotment if the Director determines that either of the following applies:*

- 1. The volume of water withdrawn, diverted, or received during the calendar year for use at the dairy operation, less the volume of dairy wastewater delivered from the dairy operation to the holder of a grandfathered groundwater right for a beneficial use, is equal to or less than the dairy operation's maximum annual water allotment for the calendar year; or*
- 2. The three-year average volume of water withdrawn, diverted, or received for use at the dairy operation during that calendar year and the preceding two calendar years is equal to or less than the dairy operation's three-year average maximum annual water allotment for that calendar year and the preceding two calendar years. In calculating the three-year average volume of water withdrawn, diverted, or received for use at the dairy operation, the volume of dairy wastewater delivered from the dairy operation to the holder of a grandfathered right for a beneficial use shall not be counted.*

### **6-904 Best Management Practices Program Conservation Requirements**

#### *A. Criteria for Approval of Application*

*An industrial user who uses water at a dairy operation may apply for regulation under the Best Management Practices Program (BMP Program) by submitting an application on a form provided by the Director. The Director shall approve an application for regulation under the BMP Program if the Director determines that the applicant will implement all of the standard best management practices (BMPs) described in Appendix 6A, unless a substitution of a standard BMP under subsection D of this section or a waiver of a standard BMP under subsection E of this section is approved. The Director shall approve a substitution of a standard BMP in accordance with subsection D of this section, if it is determined that the applicant will implement the substitute BMP or BMPs in addition to any remaining standard BMPs.*

#### *B. Exemption from Maximum Annual Water Allotment Conservation Requirements*

*An industrial user accepted for regulation under the BMP Program is exempt from the maximum annual water allotment conservation requirements set forth in section 6-902 beginning on January 1 of the first calendar year after the industrial user's application for the BMP Program is approved, unless the Director approves an earlier date.*

### C. Compliance with Best Management Practice Program

*Beginning on a date established by the Director and continuing thereafter until the legislature determines otherwise, an industrial user accepted for regulation under the BMP Program shall comply with all standard BMPs listed in Appendix 6A, unless the Director approves a substitution of a standard BMP or a waiver of a standard BMP. If the Director approves a substitution of a standard BMP, the industrial user shall comply with the substitute BMP or BMPs in addition to any remaining standard BMPs. The standard BMPs listed in Appendix 6A are broken into the following seven categories: (1) delivery of drinking water for dairy animals; (2) udder washing and milking parlor cleaning; (3) corral design and maintenance; (4) cleaning and sanitizing milking equipment; (5) dust control, calf housing cleaning, and feed apron flushing; (6) dairy animal cooling; and (7) dairy animal feed preparation.*

### D. Substitution of Best Management Practices

- 1. The Director may allow an industrial user applying for the BMP Program to replace a standard BMP listed in Appendix 6A with a substitute BMP if it is determined that the standard BMP cannot be achieved and that implementation of the substitute BMP will result in water use efficiency equivalent to that of the standard BMP. To apply for a substitution of a standard BMP, the industrial user shall include in its application for the BMP Program an explanation of why the standard BMP is not achievable and a description of how the substitute BMP will result in water use efficiency equivalent to that of the standard BMP.*
- 2. An industrial user regulated under the BMP Program may apply to the Director for a substitution of an existing BMP that is no longer appropriate for the industrial user's dairy operation. The Director may allow the industrial user to replace the existing BMP with a substitute BMP if the Director determines that the substitute BMP will result in water use efficiency equivalent to that of the existing BMP.*

### E. Waiver of Best Management Practices

- 1. The Director may waive a standard BMP if it is determined that the standard BMP cannot be achieved and that no substitute BMP is appropriate. To apply for a waiver of a standard BMP, the industrial user shall include in its application for the BMP Program an explanation of why the standard BMP is not achievable and why no substitute BMP is appropriate.*
- 2. An industrial user regulated under the BMP Program may apply to the*

Director for a waiver of an existing BMP listed in paragraph 3 of this subsection if the BMP is no longer appropriate for the industrial user's dairy operation. The Director may waive the existing BMP if the Director determines that the existing BMP is longer appropriate for the industrial user's dairy operation and that no substitute BMP is appropriate.

3. Only the following standard BMPs may be waived by the Director under this subsection: (1) BMP 2.1.2 (Udder Wash System); (2) BMP 2.2.2 (Milking Parlor Floor and Wall Washing); (3) BMP 4.1.1 (Milk Cooling and Vacuum Pump); (4) all of the standard BMPs in Water Use Category No. 5 (Dust Control, Calf Housing Cleaning, and Feed Apron Flushing); (5) all of the standard BMPs in Water Use Category No. 6 (Dairy Animal Cooling); and (6) all of the standard BMPs in Water Use Category No. 7 (Dairy Animal Feed Preparation).

#### F. Five Year Review of Best Management Practices

Five years after an industrial user is accepted for regulation under the BMP Program, the Director shall review the industrial user's BMPs to determine whether any changes in the BMPs are warranted. If the Director determines that any of the existing BMPs are no longer appropriate due to an expansion of the dairy operation or a change in management practices at the operation, the Director shall notify the industrial user in writing of that determination and the Director and the industrial user shall make a good faith effort to stipulate to a modification of the BMPs so that they are appropriate for the expanded operation or the change in management practices.

If the Director and the industrial user are unable to stipulate to a modification to the BMPs within 180 days after the Director notifies the industrial user of the determination that one or more of the existing BMPs are no longer appropriate, or such longer time as the Director may agree to, the industrial user shall no longer be regulated under the BMP Program, but shall thereafter be required to comply with the maximum annual water allotment conservation requirements set forth in section 6-902.

If the Director and the industrial user stipulate to a modification of the BMPs, the industrial user shall comply with the modified BMPs by a date agreed upon by the Director and the industrial user and shall continue complying with the modified BMPs until the first compliance date for any substitute conservation requirement after the 5MP as established by the legislature.

#### G. Change in Ownership of Dairy Operation

1. If an industrial user regulated under the BMP Program sells or conveys the dairy operation to which the BMPs apply, the new owner of the dairy

operation shall continue to be regulated under the BMP Program until January 1 of the first calendar year after acquiring ownership of the dairy operation. Except as provided in paragraph 2 of this section, beginning on January 1 of the first calendar year after acquiring ownership of the dairy operation, the new owner shall comply with the maximum annual water allotment conservation requirements set forth in section 6-902. The new owner may at any time apply for regulation under the BMP Program.

2. If the new owner submits a complete and correct application for regulation under the BMP Program prior to January 1 of the first calendar year after acquiring ownership of the dairy operation, the new owner shall continue to be regulated under the BMP Program until the Director makes a determination on the application. If the Director denies the application, the new owner shall be required to comply with the maximum annual water allotment conservation requirements immediately upon notification of the denial or January 1 of the first calendar year after acquiring ownership of the dairy, whichever is later. If the Director approves the application, the new owner shall continue to be regulated under the BMP Program until the first compliance date for any substitute conservation requirement after the SMP as established by the legislature.

### **6-905 Monitoring and Reporting Requirements**

For the calendar year 2025 or the calendar year in which water use is commenced at the dairy operation, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a dairy operation shall include the following information in its annual report required by A.R.S. § 45-632:

1. The total quantity of water from any source, including effluent, withdrawn, diverted, or received during the calendar year for use by the dairy operation, as measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R12-15-901, et seq.
2. The total quantity of water delivered during the calendar year to any uses other than the dairy operation from the well or wells which serve the dairy operation, as measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R12-15-901, et seq.
3. The total quantity of dairy wastewater delivered to grandfathered rights other than the dairy operation, as measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R-12-15-901, et seq.

4. *The total number of lactating cows and non-lactating animals which were present on-site at the dairy operation on the last day of each month during the calendar year.*
5. *If the dairy operation is regulated under the BMP Program, any documentation as required by the Director that demonstrates compliance with the program.*

## **6.10 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR CATTLE FEEDLOT OPERATIONS**

### **6-1001 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases used in sections 6-1002 through 6-1003 of this chapter shall have the following meanings:*

1. *"Beef cattle" means cattle or calves fed primarily for meat production.*
2. *"Cattle feedlot operation" means a facility that houses and feeds an average of 100 or more beef cattle per day during a calendar year as calculated in section 6-1002.*

### **6-1002 Maximum Annual Water Allotment Conservation Requirements**

#### **A. Maximum Annual Water Allotment**

*Beginning on January 1, 2025, or upon commencement of water use, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user shall not withdraw, divert, or receive water for use at a cattle feedlot operation during a calendar year in a total amount that exceeds the cattle feedlot's maximum annual water allotment for the year as calculated in subsection B below.*

#### **B. Calculation of Maximum Annual Water Allotment**

*A cattle feedlot operation's maximum annual water allotment for a calendar year shall be determined as follows:*

1. *Calculate the average daily number of beef cattle present during the calendar year. The Director shall calculate the average daily number of beef cattle present during the calendar year as follows:*
  - a. *Determine the total number of beef cattle present at the cattle feedlot*

operation on the last day of each month during the calendar year.

- b. Add together the total number of beef cattle present at the cattle feedlot operation on the last day of each month during the year in question and then divide the result by 12. The quotient is the average daily number of beef cattle present at the cattle feedlot operation during the calendar year.

2. Multiply the average daily number of beef cattle present at the cattle feedlot operation during the calendar year by a water allotment of 30 gallons per animal per day (GAD), and then convert to AF per year as follows:

$$\text{CB} \times \underline{30 \text{ GAD}} \times \text{d/yr} = \text{Maximum annual water allotment for the cattle}$$

325,851 g/acre-foot feedlotoperation (AF/year)

Where: CB = Average daily number of beef cattle

GAD = Gallons per animal per day

g/acre-foot = Gallons per acre-foot

d/yr = Days in the year

#### C. Compliance with Maximum Annual Water Allotment

An industrial user who uses water at a cattle feedlot operation is in compliance for a calendar year with the cattle feedlot operation's maximum annual water allotment if the Director determines that either of the following applies:

1. The volume of water withdrawn, diverted, or received during the calendar year for use at the cattle feedlot operation is equal to or less than the cattle feedlot operation's maximum annual water allotment for the calendar year; or
2. The three-year average volume of water withdrawn, diverted, or received for use at the cattle feedlot operation during that calendar year and the preceding two calendar years is equal to or less than the cattle feedlot operation's three-year average maximum annual water allotment for that calendar year and the preceding two calendar years.

- D. Nothing in this section shall be construed to authorize a person to use more water from any source than the person is entitled to use pursuant to a groundwater or appropriable water right or permit held by the person. Nor shall this section be construed to authorize a person to use water from any source, including effluent, in

*a manner that violates Chapter 1 or Chapter 2 of Title 45, Arizona Revised Statutes.*

### **6-1003 Monitoring and Reporting Requirements**

*For calendar year 2025 or the calendar year in which water use is first commenced at the cattle feedlot operation, whichever occurs later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a cattle feedlot operation shall include the following information in its annual report required by A.R.S. § 45-632:*

- 1. The total quantity of water from any source, including effluent, withdrawn, diverted, or received during the calendar year for use at the cattle feedlot operation as measured with a measuring device in accordance with ADWR's measuring-device rules. A.A.C. R12-15-901, et seq.*
- 2. The total number of beef cattle that were present on-site at the cattle feedlot operation on the last day of each month during the calendar year.*

## **6.11 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR METAL MINING FACILITIES**

### **6-1101 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases shall have the following meanings:*

- 1. "Abandoned tailings impoundment" means a tailings impoundment that the owner/operator of a metal mining facility does not plan to use for additional disposal of tailings.*
- 2. "Alternative water supply" means a water source other than groundwater of drinking water quality.*
- 3. "Decant water" means water removed from the stilling basin of a tailings impoundment either by gravity flow into a decant tower or by pumping.*
- 4. "Heap and dump leaching" means the extraction of minerals using acid solutions applied to metallic ores that have been removed from their original location and heaped or dumped in a new location.*

5. *"In situ leaching" means the extraction of metallic ores using acid leaching of ores that are not moved from their original natural location.*
6. *"In situ leaching sites" mean those portions of metal mining facilities at which in situ leaching and associated copper recovery operations occur, including surface applications of acid leaching solutions and deep well injection of acid leaching solutions.*
7. *"Large-scale metal mining and processing facility" means an industrial facility at which mining and processing of metallic ores is conducted and that uses or has the potential to use more than 500 AF of water per reporting year. For the purposes of this definition, the annual water use or potential annual water use includes all water from any source, including effluent, used or projected to be used within or by the facility, regardless of the nature of the use.*
8. *"Mill concentrator" means the structure at open-pit metal mines within which metallic ore is crushed and the flotation process is used to remove minerals.*
9. *"Mill circuit" means the flow of water used in the process of crushing ore, recovering copper at the mill concentrator, and transporting and disposing of tailings, and includes recovery of water at the tailings impoundments for reuse in the mill concentrator.*
10. *"Post-1984 metal mining facility" means either:*
  - a. *A large-scale metal mining and processing facility that does not qualify as a pre-1985 metal mining facility, including any expanded or modified portion of the facility, or*
  - b. *Any expanded or modified portion of a pre-1985 metal mining facility if the expansion or modification includes one or more new tailings impoundments, new mill circuits, or new leaching facilities, and was not substantially commenced as of December 31, 1984.*
11. *"Pre-1985 metal mining facility" means a large-scale metal mining and processing facility at which the mining and processing of metallic ores was occurring as of December 31, 1984, or that was substantially commenced as of December 31, 1984, and includes any expanded or modified portion of such a facility if the expansion or modification includes one or more new tailings impoundments, new mill concentrator circuits, or new wells, and was substantially commenced as of December 31, 1984.*

12. "Seepage water" means water that has infiltrated from tailings impoundments into the material underlying the tailings impoundments.
13. "Substantially commenced as of December 31, 1984" means, with regard to the construction, expansion, or modification of a large-scale metal mining and processing facility, that the owner or operator of the facility had obtained all pre-construction permits and approvals required by federal, state, or local governments for the construction, expansion, or modification of the facility by December 31, 1984, or had made a substantial capital investment in the physical on-site construction of the project in the 12 months prior to December 31, 1984.
14. "Tailings" mean the slurry of water and fine-grained waste rock material remaining after minerals have been removed in the mill concentrator and excess water has been recovered and returned to the mill concentrator.
15. "Tailings impoundment" means the final disposal site for tailings generated in the milling circuit.

### **6-1102 Conservation Requirements for Pre-1985 Metal Mining Facilities**

Beginning on January 1, 2025, or upon commencement of water use, whichever is later and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a pre-1985 metal mining facility shall comply with the following requirements:

#### **A. Management of Tailings Density**

The industrial user shall transport tailings to the tailings impoundment area at the maximum density possible consistent with reasonable economic return; but, beginning with calendar year 2025, the three-year average density of the tailings during transport shall be 48 percent solids by weight or greater during the period consisting of the reporting year and the previous two years. The Director may reduce the density required for a period of time if the industrial user demonstrates that, due to the shutdown of ore processing or tailings transport equipment or due to the density of ore being mined, the density requirement cannot be achieved.

#### **B. Management of Pre-sliming/Interceptor Wells**

The industrial user shall comply with one of the following:

1. Deposit a layer of tailings immediately up-slope from the free water level in each tailings impoundment. The tailings layer shall be 12 inches or more in thickness and shall minimize soil surface permeability.

2. *Drill interceptor wells down-gradient from each tailings impoundment. The interceptor wells shall be designed, located, and operated in such a manner as to intercept the maximum amount of seepage water possible from each tailings impoundment. Water recovered from the interceptor wells shall be reused at the mining facility.*

### *C. Management of Water in Tailings Impoundments*

*The industrial user shall minimize the free water surface area in each tailings impoundment by complying with all of the following:*

1. *Manipulate tailings that have been disposed of in a tailings impoundment, and manage new disposal of tailings in an impoundment, to create stilling basins that increase the rate of recovery of decant water from the stilling basins, and to minimize the free water surface area of stilling basins.*
2. *Use decant towers, barge pumps, or sump pumps to recycle water from each tailings impoundment back to the mill concentrator.*
3. *Expand decant tower barge pumping capacity where necessary to increase the capacity to recycle water from each tailings impoundment back to the mill concentrator.*
4. *Use, to the maximum extent possible, tailings impoundment water, rather than pumping additional groundwater.*

### *D. Capping Abandoned Tailings Impoundments*

*The industrial user shall cap each abandoned tailings impoundment in a manner that minimizes the quantity of water used for dust control purposes and/or revegetation.*

### *E. Heap and Dump Leaching*

*The industrial user shall apply water to heap and dump leaching operations in a manner that minimizes water use to the extent practicable, consistent with reasonable economic return.*

### *F. Additional Conservation Measures*

*An industrial user who uses water at a metal mining facility shall comply with three of the following eight conservation measures at those portions of the facility that do not qualify as in situ leaching sites:*

1. *When revegetating abandoned mine-related areas, utilize drought-tolerant vegetation.*
2. *Utilize multiple decant towers in single impoundments to increase decant rate.*
3. *Convert piping to high density polyethylene piping to increase density of transported tailings.*
4. *Harvest and reuse storm water runoff on site.*
5. *Reuse pit dewatering water.*
6. *Reduce evaporation from free-standing water surfaces in addition to evaporation reduction from stilling basins.*
7. *Reduce water used for dust control by reducing the number and extent of haul trips, using road binders, converting to conveyors for material transport, or using another dust control measure that reduces water use.*
8. *Reduce water used for delivery of acid/water solution for heap or dump leaching operations by using delivery methods that use less water than sprinkler delivery.*

### **6-1103 Conservation Requirements for Post-1984 Metal Mining Facilities**

*Beginning on January 1, 2025 or upon commencement of operations at the facility, whichever is later, and continuing until the legislature determines otherwise, an industrial user who uses water at a post-1984 metal mining facility shall comply with conservation requirements applicable to pre-1985 metal mining facilities as prescribed in section 6-1102, subsections C through F, and the following additional requirements:*

#### **A. Management of Tailings Impoundments**

*The industrial user shall design and construct any post-1984 tailings impoundments to maximize recovery of water from the stilling basins and to minimize seepage water. Any interceptor wells down gradient of tailings impoundments shall be constructed to maximize recovery of seepage water.*

#### **B. Management of Tailings Density**

*The industrial user shall design, construct, and operate any post-1984 mill concentrators and their associated tailings transport systems to achieve the maximum tailings densities*

possible consistent with reasonable economic return, but the average annual density of tailings during transport shall not be less than 50 percent solids by weight.

### C. Management of In Situ Leaching

The industrial user shall utilize water for in situ leaching in a manner that minimizes water use to the extent practicable, consistent with reasonable economic return.

## **6-1104 Conservation Requirements for Alternative Mining Conservation Program (AMCP)**

### A. Criteria for Approval of Application

An industrial user who uses water at a large-scale metal mining and processing facility may apply for regulation under the AMCP by submitting an application on a form provided by the Director. The Director shall approve an application for regulation under the AMCP if the Director determines that the applicant will implement their required standard best management practices (BMPs) described in Appendix 6B, unless a substitution of a standard BMP under subsection D of this section is approved. The Director shall approve a substitution of a standard BMP in accordance with subsection D of this section, if it is determined that the applicant will implement the substitute BMP or BMPs in addition to any remaining standard BMPs.

### B. Compliance with Best Management Practice Program

Beginning on a date established by the Director and continuing thereafter until the legislature determines otherwise, an industrial user accepted for regulation under the AMCP shall implement at least two of the standard BMPs from each of the six BMP categories listed in Appendix 6B (except where an exclusion applies), unless the Director approves a substitution of a standard BMP. If the Director approves a substitution of a standard BMP, the industrial user shall comply with the substitute BMP or BMPs in addition to any remaining required standard BMPs. Industrial users accepted for regulation under the AMCP shall also comply with the industrial user conservation requirements listed in Section 6.4 and provide an annual water conservation report to the Department.

### C. Substitution of Best Management Practices

1. The Director may allow an industrial user applying for the AMCP to replace a standard BMP listed in Appendix 6B with a substitute BMP if it is determined that the standard BMP cannot be achieved and that implementation of the substitute BMP will result in water use efficiency equivalent to that of the standard BMP. To apply for a substitution of a standard BMP, the industrial

user shall include in its application for the AMCP an explanation of why the standard BMP is not achievable and a description of how the substitute BMP will result in water use efficiency equivalent to that of the standard BMP.

2. An industrial user regulated under the AMCP may apply to the Director for a substitution of an existing BMP that is no longer appropriate for the industrial user's mining facility. The Director may allow the industrial user to replace the existing BMP with a substitute BMP if the Director determines that the substitute BMP will result in water use efficiency equivalent to that of the existing BMP.

#### D. Five Year Review of Best Management Practices

Five years after an industrial user is accepted for regulation under the AMCP, the Director shall review the industrial user's BMPs to determine whether any changes in the BMPs are warranted. If the Director determines that any of the existing BMPs are no longer appropriate due to an expansion of the mining facility or a change in management practices at the facility, the Director shall notify the industrial user in writing of that determination and the Director and the industrial user shall make a good faith effort to stipulate to a modification of the BMPs so that they are appropriate for the expanded facility or the change in management practices.

If the Director and the industrial user are unable to stipulate to a modification to the BMPs within 180 days after the Director notifies the industrial user of the determination that one or more of the existing BMPs are no longer appropriate, or such longer time as the Director may agree to, the industrial user shall no longer be regulated under the AMCP, but shall thereafter be required to comply with the requirements listed in Section 6-1102 or 6-1103.

If the Director and the industrial user stipulate to a modification of the BMPs, the industrial user shall comply with the modified BMPs by a date agreed upon by the Director and the industrial user and shall continue complying with the modified BMPs until the first compliance date for any substitute conservation requirement after the SMP as established by the legislature.

#### E. Change in Ownership of Mining Facility

1. If an industrial user regulated under the AMCP sells or conveys the mining facility to which the BMPs apply, the new owner of the mining facility shall continue to be regulated under the AMCP until January 1 of the first calendar year after acquiring ownership of the mining facility. Except as provided in paragraph 2 of this section, beginning on January 1 of the first calendar year after acquiring ownership of the mining facility, the new owner shall comply

with the requirements set forth in Section 6-1102 or 6-1103. The new owner may at any time apply for regulation under the AMCP.

- 4.—If the new owner submits a complete and correct application for regulation under the AMCP prior to January 1 of the first calendar year after acquiring ownership of the mining facility, the new owner shall continue to be regulated under the AMCP until the Director makes a determination on the application. If the Director denies the application, the new owner shall be required to comply with the requirements listed in Section 6-1102 or 6-1103 immediately upon notification of the denial or January 1 of the first calendar year after acquiring ownership of the mining facility, whichever is later. If the Director approves the application, the new owner shall continue to be regulated under the AMCP until the first compliance date for any substitute conservation requirement after the 5MP as established by the legislature.

### **6-1105 Alternative Conservation Program**

An industrial user who uses water at a metal mining facility may apply to the Director to use conservation technologies other than the technologies prescribed in sections 6-1102 and 6-1103, whichever is applicable. The Director may approve the use of alternative conservation technologies if it is determined that both of the following apply:

1. The industrial user has filed with the Director a detailed description of the proposed alternative technologies and the water savings that can be achieved by the use of these technologies.
2. The industrial user has demonstrated to the satisfaction of the Director that the latest commercially available conservation technology consistent with reasonable economic return will be used.

### **6-1106 Modification of Conservation Requirements for Metal Mining Facilities**

A. An industrial user who uses water at a metal mining facility may apply to the Director to modify conservation requirements prescribed in sections 6-1102 and 6-1103, whichever is applicable, for any year in which compliance with the conservation requirements would likely result in violation of any federal, state, or local environmental standards or regulations. To apply for a modification of conservation requirements, an industrial user shall submit a request in writing to the Director that includes the following information:

1. Documentation describing the conservation requirement(s) for which compliance with this requirement is likely to result in violation of

*environmental standards, and the environmental standards that are likely to be violated.*

- 2. The proposed modification to the conservation requirements.*
- B. The Director shall grant a request for modification of conservation requirements if the Director determines that compliance with the conservation requirements would likely result in a violation of any federal, state, or local environmental standards or regulations.*

### **6-1107 Preparation of a Long-Range Conservation Plan for Metal Mining Facilities**

*By January 1, 2025 or three months prior to commencement of operations at the facility, whichever is later, an industrial user who uses water at a metal mining facility shall submit to the Director an updated long-range water conservation plan that describes the existing or planned design, construction, and operation of the facility, including a description of the ore type, method of mining, and method of metal extraction. The plan shall include an evaluation of the use of the latest commercially available conservation technology consistent with reasonable economic return. Prior to submitting the plan, the industrial user shall analyze the feasibility of applying the following conservation practices or technologies at the mine and shall report the results in the plan:*

- 1. Using alternative water sources for mining and metallurgical needs, including determining the source and volume of the alternative water sources being analyzed.*
- 2. Reducing tailings impoundment evaporation through the application of the latest commercially available technologies for minimizing evaporation from the impoundments and through the application of improved tailings management.*
- 3. Minimizing water use for dust suppression through the use of road binders, conveyors, paved haul roads, and other available dust control mechanisms.*
- 4. Increasing tailings densities to 55 percent solids or greater by weight.*

*The industrial user may include any additional conservation techniques or technologies in the plan. The plan shall include a schedule of the approximate dates for implementation of any conservation practices or technologies that the industrial user intends to implement.*

### **6-1108 Monitoring and Reporting Requirements for Metal Mining Facilities**

- A. Water Measurement and Reporting*

*For calendar year 2025 or the calendar year in which the facility commences operation, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user who uses water at a metal mining facility shall include in its annual report required by A.R.S. § 45-632 the following information:*

- 1. The quantity of water from any source, including effluent, used during the calendar year for each of the following purposes: dust control, tailings revegetation, domestic use, and transportation of tailings to tailings impoundments. The quantity of water used for dust control and tailings revegetation shall be separately measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R12-15-901, et seq. The quantity of water used for domestic use and transportation of tailings to tailings impoundments may be estimated.*
- 2. The quantity of make-up water from any source, including effluent, used during the calendar year for each of the following purposes: equipment washing, leaching operations, and milling operations, as separately measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R12-15-901, et seq.*
- 3. The quantity of water from any source, including effluent, reclaimed during the calendar year from each of the following: tailings impoundments and pit dewatering. These quantities shall be separately measured with a measuring device in accordance with ADWR's measuring-device rules, A.A.C. R-12-15-901, et seq.*
- 4. The tons of ore milled during the calendar year.*
- 5. The tons of ore stacked to heap and/or dump leach during the calendar year.*
- 6. The tons of ore vat leached during the calendar year.*
- 7. The tons of material mined during the calendar year.*
- 8. The tons of mineral produced from mill circuits and from leach circuits during the calendar year.*
- 9. The average gallons of water consumed per ton of mineral produced during the calendar year.*
- 10. The average percentage of solids by weight in tailings transported to the tailings impoundments during the calendar year and in each of the previous two years.*

11. *The average annual depth of water at the deepest portion of the stilling basin(s).*
12. *Copies of aerial photos of tailings impoundments, with scale indicated, for use by ADWR in determining the wetted surface area of the tailings impoundments.*
13. *A description of the additional conservation measures applied at the metal mining facility as prescribed in section 6-1802, subsection F.*

#### **B. Contiguous Facilities**

*A single annual report may be filed for a pre-1985 metal mining facility and a post-1984 metal mining facility that are contiguous and owned by the same owner. The combined operations of the metal mining facilities shall be described pursuant to reporting requirements specified in subsection A of this section.*

## **6.12 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR NEW LARGE LANDSCAPE USERS**

### **6-1201 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes and section 6-401 of this chapter, unless the context otherwise requires, the following words and phrases used in sections 6-1202 and 6-1203 of this chapter shall have the following meanings:*

1. *“Direct use effluent” means effluent transported from a facility regulated pursuant to Title 49, Chapter 2, Arizona Revised Statutes, to an end user. Direct use effluent does not include effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes.*
2. *“Landscapable area” means the entire area of a lot less any areas covered by structures, parking lots, roads, or any other area not physically capable of being landscaped.*
3. *“New large landscape user” means a non-residential facility that has a water-intensive landscaped area in excess of 10,000 square feet and that has landscaping planted and maintained after January 1, 1990 or bodies of water, other than bodies of water used primarily for swimming purposes, filled and maintained after January 1, 1990, or both. The following facilities are excluded from this definition: schools,*

*parks, cemeteries, golf courses, common areas of housing developments and public recreational facilities.*

4. *"Effluent recovered within the area of impact" means effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes, and recovered within the area of impact of storage. For purposes of this definition, "area of impact" has the same meaning as prescribed by A.R.S. § 45-802.01.*
5. *"Water-intensive landscaped area" means, for the calendar year in question, all of the following areas within a non-residential facility:*
  1. *Any area of land that is planted primarily with plants not listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for PhxAMA and watered with a permanent water application system, except any area of land that is watered exclusively with direct use effluent or effluent recovered within the area of impact.*
  2. *The total water surface area of all bodies of water within the facility, except bodies of water used primarily for swimming purposes, bodies of water filled and refilled exclusively with direct use effluent or effluent recovered within the area of impact, and bodies of water allowed under an interim water use permit pursuant to A.R.S. § 45-133 if the bodies of water will be filled and refilled exclusively with direct use effluent or effluent recovered within the area of impact after the permit expires.*

## **6-1202 Conservation Requirements**

- A. *Conservation Requirements for New Large Landscape Users that are not Hotels or Motels*

*Beginning on January 1, 2025 or upon commencement of water use, whichever is later, and continuing thereafter until the legislature determines otherwise, the water-intensive landscaped area within a new large landscape user that is not a hotel or motel shall not exceed the greater of the following:*

1. *an area calculated by adding 10,000 square feet plus 20 percent of the facility's landscapable area in excess of 10,000 square feet; or*
  2. *the total water surface area of all bodies of water within the facility that are allowed under A.R.S. § 45-131, et seq., and that qualify as water-intensive landscaped area.*
- B. *Conservation Requirements for New Large Landscape Users that are Hotels or Motels*

*Beginning on January 1, 2025 or upon commencement of water use, whichever is later and continuing thereafter until the legislature determines otherwise, the water-intensive landscaped area within a new large landscape user that is a hotel or motel shall not exceed the greater of the following:*

- 1. an area calculated by adding 20,000 square feet plus 20 percent of the facility's landscapable area in excess of 20,000 square feet; or*
- 2. the total water surface area of all bodies of water within the facility that are allowed under A.R.S. § 45-131, et seq., and that qualify as water-intensive landscaped area.*

*C. Waiver of Conservation Requirements for the Use of 100 Percent Wastewater*

*The conservation requirements set forth in subsections A and B of this section shall not apply to a new large landscape user in any year in which all of the water used for landscaping purposes within the facility is wastewater.*

**6-1203 Monitoring and Reporting Requirements**

*For calendar year 2025 or the calendar year in which the facility first begins to use water, whichever is later, and continuing thereafter until the legislature determines otherwise, an industrial user that applies water to a new large landscape user shall include the following information in its annual report required by A.R.S. § 45-632:*

- 1. The total quantity of water from any source, including effluent, withdrawn, diverted, or received for use on the facility during the reporting year for landscape watering purposes, including bodies of water filled or refilled during the calendar year, as measured with a measuring device in accordance with ADWR's measuring device rules. A.A.C. R12-15-90,1 et seq.*
- 2. The total amount of landscapable area within the facility.*
- 3. The total amount of water-intensive landscaped area at the facility broken down into the area planted primarily with plants not listed in ADWR's Low Water Use & Drought Tolerant Plants Lists for PhxAMA (except any area watered exclusively with direct use effluent or effluent recovered within the area of impact) and the surface area of all bodies of water (except bodies of water used primarily for swimming purposes, bodies of water filled and refilled exclusively with direct use effluent or effluent recovered within the area of impact, and bodies of water allowed under an interim water use permit if the bodies of water will be filled and refilled exclusively with direct use effluent or effluent recovered within the area of impact after the*

permit expires).

## **6.13 INDUSTRIAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS FOR NEW LARGE INDUSTRIAL USERS**

### **6-1301 Definitions**

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes and section 6-401 of this chapter, "new large industrial user" as used in section 6-1302 means an industrial user that begins using more than 100 AF of water per year for industrial purposes after January 1, 2025.*

### **6-1302 Conservation Requirements**

- A. Not later than 180 days after receiving notice of these conservation requirements, or within 180 days after the end of the first calendar year in which the facility first uses more than 100 AF of water for industrial purposes, whichever is later, a new large industrial user shall submit to the Director a plan to improve the efficiency of water use by the facility. The plan shall:*
- 1. Specify the level of water conservation that can be achieved assuming the use of the latest commercially available technology consistent with reasonable economic return;*
  - 2. Identify water uses and conservation opportunities within the facility, addressing water used for the following categories as appropriate: landscaping; space cooling; process-related water use, including recycling; and sanitary and kitchen uses;*
  - 3. Describe an ongoing water conservation education program for employees; and*
  - 4. Include an implementation schedule.*
- B. If a person required to submit a plan under subsection A of this section is required to submit a conservation plan under another section of this chapter, the person may combine the plans into a single conservation plan.*

APPENDIX 6A DAIRY OPERATION BEST MANAGEMENT PRACTICES PROGRAM STANDARD BEST MANAGEMENT PRACTICES

**WATER USE CATEGORY 1. DELIVERY OF DRINKING WATER FOR DAIRY ANIMALS**

**Description:** The level of milk production, season of year and type of dairy animal housing has a significant effect on the water intake of a dairy animal. The drinking water needs of a lactating cow will vary from 25 to 45 gallons per day. As milk production per cow per day increases, drinking water intake will also increase. Conservation of dairy animal drinking water could best be accomplished by preventing and promptly repairing leaks in the drinking water system.

**BMP 1.1** Install and maintain valves and floats throughout the drinking water system to allow for the isolation of leaks in lines and tanks.

The Annual Report required by A.R.S. § 45-632 shall include a water system map of the dairy facility showing the location of all valves and floats. This map shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in the location of the valves or floats.

**BMP 1.2** Inspect the drinking water system for leaks daily to ensure that leaks are promptly identified and repaired to prevent water loss. If a leak occurs, stop water flow by isolating the area of the leak and/or repair the leak within 72 hours.

**WATER USE CATEGORY 2. UDDER WASHING AND MILKING PARLOR CLEANING**

**Description:** Udder washing and milking parlor cleaning is the single largest water use at a dairy operation. Floor and wall wash and sanitation of the milking area is necessary for producing a safe product. These systems can be either manual or semi-automatic. The amount of water used also depends on weather conditions. Udder washing and milking parlor cleaning offer the greatest conservation potential at a dairy through management of the system.

**2.1 UDDER WASH SYSTEM**

**BMP 2.1.1** Install and operate the udder washing system with automatic timers. When udder washing, use a maximum of one minute of water for the soak cycle followed by a minimum of two minutes off and a maximum of three minutes of water for the wash cycle followed by one minute off. Repeat with a second wash cycle if needed.

**BMP 2.1.2** Install a grid no larger than six feet by five feet between sprinkler heads on wash pens installed or renovated after January 1, 2002.

The Annual Report required by A.R.S. § 45-632 shall include a water system map of the dairy facility showing the location of all sprinkler heads and the dimensions of the wash pens. This map shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to the location of the sprinkler heads or to the dimensions of the wash pens.

**BMP 2.1.3** Install lock-out devices so that the wash system can be used only once per group of cows unless exceptional conditions require an override of the lock-out device.

The Annual Report required by A.R.S. § 45-632 shall include a water system map of the dairy facility showing the location of all lock-out devices. This map shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to the location of the lock-out devices.

**BMP 2.1.4** Establish and implement an inspection schedule to properly maintain and replace spray heads and timing devices. Inspect all spray heads and timing devices daily to ensure that they are operating correctly. If a device is found to be malfunctioning, repair or replace the device within 72 hours.

## **2.2 MILKING PARLOR FLOOR AND WALL WASHING**

**BMP 2.2.1** Equip all parlor hoses with shut-off valves. Inspect all hoses and valves daily. If a leak occurs, stop water flow by isolating the area of the leak and/or repair the leak within 72 hours.

**BMP 2.2.2** If a semi-automatic floor flush system is used, it must be equipped with a timing device to limit the duration of cleaning and be designed to use no more water than necessary unless the water used is water recycled within the dairy operation.

The Annual Report required by A.R.S. § 45-632 shall include a description of the flush system that includes the flush schedule and the amount of water used for each flush. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to the timing device.

## **WATER USE CATEGORY 3. CORRAL DESIGN AND MAINTENANCE**

**Description:** Proper corral design and maintenance will reduce water use in the cow wash pen prior to milking by reducing the amount of wash time necessary to clean the cow. Sloping and maintaining the corral in a dry condition keeps the cow in a cleaner condition.

**BMP 3.1** Slope corrals to prevent standing water and to promote drainage to the wastewater system.

The Annual Report required by A.R.S. § 45-632 shall include a dairy facility map that shows the corral design and the direction of slope. This map shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to corral design.

**BMP 3.2** Scrape, harrow or drag corrals to eliminate holes and maintain corrals in a dry condition.

The Annual Report required by A.R.S. § 45-632 shall include a description of corral maintenance for wet and dry conditions and a maintenance schedule. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in corral maintenance.

## **WATER USE CATEGORY 4. CLEANING AND SANITIZING MILKING EQUIPMENT**

**Description:** Cleaning and sanitizing milking equipment is necessary to provide a safe dairy product. Water is also used in pre-coolers and vacuum pumps during the milking operation. Water used for this purpose is usually between 5-10 percent of the total water use at the dairy operation. This water can be recycled for other uses at the dairy.

### **4.1 MILK COOLING AND VACUUM PUMP**

**BMP 4.1.1** If the milk cooling and vacuum pump system is water-cooled and is not a closed system, reuse water from the system to wash cow udders or pens, or for any other uses, consistent with state and federal sanitary codes.

The Annual Report required by A.R.S. § 45-632 shall include a description and diagram of how water is reused from the milk cooling and vacuum pump system. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in how water is reused from the milk cooling and vacuum pump system.

### **4.2 MILK LINE WASHING**

**BMP 4.2.1** Install and operate the milk line washing system with an automatic or semi-automatic timing device.

The Annual Report required by A.R.S. § 45-632 shall include a description of how the milk line washing system operates. The description shall include the number of cycles per washing and the amount of water used per washing. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in the number of cycles per washing and the amount of water used per washing.

### **4.3 BACK-FLUSH SYSTEMS**

**BMP 4.3.1** Maintain and service all back-flush systems in accordance with the manufacturer's design specifications and maintenance schedule.

The Annual Report required by A.R.S. § 45-632 shall include the manufacturer's design specifications and a maintenance schedule. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to the back-flush system.

### **WATER USE CATEGORY 5. DUST CONTROL, CALF HOUSING CLEANING AND FEED APRON FLUSHING**

**Description:** Control of dust, wastes and feed residues is necessary for fly control, sanitation and animal health. This requires water for cleaning and flushing feed aprons and calf housing and for wetting roadways. Conservation potential in this category includes recycling and reusing water, avoiding waste, and employing simple technologies that can reduce the amount of water needed for dust control.

**BMP 5.1** If the dairy flushes the cow feed apron, design the systems to recycle water from the cow udder wash system or to pump wastewater and recycle it from the lagoon or wetland area.

The Annual Report required by A.R.S. § 45-632 shall include a description of how water is recycled at the operation, an estimate of the amount of water recycled, and the method of estimation. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to how water is recycled.

**BMP 5.2** If the calf housing utilizes a flush system to remove animal wastes, design and manage the system so that it uses only the minimum amount necessary and equip with a timer to minimize the duration of each flush.

The Annual Report required by A.R.S. § 45-632 shall include a description of how the system is designed and managed to minimize water use, the length of time of each flush and the number of times per day on average that the system is in operation, and a water system map of the facility showing the location of the timer. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to the design or operation of the flush system.

**BMP 5.3** If dust control practices are used at the facility, the following dust control methods should be used: paving, aggregate, chemical binding agents or dairy wastewater if consistent with state and federal standards. If potable water is used for dust control it must be used as efficiently as possible.

The Annual Report required by A.R.S. § 45-632 shall include a description of the dust control technology(ies) used and the area on which dust control is practiced, and the amount of water used for dust control. If water use is estimated, provide a description of how water use is estimated. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to dust control practices.

## **WATER USE CATEGORY 6. DAIRY ANIMAL COOLING**

**Description:** Dairy animal cooling is an effective method to improve milk production per cow and reproductive efficiency, which are important factors in dairy profitability. Animal cooling is also an important factor in improving animal health. The amount of water required depends on the type of method or methods used to cool cows, on the maintenance practices for the system and on the hours of usage. Methods to conserve water for each cooling system are available to dairy-farm management.

### **6.1 HOLDING PEN COOLING**

**BMP 6.1.1** Design and operate independent fan and spray systems to ensure that water is used efficiently under all weather conditions.

The Annual Report required by A.R.S. § 45-632 shall include a diagram demonstrating that fans and spray systems are used independently and provide information on how the system is managed depending on weather conditions. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change to the fan and spray systems.

## **6.2 COW EXIT AND RETURN LANES COOLING**

**BMP 6.2.1** Use leaf gate, wand switch, electric eye or motion (proximity) indicators to automatically activate the water valve.

The Annual Report required by A.R.S. § 45-632 shall include a description of the activation device used at the dairy operation and how it operates, including the length of time the water valve is in operation and the amount of water used, and include the average number of times per day that the device is activated in a year. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in activation device.

## **6.3 FEED LINE COOLING**

**BMP 6.3.1** Locate the feed line cooling system to take advantage of prevailing winds in order to place water directly on the dairy animal. Equip the system with timers to control the duration of use.

The Annual Report required by A.R.S. § 45-632 shall include a water system map of the dairy facility showing the location of all timers and the direction of prevailing winds. Report the length of time the timer is in operation and the average number of times per day that the system is in operation in a year. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in the feed line cooling system or timers.

## **6.4. CORRAL SHADE COOLERS**

**BMP 6.4.1** Equip corral shade coolers with thermostats or timers to control operation time.

The Annual Report required by A.R.S. § 45-632 shall include a water system map of the dairy facility showing the location of all thermostats or timers and report the average daily length of time the coolers are in operation in a year. This information shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in the thermostats or timers.

**BMP 6.4.2** Establish an inspection schedule to ensure regular maintenance of nozzles and water filter systems.

The Annual Report required by A.R.S. § 45-632 shall include an inspection and maintenance schedule. This schedule shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in the maintenance schedule.

## **WATER USE CATEGORY 7. DAIRY ANIMAL FEED PREPARATION**

**Description:** Water is used in the preparation of dairy animal feed at dairy operations to pre-soak cereal grain for processing, (rolling and flaking). A large use of water in feed preparation is its addition to the total mixed ration (TMR) to improve feed intake. The amount of water needed depends on the dryness of the feed in the ration. The total amount of water added to the feed could equal 20 percent of the ration. The greatest conservation potential for feed preparation rests with leak detection and prevention.

**BMP 7.1** Install shut-off valves at each water source used for feed preparation to allow for the isolation of leaks. If a leak occurs, isolate the area of the leak and/or repair the leak within 72 hours.

The Annual Report required by A.R.S. § 45-632 shall include a water-system map of the facility showing the location of all valves. This map shall be submitted one time only (the first annual report following acceptance into the BMP Program) unless there is a change in the location of the valves.

<b>APPENDIX 6B ALTERNATIVE MINING CONSERVATION PROGRAM (AMCP) BEST MANAGEMENT PRACTICES</b>
<b>WATER USE CATEGORY 1. DUST CONTROL</b>
<b>Exclusion: Underground operations only required to choose one BMP.</b>
<b>BMP 1.1</b> Use compaction aids like soil agglomerates to minimize the use of groundwater for dust suppression.
<b>BMP 1.2</b> Use road binders or seal high-traffic roads to minimize dust production.
<b>BMP 1.3</b> Reduce the number and extent of haul trips.
<b>BMP 1.4</b> Convert to conveyors for material transport.
<b>BMP 1.5</b> Use alternative water supplies (e.g., reclaimed process water, municipal effluent, etc.) for dust suppression.
<b>BMP 1.6</b> Use of another dust control measure not in this category that reduces water use (e.g., chemical suppressants).
<b>BMP 1.7</b> Reduce groundwater use for dust control covering stockpiles
<b>BMP 1.8</b> Implement progressive reclamation or cover inactive tailings in a manner that minimizes the quantity of water used for dust control purposes.
<b>BMP 1.9</b> Use automated systems that apply dust control based on live conditions (operating level, ore moisture content, road moisture content etc.).
<b>WATER USE CATEGORY 2. PROCESSING &amp; CONVEYANCE</b>
<b>BMP 2.1</b> Employ techniques to optimize tailings particle size to balance mineral recovery and reduce tailings entrainment.
<b>BMP 2.2</b> Eliminate heap leaching or reduce water used for heap or dump leaching operations by prioritizing the use of delivery methods that use less water than a sprinkler delivery system (e.g., converting existing sprinkler systems to high efficiency drip or installing high-efficiency drip systems in new facilities).
<b>BMP 2.3</b> Use dewatering water (e.g., underground working or open pit) for mining and metallurgical processing needs.

<b>BMP 2.4</b> Use alternative water supplies (e.g., reclaimed process water, municipal effluent, etc.) for mining and metallurgical processing needs.
<b>BMP 2.5</b> Eliminate or reduce pass through water within each process before passing to another process.
<b>BMP 2.6</b> Keep fine process materials under control during operations by using techniques such as particle recovery and/or other methods that reduce water consumption.
<b>BMP 2.7</b> Modify conveyance system or tailings thickeners to increase the density of tailings.
<b>BMP 2.8</b> Convert piping to materials equal or greater in strength to high density polyethylene piping to increase density of transported tailings.
<b>WATER USE CATEGORY 3. TAILINGS STORAGE FACILITY MANAGEMENT</b>
<b>Exclusion: This category not applicable to heap and leach operations or operations that utilize dry stack tailings.</b>
<b>BMP 3.1</b> Reduce water use by using alternative technologies that thicken or dewater tailings.
<b>BMP 3.2</b> Deposit a layer of tailings immediately up-slope from the free water level in each tailings impoundment to minimize losses and improve water recovery.
<b>BMP 3.3</b> Deposit tailings in a manner that minimizes the free water surface area in each tailings impoundment to optimize/increase the rate of recovery of decant water from the stilling basins.
<b>BMP 3.4</b> Increase water recovery by installing drains in the tailings storage facility.
<b>WATER USE CATEGORY 4. REDUCE SYSTEM AND EVAPORATION LOSSES</b>
<b>BMP 4.1</b> Visually inspect water distribution systems monthly for leaks to ensure leaks are promptly identified and repaired.
<b>BMP 4.2</b> Conduct a comprehensive inspection or audit of water storage and distribution systems every three years, assess opportunities for upgrades and evaluate preventative maintenance options.
<b>BMP 4.3</b> Use of low-volume spray nozzles on conveyors and chutes.

<b>BMP 4.4</b> Redesigned bin liners and chutes that minimize spillage and water waste at ore processing facilities.
<b>BMP 4.5</b> Keep filters on recycled water pumps clean from scale build-up and debris to increase pump efficiencies.
<b>BMP 4.6</b> Separate metering of freshwater and reclaimed systems.
<b>BMP 4.7</b> Reduce unregulated evaporation losses through use of covers, or other evaporation controls on open water reservoirs, sumps, etc.
<b>BMP 4.8</b> Reduce evaporation losses by using high-efficiency drip systems on leach pads.
<b>BMP 4.9</b> Use a chemical suppressant on the tailings surface to minimize the wetted surface area and subsequent evaporation.
<b>BMP 4.10</b> Angle exhaust on haul trucks so it is not pointed at ground, to reduce evaporation from haul roads.
<b>BMP 4.11</b> Maintain a site water balance to assist in prioritizing conservation and reuse efforts.
<b>BMP 4.12</b> Measure evaporation losses (evaporation buoys) in conveyance systems and mitigate these losses in a manner consistent with reasonable economic return.
<b>WATER USE CATEGORY 5. COOLING SYSTEMS</b>
<b>BMP 5.1</b> Use of adiabatic cooling system for cooling towers.
<b>BMP 5.2</b> Use high efficiency motors for cooling systems.
<b>BMP 5.3</b> Increase cooling cycles (For example if current cycle is three, increase from three to six) or optimize existing high-efficiency cooling systems.
<b>BMP 5.4</b> Do not use water for single pass cooling or heating purposes unless the water is reused for other purposes.
<b>BMP 5.5</b> Recycle cooling water for other purposes.
<b>WATER USE CATEGORY 6. RECYCLED AND RECLAIMED WATER</b>
<b>BMP 6.1</b> Install a water treatment unit to reuse water for processing.

<b>BMP 6.2</b> Harvest and reuse storm water runoff on site.
<b>BMP 6.3</b> Install gray water systems for on-site use.
<b>BMP 6.4</b> Reuse water recovered from the tailings storage facility drains or recovered from high-efficiency tailings thickeners within the mining facility.
<b>BMP 6.5</b> Drill interceptor wells down-gradient from each tailings impoundment. The interceptor wells shall be designed, located, and operated in such a manner as to intercept the maximum amount of seepage water possible from each tailings impoundment to be reused at the mining facility.
<b>BMP 6.6</b> For post-1984 mining facilities design and construct tailings impoundments to maximize recovery of water from the stilling basins and to minimize seepage water. Any interceptor wells down gradient of tailings impoundments shall be constructed to maximize recovery of seepage water.
<b>BMP 6.7</b> For pre-1985 facilities, expand decant tower barge pumping capacity where necessary to increase the capacity to recycle water from each tailings impoundment back to the mill concentrator.
<b>BMP 6.8</b> For post-1984 facilities, use decant towers, barge pumps, or sump pumps to recycle water from each tailings impoundment back to the mill concentrator.
<b>BMP 6.9</b> Utilize multiple decant towers or reclaim pumps in single impoundments to increase decant/reclaim rate.
<b>BMP 6.10</b> Reuse, to the maximum extent possible, tailings impoundment water, rather than pumping additional groundwater.
<b>BMP 6.11</b> Develop an Alternative Water Supply Analysis (including source and volume) potentially available to the metal mining operation.