

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Commission

REGULATION NO. 32 - CLASSIFICATIONS AND NUMERIC STANDARDS FOR ARKANSAS RIVER BASIN

5 CCR 1002-32

[Editor's Notes follow the text of the rules at the end of this CCR Document.]

32.1 AUTHORITY

These regulations are promulgated pursuant to section 25-8-101 et seq. C.R.S., as amended, and in particular, 25-8-203 and 25-8-204.

32.2 PURPOSE

These regulations establish classifications and numeric standards for the Arkansas River, including all tributaries and standing bodies of water as indicated in section 32.6. The classifications identify the actual beneficial uses of the water. The numeric standards are assigned to determine the allowable concentrations of various parameters. Discharge permits will be issued by the Water Quality Control Division to comply with basic, narrative, and numeric standards and control regulations so that all discharges to waters of the state protect the classified uses. It is intended that these and all other stream classifications and numeric standards be used in conjunction with and be an integral part of Regulation No. 31 Basic Standards and Methodologies for Surface Water.

32.3 INTRODUCTION

These regulations and tables present the classifications and numeric standards assigned to stream segments listed in the attached tables (See Appendix 32-1). As additional stream segments are classified and numeric standards for designated parameters are assigned for this drainage system, they will be added to or replace the numeric standards in the tables in Appendix 32-1. Any additions or revisions of classifications or numeric standards can be accomplished only after public hearing by the Commission and proper consideration of evidence and testimony as specified by the statute and the "Basic Standards and Methodologies for Surface Water".

32.4 DEFINITIONS

See the Colorado Water Quality Control Act and the codified water quality regulations for definitions.

32.5 BASIC STANDARDS

(1) Temperature

All waters of the Arkansas River Basin are subject to the following standard for temperature. (Discharges regulated by permits, which are within the permit limitations, shall not be subject to enforcement proceedings under this standard). Temperature shall maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes and shall have no increase in temperature of a magnitude, rate, and duration deemed deleterious to the resident aquatic life. This standard shall not be interpreted or applied in a manner inconsistent with section 25-8-104, C.R.S.

(2) Qualifiers

See Basic Standards and Methodologies for Surface Water for a listing of organic standards at 31.11 Table B and metal standards found at 31.16 Table III. The column in the tables headed "Water + Fish" are presumptively applied to all aquatic life class 1 streams which also have a water supply classification, and are applied to aquatic life class 2 streams which also have a water supply classification, on a case-by-case basis as shown in Appendix 32-1. The column in the tables at 31.11 and 31.16 Table III headed "Fish Ingestion" is presumptively applied to all aquatic life class 1 streams which do not have a water supply classification, and are applied to aquatic life class 2 streams which do not have a water supply classification, on a case-by-case basis as shown in Appendix 32-1.

(3) Uranium

- (a) All waters of the Arkansas River Basin are subject to the following basic standard for uranium, unless otherwise specified by a water quality standard applicable to a particular segment. However, discharges of uranium regulated by permits which are within these permit limitations shall not be a basis for enforcement proceedings under this basic standard.
- (b) Uranium levels in surface waters shall be maintained at the lowest practicable level.
- (c) In no case shall uranium levels in waters assigned a water supply classification be increased by any cause attributable to municipal, industrial, or agricultural discharges so as to exceed 16.8-30 µg/L or naturally-occurring concentrations (as determined by the State of Colorado), whichever is greater.
 - (i) The first number in the 16.8-30 µg/L range is a strictly health-based value, based on the Commission's established methodology for human health-based standards. The second number in the range is a maximum contaminant level, established under the federal Safe Drinking Water Act that has been determined to be an acceptable level of this chemical in public water supplies, taking treatability and laboratory detection limits into account. Control requirements, such as discharge permit effluent limitations, shall be established using the first number in the range as the ambient water quality target, provided that no effluent limitation shall require an "end-of-pipe" discharge level more restrictive than the second number in the range. Water bodies will be considered in attainment of this standard, and not included on the Section 303(d) List, so long as the existing ambient quality does not exceed the second number in the range.

(4) Nutrients

See Basic Standards and Methodologies for Surface Water at 31.17 for a listing of chlorophyll a, total nitrogen, and total phosphorus standards for lakes and reservoirs (Table V) and rivers and streams (Table VI). As described in 31.17(2), total nitrogen and total phosphorus standards will be considered for adoption in phases.

Prior to December 31, 2027, total nitrogen and total phosphorus values will be considered for adoption only in the limited circumstances defined at 31.17(2)(a)(i), (ii), and (iii). For lakes and reservoirs, for both total nitrogen and total phosphorus, these circumstances include waterbodies upstream of certain domestic and non-domestic wastewater treatment facilities (31.17(2)(a)(i)(A)); in addition, for total phosphorus, other special circumstances as determined by the Commission (31.17(2)(a)(i)(B)). For rivers and streams, for total phosphorus only, these circumstances include waterbodies upstream of certain domestic and non-domestic wastewater treatment facilities (31.17(2)(a)(ii)(A)) and other special circumstances as determined by the Commission

(31.17(2)(a)(ii)(B)). For lakes, reservoirs, rivers, and streams where total nitrogen and total phosphorus standards have not yet been adopted, 31.17(2)(a)(iii) allows the commission to adopt standards as needed in additional circumstances.

Pursuant to 31.17(2)(a)(i)(A) and 31.17(2)(a)(ii)(A), the following is a list of all permitted domestic wastewater treatment facilities discharging prior to May 31, 2012 or with preliminary effluent limits requested prior to May 31, 2012, cooling tower discharges, and any non-domestic facilities subject to Regulation 85 effluent limits and discharging prior to May 31, 2012 in the Arkansas River Basin:

Segment	Permittee	Facility name	Permit No.
COARUA02b	Leadville MHC LLC	Lake Fork MHP	COG588060
COARUA03	Buena Vista Sanitation District	Buena Vista San Dist WWTF	CO0045748
COARUA03	Salida City of	Salida WWTF	CO0040339
COARUA04a	Fremont Sanitation District	Rainbow Park WWTF	CO0039748
COARUA05a	Young Life Campaign Inc	Frontier Ranch	CO0034304
COARUA05a	Moose Haven Condominiums	Moose Haven Condominiums	CO0047279
COARUA05a	Mountain View Villages Water & Sanitation District	Mountain View Villages	CO0048372
COARUA06	Leadville Sanitation District	Leadville San Dist WWTF	CO0021164
COARUA12a	Mount Princeton Hot Springs Resort	Mount Princeton Hot Springs Resort WWTF	COG588017
COARUA12a	Christian Mission Concerns	Silver Cliff Ranch	COG588102
COARUA13	Monarch Mountain Lodge	Garfield WWTF	CO0028444
COARUA13	PowderMonarch LLC	Monarch Ski Area	CO0031399
COARUA14db	Penrose Sanitation District	Penrose WWTF	CO0046523
COARUA14db	Royal Gorge Company of Colorado	Royal Gorge	CO0029033
COARUA21a	Cripple Creek City of	Cripple Creek WWTF	CO0039900
COARUA23	Victor City of	Victor WWTF	CO0024201
COARMA04a; COARMA04g	Pueblo West Metro District	Pueblo West Metro District WWTF	CO0040789
COARMA04c	Sunset Metropolitan District	Ellicott Springs WWTF	CO0047252
COARMA04c	Woodmen Hills Metropolitan District	Woodmen Hills Metro Dist WWTF	CO0047091
COARMA04d	Avondale Water and Sanitation District	Avondale and Fort Reynolds WWTF	CO0021075
COARMA04f	Cherokee Metropolitan District	Cherokee Metropolitan District WRF	COX048348
COARMA09	Colorado City Metropolitan District	Colorado City Metro Dist WWTF	CO0021121
COARMA13b	Cucharas Sanitation and Water District	Cucharas WWTF	CO0043745
COARMA14	La Veta Town of	La Veta WWTF	CO0032409
COARMA14	City of Walsenburg	Walsenburg City of	CO0020745
COARFO02a	Fountain Sanitation District	Fountain Sanitation District WWTF	CO0020532
COARFO02a	Colorado Springs Utilities	Las Vegas Street WWTF	CO0026735
COARFO02a	Security Sanitation District	Security Sanitation District WWTF	CO0024392
COARFO02a	Widefield Water and Sanitation District	Widefield WSD WWTF	CO0021067
COARFO04	Academy Water and Sanitation District	Academy Water and San Dist WWTF	COG589020
COARFO04c	Academy School Dist 20	Edith Wolford Elem School	CO0048429
COARFO04d	Broadmoor Park Properties	Broadmoor Park Properties	COG589021

Segment	Permittee	Facility name	Permit No.
COARFO04d	US Dept of the Army	Fort Carson WWTF	CO0021181
COARFO04e	Lower Fountain Metropolitan Sewage Disposal District	HDTRWRF	CO0000005
COARFO06	Colorado Springs Utilities	J D Phillips Water Reclamation Facility	CO0046850
COARFO06	Tri-Lakes Wastewater Treatment Facility	Tri-Lakes WWTF	CO0020435
COARFO06	Donala Water and Sanitation District	Upper Monument Crk Reg WWTF	CO0042030
COARLA01a	Pueblo City of	James R Dilorio WRF	CO0026646
COARLA01a	Meadowbrook MHP LLC	Meadowbrook MHP	COG588022
COARLA01b	Crowley County Correctional	Crowley Correctional Facility	CO0046795
COARLA01b	Colorado Dept of Corrections	Fort Lyon Correctional Facility WWTF	CO0046311
COARLA01b	Colorado Dept of Corrections	Fort Lyon Correctional Facility WWTF	CO0048801
COARLA01b	Fowler Town of	Fowler WWTF	CO0021571
COARLA01b	Las Animas City of	Las Animas WWTF	CO0040690
COARLA01b	North La Junta Sanitation District	North La Junta San Dist WWTF	CO0039519
COARLA01b	Rocky Ford City of	Rocky Ford WWTF	CO0023850
COARLA02a	Boone Town of	Boone WWTF	COG589116
COARLA02a	Calhan Town of	Calhan WWTF	COG589018
COARMA13c	Country Host Motel	Country Host Motel	COG589038
COARLA02a	Crowley Town of	Crowley WWTF	CO0041599
COARLA02a	Eads Town of	Eads WWTF	COG589016
COARLA02d	Limon, Town of	Limon WWTF	COG589023
COARLA02a	Simla Town of	Simla WWTF	COG589031
COARLA02d	Springfield Town of	Springfield WWTF	COG589102
COARLA02d	Colorado Dept of Corrections	Trinidad Correctional Facility	CO0046094
COARLA02b	La Junta City of	La Junta WWTF	CO0021261
COARLA05b	Trinidad City of	Trinidad WWTF	CO0024015
COARLA05b; COARLA06a	Cokedale Town of	Cokedale WWTF	CO0048461
COARLA07	Hoehne School District R-3	Hoehne School	COG588110
COARLA07	Trinidad City of	Trinidad WWTF	CO0031232
Unclassified	Colorado Dept of Natural Resources	Arkansas Point WWTF	COG589008
Unclassified	Manzanola, Town of	Manzanola WWTF	COG589012
Unclassified	Wiley Sanitation District	Wiley San Dist WWTF	COG589007

Prior to December 31, 2027:

- For segments located entirely above these facilities, nutrient standards apply to the entire segment.
- For segments with portions downstream of these facilities, total nitrogen and total phosphorus standards only apply above these facilities. A note was added to the total phosphorus and total nitrogen standards in these segments. The note references the table of qualified facilities at 32.5(4).
- For segments located entirely below these facilities, total nitrogen and total phosphorus standards do not apply.

- Additionally, for segments with portions downstream of these facilities or for segments located entirely below these facilities, total phosphorus standards may apply where special circumstances have been identified by the Commission (31.17(2)(a)(i)(B) and 31.17(2)(a)(ii)(B)).

32.6 TABLES

(1) Introduction

The numeric standards for various parameters in this regulation and in the tables in Appendix 32-1 were assigned by the Commission after a careful analysis of the data presented on actual stream conditions and on actual and potential water uses. For each parameter listed in the tables in Appendix 32-1, only the most stringent standard is shown. Additional, less stringent standards may apply to protect additional uses and can be found in the tables in Regulation No. 31.

Numeric standards are not assigned for all parameters listed in the tables in Regulation No. 31. If additional numeric standards are found to be needed during future periodic reviews, they can be assigned by following the proper hearing procedures.

(2) Abbreviations:

(a) The following abbreviations are used in this regulation and the tables in Appendix 32-1:

Ac	=	acute (1-day)
AEL	=	alternative effluent limit
°C	=	degrees Celsius
Ch	=	chronic (30-day)
CL	=	cold lake temperature tier
CLL	=	cold large lake temperature tier
CS-I	=	cold stream temperature tier one
CS-II	=	cold stream temperature tier two
D.O.	=	dissolved oxygen
DM	=	daily maximum temperature
DUWS	=	direct use water supply
<i>E. coli</i>	=	<i>Escherichia coli</i>
mg/L	=	milligrams per liter
MWAT	=	maximum weekly average temperature
OW	=	outstanding waters
sp	=	spawning
SSE	=	site-specific equation
T	=	total recoverable
t	=	total
tr	=	trout
TVS	=	table value standard
µg/L	=	micrograms per liter
UP	=	use-protected
WS	=	water supply
WS-I	=	warm stream temperature tier one
WS-II	=	warm stream temperature tier two
WS-III	=	warm stream temperature tier three
WL	=	warm lake temperature tier

- (b) In addition, the following abbreviations are used:

Iron (chronic)	=	WS
Manganese (chronic)	=	WS
Sulfate (chronic)	=	WS

These abbreviations mean: For all surface waters with an actual water supply use, the less restrictive of the following two options shall apply as numerical standards, as specified in the Basic Standards and Methodologies at 31.16 Table II and III:

- (i) existing quality as of January 1, 2000; or
- (ii) Iron = 300 µg/L (dissolved)
Manganese = 50 µg/L (dissolved)
Sulfate = 250 mg/L (dissolved)

For all surface waters with a “water supply” classification that are not in actual use as a water supply, no water supply standards are applied for iron, manganese or sulfate, unless the Commission determines as the result of a site-specific rulemaking hearing that such standards are appropriate.

- (c) Temporary Modification for Water + Fish Chronic Arsenic Standard

- (i) The temporary modification for chronic arsenic standards applied to segments with an arsenic standard of 0.02 µg/L that has been set to protect the Water + Fish qualifier is listed in the Other column in Appendix 32-1 tables as As(ch)=hybrid.
- (ii) For discharges existing on or before 6/1/2013, the temporary modification is: As(ch)=current condition, expiring on 12/31/~~2024~~2029. Where a permit for an existing discharge is reissued or modified while the temporary modification is in effect, the division will include additional permit Terms and Conditions, which may include requirements for additional monitoring, source identification, and characterization of source control and treatment options for reducing arsenic concentrations in effluent. Where a permit for an existing discharge is reissued or modified while the temporary modification is in effect, and the permit previously included the additional permit Terms and Conditions, the division may include low cost activities to control sources of arsenic as an additional element of the permit Terms and Conditions.
- (iii) For new or increased discharges commencing on or after 6/1/2013, the temporary modification is: As(ch)=0.02-3.0 µg/L (total recoverable), expiring on 12/31/~~2024~~2029.
- (a) The first number in the range is the health-based water quality standard previously adopted by the Commission for the segment.
- (b) The second number in the range is a technology-based value established by the Commission for the purpose of this temporary modification.
- (c) Control requirements, such as discharge permit effluent limitations, shall be established using the first number in the range as the ambient water quality target, provided that no effluent limitation shall require an “end-of-pipe” discharge level more restrictive than the second number in the range.

(3) Table Value Standards

In certain instances in the tables in Appendix 32-1, the designation "TVS" is used to indicate that for a particular parameter a "table value standard" has been adopted. This designation refers to numerical criteria set forth in the Basic Standards and Methodologies for Surface Water. The criteria for which the TVS are applicable are on the following table.

TABLE VALUE STANDARDS
(Concentrations in µg/L unless noted)

PARAMETER ⁽¹⁾	TABLE VALUE STANDARDS ⁽²⁾⁽³⁾
Aluminum(T)	<p>Acute = $e^{(1.3695 \ln(\text{hardness}) + 1.8308)}$ pH equal to or greater than 7.0 Chronic = $e^{(1.3695 \ln(\text{hardness}) - 0.1158)}$ pH less than 7.0 Chronic = $e^{(1.3695 \ln(\text{hardness}) - 0.1158)}$ or 87, whichever is more stringent</p>
Ammonia ⁽⁴⁾	<p>Cold Water = (mg/L as N) Total</p> $acute = \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}}$ $chronic = \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) * MIN(2.85, 1.45 * 10^{0.028(25 - T)})$ <p>Warm Water = (mg/L as N) Total</p> $acute = \frac{0.411}{1 + 10^{7.204 - pH}} + \frac{58.4}{1 + 10^{pH - 7.204}}$ $chronic (Apr 1 - Aug 31) = \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) * MIN(2.85, 1.45 * 10^{0.028(25 - T)})$ $chronic (Sep 1 - Mar 31) = \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) * 1.45 * 10^{0.028 * (25 - MAX(T, 7))}$
Cadmium	<p>Acute(warm)⁽⁵⁾ = $(1.136672 - (\ln(\text{hardness}) * 0.041838)) * e^{(0.9789 \ln(\text{hardness}) - 3.443)}$ Acute(cold)⁽⁵⁾ = $(1.136672 - (\ln(\text{hardness}) * 0.041838)) * e^{(0.9789 \ln(\text{hardness}) - 3.866)}$ Chronic = $(1.101672 - (\ln(\text{hardness}) * 0.041838)) * e^{(0.7977 \ln(\text{hardness}) - 3.909)}$</p>
Chlorophyll a ⁽⁶⁾	See 31.17 TVS for Aquatic Life and/or Recreation and Direct Use Water Supply (DUWS).
Chromium III ⁽⁷⁾	<p>Acute = $e^{(0.819 \ln(\text{hardness}) + 2.5736)}$ Chronic = $e^{(0.819 \ln(\text{hardness}) + 0.5340)}$</p>
Chromium VI ⁽⁷⁾	<p>Acute = 16 Chronic = 11</p>
Copper	<p>Acute = $e^{(0.9422 \ln(\text{hardness}) - 1.7408)}$ Chronic = $e^{(0.8545 \ln(\text{hardness}) - 1.7428)}$</p>
Lead	<p>Acute = $(1.46203 - (\ln(\text{hardness}) * 0.145712)) * e^{(1.273 \ln(\text{hardness}) - 1.46)}$ Chronic = $(1.46203 - (\ln(\text{hardness}) * 0.145712)) * e^{(1.273 \ln(\text{hardness}) - 4.705)}$</p>
Manganese	<p>Acute = $e^{(0.3331 \ln(\text{hardness}) + 6.4676)}$ Chronic = $e^{(0.3331 \ln(\text{hardness}) + 5.8743)}$</p>
Nickel	<p>Acute = $e^{(0.846 \ln(\text{hardness}) + 2.253)}$ Chronic = $e^{(0.846 \ln(\text{hardness}) + 0.0554)}$</p>
Nitrogen ⁽⁶⁾	See 31.17 TVS for Aquatic Life and/or Recreation.
Phosphorus ⁽⁶⁾	See 31.17 TVS for Aquatic Life and/or Recreation.
Selenium ⁽⁸⁾	<p>Acute = 18.4 Chronic = 4.6</p>

PARAMETER ⁽¹⁾	TABLE VALUE STANDARDS ⁽²⁾⁽³⁾					
Silver	Acute = 0.5*e ^{(1.72*ln(hardness)-6.52)} Chronic = e ^{(1.72*ln(hardness)-9.06)} Chronic(Trout) = e ^{(1.72*ln(hardness)-10.51)}					
Temperature	TEMPERATURE TIER	TIER CODE	SPECIES EXPECTED TO BE PRESENT	APPLICABLE MONTHS	TEMPERATURE STANDARD (°C)	
					MWAT	DM
	Cold Stream Tier I	CS-I	brook trout, cutthroat trout	June – Sept.	17.0	21.7
				Oct. – May	9.0	13.0
	Cold Stream Tier II	CS-II	Other cold-water species	April – Oct.	18.3	24.3
				Nov. – March	9.0	13.0
	Cold Lakes ⁽⁹⁾	CL	brook trout, brown trout, cutthroat trout, lake trout, rainbow trout, Arctic grayling, sockeye salmon	April – Dec.	17.0	21.2
				Jan. – March	9.0	13.0
	Cold Large Lakes (>100 acres surface area) ⁽⁹⁾	CLL	rainbow trout, brown trout, lake trout	April – Dec.	18.3	24.2
				Jan. – March	9.0	13.0
	Warm Stream Tier I	WS-I	common shiner, Johnny darter, orangethroat darter, stonecat	March – Nov.	24.2	29.0
				Dec. – Feb.	12.1	24.6
	Warm Stream Tier II	WS-II	brook stickleback, central stoneroller, creek chub, longnose dace, northern redbelly dace, finescale dace, razorback sucker, white sucker, mountain sucker	March – Nov.	27.5	28.6
				Dec. – Feb.	13.8	25.2
	Warm Stream Tier III	WS-III	all other warm-water species	March – Nov.	28.7	31.8
				Dec. – Feb.	14.3	24.9
	Warm Lakes	WL	black crappie, bluegill, common carp, gizzard shad, golden shiner, largemouth bass, northern pike, pumpkinseed, sauger, smallmouth bass, spottail shiner, stonecat, striped bass, tiger muskellunge, walleye, wiper, white bass, white crappie, yellow perch	April – Dec.	26.2	29.3
				Jan. – March	13.1	24.1
Uranium	Acute = e ^{(1.1021*ln(hardness)+2.7088)} Chronic = e ^{(1.1021*ln(hardness)+2.2382)}					
Zinc	Acute = 0.978*e ^{(0.9094*ln(hardness)+0.9095)} Chronic = 0.986*e ^{(0.9094*ln(hardness)+0.6235)}					

TABLE VALUE STANDARDS - FOOTNOTES

- (1) Metals are stated as dissolved unless otherwise specified. Nitrogen and phosphorus standards are based upon the concentration of total nitrogen and total phosphorus.
- (2) Hardness values to be used in equations are in mg/L as calcium carbonate and shall be no greater than 400 mg/L, except for aluminum for which hardness shall be no greater than 220 mg/L. The hardness values used in calculating the appropriate metal standard should be based on the lower 95 per cent confidence limit of the mean hardness value at

the periodic low flow criteria as determined from a regression analysis of site-specific data. Where insufficient site-specific data exists to define the mean hardness value at the periodic low flow criteria, representative regional data shall be used to perform the regression analysis. Where a regression analysis is not appropriate, a site-specific method should be used. In calculating a hardness value, regression analyses should not be extrapolated past the point that data exist.

- (3) Both acute and chronic numbers adopted as stream standards are levels not to be exceeded more than once every three years on the average.
- (4) For acute conditions the default assumption is that salmonids could be present in cold water segments and should be protected, and that salmonids do not need to be protected in warm water segments. For chronic conditions, the default assumptions are that early life stages could be present all year in cold water segments and should be protected. In warm water segments the default assumption is that early life stages are present and should be protected only from April 1 through August 31. These assumptions can be modified by the commission on a site-specific basis where appropriate evidence is submitted. The "T" in the chronic equations stands for temperature.
- (5) The acute(warm) cadmium equation applies to segments classified as Aquatic Life Warm Class 1 or 2. The acute(cold) cadmium equation applies to segments classified as Aquatic Life Cold Class 1 or 2.
- (6) For lakes and reservoirs, the chlorophyll a, total nitrogen, and total phosphorus standards for Aquatic Life and Recreation apply only to lakes and reservoirs greater than 25 acres in surface area. The chlorophyll a standard for Direct Use Water Supply (DUWS) applies to lakes and reservoirs of any size.
- (7) Unless the stable forms of chromium in a waterbody have been characterized and shown not to be predominantly chromium VI, data reported as the measurement of all valence states of chromium combined should be treated as chromium VI. In addition, in no case can the sum of the concentrations of chromium III and chromium VI or data reported as the measurement of all valence states of chromium combined exceed the water supply standards of 50 µg/L chromium in those waters classified for domestic water use.
- (8) Selenium is a bioaccumulative metal and subject to a range of toxicity values depending upon numerous site-specific variables.
- (9) Lake trout-based summer temperature criteria [16.6 (ch), 22.4 (ac)] apply where appropriate and necessary to protect lake trout from thermal impacts.

(4) Site-specific Standards, Assessment Locations, and Assessment Criteria

The following criteria shall be used when assessing whether a specified waterbody is in attainment of the specified standard.

- (a) Middle Arkansas Segment 2 (COARMA02), Arkansas River, Temperature Assessment Reaches and Site-specific Standards
 - Upper Reach: From Pueblo Dam to the Pueblo Hatchery outfall (38.266697, -104.711983).
 - Mid Reach: From the Pueblo Hatchery outfall (38.266697, -104.711983) to the end of the Pueblo Hatchery mixing zone (38.264213, -104.708524).

- Lower Reach: From the end of the Pueblo Hatchery mixing zone (38.264213, -104.708524) to the confluence with Wildhorse/Dry Creek Arroyo.

Month	Reach	MWAT °C	DM °C
Jan-June	All	CS-II	CS-II
July	Upper	CS-II	CS-II
	Mid	CS-II	CS-II
	Lower	18.5	CS-II
Aug	Upper	18.9	CS-II
	Mid	19.1	CS-II
	Lower	20.0	26.0
Sept	Upper	19.9	CS-II
	Mid	20.0	CS-II
	Lower	20.9	24.6
Oct	Upper	19.9	CS-II
	Mid	20.0	CS-II
	Lower	19.6	CS-II
Nov	Upper	15.7	15.8
	Mid	15.5	15.2
	Lower	14.7	15.9
Dec	Upper	10.1	CS-II
	Mid	9.9	CS-II
	Lower	9.6	CS-II

For assessment, a 1-in-3 year allowable exceedance frequency shall be used to assess these site-specific standards, consistent with 31.16 Table I Footnotes 5a and 5b. Because the site-specific standards are ambient, and not biologically-based, the Warming Event allowance does not apply.

(ba) Middle Arkansas Segment 4a, Wildhorse Creek, Se(ac)=2376, Se(ch)=2110: Selenium Assessment Location

- Wildhorse Creek above Pesthouse Gulch: 38.296478, -104.649201

(cb) Middle Arkansas Segment 4g, Pesthouse Gulch, Se(ac)=389, Se(ch)=369: Selenium Assessment Location

- Pesthouse above No Name: 38.309568, -104.672244

(de) Middle Arkansas Segment 6b, St. Charles River, Se(ac)=173, Se(ch)=50: Selenium Assessment Locations

Determinations of attainment of the chronic and acute selenium standards will be based on the 85th and 95th percentile, respectively of all available data from the segment. The selenium assessment locations are:

- SC-5: St. Charles River approximately one mile downstream of the confluence with Edson Arroyo.
- SC-6-US: St. Charles River upstream of the confluence with Thomkins Arroyo and the Comanche discharge.
- SC-7: Approximately 2 miles upstream of the Bessemer Canal crossing.
- SC-8: Immediately upstream of the Bessemer Canal crossing.
- SC-9: St. Charles River downstream of where the river flows under U.S. Highway 50, approximately 3 miles upstream of the confluence with the Arkansas River.

(ed) Middle Arkansas Segment 20, Pueblo Reservoir: Chlorophyll a Assessment Location

- Site 7b (USGS Site 381602104435200): Near the dam and the south outlet works

(5) Stream Classifications and Water Quality Standards Tables

The stream classifications and water quality standards tables in Appendix 32-1 are incorporated herein by reference.

The following is information regarding duration and measured form of standards in Appendix 32-1:

- (a) *E. coli* criteria and resulting standards for individual water segments, are established as indicators of the potential presence of pathogenic organisms. Standards for *E. coli* are expressed as a two-month geometric mean. Site-specific or seasonal standards are also two-month geometric means unless otherwise specified.
- (b) The pH standards of 6.5 (or 5.0) and 9.0 are an instantaneous minimum and maximum, respectively to be applied as effluent limits. In determining instream attainment of water quality standards for pH, appropriate averaging periods may be applied, provided that beneficial uses will be fully protected.
- (c) All mercury standards apply to the total recoverable fraction of all forms, both organic and inorganic, of mercury in water.
- (d) All ammonia, nitrate, and nitrite standards are based upon the concentration reported as nitrogen.

(6) Discharger-specific Variances

- (a) Lower Arkansas Segment 1a (COARLA01a):

Discharger-specific Variance, City of Pueblo James R. Dilorio Water Reclamation Facility (CO0026646): Adopted 6/12/2018.

Selenium (acute): AEL=narrative;
Selenium (chronic): AEL=narrative;
Sulfate (chronic): AEL=narrative.
Expiration date: 12/31/2028.

Narrative alternative effluent limit: During the DSV term, Pueblo will be required to spend \$10 million to implement a comprehensive source control, sampling, analysis, and optimization adaptive management program to reduce selenium and sulfate

concentrations in the effluent as much as feasible and to ensure that the discharge does not contribute to any lowering of the currently attained ambient water quality. The adaptive management program will include the following elements, in order of priority:

- Lining up to 175,000 ft² in the sewer collection system in Basins 2 and 3.
- Sealing up to 400 manholes in Basins 2 and 3.
- The amount of sewer lining and manhole sealing may be reduced by:
 - Repair of service taps in poor condition;
 - Repair of service lines in poor condition; or
 - Additional effort where epoxy sealing of manholes is insufficient to control I & I.
- A comprehensive long-term sampling and analysis program to identify source control projects and evaluate the effectiveness of implemented controls.
- Investigation of the contribution from sump pumps.
- Pilot testing to determine the feasibility of treatment optimization to reduce selenium, and implementation of feasible treatment optimization measures.

(b) Lower Arkansas Segment 1b (COARLA01b):

- (i) Discharger-specific Variance, City of La Junta (CO0021261), Adopted 10/11/2016.

Selenium (acute): AEL=no limit;
Selenium (chronic): AEL=0.37 lbs/day as a 12-month rolling average.
Includes a Pollutant Minimization Program. (see 32.71(A))
Expiration date: 12/31/2026.

- (ii) Discharger-specific Variance, City of Las Animas (CO0040690): Adopted 06/11/2018

Selenium (chronic): AEL = narrative.
Includes a Pollutant Minimization Program. (see 32.71(A))
Expiration Date: 12/31/2025.

Narrative alternative effluent limit: During the DSV term, Las Animas will implement a Pollutant Minimization Plan, which is expected to result in effluent concentrations between 0.8 – 28.4 µg/L. The following measures are required during the term of the variance to reduce selenium concentrations as much as feasible and to ensure the discharge does not contribute to any lowering of ambient in-stream water quality:

- Monitor selenium concentrations in each municipal water well and use the wells with the lowest selenium concentrations to meet water demand to the maximum extent feasible
- Initiate a water conservation program

- Locate and repair sources of water loss in the water distribution system.
- Maintain the ongoing sanitary sewer collection system replacement program to address groundwater infiltration

32.7 – 32.9 RESERVED

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32.72 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JUNE 11, 2024 RULEMAKING; FINAL ACTION AUGUST 21, 2024; EFFECTIVE DATE DECEMBER 31, 2024

The provisions of C.R.S. 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402; provide the specific statutory authority for adoption of these regulatory amendments. The commission also adopted in compliance with 24-4-103(4) C.R.S. the following statement of basis and purpose.

BASIS AND PURPOSE

A. Temporary Modifications

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the commission conducted its biennial review of the status of all temporary modifications to determine whether the temporary modifications should be modified, eliminated, or extended.

1. Temporary Modifications for Standards Other than Arsenic

There are currently no temporary modifications for standards other than arsenic.

2. Temporary Modifications for Arsenic

The Water Quality Control Division (division) provided an update to the commission on progress being made in implementing its plan to resolve uncertainty for the chronic arsenic temporary modification. This temporary modification applies to segments with an arsenic standard of 0.02 µg/L (to protect the Water + Fish use) and dischargers with demonstrated or predicted water quality-based effluent limit (WQBEL) compliance problems. The temporary modification was first adopted in 2011 (38.79), adopted more broadly throughout the state in 2013 (32.51), and extended in 2019 (32.63(B)) to expire 12/31/2024.

Based on evidence that met the 31.7(3) requirements to support extension of temporary modifications, the commission extended the temporary modification by five years, to expire 12/31/2029. No changes were made to the temporary modification operative values at 32.6(2)(c). Therefore, for discharges existing on or before 6/1/2013, the temporary modification remains at As(ch)=current condition and numeric effluent limits will be implemented by the division using the division's Clean Water Policy 13, *Permit Implementation Method for Narrative (Current Condition) Temporary Modifications*. For new or increased discharges that commence(d) on or after 6/1/2013, the temporary modification remains at 0.02-3.0 µg/L (total recoverable).

To support this extension, the division demonstrated continued instream non-attainment of the underlying standard and demonstrated or predicted WQBEL compliance problems with permit limits based on the underlying standard. The division also demonstrated the need for additional time to resolve the remaining uncertainty regarding the appropriate arsenic standard to protect the use and the extent to which existing quality is the result of natural or irreversible human-induced conditions.

The division provided a revised, multifaceted plan to resolve uncertainty (division Prehearing Statement Exhibit F-5) that included details regarding ongoing investigations and information needed to resolve the uncertainty and derive a revised standard by 12/31/2029. The plan includes: evaluating results from the division's 2020-2023 field study to investigate the proportion of inorganic (versus total) arsenic in the tissue of fish collected from Colorado waters; deriving a Colorado-relevant bioaccumulation or bioconcentration factor for arsenic; characterizing ambient levels of arsenic statewide; gathering facility data for permittees discharging to temporary modification segments and collection of additional arsenic effluent data to better understand the extent of arsenic compliance issues throughout the state; conducting outreach regarding progress

on standards revisions; and awaiting the finalization of EPA's Integrated Risk Information System (IRIS) toxicological assessment for arsenic.

Consistent with the requirements of 31.7(3), the division will also provide annual updates on progress related to the temporary modification and the commission will review this progress as part of the biennial reviews of the temporary modification and include efforts from other states. Additionally, the division will pursue avenues of outreach to engage relevant stakeholders, including, but not limited to, the division's Water Quality Roadmap Workgroup quarterly meetings, Feasibility and Implementation subgroup meetings, Technical Advisory Committee meetings, permit webinars, or other relevant stakeholder meetings as needed. In addition, the division will consult with the department's Toxicology and Environmental Epidemiology Office to ensure consideration of impacts to human health statewide is thoroughly evaluated. Additionally, input from potentially impacted Coloradans is essential, especially when considering the disproportionate impacts in some communities from arsenic along with other environmental stressors.

The division will continue implementing permit requirements to gather targeted data from facilities benefiting from the arsenic temporary modification. Effluent arsenic concentration data from facilities throughout the state demonstrate that many facilities will likely have issues meeting effluent limits based on the anticipated revised arsenic water quality standard to protect human health. As a result, there continues to be a widespread need to make progress in understanding sources of arsenic and options for source control and treatment. To ensure such progress is made, when implementing the "current condition" temporary modification in permits, the division will continue to include additional permit Terms and Conditions (T&Cs; division Consolidated Proposal Exhibit F-6 (FINAL)), which may include requirements for additional monitoring, source identification, characterization of source control and treatment options for reducing arsenic concentrations in effluent, and implementation of reasonably achievable effluent quality improvements to control sources of arsenic or reduce arsenic effluent concentrations. Although not required per 32.6(2)(c), new or expanding dischargers are also encouraged to implement the T&Cs.

In 2013, a value of 3 µg/L was identified by the commission as a "reasonable technologically achievable value for arsenic" that could be used as a point of reference until the uncertainty in the underlying standard is resolved. This value is also used as the temporary modification operative value for new or expanding facilities and as a value to categorize facilities for implementation of permit T&Cs. However, it is important to note that arsenic treatment feasibility can vary from facility to facility and is a topic that requires further investigation by the division, dischargers, and stakeholders. In addition, the future revised arsenic standard is anticipated to be at least as stringent as the current standard of 0.02 µg/L. Therefore, when evaluating arsenic treatment options, facilities are encouraged to investigate options that will reduce arsenic as low as possible and not assume 3 µg/L is the limit of technology in all cases. The commission recognizes that various factors, such as influent concentration, financial capacity, and influent competing ions, affect the effluent quality that is feasible for individual facilities to achieve.

The commission recognizes that, while arsenic occurs naturally in soil, sediment, and groundwater, there are also man-made sources of arsenic and anthropogenic activities can increase concentrations in the environment. Additionally, arsenic conditions may vary from watershed to watershed, and the relative contributions of point and nonpoint sources may be an area of further study to determine if conditions can be improved by means other than treatment, including source identification and controls. An additional practical consideration is the challenge related to laboratory analysis of arsenic at very low concentrations; specifically, sufficiently sensitive analytical methods to detect arsenic at very low levels such as 0.02 µg/L are not currently available. Thus, the certainty we have when identifying sources of arsenic is limited by the sensitivity of current analytical methods and arsenic may be not detected in water even though the standard has been exceeded. The division will routinely evaluate whether any

advances in analytical capabilities have been made, and will provide updates to the commission as information becomes available.

Since 2020, T&Cs have been implemented in some permits that were reissued or modified. To ensure progress continues, when permits that already have the T&Cs are next reissued or modified, additional T&Cs may be added, such as implementation of reasonably achievable effluent quality improvements to control sources of arsenic or reduce arsenic effluent concentrations. Ultimately, the additional T&Cs will benefit facilities by requiring initial steps towards arsenic reduction during the temporary modification. By beginning preliminary investigations while the temporary modification is in place, facilities will have more time to plan for future permit limits, data to inform selection of source reduction and/or treatment options, evidence to identify appropriate future regulatory pathways, and data to assist the division and facilities in resolving the uncertainty for arsenic per 31.7(3)(a)(iii)(B). The additional T&Cs are consistent with the commission's rule at 31.9(4)(a)(iii), are reasonable, and will not cause undue economic burden for facilities. These requirements will ensure that progress is being made toward future attainment of the underlying standards and protection of the classified uses.

Arsenic is a known human carcinogen (e.g., of the bladder, lung, skin, liver, and colon) that is present at levels of concern in many Colorado waterbodies that are classified as water supplies. Despite the human health risks posed by arsenic, the commission has adopted arsenic temporary modifications since 2011 (38.79) to allow for feasible discharge permit requirements while the uncertainty regarding the standard necessary to protect the Water + Fish use and the extent to which arsenic levels are irreversible is resolved.

However, the commission's intent is for temporary modifications to be temporary; in 2021, the commission adopted rule changes at 31.7(3) and 31.9 to "better ensure that temporary modifications are adopted only when necessary and eliminated in a timely manner" (31.59(VII)). For example, the changes require a detailed, site-specific approach expected to result in sufficient information to resolve each type of uncertainty within the term of the temporary modification. Accordingly, the commission's intent is that the division and dischargers ~~should do what is necessary to~~ prepare for implementation of WQBELs following expiration of the temporary modifications on 12/31/2029. It is important for facilities to determine the degree to which effluent quality can be improved and on what timeline the improvements can be achieved.

The commission is determined that Colorado's temporary modification program will be a tool that encourages and facilitates progress, and not an impediment to achieving water quality improvements. Successful and timely implementation of all components of the Clean Water program is required by state and federal laws, and is necessary to assure continued EPA approval of Colorado temporary modifications.

B. Discharger-Specific Variances

There are three discharger-specific variances (DSVs) in Regulation No. 32. Because the commission reviewed these DSVs in October 2023 (32.71(A)), there was not a need to review them as part of this triennial review.

C. Site-specific Standards

Site-specific criteria-based standards are adopted where alternate criteria are shown to be protective of the classified uses. Site-specific ambient-based standards are adopted where natural or irreversible human-induced conditions result in pollutant concentrations that exceed table value standards. Feasibility-based ambient standards are adopted where water quality can be improved, but not to the level required by the current numeric standard. Information is currently being gathered to better understand the basis of all existing site-specific standards and determine what information is needed to review each standard in future basin reviews. The commission made no revisions to any site-specific standards at this time.

While the commission made no revisions to any site-specific standards in this rulemaking hearing, a review of the site-specific standards on three specific segments in Regulation No. 32 was conducted to meet longevity plan requirements.

Upper Arkansas River segments 8a, 8b, and 9 (COARUA08a, COARUA08b, and COARUA09): Resurrection Mining Company (Resurrection) provided an update to the commission on the results of implementing its longevity plan for the site-specific cadmium and zinc standards on Upper Arkansas River segments 8a, 8b, and 9. When these site-specific standards were adopted by the commission in 2019, a longevity plan was included that required Resurrection to provide information to facilitate the commission's review of the standards in future triennial reviews (32.63(A)). Resurrection is successfully implementing its longevity plan and the commission made no changes to the plan or site-specific standards at this time.

The longevity plan requires Resurrection to determine if recent cadmium and zinc toxicity studies are available that should be used to recalculate the site-specific standards. Resurrection conducted a comprehensive literature review and discussed the results with the division, CPW, and EPA. While new toxicity studies were found, there was little to no change to the standards when the new studies were included in the site-specific cadmium and zinc toxicity databases and calculations. Therefore, no changes were proposed. The longevity plan also requires Resurrection to report on the chemistry and volume of any discharges to Iowa Gulch pursuant to Resurrection's discharge permit. Because there have been no discharges since the site-specific standards were adopted, there was no need to conduct follow-up sampling to evaluate whether instream chemical, physical or biological conditions have changed. Consistent with its longevity plan, Resurrection will provide another update in advance of the next Regulation No. 32 triennial review (currently planned for 2028).

In addition, the commission adopted new site-specific standards for temperature on one segment:

Middle Arkansas River Segment 2 (COARMA02): The commission adopted site-specific ambient-based temperature standards for Middle Arkansas Segment 2 for July through December. Ambient quality-based standards are adopted where a comprehensive analysis has demonstrated that elevated existing water-quality levels are the result of natural conditions or are infeasible to reverse, but are still adequate to protect the highest attainable use. The commission recognized that it is not feasible for this segment to attain the Cold Stream Tier II (CS-II) table value standards in all months of the year due to the irreversible thermal effects of Pueblo Reservoir and Dam. Prior to the construction of Pueblo Dam, this section of the Arkansas River was populated entirely with warmwater fish species. Due to cool water releases from Pueblo Dam, the Arkansas River below Pueblo Dam now supports populations of rainbow trout, brown trout, and longnose sucker, in addition to warmwater species.

The Arkansas River downstream from Pueblo Reservoir exceeds CS-II temperature standards from July through December. Water from Pueblo Dam is released to the Arkansas River from deep in the reservoir. The water released from the dam is cooler than the natural water temperature in the Arkansas River in the summer (but not cold enough to attain CS-II standards) and warmer than the natural water temperature in the Arkansas River in the fall and winter. The thermal impact of CPW's Pueblo Hatchery was evaluated and determined to be minor, with a median thermal impact of +0.06 °C and a maximum thermal impact of +1.34 °C. CPW did not identify any other measurable sources of anthropogenic heat loads to Segment 2.

The adopted site-specific standards are a combination of ambient-based upstream of the hatchery (Upper Reach) and modeled ambient-based below the hatchery (Mid Reach and Lower Reach). The Upper Reach site-specific standards are based on measured temperatures between the dam and hatchery outfall, while the Mid Reach and Lower Reach site-specific standards were developed using a heat-load model that fully subtracts the thermal effects of the Pueblo Hatchery downstream of the hatchery outfall.

To capture the spatial and temporal gradient of ambient temperatures in the segment, the commission adopted monthly site-specific standards (for July through December) and defined assessment reaches at 32.6(4). The Upper Reach is defined as the Arkansas River from Pueblo Dam to the Pueblo Hatchery outfall and the standards are based on data from the USGS gage ARKPUECO and upstream of the Pueblo Hatchery. The Mid Reach is defined as the Arkansas River from the Pueblo Hatchery outfall to the end of the hatchery's mixing zone (38.264213, -104.708524) and the standards are based on data from the end of the Pueblo Hatchery mixing zone. The Lower Reach is defined as the Arkansas River from the end of the hatchery mixing zone to the confluence with Wildhorse/Dry Creek Arroyo, and the standards are based on data from sites near the Valco Ponds and Wildhorse.

All available data on temperature, hydrology, hydro-modification, canopy cover, groundwater influence, point and nonpoint thermal sources, and other relevant information were reviewed to develop these site-specific standards. Some of these factors are implicitly included in the heat-load model using actual downstream data, while others, such as the hatchery impacts, are explicitly modeled.

Temperature data collected at any location within the applicable reach is suitable for assessment of the standards of that reach. The site-specific standards should be assessed using a typical 1-in-3 year allowable exceedance frequency, consistent with 31.16 Table I Footnotes 5(a) and 5(b). Because the site-specific standards are ambient, and not biologically-based, the biologically-based "warming event" is not applicable for evaluating existing quality (31.5(20) and 31.16 Table I Footnote 5(c)(ii)). For permitting purposes, existing quality shall be determined consistent with 31.5(20) and the standards applicable to the reach where the discharge is located shall be used, as this is consistent with the protection of downstream waters.

The proposal was supported by a longevity plan, thermal modeling report, and temperature data collected at five locations. CPW will continue to monitor temperature and other factors as described in its longevity plan. CPW intends to provide updates at the Issues Scoping Hearings in 2027, 2032, and 2037, but may adjust this schedule if there is a need to revise the standards due to changes in the conditions or assumptions on which the site-specific standards are based.

D. Classified Uses and Standards to Protect the Classified Uses

The commission reviewed the Aquatic Life, Recreation, Water Supply, and/or Agriculture use classifications and standards applied to each segment to determine if the appropriate use classification(s) and full suite of standards necessary to protect each use applies. Some segments assigned an Aquatic Life, Recreation, Water Supply, and/or Agriculture use classification were missing one or more standards to protect that use or the incorrect standards to protect the use were in place. The commission adopted revisions to standards for the following segments:

Upper Arkansas River: 14d (COARUA14d; full suite of aquatic life use standards); 14e (COARUA14e; acute and chronic ammonia standards for Aquatic Life); 14f (COARUA14f; full suite of Aquatic Life use standards)

Middle Arkansas River: 4d (COARMA04d; acute mercury standard for Water Supply); 11b (COARMA11b; chronic arsenic standard for Water + Fish); 15 (COARMA15; full suite of Aquatic Life use standards)

E. Other Standards to Protect Aquatic Life and Recreation Uses

As part of the triennial review process, the commission must decide whether to adopt EPA's Clean Water Act 304(a) criteria recommendations (division Prehearing Statement Exhibit A). The commission declined to adopt EPA's revised 304(a) Aquatic Life criteria for selenium, ammonia, and aluminum at this time; however, the division is committed to evaluating these new criteria. Studies are currently underway for

each parameter to improve understanding of these criteria in the context of water quality conditions in Colorado and how these criteria may be adopted and implemented in Colorado in the future.

EPA has also released updated criteria or guidance for several other parameters, including copper (Aquatic Life), *E. coli* (Recreation), cyanotoxins (Recreation), and the human health risk exposure assumptions. However, the division does not recommend adopting EPA's recommendations for these parameters at this time, as these items are not included on the division's 10-year water quality roadmap.

F. Clarifications and Correction of Segmentation, Typographical, and Other Errors

The following edits were made to the regulation and Appendix 32-1 to improve clarity and correct typographical errors:

- The qualified discharger table at 32.5(4) was updated to accurately reflect the location of facilities in segments COARUA05a, COARUA14b, COARFO04c, COARFO04d, and COARFO04e. Permit CO0021181 (Fort Carson WWTF) was added to the table in COARFO04d. In addition, Permit COG589020 (Academy Water and San Dist WWTF) was deleted from the table, as this permit was terminated in 2021.
- The segment descriptions in Appendix 32-1 were reviewed, and minor revisions were made to several segments to correct grammar, punctuation, and typos, and improve sentence structure. The purpose of these changes was to improve clarity and consistency of the segment descriptions.
 - Upper Arkansas River: 1b, 2a, 3, 5a, 12b, 13, 14b, 15a, 15b, 21b, 29, 31, 33, 39, 41
 - Middle Arkansas River: 4e, 7b, 13b, 13c, 15, 18b, 25
 - Fountain Creek: 1b, 3b, 4d, 4e, 5a, 11
 - Lower Arkansas River: 3b, 5a, 5b, 5c, 6a, 8, 9a, 9b, 10, 18
 - Cimarron River: 1, 2
- To be consistent with other segment descriptions, wetlands were added to the descriptions of the following segments:
 - Upper Arkansas River: 6
 - Fountain Creek: 1b, 3b
 - Lower Arkansas River: 2c, 3b, 3c
- Existing site-specific temperature standards were reformatted in the Appendix 32-1 tables to provide clarity and consistency for the following segments:
 - Upper Arkansas River: 4a, 14c, 30
- The aluminum standards for COARUA11 and COARUA22a were clarified to show they are total recoverable "Aluminum(T)". While these aluminum standards were adopted as site-specific standards (see 32.24(11) and 32.28(4), respectively), they were based on information in the EPA 1988 304(a) aluminum criteria document, which was implemented in Colorado as total recoverable.
- The total copper standard for Lower Arkansas River Segment 3b (COARLA03b) to protect the Agriculture use was corrected from acute to chronic.
- The segment descriptions for Upper Arkansas River segments 13 and 14b (COARUA13, COARUA14b) were revised to remove an erroneous exception for Upper Arkansas River Segment 12b, which is upstream.

- The segment descriptions for Upper Arkansas River segments 15b and 25 (COARUA15b, COARUA25) were revised to include an exception for waterbodies in Middle Arkansas River Segment 1 to eliminate overlaps in segmentation.
- The segment description for Lower Arkansas Segment 8 (COARLA08) was revised to remove “lakes and reservoirs” from the description. Lakes and reservoirs were split from stream segments in 2013 to accommodate the addition of temperature standards. The correct segment for tributary lakes and reservoirs to Segment 8 is Lower Arkansas Segment 18.