COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

WATER QUALITY CONTROL COMMISSION

5 CCR 1002-38

REGULATION NO. 38
CLASSIFICATIONS AND NUMERIC STANDARDS
FOR
SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN
REPUBLICAN RIVER BASIN, SMOKY HILL RIVER BASIN

ADOPTED:	April 6, 1981	EFFECTIVE:	May 16, 1981
AMENDED:	April 12, 1982	EFFECTIVE:	May 16, 1982 through May 30, 1982
AMENDED:	December 6, 1982	EFFECTIVE:	January 30, 1983
SEPARATELY AMENDED:	December 6, 1982	EFFECTIVE:	January 30, 1983
AMENDED:	May 9, 1983	EFFECTIVE:	July 16, 1983
AMENDED:	December 12, 1983	EFFECTIVE:	January 30, 1984
AMENDED:	May 15, 1984	EFFECTIVE:	June 30, 1984
AMENDED:	August 14, 1984	EFFECTIVE:	September 30, 1984
AMENDED:	April 1, 1985	EFFECTIVE:	May 30, 1985
AMENDED:	March 7, 1986	EFFECTIVE:	April 30, 1986
AMENDED:	April 8, 1986	EFFECTIVE:	May 30, 1986
AMENDED:	May 9, 1986	EFFECTIVE:	June 30, 1986
AMENDED:	September 18, 1986	EFFECTIVE:	October 30, 1986
AMENDED:	August 4, 1987	EFFECTIVE:	September 30, 1987
AMENDED:	November 3, 1987	EFFECTIVE:	December 30, 1987
AMENDED:	May 2, 1988	EFFECTIVE:	June 30, 1988
AMENDED:	February 6, 1989	EFFECTIVE:	March 30, 1989
EMERGENCY AMENDED:	February 6, 1989	EFFECTIVE:	February 6, 1989 through August 30, 1989
AMENDED:	March 6, 1989	EFFECTIVE:	April 30, 1989
AMENDED:	June 5, 1989	EFFECTIVE:	July 30, 1989
EMERGENCY AMENDED:	July 11, 1989	EFFECTIVE:	July 11, 1989 through March 30, 1990
AMENDED:	February 5, 1990	EFFECTIVE:	March 30, 1990
AMENDED:	September 5, 1991	EFFECTIVE:	October 30, 1991
AMENDED:	January 6, 1992	EFFECTIVE:	March 1, 1992
AMENDED:	June 2, 1992	EFFECTIVE:	July 30, 1992
AMENDED:	July 6, 1992	EFFECTIVE:	August 30, 1992
AMENDED:	December 7, 1992	EFFECTIVE:	January 30, 1993
AMENDED:	March 1, 1993	EFFECTIVE:	April 30, 1993
AMENDED:	August 2, 1993	EFFECTIVE:	September 30, 1993
AMENDED:	September 7, 1993	EFFECTIVE:	October 30, 1993
AMENDED:	March 7, 1994	EFFECTIVE:	April 30, 1994
AMENDED:	May 2, 1994	EFFECTIVE:	June 30, 1994
AMENDED:	February 13, 1995	EFFECTIVE:	March 30, 1995
AMENDED:	June 12, 1995	EFFECTIVE:	July 30, 1995
AMENDED:	July 10, 1995	EFFECTIVE:	August 30, 1995
AMENDED:	December 11, 1995	EFFECTIVE:	January 30, 1996

AMENDED:	May 13, 1996	EFFECTIVE:	June 30, 1996
AMENDED:	August 12, 1996	EFFECTIVE:	September 30, 1996
AMENDED:	January 13, 1997	EFFECTIVE:	March 3, 1997
AMENDED:	April 14, 1997	EFFECTIVE:	May 30, 1997
AMENDED:	May 12, 1997	EFFECTIVE:	June 30, 1997
AMENDED:	July 14, 1997	EFFECTIVE:	August 30, 1997
AMENDED:	November 9, 1998	EFFECTIVE:	December 30, 1998
AMENDED:	May 11, 1999	EFFECTIVE:	June 30, 1999
AMENDED:	October 10, 2000	EFFECTIVE:	February 20, 2001
AMENDED:	February 13, 2001	EFFECTIVE:	June 20, 2001
EMERGENCY AMENDMENT:	May 14, 2001	EFFECTIVE:	May 14, 2001
AMENDED:	September 10, 2001	EFFECTIVE:	October 30, 2001
AMENDED:	December 10, 2001	EFFECTIVE:	January 30, 2002
AMENDED:	September 13, 2004	(Clear Creek seg. 5 and Middle South Platte segs. 1a & 1b)	
		EFFECTIVE:	November 1, 2004
AMENDED:	September 13, 2004	(all other segments)	
		EFFECTIVE:	January 20, 2005
AMENDED:	December 12, 2005	EFFECTIVE:	March 2, 2006
AMENDED:	August 14, 2006	EFFECTIVE:	September 30, 2006
AMENDED:	February 12, 2007	EFFECTIVE:	July 1, 2007
AMENDED:	April 9, 2007	EFFECTIVE:	September 1, 2007
AMENDED:	August 13, 2007	EFFECTIVE:	September 30, 2007
AMENDED:	January 14, 2008	EFFECTIVE:	March 1, 2008
AMENDED:	February 9, 2009	EFFECTIVE:	March 30, 2009
AMENDED:	August 10, 2009	EFFECTIVE:	January 1, 2010
AMENDED:	February 8, 2010	EFFECTIVE:	June 30, 2010
AMENDED:	April 12, 2010	EFFECTIVE:	June 30, 2010
AMENDED:	July 12, 2010	EFFECTIVE:	November 30, 2010
AMENDED:	January 10, 2011	EFFECTIVE:	June 30, 2011
EMERGENCY AMENDMENT:	December 13, 2011	EFFECTIVE:	December 13, 2011
AMENDED:	June 13, 2011	EFFECTIVE:	January 1, 2012
AMENDED:	August 13, 2012	EFFECTIVE:	December 31, 2012
AMENDED:	October 9, 2012	EFFECTIVE:	March 1, 2013
AMENDED:	January 14, 2013	EFFECTIVE:	June 30, 2013
EMERGENCY AMENDMENT:	May 13.2013	EFFECTIVE:	May 13, 2013
AMENDED:	May 1, 2013	EFFECTIVE:	September 30, 2013
AMENDED:	March 11, 2014	EFFECTIVE:	April 30, 2014
AMENDED:	March 11, 2014	EFFECTIVE:	June 30, 2014
AMENDED:	January 12, 2015	EFFECTIVE:	June 30, 2015
AMENDED:	August 10, 2015	EFFECTIVE:	December 31, 2015
AMENDED:	January 11, 2016	EFFECTIVE:	March 1, 2016
AMENDED:	January 11, 2016	EFFECTIVE:	June 30, 2016

WATER QUALITY CONTROL COMMISSION

5 CCR 1002-38

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CLASSIFICATIONS AND NUMERIC STANDARDS
FOR
SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN
REPUBLICAN RIVER BASIN, SMOKY HILL RIVER BASIN

38.1 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.

38.2 PURPOSE

These regulations establish classification and numeric standards for the South Platte River, the Laramie River, the Republican River and the Smoky Hill River, including all tributaries and standing bodies of water as indicated in section 38.6. 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. (See section 31.14). 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 31.0 - BASIC STANDARDS AND METHODOLOGIES FOR SURFACE WATER.

38.3 INTRODUCTION

These regulations and Tables present the classifications and numeric standards assigned to stream segments listed in the attached Tables (See section 38.6). As additional stream segments are classified and numeric standards for this drainage system are adopted, they will be added to or replace the numeric standards in the Tables in section 38.6. 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 regulations”.

38.4 DEFINITIONS

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

38.5 BASIC STANDARDS

(1) TEMPERATURE

All waters of the South Platte, Laramie, Republican and Smoky Hill River Basins 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 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 the Tables 38.6. The column in the tables at 31.11 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 the Tables in 38.6.

(3) URANIUM

(a) All waters of the South Platte 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 level 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

Prior to May 31, 2022, interim nutrient values will be considered for adoption only in the limited circumstances defined at 31.17(e). These circumstances include headwaters, Direct Use Water Supply (DUWS) Lakes and Reservoirs, and other special circumstances determined by the Commission. Additionally, prior to May 31, 2017, only total phosphorus and chlorophyll *a* will be considered for adoption. After May 31, 2017, total nitrogen will be considered for adoption per the circumstances outlined in 31.17(e).

Prior to May 31, 2022, nutrient criteria will be adopted for headwaters on a segment by segment basis for the South Platte River Basin. Moreover, pursuant to 31.17(e), nutrient standards will only be adopted for waters upstream of all permitted domestic wastewater treatment facilities discharging prior to May 31, 2012 or with preliminary effluent limits requested prior to May 31, 2012, and any non-domestic facilities subject to Regulation 85 effluent limits and discharging prior to May 31, 2012. 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, and any non-domestic facilities subject to Regulation 85 effluent limits and discharging prior to May 31, 2012 in the South Platte River Basin:

Segment	Permittee	Facility name	Permit No.
COSPUS01a	Alma Town of	ALMA, TOWN OF	CO0035769
COSPUS01a	Fairplay Sanitation District	FAIRPLAY SANITATION DISTRICT WWTF	CO0040088
COSPUS01a	Boy Scouts of America Pikes Peak Council	CAMP ALEXANDER	COG588036
COSPUS02a	Florissant Water and San Dist	FLORISSANT WATER & SAN DIST	CO0041416
COSPUS02a	Teller County	TELLER COUNTY WW UTILITY BOARD	CO0044211
COSPUS03	Woodland Park City of	WOODLAND PARK, CITY OF	CO0043214
COSPUS03	YMCA Camp Shady Brook	CAMP SHADY BROOK	CO0045993
COSPUS03	Lost Valley Ranch Corporation	LOST VALLEY RANCH	COG588122
COSPUS04	Will-O-Wisp Metro District	WILL-O-WISP METRO DISTRICT	CO0041521
COSPUS04	Bailey WSD	BAILEY WSD WWTF	COG588056
COSPUS04	Platte Canyon School Dist 1	PLATTE CANYON SCHOOL DIST 1	COG588114
COSPUS05c	Mountain Water and Sanitation District	MOUNTAIN WATER & SAN DISTRICT	CO0022730
COSPUS06a	Roxborough Water and Sanitation District	ROXBOROUGH PARK WATER & SAN WWTF	CO0041645
COSPUS10a	Plum Creek Water Reclamation Authority	PLUM CREEK WW AUTHORITY WWTF	CO0038547
COSPUS10a	Perry Park Water and Sanitation District	SAGEPORT WWTF	CO0043044
COSPUS11b	Perry Park Water and Sanitation District	WAUCONDAH WWTP	CO0022551
COSPUS14	Littleton/Englewood Cities of	LITTLETON/ENGLEWOOD, CITIES OF	CO0032999
COSPUS15	Metro Waste Water Reclamation District	METRO WASTEWATER RECLAM DIST	CO0026638
COSPUS15	Brighton City of	BRIGHTON WWTF	CO0021547
COSPUS15	South Adams County WSD	WILLIAMS MONOCO WWTF	CO0026662
COSPUS15	Metro Waste Water Reclamation District	NORTHERN TREATMENT PLANT	CO0048959
COSPUS16c	Ascentia Real Estate Holding Company LLC	FOXRIDGE FARMS MH COMMUNITY	CO0028908
COSPUS16c	SouthWest Water Company	HI-LAND ACRES W&SD WWTF	COG589072
COSPUS16c	Mile High Racing and Enter dba Arapahoe Park	ARAPAHOE PARK RACETRACK	COG589073
COSPUS16c	Rangeview Metro District	COAL CREEK WW RECLAMATION FAC	COG589108
COSPUS16g	Centennial Water and San Dist	MARCY GULCH WWTF	CO0037966
COSPUS16i	Aurora City of - Aurora Water	SAND CREEK WATER REUSE FACILTY	CO0026611
COSPCH01	Stonegate Village Metropolitan District	STONEGATE VILLAGE WWTF	CO0040291

Segment	Permittee	Facility name	Permit No.
COSPCH01	Pinery Water and Wastewater District	PINERY WWTF	CO0041092
COSPCH01	Parker Water and Sanitation District	PARKER NORTH WRF	CO0046507
COSPCH04	Arapahoe County W and WW Authority	LONE TREE CREEK WWTP	CO0040681
COSPBE01a	Amen Real Estate LLC	SINGIN' RIVER RANCH WWTF	CO0035971
COSPBE01b	Morrison Town of	MORRISON TOWN OF	CO0041432
COSPBE01e	Kittredge Sanitation and Water District	KITTREDGE SAN & WATER DISTRICT	CO0023841
COSPBE01e	Bruce & Jayne Hungate DBA Bear Creek Cabins	BEAR CREEK CABINS	CO0030856
COSPBE01e	Evergreen Metropolitan District	EVERGREEN METROPOLITAN DIST WWTF	CO0031429
COSPBE04a	Genesee WSD	GENESEE WATER & SAN DISTRICT	CO0022951
COSPBE04a	Forest Hills Metro District	FOREST HILLS METROPOLITAN DIST	CO0037044
COSPBE05	West Jefferson County MD	W. JEFFERSON COUNTY METRO DIST	CO0020915
COSPBE05	Historic Brook Forest Inn LLC	BROOK FOREST INN	CO0030261
COSPBE06a	Tiny Town Foundation Inc	TINY TOWN	CO0036129
COSPBE06a	Aspen Park Metropolitan District	ASPEN PARK METROPOLITAN DISTRICT	CO0000001
COSPBE06b	Jefferson County Public Schools R-1	CONIFER HIGH SCHOOL WW REC PLT	CO0047988
COSPCL01	Colorado Dept of Transportation	EISENHOWER/JOHNSON MEMORIAL TUNNELS	CO0026069
COSPCL01	Clear Creek Skiing Corp	LOVELAND SKI AREA WWTF	CO0040835
COSPCL02a	Georgetown Town of	GEORGETOWN WWTF	CO0027961
COSPCL02c	Central Clear Creek SD	CENTRAL CLEAR CREEK SD WWTF	COG588055
COSPCL05	Empire Town of	EMPIRE TOWN OF	COG588065
COSPCL09a	St Marys Glacier WSD	ST. MARYS GLACIER WSD	CO0023094
COSPCL10	Shwayder Camp Wastewater	SHWAYDER CAMP WWTF	CO0047473
COSPCL11	Idaho Springs City of	IDAHO SPRINGS WWTF	CO0041068
COSPCL12	Clear Creek WWTP	CLEAR CREEK WWTP	CO0046574
COSPCL13b	Black Hawk/Central City Sanitation District	BLACK HAWK/CENTRAL CITY SD WWTF	CO0046761
COSPCL14a	MillerCoors LLC	MILLERCOORS GOLDEN FACILITY	CO0001163
COSPBD01	Westminster City of	BIG DRY CREEK WWTF	CO0024171
COSPBD01	Broomfield City and County	BROOMFIELD WWTF	CO0026409
COSPBD01	Northglenn City of	NORTHGLENN WWTF	CO0036757
COSPBO02b	San Lazaro Park Properties LLP c/o	SAN LAZARO MHP WWTF	CO0020184
COSPBO02b	BaseCamp Ventures LLC	BOULDER MOUNTAIN LODGEWWTF	CO0040819

Segment	Permittee	Facility name	Permit No.
COSPBO02b	Mueller Red Lion Inn	RED LION INN WWTF	COG588118
COSPBO03	Nederland Town of	NEDERLAND TOWN OF WWTF	CO0020222
COSPBO04b	Eldorado Springs Wastewater	ELDORADO SPRINGS WWTF	CO0047651
COSPBO04b	San Souci MHP	SAN SOUCI MHP	COG588101
COSPBO07b	Louisville City of	LOUISVILLE WWTF	CO0023078
COSPBO07b	Lafayette City of	LAFAYETTE WWTF	CO0023124
COSPBO07b	Erie Town of	ERIE WWTF	CO0045926
COSPBO08	Superior Metropolitan District No 1	SUPERIOR METROPOLITAN DIST NO1	CO0043010
COSPBO09	Boulder City of	75TH ST WWTP	CO0024147
COSPBO10	Erie Town of	ERIE NORTH WATER RECLAMATION FACILITY	CO0048445
COSPBO10	B & B Mobile Home and RV Park	B & B MOBILE HOME & RV PARK	COG588107
COSPBO14	Lake Eldora WSD	LAKE ELDORA WSD WWTF	CO0020010
COSPSV02a	Peaceful Valley Ranch LLC	PEACEFUL VALLEY RANCH WWTF	CO0048828
COSPSV02a	Seventh-Day Adventist Assoc of Colorado	GLACIER VIEW RANCH	CO0030112
COSPSV02a	Aspen Lodge at Estes Park Corp	ASPEN LODGE AT ESTES PARK CORP	CO0042820
COSPSV02b	Lyons Town of	LYONS TOWN OF	CO0020877
COSPSV03	Longmont City of	LONGMONT WWTF	CO0026671
COSPSV03	St Vrain Sanitation District	ST VRAIN SANITATION DISTRICT	CO0041700
COSPSV06	Niwot Sanitation District	NIWOT SANITATION DISTRICT	CO0021695
COSPSV06	Mead Town of	LAKE THOMAS SUBDIVISION WWTF	CO0046868
COSPSV06	Mead Town of	MEAD, TOWN OF	CO0046876
COSPSV06	Fairways Metro Dist	FAIRWAYS WWTF	CO0048411
COSPMS01a	Fort Lupton City of	FORT LUPTON WWTF	CO0021440
COSPMS01b	Evans City of	EVANS CITY OF WWTF	CO0020508
COSPMS01b	Kersey Town of	KERSEY WWTF	CO0021954
COSPMS01b	Platteville Town of	PLATTEVILLE WWTF	CO0040355
COSPMS01b	Evans City of	HILL-N-PARK SANITATION DIST.	CO0047287
COSPMS01b	La Salle Town of	LA SALLE TOWN OF	COG588058
COSPMS01b	Gilcrest Town of	GILCREST WWTF	COG588121
COSPMS03a	Elizabeth Town of	GOLD CREEK	COG589037
COSPMS03a	Galeton Water and Sanitation District	GALETON WATER & SAN DISTRICT	CO0043320
COSPMS03a	Orica USA Inc	ORICA USA, INC.	CO0046221
COSPMS03a	Spring Valley Ranch	SPRING VALLEY RANCH WWTF	CO0046965

Segment	Permittee	Facility name	Permit No.
COSPMS03a	Front Range Airport WWTF	FRONT RANGE AIRPORT WWTF	CO0047741
COSPMS04	Lochbuie Town of	LOCHBUIE TOWN OF	CO0047198
COSPMS05a	Swift Beef Company	SWIFT BEEF - LONE TREE	CO0027707
COSPMS05c	Hudson WWTF	HUDSON MECHANICAL WWTF	COG589104
COSPMS06	Keenesburg Town of	KEENESBURG TOWN OF	CO0041254
COSPMS06	Bennett Town of	BENNETT TOWN OF	COG589069
COSPBT02	Estes Park Sanitation District	ESTES PARK SANITATION DISTRICT	CO0020290
COSPBT02	Upper Thompson Sanitation District	UTSD WWTF	CO0031844
COSPBT04c	Loveland City of	LOVELAND WWTP	CO0026701
COSPBT05	Milliken Town of	MILLIKEN SANITATION DISTRICT	CO0042528
COSPBT05	Johnstown Town of	LOW POINT WWTP	CO0047058
COSPBT07	Hidden View Estates HOA	HIDDEN VIEW ESTATES HOA WWTF	CO0048861
COSPBT09	Johnstown Town of	JOHNSTOWN CENTRAL WWTF	CO0021156
COSPBT09	Riverglen Homeowners Assoc	RIVERGLEN HOA WWTF	CO0029742
COSPBT09	Berthoud Town of	BERTHOUD, TOWN OF	CO0046663
COSPBT10	Berthoud Town of	SERENITY RIDGE WWTF	CO0047007
COSPBT10	Western Mini-Ranch/Vaquero Estates Sewer Assoc.	WESTERN MINI-RANCH/VAQUERO EST	COG589095
COSPBT10	Berthoud Estates Community Assoc	BERTHOUD ESTATES WWTF	COG589097
COSPCP08	Fox Acres Community Services Corp	FOX ACRES WWTF	COG589112
COSPCP08	Girl Scouts of Colorado	MAGIC SKY RANCH G.S. CAMP	CO0047317
COSPCP11	Fort Collins City of	MULBERRY WWTP	CO0026425
COSPCP11	Fort Collins City of	DRAKE WWTP	CO0047627
COSPCP12	Windsor, Town of	WINDSOR TOWN OF WWTF	CO0020320
COSPCP12	Greeley City of	GREELEY CITY OF	CO0040258
COSPCP12	Leprino Foods Company	LEPRINO GREELEY FACILITY WWTF	CO0048860
COSPCP13a	Anheuser Busch Inc	NUTRI-TURF, INC.	CO0039977
COSPCP13a	Eaton Town of	EATON, TOWN OF	CO0047414
COSPCP13a	Saddler Ridge Metro Dist Water Reclamation Facility	SADDLER RIDGE METRO DIST WATER RECLAMATION FACILITY	COG589107
COSPCP13b	Boxelder Sanitation District	BOXELDER SANITATION DISTRICT WWTF	CO0020478
COSPCP13b	Wellington Town of	WELLINGTON WWTF	CO0046451
COSPCP22	South Fort Collins Sanitation District	SOUTH FORT COLLINS SAN DIST	CO0020737
COSPLS01	Western Sugar Cooperative	FORT MORGAN FACILITY	CO0041351

Segment	Permittee	Facility name	Permit No.
COSPLS01	Cargill Meat Solutions	FORT MORGAN BEEF PLANT	CO0044270
COSPLS01	Julesburg Town of	JULESBURG TOWN OF	CO0021113
COSPLS01	Brush City of	BRUSH CITY OF	CO0021245
COSPLS01	Sterling City of	STERLING CITY OF	CO0026247
COSPLS01	Fort Morgan City of	FORT MORGAN CITY OF	CO0044849
COSPLS01	Snyder Sanitation District	SNYDER SANITATION DISTRICT	COG588016
COSPLS01	Morgan Heights WSD	MORGAN HEIGHTS WATER&SEWER INC	COG588040
COSPLS01	Ovid Town of	OVID TOWN OF	COG588106
COSPLS02a	Leprino Foods Company	FORT MORGAN CHEESE FACILITY	CO0043958
COSPLS02a	Deer Trail Town of	DEER TRAIL WWTF	COG589002
COSPLS02a	Hillrose Town of	HILLROSE WWTF	COG589030
COSPLS02a	Byers Water and Sanitation District	BYERS WATER AND SANITATION DISTRICT	COG589033
COSPLS02a	Eastern Adams County Metro District	EASTERN ADAMS CO METRO DIST WWTF	COG589035
COSPLS02b	Kiowa Town of	KIOWA WWTF	CO0033405
COSPLS02b	Elbert Water Sanitation District	ELBERT WATER & SANITATION DIST WWTF	COG589065
COSPRE03	Wray City of	WRAY CITY OF	CO0023833
COSPRE06	Flagler Town of	FLAGER WWTF	COG589036
COSPRE06	Arriba Town of	ARRIBA WWTF	COG589055
COSPRE06	Holyoke City of	HOLYOKE, CIY OF	COG589059
COSPRE06	Akron Town of	AKRON WWTF	COG589061
COSPRE06	Haxtun Town of	HAXTUN, TOWN OF	COG589062
COSPRE06	Stratton Town of	STRATTON WWTF	COG589100
COSPRE06	Burlington City of	BURLINGTON CITY OF WWTF	COG589114
COSPRE06	Seibert Town of	SEIBERT WWTF	COG589120
COSPRE07	Cheyenne Wells Sanitation District No 1	CHEYENNE WELLS SANITATION DIST	COG589039
Unclassified	Silco Oil Co	TOMAHAWK TRUCK STOP	COG589003

Prior to May 31, 2022:

- For segments located entirely above these facilities, nutrient standards apply to the entire segment.
- For segments with portions downstream of these facilities, *nutrient standards only apply above these facilities*. A footnote was added to the total phosphorus and chlorophyll *a* standards in these segments. The footnote references the table of qualified facilities at 38.5(4).
- For segments located entirely below these facilities, nutrient standards do not apply.

A footnote was added to the total phosphorus and chlorophyll *a* standards in lakes segments as nutrients standards apply only to lakes and reservoirs larger than 25 acres surface area.

38.6 TABLES

(1) Introduction

The numeric standards for various parameters in this regulation and in the tables in Appendix 38-1 were assigned by the Commission after a careful analysis of the data presented on actual stream conditions and on actual and potential water uses.

Numeric standards are not assigned for all parameters listed in the Tables attached to 31.0. 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 in the tables in Appendix 38-1:

ac	=	acute (1-day)
^{o}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
DUWS	=	direct use water supply
E. coli	=	Eschericia coli
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
WAT	=	weekly average temperature
WL	=	warm lake temperature tier
WS	=	water supply
WS-I	=	warm stream temperature tier one
WS-II	=	warm stream temperature tier two
WS-III	=	warm stream temperature tier three

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

Fe(ch)	=	WS
Mn(ch)	=	WS
SO_4	=	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 31.11(6);

(i) existing quality as of January 1, 2000; or

(ii) Iron = 300 µg/l (dissolved)
Manganese = 50 µg/l (dissolved)
SO_4 = 250 mg/l

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 temporary modification and qualifiers column as As(ch)=hybrid.

(ii) For discharges existing on or before 6/1/2013, the temporary modification is: As(ch)=current condition, expiring on 12/31/2021.

(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 (Trec), expiring on 12/31/2021.

(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 38-1, 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)	Acute = $e^{(1.3695[\ln(hardness)]+1.8308)}$ pH equal to or greater than 7.0

	Chronic=$e^{(1.3695[\ln(hardness)]-0.1158)}$ pH less than 7.0 Chronic= $e^{(1.3695[\ln(hardness)]-0.1158)}$ or 87, whichever is more stringent
Ammonia [4]	Cold Water = (mg/l as N)Total $acute = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$ $chronic = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * MIN\left(2.85,\ 1.45*10^{0.028(25-T)}\right)$
	Warm Water = (mg/l as N)Total $acute = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$
	$chronic\ (Apr1-Aug31) = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * MIN\left(2.85,\ 1.45*10^{0.028(25-T)}\right)$ $chronic\ (Sep1-Mar31) = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * 1.45*10^{0.028*(25-MAX(T,\ 7))}$
Cadmium	Acute = (1.136672-[ln(hardness) x (0.041838)])*$e^{(0.9151[\ln(hardness)]-3.1485)}$ Acute(Trout) = (1.136672-[ln(hardness) x (0.041838)])*$e^{(0.9151[\ln(hardness)]-3.6236)}$ Chronic = (1.101672-[ln(hardness) x (0.041838)])*$e^{(0.7998[\ln(hardness)]-4.4451)}$
Chromium III[5]	Acute = $e^{(0.819[\ln(hardness)]+2.5736)}$ Chronic = $e^{(0.819[\ln(hardness)]+0.5340)}$
Chromium VI[5]	Acute = 16 Chronic = 11
Copper	Acute = $e^{(0.9422[\ln(hardness)]-1.7408)}$ Chronic = $e^{(0.8545[\ln(hardness)]-1.7428)}$
Lead	Acute = (1.46203-[ln(hardness)*(0.145712)])*$e^{(1.273[\ln(hardness)]-1.46)}$ Chronic = (1.46203-[(ln hardness)* (0.145712)])*$e^{(1.273[\ln(hardness)]-4.705)}$
Manganese	Acute= $e^{(0.3331[\ln(hardness)]+6.4676)}$ Chronic= $e^{(0.3331[\ln(hardness)]+5.8743)}$
Nickel	Acute = $e^{(0.846[\ln(hardness)]+2.253)}$ Chronic = $e^{(0.846[\ln(hardness)]+0.0554)}$

Selenium[6]	Acute = 18.4 Chronic = 4.6					
Silver	Acute = ½ $e^{(1.72[\ln(hardness)]-6.52)}$ 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 (^{o}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	all other cold-water species	April – Oct.	18.3	23.9
				Nov. - March	9.0	13.0
	Cold Lake	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
Temperature	Cold Large Lake (>100 acres surface area)	CLL	brown trout, lake trout, rainbow trout	April – Dec.	18.3	23.8
				Jan. - March	9.0	13.0
	Warm Stream Tier I	WS-I	common shiner, Johnny darter, orangethroat darter	March – Nov.	24.2	29.0
				Dec. – Feb.	12.1	14.5
	Warm Stream Tier II	WS-II	brook stickleback, central stoneroller, creek chub, longnose dace, Northern redbelly dace, finescale dace,razorback sucker, white sucker	March – Nov.	27.5	28.6
				Dec. – Feb.	13.8	14.3
	Warm Stream Tier III	WS-III	all other warm-water species	March – Nov.	28.7	31.8
				Dec. – Feb.	14.3	15.9
	Warm Lakes	WL	Yellow perch, walleye, pumpkinseed, smallmouth bass, striped bass, white bass, largemouth bass, bluegill, spottail shiner, Northern pike, tiger muskellunge, black crappie, common carp, gizzard shad, sauger, white crappie, wiper	April – Dec.	26.3	29.5
				Jan. - March	13.2	14.8
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.

(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.

(5) Unless the stability of the chromium valence state in receiving waters can be clearly demonstrated, the standard for chromium should be in terms of chromium VI. In no case can the sum of the instream levels of Hexavalent and Trivalent Chromium exceed the water supply standard of 50 µg/l total chromium in those waters classified for domestic water use.

(6) Selenium is a bioaccumulative metal and subject to a range of toxicity values depending upon numerous site-specific variables.

(7) 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.

(8) All phosphorus standards are based upon the concentration of total phosphorus.

(9) 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.

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(4) Assessment Criteria

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

(a) Upper South Platte Segment 6b, Chatfield Reservoir: Assessment Thresholds

chlorophyll = 11.2 µg/l, summer average, 1 in 5 year allowable exceedance frequency
phosphorus(Tot) = 0.035 mg/l, summer average, 1 in 5 year allowable exceedance frequency.

(b) Upper South Platte Segment 16h: Selenium Standards and Assessment Locations

Selenium Standards:

West Toll Gate Creek: Selenium(chronic)=50.6, Selenium(acute)=119.2
East Toll Gate Creek: Selenium(chronic)=14.3, Selenium(acute)=15.9
Toll Gate Creek: Selenium(chronic)=26.5, Selenium(acute)=29.5

Selenium Assessment Locations:

- Toll Gate Creek (TG6): Downstream of the confluence of East and West Toll Gate Creeks, at 6th Avenue near the gage station.
- East Toll Gate Creek (ET1): Upstream of the confluence with West Toll Gate Creek, at Chambers Road and 1st Avenue.
- West Toll Gate Creek (WT1): Upstream of the confluence with East Toll Gate Creek, at 2nd Avenue.

(c) Upper South Platte Segment 15 and Middle South Platte Segment 1a: Dissolved Oxygen Assessment Locations

For the purpose of determining attainment of the standard, dissolved oxygen measurements shall only be taken in the flowing portion of the stream and at mid depth, and at least six inches above the bottom of the channel. Dissolved oxygen measurements in man-made pools are not to be used for determination of attainment of the standards.

(d) Big Dry Creek Segment 1: Selenium Assessment Locations

- bdc 1.5: Upstream of Broomfield Wastewater Treatment Plant
- bdc 2.0: Upstream of Westminster Big Dry Creek Wastewater Treatment Facility
- bdc 4.5: Upstream of Northglenn Wastewater Treatment Plant

(e) Big Dry Creek Segment 2 (Standley Lake): Assessment Thresholds

Chlorophyll = 4.4 µg/L, Mar-Nov average, 1 in 5 yr allowable exceedance frequency

(f) Upper South Platte Segment 16i, Sand Creek from Toll Gate Creek to the confluence with the South Platte River: assessment locations for selenium and total mercury.

Selenium Standards:

Upper: Selenium(chronic)=38.2, Selenium(acute)=45.1
Lower: Selenium(chronic)=9.0, Selenium(acute)=TVS

Selenium Assessment Locations:

- Upper – (SWA): Downstream of the confluence of Sand Creek and Toll Gate Creek approximately 250 meters upstream of the Sand Creek Water Reuse Facility (SCWRF) discharge near the Peoria Street Bridge.
- Lower – (SW1): Above Suncor, approximately 60 meters upstream of the Union Pacific Railroad crossing and upstream of Brighton Boulevard.

Mercury Assessment Locations and Method:

- Sand Creek (SWP) – Downstream of the sheet piling drop structure located near the Brighton Blvd. Bridge.
- Sand Creek (SWP2-1) – Approximately 600 feet downstream of Suncor Outfall 003 and immediately upstream of the Burlington Ditch Siphon.

- Attainment of the standard below Brighton Blvd. shall be assessed using the weighted 85th percentile total mercury concentration from both assessment locations.

(g) Upper South Platte Segment 16g (Marcy Gulch): Selenium assessment.

Determination of attainment of the chronic and acute selenium standards will be based on the 85th and 95th percentile, respectively, of paired samples taken the same day from from the two following locations:

- L29: Marcy Gulch upstream of Santa Fe Drive, immediately upstream of the Centennial Water & Sanitation District WWTF

- L36: Marcy Gulch upstream of the confluence with the South Platte River.

(h) Upper South Platte Segment 16j: Selenium standards and assessment.

Lee Gulch: Selenium(chronic)=10, Selenium(acute)=TVS

Little's Creek: Selenium(chronic)=6, Selenium(acute)= TVS

Big Dry Creek: Selenium(chronic)=23, Selenium(acute)=26

Little Dry Creek: Selenium(chronic)=11, Selenium(acute)=TVS

Determination of attainment of the chronic and acute selenium standards will be based on the 85th and 95th percentile, respectively. The selenium assessment locations are:

- Lee Gulch: Upstream of the confluence with the South Platte River
- Little's Creek: Upstream of the confluence with the South Platte River
- Big Dry Creek: Upstream of the confluence with the South Platte River
- Little Dry Creek: Upstream of the confluence with the South Platte River

(i) Cherry Creek Segment 4b: Selenium standards and assessment

Upper Cottonwood Creek:
October–February Selenium(acute/chronic)=TVS/14.0
March–September Selenium(acute/chronic)=TVS/7.1

Lower Cottonwood Creek:
October–February Selenium(acute/chronic)=TVS/5.1
March–September Selenium(acute/chronic)=TVS

Break between Upper and Lower Cottonwood Creek is at the confluence with Lone Tree Creek.

Upper Lone Tree Creek:
October–February Selenium(acute/chronic)=41.0/37.2
March–September Selenium(acute/chronic)=19.3/19.0

Lower Lone Tree Creek: Selenium(acute/chronic)=TVS

Break between Upper and Lower Lone Tree Creek is at the ACCWA Lone Tree Facility Outfall.

Upper Windmill Creek: Selenium(acute/chronic)=TVS

Middle Windmill Creek:
October–February Selenium(acute/chronic)=TVS/15.1
March–September Selenium(acute/chronic)=TVS/8.4

Lower Windmill Creek: Selenium(acute/chronic)=TVS

Break between Upper, Middle and Lower Windmill Creek is at the assessment locations.

Determination of attainment of the chronic and acute selenium standards will be based on the 85th and 95th percentile, respectively.

- Upper Cottonwood Creek: From headwaters to confluence with Lone Tree Creek, to be assessed at CT-P2 — 39.605694, -104.84825. At Peoria St.

- Lower Cottonwood Creek: From confluence with Lone Tree Creek to terminus at Cherry Creek Reservoir, to be assessed at CT2-39.627861, -104.85025. West of Perimeter Road and south of bike path.

- Upper Lone Tree Creek: From headwaters to just above site LTC-3, to be assessed using data from LTC-1 and LTC-2
  LTC-1 — 39.58435, -104.838017. Approximately 0.15 miles N of S. Revere Pkwy.
  LTC-2 — 39.59685, -104.838217. Approximately 10 yards N of E. Peakview Ave.

- Lower Lone Tree Creek: From site LTC-3 to confluence with Cottonwood Creek, to be assessed using data from LTC-3 and LTC-4
  LTC-3 — 39.604817, - 104.837083. Below ACWWA Lone Tree facility outfall.
  LTC-4 — 39.614483, 104.840217. Downstream of confluence with Windmill Creek

- Upper Windmill Creek: From Headwaters to WC-1 — Site WC-1-39.574967, -104.830017. West of Potomac St and South of Broncos Pkwy.

- Middle Windmill Creek: All sites between (but not including) WC-1 and WC-2.
  WC-1—39.574967, -104.830017. West of Potomac St and South of Broncos Pkwy.
  WC-2—39.59655, -104.821767. North of Cherry Creek Trail.

- Lower Windmill Creek: From site WC-2 to confluence with Lone Tree Creek, to be assessed at WC-2-39.59655, -104.821767. North of Cherry Creek Trail.

(j) Clear Creek Segment 5: Manganese assessment

- Below Woods Creek: West Fork of Clear Creek approximately 0.3 miles downstream of Berthoud Falls (39.771829°, -105.803418°).

- Mouth of West Fork: West Fork of Clear Creek near County Road 257.

(5) <u>Stream Classifications and Water Quality Standards Tables</u>

The stream classifications and water quality standards tables in Appendix 38-1 are incorporated herein by reference.

38.7 COMMISSION'S DETERMINATION REGARDING STATE WATERS

(1) Introduction

The following list describes the Commission's determinations regarding water bodies that do not contain "State Waters."

(2) Determinations

(a) Marston Forebay located in Upper South Platte Segment 23 within Sections 11, 12, 13 and 14 in Township 5 South, Range 69 West of the 6th P.M. in the City and County of Denver, Colorado.

38.8-38.9 RESERVED

38.10 STATEMENT OF BASIS AND PURPOSE

I. Introduction

Prior to the adoption of the Commission's "Basic Regulations," (5CCR 1002-8) what is now known as Segment 14 of the South Platte River Basin was classified B1 and B2. In regulations adopted by the Commission on April 6, 1981, Segment 14 was classified as a warm water aquatic life class I stream (see 5CCR 1002-8). A water quality standard for unionized ammonia of .06 mg/l, with a temporary modification of .1mg/l, was established at that time in conjunction with the aquatic life classification.

On June 15, 1981, the Cities of Littleton and Englewood, Colorado, petitioned pursuant to 25-8-403, C.R.S. 1973 for administrative reconsideration and rehearing on the classification of segment 14 of the South Platte River Basin as class I, warm water aquatic life, and the modification of an ammonia standard in segment 14 of 0.06 mg/l.

On June 29, 1981, the request was denied. The Commission then decided, however, to conduct a new public rulemaking hearing to determine whether to maintain or amend certain use classifications and water quality standards for the segment.

Based on the record of this hearing, the Commission has determined that the existing aquatic life classification and the existing water quality standard for unionized ammonia should be retained.

II. WARM WATER AQUATIC LIFE CLASS I CLASSIFICATION

Notwithstanding some evidence that aquatic habitat limits the numbers and diversity of aquatic organisms in this stream segment, and some evidence that the presence of sensitive species is also limited, the Commission is persuaded by the weight of the evidence that this is a class I aquatic life stream. This conclusion is based on the following findings:

1. The ratio of rough to game fish is representative of east slope warm water plains streams generally, indicating a fair population of sensitive fish species.

2. Despite some siltation and some habitat impairment streambed improvements as well as natural conditions generally provide good or adequate habitat for warm water species.

3. There is evidence that fish spawning takes place in this segment.

4. The diversity of the fishery is adequate to warrant a class I aquatic life classification.

5. Limitations on the presence and condition of aquatic life are related to both water quality factors and to habitat impairment.

6. Given the historical improvements in habitat, water quality, and aquatic life since 1965, a class I classification appropriately reflects the results of significant community efforts to improve the South Platte River.

III. UNIONIZED AMMONIA WATER QUALITY STANDARD - .06 mg/l; TEMPORARY MODIFICATION .1 MG/L

The record reveals conflicting evidence regarding the unionized ammonia water quality standard necessary to protect resident aquatic life. The Commission has determined that the existing standards, i.e., .06 mg/l (Water Quality Standards) and .1 mg/l (Temporary Modification) should be retained for the following reasons:

1. There is substantial evidence of relationships among ammonia toxicity and pH, temperture, and alkalinity. However, the record does not provide the Commission with a satisfactory basis for linking these variables to a specific Water Quality Standard to protect the varieties of species present, except with application of the gill theory.

2. Significant uncertainties with respect to application of the gill theory preclude the Commission from utilizing it at this time.

3. The Commission recognizes that a site specific approach to the establishment of Water Quality Standards for ammonia is the preferred approach. However, no site specific bioassays have been performed, and the details of any other application of site specific factors is a matter currently under review at EPA and within the field of aquatic toxicology.

4. The .06 mg/l unionized ammonia standard is considered by the Water Quality Control Commission at this time to be generally necessary and sufficient to protect the sensitive warm water species found in this segment, as well as in Colorado generally. Furthermore, differences between the South Platte and the Cache la Poudre River, such as flows, temperature, water chemistry, and the presence of different species, indicate that the .1 mg/l unionized ammonia standard applicable for the Poudre and elsewhere is inappropriate here.

5. The .06 mg/l unionized ammonia standard is generally met in the stream at this time, although some excursions above this standard do occur. The .1 mg/l temporary modification is adequate to account for such excursions without penalizing dischargers for their occurrence.

6. The evidence submitted by the Division on the mixing zone study indicates that the .06 mg/l unionized ammonia standard is being met in the study area by the existing Bi-City treatment plant, and will continue to be met in the near term without additional treatment and without taking into account the dilution effect of additional flows, mixing zone considerations, or other similar factors utilized in writing permit effluent limitations.

7. The existing standard and temporary modification will have no effect on capital-intensive requirements for existing discharges at this time. Compliance schedules to reduce ammonia levels will not be required of dischargers until a wasteload allocation is established. Future effects are hypothetical and uncertain. As the Commission considers the temporary modification in the future, and in the conduct of its required

trienniel review, such factors can be re-evaluated in the light of more specific facts and in conjunction with advancing scientific information on the establishment of site-specific standards.

IV. ECONOMIC REASONABLENESS

The Commission has considered the economic reasonableness of this action and concludes as follows:

1. Evidence indicates that the .06 mg/l unionized ammonia standard is met now below the discharge point of the existing Bi-City Treatment Plant. The .1 mg/l temporary modification is adequate to account for excursions above the standard without imposing additional treatment requirements on dischargers. the existing 20 mgd Bi-City Plant.

2. Specific cost figures submitted by Littleton and Englewood indicate potential total impacts, not incremental impacts.

3. Because no immediate economic impacts will occur, and because there are administrative remedies to specificaly address economic impacts if they materilize in the future, the decision to retain the existing aquatic life classification and ammonia standards is economically reasonable. Administrative remedies potentially available in the future include those specified by C.R.S. 1973, 25-8-204(3), 503(4), and 202 (1)(f).

38.11 MEASURING DISSOLVED OXYGEN IN LAKES AND RESERVOIRS

The water quality standards for dissolved oxygen are intended to apply to the epilimnion and metalimnion strata of lakes and reservoirs.

38.12

I. Introduction

These stream classifications and water quality standards for state waters of the South Platte River Basin, including all tributaries and standing bodies of water, and the Laramie River, implement requirements of the Colorado Water Quality Control Act, C.R.S. 1973, 25-8-101 et seq. They also represent the implementation of the Commission's Regulations Establishing Basic Standards and an Anti-degradation Standard and Establishing a System for Classifying State Waters, for Assigning Standards, and for Granting Temporary Modifications (the "Basic Regulations").

The Basic Regulations establish a system for the classification of state waters according to the beneficial uses for which they are suitable or are to become suitable, and for assigning specific numerical water quality standards according to such classifications. Because these stream classifications and standards implement the Basic Regulations, that statement of basis and purpose (Section 3.1.16) must be referred to for a complete understanding of the underlying basis and purpose of the regulations adopted herein. Therefore, that statement is incorporated by reference. This statement of basis and purpose is addressed to the scientific and technological rationale for the specific classifications and standards, developed from information in the record established in the administrative process. Public participation was a significant factor in the development of these regulations. A lengthy record has been built through public hearings, and this record establishes a substantial basis for the specific classifications and standards adopted. Public hearings were commenced on July 30, 1980. A total of 59 persons requested and were granted party status by the Commission in accordance with C.R.S. 1973, 24-4-101 et seq.

II. General Considerations

1. These regulations are not adopted as control regulations. Stream classifications and water quality standards are specifically distinguished from control regulations in the Water Quality Control Act, and it is the view of the Commission that they need not be adopted as control regulations pursuant to the statutory scheme.

2. The Commission has been requested in the public hearings to rule on the applicability of these and other regulations to the operation of water diversion facilities, dams, transport systems, and the consequent withdrawal, impoundment, non-release and release of water for the exercise of water rights. The Commission has determined that any such broad ruling is inappropriate in the context of the present regulations. While the request raises significant issues that must be addressed, the Commission is aware of the current practices of the Division and notes no significant impacts on these activities. In addition, these questions involve complex legal issues currently in litigation. The request does not raise specific questions as to proposed classifications and standards; however, the Commission has taken into account the fact that some issues are unresolved in adopting classifications and standards, as is more fully discussed below. In addition, on January 5, 1981, the Commission adopted a policy statement on quality/quantity issues that addresses a number of concerns.

III. Definition of Stream Segments

1. For purposes of adopting classifications and water quality standards, the streams and water bodies are identified according to river basin and specific water segments.

2. Within each river basin, specific water segments are defined, for which use classifications and numeric water quality standards are adopted. These segments may constitute a specified stretch of river mainstem, a specific tributary, a specific lake or reservoir, or a generally defined grouping of waters within the basin (e.g., a specific mainstem segment and all tributaries flowing into that mainstem segment).

3. Segments are generally delineated according to the points at which the use or water quality characteristics of a watercourse are determined to change significantly enough to require a change in use classification and/or water quality standards. In many cases, such transition points can be specifically identified from available water quality data. In other cases, however, the delineation of segments is based upon best judgements of where instream changes in uses or water quality occur, based upon upstream and downstream data.

IV. Use Classifications -- Generally

1. The use classifications have been established in accordance with the provisions of Section 3.1.6 and 3.1.13 of the Basic Regulations. Each proposal classification is based upon actual current uses or existing water quality. In the latter case, even though the use may not be in place, the classification is attached if existing water quality would allow that use.

2. In all cases the regulation has been followed that an upstream use cannot threaten or degrade a downstream use. Accordingly, upstream segments of a stream are generally the same as, or higher in classification than, downstream segments. In a few cases, tributaries are classified at lower classifications than mainstems, where the flow from tributaries does not threaten the quality of mainstem waters and where the evidence indicates that lower classifications for the tributaries is appropriate.

3. The Commission has determined that it has the authority to assign the classification “High Quality Waters - Class 1" and High Quality Waters - Class 2" where the evidence

indicates that the requirements of Sections 3.1.13(1) (e) are met. The validity of the use of this classification has been determined on a case-by-case basis.

4. The classification “High Quality Waters - Class 1" has been assigned where the following factors are present:

   (a) waters are of a quality higher than necessary to protect specified uses;

   (b) waters constitute an outstanding state and national resource;

   (c) no known sources of pollution are present;

   (d) restrictions on use due to federal status are present; and

   (e) waters are of recreational and ecological significance.

5. Not all segments located within wilderness areas have been classified “High Quality - Class 1". In addition, rivers designated under the Wild and Scenic Rivers Act and streams providing unique habitats for threatened species of fish have not been classified “High Quality - Class 1". These segments have been classified “High Quality - Class 2" for the following reasons:

   (a) waters are of a quality higher than necessary to protect specified uses;

   (b) evidence in the record indicates the presence of water diversions within these areas;

   (c) a question exists as to whether existing diversion structures can be maintained consistent with a ”High Quality - Class 1" designation. Because of the questions regarding authority to regulate diversion, the Class 1 designation was deemed potentially too rigid. The Commission recognizes its authority to upgrade these segments if and when it is appropriate to do so.

6. The “High Quality - Class 2" classification was considered for many segments located on National Forest Service lands and in other instances. These proposals have been rejected and the segments classified for specific uses for the following reasons:

   (a) High quality classifications represent extraordinary categories and their use is optional at the discretion of the Commission;

   (b) Due to the extraordinary nature of the classification, the Commission deems it appropriate to require more data on existing quality than present in the record to justify more extensive use of the classification;

   (c) Further monitoring may indicate in the future that many segments in this region should be upgraded to a high quality classification;

   (d) More reliable data is necessary with this classification in these cases because there are no guidelines other than instream values upon which to base water quality standards;

   (e) It is important in these cases to assign specific numeric water quality standards to protect the highest specific use classifications and only specific use classifications provide the mechanism for assigning such standards.

(f) There is considerable uncertainty at this time regarding the manner in which the "High Quality - Class 2" classification will be administered, particularly with regard to procedures for activities which may involve some temporary degradation of water quality;

(g) Questions exist regarding "existing quality" in terms of historic activities that may have affected water quality;

(h) Questions exist regarding the applicability of the high quality classification to diversions;

(i) The Commission views the classification system as an ongoing process and recognizes its authority to upgrade specific stream segments. There is presently a need for the establishment of mechanisms for administering the "High Quality - Class 2" classification; and

(j) Location of a stream on National Forest Service lands provides no reason in and of itself to classify it as high quality.

7. Qualifiers – "Goal"

The "goal" qualifier (Section 3.1.13(2) (a), Basic Regulations) has been used in specific cases where waters are presently not fully suitable for the classified use, but are intended to become so. In all such cases, water quality standards have been established to protect the classified uses and temporary modifications have been granted for specified parameters.

8. Qualifiers – "Interrupted Flow"

The Commission has considered appending the "interrupted flow" qualifier to numerous stream segments in accordance with Sections 3.1.13(2)(c) of the Basic Regulations; however, numerous questions have arisen as to its meaning and applicability. The insertion of the provision is to allow the Commission to classify certain stream segments according to their water quality despite the existence of flow problems. It has not been included in order to eliminate confusion as to its applicability to diminished, as opposed to interrupted, flows. It has also been eliminated in order to eliminate any misimpression regarding benefits to dischargers: this qualifier is essentially a statement of the obvious, particulary in view of the provision regarding low flow exceptions (Section 3.1.9(1), Basic Regulations.

In addition, where flow characteristics permanently impair the suitability of the stream segment to provide a habitat for a wide variety of aquatic life, the "Class 2 - Cold Water Aquatic Life" classification has been assigned.

9. Recreation -- Class 1 and 2

In addition to the significant distinction between Recreation - Class 1 and Recreation - Class 2 as defined in Section 3.1.13(1) of the Basic regulations, the difference between the two classifications in terms of water quality standards is the fecal coliform parameter. Recreation - Class 1 generally results in a standard of 200 fecal coliforms per 100 ml; Recreation - Class 2 generally results in a standard of 2000 fecal coliform per 100 ml.

The Commission has heard considerable testimony on the issue of applying these classifications and has deliberated on it at length. The Commission has decided to classify as "Recreation - Class 2" those stream segments where primary contact

recreation does not exist and cannot be reasonably expected to exist in the future and where municipal discharges are present which may be unnecessarily affected by the "Recreation - Class 1" classification to their detriment and that of the aquatic life in the stream segment. The Commission has decided to classify as "Recreation - Class 1" those stream segments where primary contact recreation exists or where the fecal coliform standard of 200 per 100 ml. is being met and no point source discharges exist, despite the absence of the primary contact use. The reasons for these decisions are as follows:

(a) The mountain streams in this region are generally unsuitable for primary contact recreation because of water temperature and stream flows.

(b) Fecal coliform is an indicator organism. Its presence does not always indicate the presence of pathogens depending on the source of the fecal coliform. If the source is agricultural runoff as opposed to human sewage, there may be no health hazard and therefore no significant need to reduce the presence of fecal coliform to the 200 per 100 ml. level. Also, control of nonpoint sources is very difficult.

(c) Treating sewage to meet the 200 per 100 ml. level generally means the treatment plant must chlorinate its effluent to meet the limitation. The presence of chlorine in the effluent can be significantly detrimental to aquatic life without corresponding benefits. Post-treatment of effluent to meet the residual chlorine standard is expensive and often results in the addition of more chemicals which can be detrimental to aquatic life. Therefore, reducing the need for chlorine is of beneficial effect to aquatic life.

(d) Even where a treatment plant in this region might treat its effluent to attain the standard of 200 per 100 ml., agricultural runoff and irrigation return flows below the plant may result in the rapid increase of fecal coliform levels. Therefore, the benefits of further treatment are questionable.

(e) The fecal coliform standard of 2000 per 100 ml. has been established to protect water supplies. There is no significant difference in the two levels for water treatment plants because the average plant must provide the means for treatment at higher levels. The standard of 200 per 100 ml. is not intended to protect the water supply classification.

V. Water Quality Standards -- Generally

1. The water quality standards for classified stream segments are defined as numeric values for specific water quality parameters. These numeric standards are adopted as the limits for chemical constituents and other parameters necessary to protect adequately the classified uses in all stream segments.

2. Not all of the parameters listed in the "Tables" appended to the Basic Regulations are assigned as water quality standards. This complies with Section 3.1.7(c) of the Basic Regulations. Numeric standards have not been assigned for parameters on which there is no data and no knowledge of their occurrence in the basin.

3. A numeric standard for the temperature parameter has been adopted as a basic standard applicable to all waters of the region in the same manner as the basic standards in Section 3.1.11 of the Basic Regulations.

The standard of a 3° temperature increase above ambient water temperature as defined is generally valid based on the data regarding what is necessary to support an “Aquatic Life - Class 1" fishery. The standard takes into account daily and seasonal fluctuations; however, it is also recognized that the 3° limitation as defined is only appropriate as a guideline and cannot be rigidly applied if the intention is to protect aquatic life. In winter, for example, warm water releases from reservoirs (which might not be subject to the standard in any case) may be beneficial to aquatic life. It is the intention of the Commission in adopting the standard to prevent radical temperature changes in short periods of time which are detrimental to aquatic life.

4. Numeric standards for nineteen organic parameters have been adopted as basic standards applicable to all waters of the region in the same manner as the basic standards in Section 3.1.11 of the Basic Regulations. These standards are essential to a program designed to protect the waters of the state regardless of use classifications because they describe the fundamental conditions that all waters must meet.

   It is the decision of the Commission to adopt these standards as basic standards because their presence in not generally suspected. Also, these numbers are not detectable using routine methodology and there is some concern regarding the potential for monitoring requirements if the standards are placed on the particular stream. This concern should be alleviated by Section 3.1.14(5) of the Basic Regulations but there is uncertainty regarding the interpretation of those numbers by other entities. Regardless of these concerns, because these parameters are highly toxic, there is a need for regulating their presence in state waters. Because the Commission has determined that they have uniform applicability here, their inclusion as basic standards for the region accomplishes this purpose.

5. In many cases, the numeric water quality standards are taken from the “Tables” appended to the Basic Regulations. These table values are used where actual ambient water quality data in a segment incases that the existing quality is substantially equivalent to, or better than, the corresponding table values. This has been done because the table values are adequate to protect the classified uses.

   Consistent with the Basic Regulations, the Commission has not assumed that the table values have presumptive validity or applicability. This accounts for the extensive data in the record on ambient water quality. However, the Commission has found that the table values are generally sufficient to protect the use classifications. Therefore, they have been applied in the situations outlined in the preceding paragraph as well as in those cases where there is insufficient data in the record to justify the establishment of different standards. The documentary evidence forming the basis for the table values is included in the record.

6. In many cases, instream ambient water quality provides the basis for the water quality standards (See 7 below). In those cases where the classified uses presently exist or have a reasonable potential to exist despite the fact that instream data reflects ambient conditions of lower water quality than the table values, instream values have been used. In these cases, the evidence indicates that instream values are adequate to protect the uses. In those cases where temporary modifications are appropriate, instream values are generally reflected in the temporary modification and table values are reflected in the corresponding water quality standard. (Goals are established for the appropriate classification affected by the parameter).

   Cases in which water quality standards reflect these instream values usually involve the metal parameters. On many stream segments elevated levels of metals are present due to natural or unknown causes, as well as mine seepage from inactive or abandoned mines. These sources are difficult to identify and impractical or impossible to control.

The classified aquatic life uses may be impacted and/or may have adjusted to the condition. In either case, the water quality standards are deemed sufficient to protect the uses that are present.

7, In establishing standards based on instream ambient water quality, a calculation is made based upon the mean (average) plus one standard deviation ($\bar{x}$+ s) for all sampling points on a particular stream segment. Since a standard deviation is not added to the water quality standard for purposes of determining the compliance, this is a fair method as applied to discharges.

Levels that were determined to be below the detectable limits of the sampling methodology employed were averaged in as zero rather than at the detectable limit. This moves the mean down but since zero is also used when calculating wasteload allocations, this method is not unfair to dischargers.

A number of different statistical methods could have been used. All of them have pros and cons and the approach used is reasonable.

Metals present in water samples may be tied up in turbidity when the water is present in the stream. In this form they are not "available" to fish and may not be detrimental to aquatic life. Because the data of record does not distinguish as to availability, some deviation from table values, as well as the use of $\bar{x}$ + s, is further justified because it is unlikely that the total value in the samples analyzed is in available form.

8. No water quality standards are set below detectable limits for any parameter, although certain parameters may not be detectable at the limit of the standards using routine methodology. However, it must be noted that stream monitoring, as opposed to effluent monitoring, is generally not the responsibility of the dischargers but of the state. Furthermore, the purpose of the standards is to protect the classified uses despite the inconvenience monitoring may impose.

Section 3.1.15(5) of the Basic Regulations states that "dischargers will not be required to regularly monitor for any parameters that are not identified by the Division as being of concern". Generally, there is no requirement for monitoring unless a parameter is in the effluent guidelines for the relevant industry.

9. The dissolved oxygen standard is intended to apply to the epilimnion and metalimnion strata of lakes and reservoirs. Respiration by aerobic micro-organisms as organic matter is consumed is the primary cause of a natural decrease in dissolved oxygen and anaerobic conditions in the hypolimnion. Therefore, this stratum is exempt from the dissolved oxygen standard.

10. Where numeric standards are established based on historic instream water quality data at the level of $\bar{x}$ + s, it is recognized by the Commission that measured instream parameter levels might exceed the standard approximately 15 percent of the time.

11. Dischargers are not responsible for the removal of pollutants present in their intake water, but may be held responsible for any and all additions of pollutants by such discharger, where necessary, to meet applicable water quality standards.

12. It is the Commission's intention that the Division implement and enforce these water quality standards consistent with the manner in which they have been established.

VI. Water Quality Standards for Unionized Ammonia

Ammonia standards on plains streams have been established after careful consideration of a number of competing factors. Ammonia standards less stringent than those recommended in the Tables have been adopted and/or the footnote (3.8.5(4)) attached based on the following factors:

1. Bioassays performed in the Cache la Poudre River show that a .1 mg/l standard is appropriate in that stream. The results of these bioassays may be appropriately extrapolated to similar plains streams; i.e., those streams that demonstrate similar chemical, physical, and biological characteristics.

2. limited nature of the aquatic life present;

3. limited recreational value of species present;

4. habitat limitations, primarily flow and streambed characteristics, that impose significant limitations on the nature of aquatic life, even if ammonia reductions were attained;

5. rapid dissipation of ammonia in streams, reducing the impact of such discharges downstream; and

6. Economic costs of ammonia removal, especially where such costs would fall primarily on publicly-owned treatment works, and while the availability of construction grant funds is questionable.

VII. Water Quality Standards for Uranium

Given the threat that radioactivity from uranium may pose to human health, it is advisable to limit uranium concentrations in streams to the maximum extent practicable. The Commission finds that based on the record of these hearings a uranium standard is particularly necessary to protect the water supply classification. In the face of significant controversy and conflicting testimony, the Commission has adopted a standard of 40 pCi/l or natural background where higher, for the following reasons:

1. 40 pCi/l generally reflects background concentrations of uranium that may be found in streams in Colorado and therefore this amount approximates routine human exposure.

2. The statistical risk of human health hazards is small at 40 pCi/l.

3. 40 pCi/l is an interim level, established now pending the outcome of further studies currently underway.

VIII. Classifications and Standards -- Special Cases

1. Page 1, segments 2a, 2b, and 2c (proposed as page 1, segment 2)

   This segment has been re-segmented based on water quality data and other information submitted by the Coors Company indicating that Mosquito Creek and South Mosquito Creek deserve unique treatment. These streams have been subject to channelization, thus impacting aquatic life habitat and the presence of mine drainage results in high levels of heavy metals.

2. Page 2, segment 6 (proposed as page 1, segment 6)

   Present water quality and aquatic habitat demonstrates that the proposed classifications are in place and proposed standards currently met. There are trout found here, although there is a question as to whether of not reproduction takes place in this segment.

However, given the importance of this segment as part of the Littleton Floodplain Park, efforts of the Division of Wildlife to establish an urban fishery, existing quality, and the lack of any definite impact on dischargers, the proposed classifications standards are deemed appropriate. Since the Mission Viejo Company is planning to install nitrification facilities, the standard for ammonia should be met downstream of their proposed discharge. In the event that this is not the case in fact, the Commission will be able to re-evaluate this situation in full when standards are reconsidered.

3. Page 3, segment 14 (same as proposed)

Although there are large numbers of fish present in this segment, including some game fish, it is believed that there is no spawning in this stretch of stream due to high temperatures. Littleton - Englewood has demonstrated a willingness to increase treatment provided other dischargers do likewise in order to make their own efforts meaningful. Under such circumstances, it may be of measurable benefit to the stream to reduce ammonia levels. Therefore, a temporary modification for ammonia has been established based on existing quality, in the belief that the .06 mg/l standard can be achieved.

4. Page 4, segment 15 (proposed as page 3, segment 15)

The .2 mg/l NH3 standard represents instream quality. The reasons for this standard appear above at part VI, Denver Metro being the affect municipality.

A total ammonia standard has not been adopted based on a lack of necessity for such a standard, the problems involved in defining “point of intake” and applying such standard, as well as the costs involved in meeting the standard.

5. Page 4, segment 17b (proposed as page 3, segment 17)

A goal for Class 1 Aquatic Life has been established since there is a Clean Lakes Program Grant to improve the lake. Data from the Coors Company indicates elevated levels of cadmium, copper, iron, and lead, and therefore standards have been established on that basis for this lake.

6. Page 6, segments 1a, 1b, 1c (proposed as page 5, segment 1)

Existing ammonia levels are sufficient to justify a .02 mg.l standard on all reaches of this segment although population growth may result in future problems. The establishment of appropriate mixing zones should solve any existing problem in attaining the standard and the “footnote” has been attached to the ammonia standard in segment 1b, so that impacts on discharges may be assessed as they develop.

7. Page 8, segment 2 (proposed as page 6 segment 2)

The water supply classification has been removed because such use is not in place. In addition, existing quality may not support such a classification.

Numbers for various metals parameters are elevated based on water quality data submitted by the Coors Company, the City of Golden, and the Climax Molybdenum Company demonstrating higher instream values.

8. Page 8, segments 3a, 3b (proposed as page 6, segment 3)

Segment 3b has been separated out for unique treatment based on water quality data and other information submitted by Coors indicating poor streambed characteristics, limited aquatic life, and poor instream water quality. This reach has been subject to channelization and has a steep gradient. There are few species and numbers of species present. Elevated levels of heavy metals have been recorded.

9. Page 8, segment 4, page 9, segments 5 and 6 (proposed as page 6, segments 4 and 5)

The Commission adopts the rationale contained in Exhibit #1, page 16, of the hearing record on the Upper South Platte except as indicated below.

Numbers for metals parameters have been changed from those proposed based on water quality data submitted by Coors and Climax, as well as additional data developed by the Water Quality Control Division. The mainstem of West Clear Creek has been segmented to recognize the existence of different water quality above and below the confluence with Woods Creek, which has the major impact on water quality in West Clear Creek.

Temporary modifications have not been adopted here, but instead have been assigned on segment 7 where the discharges exist.

10. Page 9, segment 7 (proposed as page 6, segment 6)

The Commission adopts the rationale contained in Exhibit #1 page 17, of the hearing record on the Upper South Platte, except as indicated below.

With the existing segmentation, Upper Woods Creek, from the source to the outlet of Upper Urad Reservoir, is included in segment 6 (tributaries). Segment 7 is highly impacted by active and abandoned mine drainage. Treatment of active mine discharges is desirable primarily to improve water quality in West Clear Creek, where aquatic life habitat is good and could support a greater diversity of aquatic life with improved water quality in Woods Creek. This is attainable with treatment of existing discharges. During periods of low flow, Woods Creek makes up a majority of the flow in West Clear Creek. For these reasons, the standards adopted are the same as those for West Clear Creek. Temporary modifications have been assigned based on existing quality.

Since the City of Golden owns water rights in this segment, which may be affected by treatment requiring consumptive use, the Commission requests to be kept informed of any impacts on such water rights.

11. Page 10, segment 11, segment 14 (proposed as page 6, segment 11 and page 8, segment 14)

Numbers have been changed based on water quality data submitted by Climax and various municipalities.

A phosphorus standard has not been adopted as requested by parties. A study of the lake is needed to determine if a phosphorous problem exists.

A total ammonia standard has not been adopted because of a lack of demonstrated need for any such standard, the low levels of ammonia downstream in Standley Lake, the difficulty of measuring and defining compliance with such a standard, and the high costs associated with treatment to the levels requested.

12. Page 11, segment 15 (proposed as page 8, segment 15)

A goal for Aquatic Life - Class 1 has been established because this segment is a high priority for development by the Division of Wildlife as an urban fishery, and because flow and habitat conditions preclude full attainment of such use at present. Improvements of water quality and habitat may result in attainment of this goal.

The water supply classification and appropriate water quality standards have been adopted because this segment serves as a water supply for the City of Thornton.

The .06 mg/l NH3 standard is adopted in conjunction with the goal for aquatic life, while a temporary modification to .15 mg/l is assigned, reflecting existing quality.

13. Page 11, segment 17 (proposed as page 8, segment 17)

The segment description has been revised to include all three reservoirs located on this segment, all of which serve as municipal water supplies.

A Class 2 - Aquatic Life classification has been adopted because the aquatic life habitat is impacted by low flows and the existence of physical barriers to fish migration upstream from Ralson Reservoir.

Numbers for various metals parameters are elevated from the proposed standards based on instream water quality data.

Temporary modifications for lead, copper and uranium have been adopted to reflect existing quality. The modification is intended to allow the discharger to develop treatment capacity, but is effective only for one year due to the severe impact these parameters can have on the classified uses, namely aquatic life (copper and lead) and water supply (uranium). At the end of that period, the Commission must re-examine the need for the temporary modifications in accordance with the Basic Regulations.

The testimony and other evidence on the uranium issue were made part of the record during the testimony on this segment. Notwithstanding the potential impacts of the standard on the Cotter Corporation mine located in the segment, the rationale that appears above is applicable here. The impact of a polluting discharge should not be included in the calculation of ambient quality where a significant potential public health problems exists. In addition, the burden of pollutant removal should fall on the discharger and not on the downstream municipalities.

The sulfate standard is adopted as necessary to protect the water supply classification. Such action is not, however, deemed to be the adoption of a drinking water standard, since a drinking water standard applies only at the point of delivery to the users, and is enforceable only against supplies of the water to their customers. Compliance with this standard on this segment is to be measured in the reservoirs, not in the stream.

14. Page 12, segment 2 (proposed as page 9, segment 2)

Standards for cadmium, copper, lead and nickel reflect instream levels based upon additional data submitted at the hearing.

A total ammonia standard has been adopted on this segment to protect the water supply classification and to reflect existing quality.

15. Page 13, segments 4a and 4b (proposed as page 10, segment 4)

The Denver Water Board proposed a Class 2 - Aquatic Life classification for this entire segment due to channelization and diversion activities impacting the aquatic habitat. Trout Unlimited proposed a Class 1 classification to reflect existing use and water quality, as well as ongoing efforts to develop a trout fishery in the lower reaches. It is believed that the re-segmentation with a goal for Aquatic Life - Class 1 in segment 4b accomplishes the objectives of the parties and the Commission and reflects existing conditions in the stream.

16. Page 14, segment 6 (proposed as page 10, segment 6)

The water supply classification and appropriate water quality standards have been adopted to protect Great Western Reservoir which serves as a water supply for the City of Broomfield.

17. Page 14, segment 7a, 7b (proposed as page 11, segment 7)

The segment has been re-segmented and a Class 2 - Aquatic Life classification assigned to segment 7b in recognition of limited aquatic life and aquatic habitat in the lower segment due to low flows and streambed characteristics.

18. Page 16, segment 3 (proposed as page 12, segment 3)

The Aquatic Life - Class 1 classification has been retained based on the data and information submitted by the Water Quality Control Division as part of its special studies. This information indicates that the existing water quality, aquatic habitat, as well as numbers and varieties of aquatic species, support the proposal. Although there has been some historic channelization in this segment, the stream has regenerated into a good aquatic habitat.

19. Page 17, segment 2 (proposed as page 13, segment 2)

Water quality standards adopted in this segment reflect instream values measured upstream. The reason for not combining this with segment 1 is the existence of a hardness change where the Big Thompson River enters the South Platte.

20. Page 17, segment 4 (proposed as page 13, segment 4)

The record indicates that this reservoir is subject to great fluctuations in water levels and that it is eutrophic; therefore, a Class 2 - Aquatic Life classification has been assigned.

21. Page 18, segments 4 and 5 (proposed as page 14, segments 4 and 5)

The record on these segments supports the Class 2 - Aquatic Life classification and the standards to protect that use, due to streambed and flow characteristics.

Water quality standards are based on instream levels, and in some cases, extrapolations from water quality information from Cache la Poudre River studies. Such extrapolations are justified due to the following similarities between the streams:

The water supply classification was deleted

(a) forms and species of aquatic life;

(b) background levels of hardness and alkalinity;

(c) plains streams passing through large communities, impacted by diversions and agricultural return flows;

(d) close geographical proximity; and

(e) similar rates of flow.

Temporary modifications for copper and silver and adopted for 3 years with bioassays to be performed in that period which may result in changes in the adopted standards.

The number adopted as a temporary modification for silver represents an extrapolation as described above, although a slightly more conservative number is used since the bioassays were not performed in the Thompson River. The same rationale applies to the temporary modifications for copper. In addition, changing hardness in segment 5 provides a basis for copper standards slightly higher that those proposed.

22. Page 22, segment 11,12 (proposed as page 18, segments 11, 12)

from segment 11 because the use is not in place or expected to be in place in the future. In addition, treatment for ammonia removal could result in increased nitrate levels, thus rendering the use unattainable.

Copper and silver standards are adopted that reflect the results of bioassays and instream surveys performed in the lower Poudre which are part of the record.

The copper standard in segment 11 is based on the recognition of this segment as a transition zone for hardness and alkalinity. The copper standard in segment 12 is based on bioassays performed in the Poudre, as well as data from the literature and on ambient quality.

The silver standard for both these segments is based upon the proposal, as well as stream monitoring by Kodak/Colorado. The toxic form of silver, the free soluble silver ion, is rarely present in the environment, readily complexes into less toxic forms, and is difficult to measure. For these reasons, levels of silver at the adopted standard can exist without negative impact on the stream or its aquatic life.

A voluminous record on this segment supports the Aquatic Life - Class 2 classification and appropriate standards to protect that use. Aquatic habitat limitations and the historic conditions and uses of the river lead to the conclusion that a wide variety of aquatic life cannot be supported regardless of water quality characteristics.

In addition, extensive biosurveys indicate that the aquatic life in these segments is currently limited, not by water quality but by habitat, and that existing discharges have no significant detrimental impact on the existing aquatic life.

Bioassays performed in the Poudre support a .1 mg/l unionized ammonia standard to protect the existing aquatic life.

F I S C A L S T A T E M E N T

Stream Classifications and Water Quality Standards for the South Platte River System Including All Standing Bodies of Water and the Laramie, Republican and Smoky Hill River Systems Including All Standing Bodies of Water in Those Systems

The Water Quality Control Commission is charged with the responsibility to conserve, protect, and improve the quality of State waters pursuant to C.R.S. 1973, 25-8-101 et seq.

The Commission is further charged to classify all waters of the State and to promulgate standards for any measurable characteristics of water (25-8-203 and 25-8-204). The above-titled document assigns use classifications and standards for the State waters in the listed areas in accordance with the "Basic Regulations adopted May 22, 1979.

The measurable fiscal impacts which may be caused by these regulations are as follows:

- Cost of construction of increased or decreased treatment levels of municipal waste treatment facilities;

- Cost of construction of increased or decreased treatment levels of industrial waste treatment facilities;

- Change In cost of Operation and Maintenance of municipal facilities;

- Change in cost of Operation and Maintenance of industrial facilities;

- Cost of in stream monitoring and lab analysis for added by the standards.

Dischargers will not be required to do the stream monitoring. Only those parameters which are limited by a discharge permit will be monitored by the permittee. The state, federal and local agencies now doing in stream monitoring will have some increased cost; however, any additional frequency should be done to improve state surveillance and would be needed regardless of standard changes. In the Basic Standards under the water quality standards system which is being replaced, there was a prohibition of the discharge of toxic materials as follows:

> "(1) All State waters shall be:
>
> (d) Free from substances attributable to municipal, industrial, or other discharges of agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant, or aquatic life;"

Those municipalities which discharge to streams classified either A1 or B1 under the previous system or Cold Water Aquatic Life Class 1 under the new system are required to provide essentially the same degree of treatment under either system. As a result, any costs for advanced waste treatment required primarily for ammonia conversion and chlorine reduction for these streams would not be affected by the stream classifications. This includes the South Platte River through the Metropolitan Denver area where the possibility of additional treatment for ammonia was retained to protect the aquatic life that exists and to assure reasonably high quality of water compatible with the extensive park system being established along the river. It also includes Boulder creek through and downstream from Boulder to protect that stream for maximum public use as desired by the city.

For those municipalities discharging to streams which are classified A2 or B2 under the old system and are being classified as Warm Water Aquatic Life Class 2, the affects of the change is not as clear. Discharge permits for some of these municipalities, such as Loveland and Fort Collins, have been written for ammonia removal beyond secondary treatment to meet what was believed to be the intent of the prevailing stream classifications and standards. Construction schedules were also included in those permits leading to required construction of advanced waste treatment once the streams were reclassified and construction grant funds were available; however, some question exists as to whether such additional treatment would have been ultimately constructed. For the purposes of this statement, it is assumed that those facilities would not have had to go beyond secondary treatment with the old classification system. This assumption provides the most severe illustration of impact associated with the new classification

system and may be overestimating the impacts for some of the entities. This is particularly true for the Metro Denver and Greeley where local government is already proceeding with plans for advanced waste treatment development and for Fort Collins which already has potential for ammonia removal capabilities in its current facilities.

The following tabulation summarizes the change in capital costs due to the change in classification. The municipalities shown are limited to only those included on Warm Water Aquatic Life Class 2 segments in that they would be the only ones affected. Municipalities which discharge to intermittent or low flow plains streams are also tabulated herein. Most of these municipalities are located on warm water segments that have been footnoted by the Commission to indicate that secondary treatment is adequate; however, if the Water Quality Control Division determines that ammonia removal facilities would be required to meet the numeric standards, the matter must be brought before the Commission for a hearing before such additional treatment is imposed. The costs shown represent the two options; namely, (1) the estimated costs should additional treatment be imposed; and (2) the additional costs should they not be imposed.

The costs shown, in 1980 dollars, reflect the estimated incremental costs or savings between what likely would have occurred under the old system and that anticipated under the new system. Because the basis for comparison is assumed as secondary treatment with the old system for these municipalities, the incremental costs of the second option is zero in all cases. Estimated changes in costs for annual operation and maintenance are not shown but their present worth over a 20-year period can be expected to be somewhat less than the change in capital costs.

Municipality/County	**Design Flow mg/d**	**Incremental Cost for Advanced WT to Meet Ammonia Limits Capital $ Million**	**Increasing Cost For Treatment If Ammonia Standards Are Waived**
ADAMS			
Metro Denver S.D.D.#1	180	4.5*	0
So. Adams W.&.S.D.	6.1	2.0	0
ARAPAHOE			
Glendale	2.0	0	0
BOULDER			
Lafayette	0.3	0.4	0
Longmont	8.2	3.3	0
Louisville	1.0	0.8	0
Lyons	.250	0.3	0
DOUGLAS			
Castle Rock	0.4	0.4	0
JEFFERSON			
Clear Creek S.D.	2.0	1.9	0
Evergreen Metro Dist.	1.0	0.5*	0
Golden	4.0	2.0	0
Wheatridge S.D.	2.2	0.9	0
Morrison S.D.	.07	0.1*	0
Kittredge	0.1	0.1*	0
LARIMER			
Berthoud	0.9	0	0

Boxelder	0.8	0	0
Fort Collins	22.5	0	0
Loveland	7.7	3.3	0
South Ft. Collins	1.5	0	0
LOGAN			
Sterling	2.5	0	0
MORGAN			
Brush	1.5	0	0
Fort Morgan	3.6	0	0
WELD			
Erie	0.4	0.5	0
Evans	1.5	0	0
Eaton	0.3	0	0
Fort Lupton	1.5	0	0
Johnstown	0.25	0	0
Greeley	12	3.7	0
Greeley Industrial	2.8	0	0
Milliken S.D.	0.100	0	0
Weld County Tri Area	0.8	0	0
Windsor	0.7	0	0

Notes: Most costs shown are developed from generalized cost information. Those costs shown with an asterisk were provided by the local municipality.

In addition to municipal treatment impacts, the following industries presented testimony that the standards would require capital costs as listed below:

Industry	**Estimated Construction or Capital Cost in $ Million**	**Incremental Costs From Existing Standards**
Amax Henderson	20	0
Cotter Corporation	0.3 to 0.45	$0.3 to 0.45*
Great Western Sugar	0	0
Hewlett-Packard	0	0

*Includes about $0.6 million in additional O & M costs per year

The stream classifications and standards adopted by the Commission will protect the water uses primarily through control of potential point source pollution. Nonpoint source pollution from precipitation runoff will be controlled primarily from management practices which are in existence or will be implemented in the future. Future management practices need careful consideration and will be the result of 208 areawide management plans developed by regional planning agencies and being updated annually. These plans involve local general purpose governments with general assistance from state government. Some of the possible nonpoint source pollution may be controlled through “Control Regulations” yet to be promulgated by the Commission. These types of controls could involve runoff from construction, mining activities, and urban areas. It is not certain what controls are needed at this time and there is no way that possible costs can presently be identified.

Persons who benefit from standards which will protect existing and future anticipated uses can be identified as all persons benefiting from recreation, municipal water supply, and agriculture. These benefits are directly economic for agriculture, industry and municipalities whose health benefit costs are reduced by having clean water, and are both economical and non-quantifiable for some uses such as fishing, recreation, and the aesthetic value of clean waters. Furthermore, benefits will result from human health protection and lack of debilitating disease. Figures have been developed for a recreation/fishing day which can be applied to that aspect of a water use; however, figures which have been developed for total recreation/fishing day uses have been developed statewide and could not be applied region-by-region or stream-by-stream.

The uses of water in this region are adequately protected by these standards. Most municipal treatment facilities and industrial facilities are currently adequate, or are already being upgraded, in order to meet previous requirements. Any additional facilities or expansions in this region will generally be caused by increased capacity required because of population growths or industrial enlargement. Industries are required by federal statute to meet effluent limitations described as “best available technology” by 1983 of 1984.

Adopted: April 12, 1982

38.13 APPENDIX BASIS AND PURPOSE FOR “REGULATIONS GRANTING AND EXTENDING TEMPORARY MODIFICATIONS FOR RALSTON CREEK

On April 12, 1982, the Commission reviewed the temporary modification of numeric standards in relation to the foregoing paragraphs of item 13 of this basis and purpose. At the same time the Commission considered for the first time a request of the Cotter Corporation for a temporary modification of the cadmium standard of .0004 mg/l assigned to this Segment. The following paragraphs applicable to this segment constitute the basis and purpose for the Commission’s rule adopted April 12, 1982.

The Commission was favorably impressed by the diligence of the Cotter Corporation in attempting to meet the underlying standards, which was testified to during the hearing. This favorable impression was enhanced by evidence of Cotter’s plans and the manner in which the firm has moved forward on controlling the uranium levels in it’s effluent. For these reasons the Commission felt justified in extending the temporary modification of the numeric standard for uranium while construction is being completed.

Evidence indicated there was a reasonable probability that the uranium removal capability of the ion exchange technology under construction by Cotter Corporation would be ready for testing approximately January 1, 1983. In determining the duration of the extension of the temporary modification, the Commission observed the schedules involving application of innovative technology and optomizing its functioning are often not met. Therefore, to lessen the probability that an additional hearing would be required, the Commission set the expiration of the temporary Modification for uranium fourteen months from the expiration of the existing modification, which is July 16, 1983.

Additionally, the Commission recognized that zoning changes required to permit the Cotter Corporation to make the required facility changes could be delayed.

The Commission provided that the extension of the Temporary Modifications for all of the metals parameters covered by the hearing and the Temporary Modification granted for cadmium expire on a date certain without provision for an automatic and possibly, unnecessary rehearing to consider termination, revision, or extension of the modification. If some parameter cannot be met, the Commission may be petitioned to hold a hearing to consider adoption of a Temporary Modification or to take other action.

In considering the impact of it’s action on water quality, the Commission determined that as soon as the wastewater treatment facility, proposed by the Cotter Corporation, is placed in operation about the first of the year 1983, the effluent from their plant will be receiving treatment, which will be directed toward meeting underlying standards. Following that time, it was expected by the Commission, that operational

adjustments may be performed and that data will be collected to demonstrate attainment of planned levels of performance. Thus the objectives of the Commission will have been attained with the balance of the temporary modification period available for operational performance testing, evaluation, and documentation.

The Commission established the length of the temporary modification recognizing that even if the technology is on line in January 1983, there will be a need to acquire 30 day averages of data to indicate the degree of success of such technology. At least two months of operation will be required to generate the minimum amount of data necessary for the Cotter Corporation to determine whether or not it will be able to meet the underlying standards. To these two months would be added 60 day hearing notice and time for the Commission to take further action, if necessary.

For the purpose of acquiring better data, the Commission extended until July 16, 1983, the modification of the stream standards for Segment 17 of Clear Creek for uranium, copper, and lead at the levels currently in effect and provided until July 16, 1983, a modification for cadmium at a level of .013 mg/l. These modifications are to terminate on the date specified without hearing and were granted on condition that the Cotter Corporation show continued diligence in the construction and start-up of the treatment facilities. The value of .013 mg/l for cadmium is approximately the x+s testified to by the Cotter Corporation. That level was supported by the testimony of the Water Quality Control Division. It is a value that can be met during the period of the temporary modification and it is not a matter of public health concern for that short a period.

During the period of the temporary modifications adopted in this rule there is a strong likelihood of Cotter Corporation achieving compliance with the underlying standards assigned to Segment 17 of Clear Creek for copper and lead.

The Commission found from the testimony presented to it that if the temporary modification of metals standards for uranium, copper, lead and cadmium were not granted for Segment 17 of Clear Creek that the mine operated by the Cotter Corporation adjacent to that creek might be shut down; that the Corporation’s mill in Canon City would be threatened with closure; and that the employment of some 350 people could be terminated. The payback period on the treatment facility was found to be 25 years and there would be a small net gain from the sale of the uranium recovered over the annual operating costs of the treatment facility. In light of the public health benefits of it’s actions, the Commission found them to be economically reasonable. In further consideration of the economic reasonableness of it’s action the Commission noted that the Cotter Corporation had testified that it had committed 1.8 million dollars to its treatment facility which was said to be approximately five times the original estimate and that the Cotter Corporation should be given the time to prove the technology it intends to apply.

The compliance schedule contained in the permit issued to the Cotter Corporation by the Water Quality Control Division is based on the current temporary modification which expires May 16, 1982. The Division can only enforce the compliance schedule in accordance with the terms of the temporary modification being extended by this action. The Division cannot extend the period covered by the current modification to the date the Commission’s rule becomes effective 20 days after publication in the May, 1982 Colorado Register.

There is an approximately two week period in which there technically would not be a modification in effect. The Commission found this to constitute an emergency and that it was appropriate to formalize elimination of this gap by adopting this rule under emergency conditions thereby making it applicable during the period between adoption and the time the final rule becomes effective. In the absence of the Commission’s adoption of this rule under emergency conditions the Cotter Corporation could be at risk from action by a third party. The Commission, in adopting this rule under emergency conditions intended to preclude the possibility of unnecessary litigation.

Adopted: April 12, 1982
Effective: May 16 thru May 30, 1982

STATEMENT OF FISCAL IMPACT FOR
"REGULATIONS GRANTING AND EXTENDING TEMPORARY MODIFICATIONS
FOR RALSTON CREEK

The Fiscal Impact of extending temporary modifications for Copper (Cu), Uranium (U), Lead (Pb), and granting a temporary modification for Cadmium (Cd) is a positive benefit to the Cotter Corporation. Testimony revealed that Cotter Corporation is committed to investing approximately $1,800,000.00 in capital expenditures to meet the adopted Uranium Standards for Segment 17 of Clear Creek with an annual operations and maintenance requirement of $82,000.00. From the innovative technology of the installation Cotter Corporation expects to recover approximately $100,000.00 worth of Uranium each year. The net effect would be $16,000.00 that could be applied towards recovering the initial capital expenditure.

Additionally demonstration of the feasibility of the metals removal technology to be applied would enable more rapid solution of similar situations in the future.

Due to the relatively untested nature of this unique application of technology, the Cotter Corporation indicated that a certain degree of time past the expiration of the original temporary modifications would be necessary to come into compliance. Without such an extension the mine would be forced to cease discharging to avoid enforcement proceedings. The impact would be to cause the mine to flood which would effectively terminate the operation of the mine. If in fact this became the case, the fiscal impact would be a potential dissolution of the Corporation's mine operations with a subsequent termination of the milling operations in Canon City. This would result in the potential permanent severance of approximately 350 employees located at the mine and the mill. Loss of profit and net losses in capital investments were not testified to but can be assumed to be of a quite substantial magnitude.

The fiscal impact of the Commission acting under emergency procedures is the savings of expenses of potential third-party litigation, which cannot be estimated.

As no party gave substantive testimony indicating an economic impact or harm that could be expected from an extension, the Commission acted in an economically reasonable and responsible way by extending the modification. Thus the fiscal impact is the preservation of Cotter's Schwartzwalder Mine and Canon City Mill Operations with the attendant savings of whatever profits those operations generate. This extends to the preservation of approximately 350 jobs and the timely and economic retirement of capital equipment.

38.14 STATEMENT OF BASIS AND PURPOSE REGARDING THE ADOPTION OF NON-SUBSTANTIVE CORRECTIONS TO THE CLASSIFICATIONS AND NUMERIC STANDARDS FOR THE ARKANSAS, SAN JUAN AND DOLORES, RIO GRANDE AND SOUTH PLATTE RIVER BASINS.

In accordance with the requirements of 24-4-103(4), C.R.S. 1973, the Commission makes these findings and adopts this Statement of Basis and Purpose.

The Commission at a public rulemaking hearing November 8,1982,adopted clerical and editorial corrections to the Commission's current regulations numbered respectively 3.2.0, 3.4.0, 3.6.0 and 3.8.0. These regulations are contained in Article 3, Water Quality Standards, of the Policies, Regulations, and Guidelines of the Water Quality Control Commission. (5CCR 1002-8)

In adopting these corrections the Commission considered the economic reasonableness of its action, except as specified the corrections in no way change the classifications and numeric standards originally adopted by the Commission. Other than written comment from the City of Westminster no testimony was offered at the public hearing.

38.14STATEMENT OF BASIS AND PURPOSE REGARDING THE ADOPTION OF NON-SUBSTANTIVE CORRECTIONS TO THE CLASSIFICATIONS AND NUMERIC STANDARDS FOR THE ARKANSAS, SAN JUAN AND DOLORES, RIO GRANDE AND SOUTH PLATTE RIVER BASINS.

The consolidated changes adopted by the Commission are included in this Basis and Purpose for information. The Secretary of State was provided corrected pages for each of the regulations as replacements for the regulations previously published.

Dated this 8th day of November, 1982 at Denver, Colorado.

FISCAL STATEMENT

Regarding The Adoption of Non-Substantive Corrections To The Classifications And Numeric Standards For The Arkansas, San Juan and Dolores, Rio Grande and South Platte River Basins.

The Water Quality Control Commission found that clerical and editorial corrections to the Commission's current regulations numbered respectively 3.2.0, 3.4.0, 3.6.0 and 3.8.0 have no fiscal impact.

Dated this 8th day of November, 1982 at Denver, Colorado.

FISCAL IMPACT STATEMENT **ADOPTED DECEMBER 6, 1982**
SEGMENT 14 OF THE SOUTH PLATTE **EFFECTIVE JANUARY 30, 1983**

The principle economic cost of a .06 mg/l unionized ammonia standard with a temporary modification to .1 mg/l is the potential for requiring municipal dischargers in this segment to treat beyond the secondary level. Economic testimony was offered that identified three potential affected entities: The City of Englewood the City of Littleton and the City of Lakewood. All three municipalities discharge their processed wastewater effluent into this segment. The essential economic benefit of this ammonia standard is the potential preservation and enhancement of the fishery of segment 14, the potential preservation and enhancement of the segment as a recreational resource unique to the urban area, and the potential increase in the value of surrounding property and enhancement of development potential. The Commission received testimony that suggested potential economic benefits downstream to Segment 15 and Barr Lake.

The Commission heard considerable testimony regarding the economic ramifications that would allegedly attend either a .06 standard or other, less restrictive standards. None of the potentially impacted entities have been issued an NPDES permit mandating treatment beyond the secondary level and the nitrification cost estimates that were submitted are subject to question as to the final user impact. Thus, costs for nitrification must be considered as a potential rather than a certainty. The Commission also received testimony that illustrated the economic value of Segment 14 as a fishery, a recreational resource, and a lure for development. While it was suggested that a relaxation of the ammonia standard would jeapordize these beneficial uses, the Commission was faced with sufficient uncertainty regarding the causal linkages between the ammonia level and the uses such that economic evaluation was inconclusive.

It appears from the best evidence available to the Commission at this time that a .06 mg/l ammonia standard will pose no immediate threat of economic consequences to the municipal dischargers in this segment. The Commission notes that there are several administrative options available including wasteload allocations, to mitigate or eliminate the severity of economic impact should nitrification become increasingly probable. The Commission finds the use classification of the river to be appropriate, recognizes the unique nature of the urban South Platte as a recreational and aesthetic resource, and that although the economic value of Segment 14 is largely inestimable, it is nonetheless significant. The Commission believes that the more economically responsible stance is to maintain the highest practical level of beneficial use protection until such time as definite economic impositions upon the dischargers warrant a critical examination of the economic relationship between the beneficial uses of Segment 14 and the costs to maintain those uses.

The Commission concludes that there is doubt surrounding what costs and benefits varying levels of ammonia restrictions would generate. It is because the Commission believes that adequate protection exists to address potential costs should they develop and that the beneficial uses associated with this

classification are identifiable and in place, that it would be economically reasonable to retain the classification and ammonia standard for this segment as a result of this hearing.

38.15 APPENDIX BASIS AND PURPOSE FOR “REGULATIONS FOR EXTENDING TEMPORARY MODIFICATIONS FOR RALSTON CREEK”

On May 9, 1983, the Commission reviewed the temporary modification of numeric standards for Ralston Creek, segment 17 of Clear Creek, section 3.8.6(2) of the “Classifications and Numeric Standards, South Platte River Basin, etc.,” effective May 16, 1981, and contained in Article 3 of the Commission’s rules. The following paragraphs applicable to this segment constitute the statement of basis and purpose for the Commission’s rule adopted May 9, 1983.

The Commission was favorably impressed by the diligence of the Cotter Corporation in attempting to meet the underlying standards, which was testified to during the hearing. This favorable impression was enhanced by evidence of Cotter’s plans and the manner in which the firm has moved forward on controlling the levels of pollutants in its effluent, particularly meeting the underlying standards for lead and uranium. For these reasons the Commission felt justified in extending the temporary modification of the numeric standards for copper and cadmium while operational modes are being tested.

In determining the duration of the extension of the temporary modifications, the Commission observed the schedules involving application of innovative technology and optimizing its functioning are often not met. To lessen the probability of an additional hearing, the Commission has set the expiration date of the temporary modification for one year from the expiration of the existing modification, which would be July 16, 1984.

The Commission provided that the extension of the temporary modifications for the metals parameters covered by the hearing expire on a date certain without provision for an automatic and possibly unnecessary rehearing to consider termination, revision, or extension of the modification. If some parameter cannot be met, the Commission may be petitioned to hold a hearing to consider adoption of a temporary modification or to take other action.

In considering the impact of its action on water quality, the Commission determined that as soon as the wastewater treatment facility constructed by the Cotter Corporation is fully tested, the effluent from their plant will be receiving treatment, which will be directed toward meeting underlying standards. Operational adjustments are being performed and that data is being collected to demonstrate attainment of planned levels of performance. Thus, the objectives of the Commission will have been attained with the temporary modification period available for operational performance testing, evaluation, and documentation. The Commission established the length of the temporary modification recognizing that there is a need to acquire 30-day averages of data to indicate the degree of success of such technology.

Adopted: May 9, 1983

STATEMENT OF FISCAL IMPACT FOR "REGULATIONS FOR EXTENDING TEMPORARY MODIFICATIONS FOR RALSTON CREEK"

The Fiscal Impact of extending temporary modifications for Copper (Cu) and for Cadmium (Cd) is a positive benefit to the Cotter Corporation. Testimony revealed that Cotter Corporation has committed to investing approximately $2,240,000.00 in capital expenditures to meet the adopted Uranium Standards for Segment 17 of Clear Creek with an annual operations and maintenance requirement of $500,000.00. Cotter has also constructed an emergency storage pond at a cost of $250,000 to further the effectiveness of their treatment program. From the innovatave technology of the installation, Cotter Corporation had expected to recover approximately $100,000.00 worth of Uranium each year. Cotter indicated through testimony that they have not yet been able to measure a recoverable amount of uranium through ion

exchange solution recovery processes. Thus, they appear to have been unable at this time to recover any of the O & M costs through after treatment recovery.

Additionally demonstration of the feasibility of the metals removal technology to be applied would enable more rapid solution of similar situations in the future. Cotter testified that they hoped to gain technological insight from the ion exchange process that could be applied to the copper and cadmium problem. However, due to the relatively untested nature of this unique application of technology and the levels of copper and cadmium to be reached to meet water quality based limitations, Cotter Corporation indicated that a certain degree of time past the expiration of the original temporary modifications would be necessary to explore all available techniques to treat for the two metals of concern. Without such an extension, the mine would be forced to cease discharging to avoid enforcement proceedings. The impact would be to cause the mine to flood which would effectively terminate the operation of the mine. If in fact this became the case, the fiscal impact would be a potential dissolution of the Corporation's mine operations with a subsequent termination of the milling operations in Canon City. This would result in the potential permanent severance of approximately 350 employees located at the mine and the mill. Loss of profit and net losses in capital investments were not testified to but can be assumed to be of a quite substantial magnitude.

As no party gave substantive testimony indicating an economic impact or harm that could be expected from an extension, the Commission acted in an economically reasonable and responsible way by extending the modification. Thus, the fiscal impact is the preservation of Cotter's Schwartzwalder Mine and Canon City Mill Operations with the attendant savings of whatever profits those operations generate. This extends to the preservation of approximately 350 jobs and the timely and economic retirement of capital equipment.

The Commission finds from the testimony presented to it that if the temporary modifications are not granted for segment 17 of Clear Creek that the mine operated by Cotter Corporation adjacent to that creek might be shut down; that the Corporation's mill in Canon City would be threatened with closure; and that the employment of some 350 people could be terminated. In light of the public health benefits of its actions, the Commission found them to be economically reasonable. In further consideration of the economic reasonableness of its action the Commission noted that the Cotter Corporation had testified that it had committed 2.24 million dollars to its treatment facility which was said to be more than five times the original estimate and that the Cotter Corporation should be given the time to prove the technology it intends to apply.

Adopted: May 9, 1983

The Company has also incurred an expense of an additional $250,000 for emergency storage ponds. Estimated annual operating costs are upwards of $500,000. There is some concern for impact on other parties, but no evidence substantiates such concerns at this time. In fact, none of the parties objected to the granting of these temporary modifications.

The compliance schedule contained in the permit issued to the Cotter Corporation by the Water Quality Control Division is based on the current temporary modification which expires July 16, 1983. The Division can only enforce the compliance schedule in accordance with the terms of the temporary modification being extended by this action.

38.16 STATEMENT OF BASIS AND PURPOSE REGARDING THE ADOPTION OF MINOR CORRECTIONS AND CLARIFICATIONS FOR THE BASIC STANDARDS AND METHODOLOGIES AND CORRECTIONS TO THE NUMERIC STANDARDS FOR THE SAN JUAN AND DOLORES, GUNNISON, AND LOWER DOLORES, RIO GRANDE, AND THE SOUTH PLATTE RIVER BASINS.

BASIS AND PURPOSE:

38.16 STATEMENT OF BASIS AND PURPOSE REGARDING THE ADOPTION OF MINOR CORRECTIONS AND CLARIFICATIONS FOR THE BASIC STANDARDS AND METHODOLOGIES AND CORRECTIONS TO THE NUMERIC STANDARDS FOR THE SAN JUAN AND DOLORES, GUNNISON, AND LOWER DOLORES, RIO GRANDE, AN

In accordance with the requirements of 24-4-103(4), C.R.S. 1973, the Commission makes these findings and adopts this Statement of Basis and Purpose. The Commission, at a public rulemaking hearing November 14, 1983, and December 12, 1983, adopted minor and editorial corrections to clarify the Commission's current regulations numbered respectively 3.1.0, 3.4.0, 3.5.0, 3.6.0, and 3.8.0. These regulations are contained in Article 3, Water Quality Standards and Classifications, of the Policies, Regulations, and Guidelines of the Water Quality Control Commission. (5CCR 1002-8)

In adopting these corrections and clarifications, the Commission considered the economic reasonableness of its action. The scientific or technological rationale of the Commission in justifying the changes to its rules was that it made the classifications and standards which it had previously assigned more technically correct and accurate.

The consolidated changes adopted by the Commission are provided with this Basis and Purpose. The Secretary of State is being provided corrected pages for each of the regulations as replacements for pages previously published in those regulations.

An issue raised during the hearing, was whether or not the table of organic parameters should be moved from the Appendix to the text. The Commission included standards for organic parameters in the regulations it adopted for each of the River Basins of the State. Thus, standards for organic parameters were applicable Statewide, prior to the hearing to consider the changes to which this Statement of Basis and Purpose is applicable. This has had the same effect as would have a basic standard applicable to all waters of the State.

The Commission finds that it would be easier to make changes to one document, the Basic Standards and Methodologies, as future scientific information necessitates, than to make such changes in each basin. Thus it is more economically reasonable to deal with the organic substances in one regulatory document, rather than many. There was testimony that it was confusing to have the table of organic parameters as criteria guidance subject to change on a stream by stream basis when the parameters had been assigned and were not merely to provide guidance. It was testified that it would be less confusing to have the table in the text of the regulation to provide basic standards.

The City of Loveland testified that if the table in question were moved to the regulatory text there was the possibility of a basin standard differing from the general standard. The Commission found that its regulations enabled it to set site specific standards to stream segments as an exception to the basic standard, and that for the parameters in this table it was unlikely to have different basin standards.

The organic parameters in the table are not substances that form a naturally occurring background. They are toxics controlled at the point of sale or use. They are not ambient and subject to the same treatment as are other naturally occurring parameters. The Commission found it inappropriate to regulate these organic constitutents in the same manner as are those that can be ambient or uncontrollable background parameters. Therefore, the Commission changed the guideline table to a basic standard in the body of the regulation.

FISCAL IMPACT STATEMENT

Regarding the Adoption of Minor Corrections and Clarifications for the Basic Regulations and Corrections to the Numeric Standards for the San Juan and Dolores, Gunnison and Lower Dolores, Rio Grande, and the South Platte River Basins.

In accordance with section 24-4-103(8)(d) the Commission finds that the corrections and clarifications to its current regulations numbered respectively, 3.1.0, 3.4.0, 3.5.0, 3.6.0, and 3.8.0, have no quantifiable fiscal impact, although it is expected that these regulations will be more readily usable by the regulated industries and the general public.

PARTIES TO PROCEEDINGS

1. Climax Molybdenum Corporation
2. Trout Unlimited
3. Colorado Municipal League
4. City of Loveland
5. Eastman Kodak Company

Amended: May 15, 1984
Effective: June 30, 1984

38.17 Basis and Purpose

The purpose of this amendment is to remove apparent inconsistencies between two of the regulations recently adopted by the Commission with regard to the Act's provision in Section 204(3) for a hearing on the economic reasonableness of requiring treatment beyond secondary treatment. The amendment additionally extends the opportunity for a rulemaking hearing on stream classifications and/or numeric standards for ammonia and nitrite to all pollutants for which beyond secondary treatment may be required. The latter amendments could help resolve problems of conflicts between the Clean Water Act and state procedures alleged by EPA.

This amendment clarifies that when the Division proposes to issue a permit that would require treatment beyond secondary treatment, the permittee must exercise the statutory right to a hearing given in section 204(3) by requesting that hearing. In this way, only those permittees who believe that treatment beyond secondary treatment is economically unreasonable for their facilities will have hearings.

The amendment also clarifies that although the conditions requiring beyond secondary treatment will not go into effect during the review process, other permit conditions will go into effect as usual.

This amendment provides that, when a permittee requests a hearing under section 204(3), the Commission, may in its discretion, proceed first with a rulemaking hearing for the purpose of reclassifying, or changing the numeric standards of the stream segment into which the permitted facility discharges. In this manner, if a change in stream standards results that would in turn require a change in the permit conditions, the need for a hearing pursuant to section 204(3) could be obviated. If, after rulemaking, the permittee was still desirous of proceeding with section 204(3) adjudicatory hearing, that right would still be available.

By adopting this amendment, the Commission intends to avoid two conflicts with the Clean Water Act ("CWA") alleged by EPA. One is the granting of variances from stream classifications or standards for individual permittees. EPA contends that the granting of such variances is impermissible under the CWA; whereas, changes in classifications and standards are acceptable with certain limitations. The second alleged conflict is the prohibition in the CWA against a board or body which approves permit applications from having as a member any person who receives a significant portion of his income from a permit holder. The same prohibition does not apply to rulemaking, which affects permits, such as stream classifications.

Finally this amendment deletes from the permit regulations the reference to the "Footnote for Unionized Ammonia and Nitrite". In view of the other changes, this reference would be redundant.

FISCAL IMPACT STATEMENT

These amendments to clarify procedures for hearings pursuant to C.R.S. 1973, 25-8-204(3) (Beyond Secondary Treatment Requirements) have no fiscal impact which can be identified at this time. Any fiscal impacts that could be associated with this action would be more properly attributable to prior actions of the Commission. The Commission believes it has acted in an economically reasonable manner by adopting these amendments.

(NOTE: Not included in the CCR because this is an unnumbered section filed for the benefit of the Legislative Drafting Office in compliance with statute.)

ADOPTED: AUGUST 14, 1984
EFFECTIVE: SEPTEMBER 30, 1984

38.18 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE FOR THE PHOSPHORUS STANDARD FOR CHERRY CREEK RESERVOIR AND CHATFIELD RESERVOIR

In accordance with the requirements of Section 24-4-103(4), C.R.S., the Commission adopted this statement of Basis, Specific Statutory Authority and Purpose.

The primary purpose of the Commission's action was to set a total phosphorus (P) Standard of .027 to the inorganic standards for Chatfield Reservoir of stream segment (6) of the South Platte River and .035 mg/1P for Cherry Creek Reservoir, Segment (2), Cherry Creek, to limit chl a levels and, thereby protect the presently classified beneficial uses of those reservoirs. A P standard is important to the protection of the classified uses because the levels of chlorophyll a in both reservoirs are related to the amount of P in the reservoirs. (Generally the more P there is the more chl a there is, although the amounts of nitrogen and other factors affect the precise relationship.) Chl a which is an indicator of algae level, can affect aquatic life, fishing, swimming and other recreational uses. The purpose of adopting the .027 mg/l P standard for Chatfield Reservoir is to maintain the chl a level in Chatfield Reservoir at no higher than .017 mg/l. The purpose of adopting the .035 mg/l P standard for Cherry Creek Reservoir is to maintain the chl a level in Cherry Creek Reservoir at no higher than .015 mg/l. The P standards and chl a limits were developed from modeling based upon data generated in 1982.

Public participation was a significant factor in the development of these standards. A record of 1525 transcript pages plus hundreds of pages of exhibits was made through a public hearing taking 40 hours from April 9, 1984 through April 12, 1984. Twenty-two entities requested and were granted party status by the Commission in accordance with 24-4-101 et seq., C.R.S. (1982). The record forms the basis for the standards adopted.

The specific statutory authority for the Commission's action is contained in Section 25-8-202(1) (b) and (2); and 25-8-204; C.R.S. (1982). The hearing was conducted under the procedures of Section 24-4-103; 25-8-401; 25-8-402, C.R.S. (1982); "The Procedural Regulations for All Proceedings Before the Water Quality Control Commission and the Water Quality Control Division" (the Procedural Regulations) (5CCR 1002-1); and the Regulation titled: "Basic Standards and Methodologies" (the Basic Standards (5CCR 1002-8)).

For the Cherry Creek Reservoir, proposals were made for a phosphorus (P) standard of .030, .035, and .044 (.075 mg/l P was submitted but was withdrawn. Those parties shifted their support to .044 mg/l). The classified uses of the Reservoir to be protected by the P standard include warm water aquatic life class 1, recreational class 1, water supply, and agricultural.

CHERRY CREEK:

Cherry Creek Reservoir is a mildly eutrophic plains reservoir which has limited releases. Its water quality is adequate for the classified uses at present. However, acceleration of eutrophication resulting from projected population growth could cause harm to recreational and aquatic life uses. Most of the phosphorus entering the reservoir come from non-point sources via surface drainages.

The Commission found that the adopted standard .035 mg/l P maintains all beneficial uses.

A range of chl a levels of .010 mg/l to .020 mg/l which correspond approximately to .030 to .044 mg/l P was identified as protective of the aquatic life uses. There was some evidence that the ratio of rough fish

to sportsfish might increase as the chl a levels approach .020 mg/l. A narrower range of .010 mg/l to .015 mg/l of chl a was determined to be necessary for the maintenance of swimming uses. The adopted standard of .035 mg/l P (corresponding roughly to .015 mg/l chl a) is higher than the 1982 ambient level of .030 mg/l P but will preserve the quality of the recreational and aquatic uses.

The Commission found that the proposed standard of .044 mg/1P would cause: (1) a shift in fish species composition away from desirable species; and (2) a perceptible reduction in water clarity from increased algae which could result in a significant reduction in visitors based on the Aukerman survey information, and other testimony. Such a visitor reduction was anticipated because the amount of algae might increase significantly and a shift in algae species to the more undesirable blue-greens might occur.

Many species of algae cause scum and odors in the opinion of several expert witnesses and a level of .20 mg/l chl a associated with .044 mg/l P is the lower boundary where nuisance conditions and algae bloom become prevalent.

Survey data (Aukerman) indicated that some people perceiving increased pollution have withdrawn their patronage of the reservoir. Any further degradation due to increases in algae might interfere with or become injurious to existing uses and thus violate section 3.1.8(1) of the Commission's Basic Standards and Methodologies Regulation which states: "Existing uses shall be maintained as required by State and Federal law. No further water quality degradation is allowable which would interefere with or become injurious to existing uses."

In rejecting the proposal for a standard of .030 mg/l P, the Commission found that achievement of such a standard might be beyond technological capabilities requiring unreasonable expenditures as growth occurs. Any standard assigned the Cherry Creek Reservoir cannot be achieved without areawide cooperation of local governments and entities involved in wastewater management. The Commission intends to adopt a standard which represents a reasonably attainable objective in order to have the greatest opportunity for successful control of phosphorus. A standard allowing no increase in discharge of P might inhibit long-range planning. A standard of .035 mg/l P provides an opprotunity in the next few years to develop a plan and to seek improved treatment efficiencies.

The Commission believed that a standard which allowed a moderate increase in phosphorus would encourage greater cooperation from local governments which must adopt stringent non-point source controls to meet the standard of .035 mg/l P. The Commission recognizes the importance of regional planning for gaining a fuller understanding of the dynamics of the reservoir and the technologies available for phosphorus control.

The data obtained through monitoring of the reservoir for 1983 shows the need for more data in order to better define the relationship between chl a and phosphorus. A much larger data base is required for a thorough understanding of the relationship of chl a to P. The Commission will be awaiting further studies and an expanded data base in order that it may periodically reexamine the standard which it adopted.

The Commission has determined that the standard is economically reasonable. Based on DRCOG population projections the standard can probably be reasonably achieved with AWT Technology achieving discharges of .2 mg/l until the year 2005, in addition to non-point source controls. An effluent limit of .1 mg/l is achievable via checmical/physical treatment or land treatment.

Evidence from Summit County concerning phosphorus control in the Dillon Reservoir watershed demonstrated a capability of such technology of discharges of P of less than .2 mg/l. Therefore, if population projections of the Denver Regional Council of Governments (DRCOG) are used and if .1 mg/l P is reasonable, the standard will be achievable for even a longer period under current, reasonably available AWT technology. The Fiscal Impact Statement is hereby incorporated by reference.

<u>CHATFIELD RESERVOIR</u>:

Chatfield Reservoir is a mildly eutrophic flow-through reservoir, with water quality that is adequate for the classified uses.

The phosphorus standard of .027 mg/l P set by the Commission for the protection of the beneficial uses of Chatfield Reservoir was stipulated by the parties to the hearing as being appropriate. There was no serious disagreement at the public hearing to the proposed standard of .027 mg/l P. In considering the proposal, the Commission found that it would protect the uses of the Reservoir.

The adopted standard of P for the Chatfield Reservoir may permit an increase of chl a but it is within the margin of sampling error.

In addition regular flushing of the reservoir reduces the detrimental effect of a slight increase in phosphorus.

The Commission intends that the phosphorus standards for both reservoirs would receive thorough evaluation during the next triennial review of the classifications and standards assigned to the stream segments of the South Platte River Basin, or earlier as requested.

FISCAL IMPACT STATEMENT REGARDING THE ASSIGNMENT OF A PHOSPHORUS STANDARD TO CHERRY CREEK RESERVOIR

As a man-made impoundment, Cherry Creek Reservoir is a large flood control reservoir that was specifically designed to maintain a minimum recreation pool. The basic use of this reservoir as a flood control impoundment will continue essentially unaffected by the phosphorus standard set by the Water Quality Control Commission. The classified uses, however, are subject to impact by the phosphorus standard and thus are the subject of this statement.

Fiscal Impact - Benefits:

Cherry Creek Reservoir is one of the most intensely used recreational sites in Colorado. Evidence submitted to the Commission tied the quality and the quantity of this use to the phosphorus standard though there is a level of uncertainty as to the degree to which the recreational uses will be affected by various phosphorus levels. Cherry Creek currently has visitation of around 1.5 million visitor-days per year, and is frequently at capacity during Summer weekends. The market value of this visitation has been estimated at 1.5 million dollars annually in direct entrance fees. The evidence presented before the Commission indicated that the phosphorus standard of .035 mg/l would preserve this level of visitation. Furthermore, angler expenditures ranging from a low of 2.3 million dollars to a high of 11.3 million dollars was estimated as the potential losses as a result of a less stringent phosphorus limit.

Non-market values were also estimated and submitted as testimony to the Commission. This analysis yielded an indication of the magnitude of the social value of the classified uses of the reservoir.

When summed with the direct expenditures, the annual worth of the reservoir in current (1983) dollars ranges from a low of just under five million dollars to a high of over one hundred million dollars that could be lost with a less stringent standard. The Commission takes note that several important measures of value were excluded from the analysis which suggests that these figures are conservative estimates.

The incidence of these benefits fall upon the persons who directly enjoy the beneficial uses of the reservoir, the property owners whose property value is enhanced by the presence and quality of the reservoir, and the Colorado taxpayers in general. This latter group is benefitted by the fact that Cherry Creek revenues more than pay for the administration of the resource and contribute significantly to the maintenance of other state parks. Without this source of revenue, Colorado taxes would need to be raised to support other resources or the quality of administration of those resources would necessarily decline. In addition, evidence at the standards setting hearing indicated that some users would have no

substitutes therefore a further benefit is conferred upon retail merchants whose sales supported the enjoyment of the reservoir.

Fiscal Impact - Costs:

The analysis of the costs to preserve the beneficial uses at Cherry Creek is subtle as it is more of a question of assimilative capacity than incremental costs. However, as there was no prior phosphorus limit established for Cherry Creek Reservoir, the analysis properly begins with estimates of the phosphorus incremental costs associated with wastewater treatment. It is important to note that there are currently no wastewater plants that would be affected by this standard and all estimates of incremental impact are assigned to future potential development in the drainage basin. The following table summarizes the incremental annual costs for both AWT and land application methods necessary to implement the adopted standard.

YEAR	AWT	LAND APPLICATION	50/50 BLEND OF METHODS
1985	$1.72M	$2.18M	$1.95M
1990	$2.12M	$3.05M	$2.59M
2000	$2.51M	$5.01M	$3.76M
2010	$2.66M	$5.96M	$4.31M

When reduced to per capita impacts, the monthly incremental costs range from $1.36 to $3.43.

The Commission recognizes that there is some uncertainty that this standard will allow full planned build-out of the developments that would encounter these costs. It is appropriate to consider the final increment of development that may not be possible as a cost. However, this cost has not been estimated because the questions of probability and the likely solutions to capacity problems are substantially variable. It is possible that either increased treatment, development moratoriums, or revised standards could occur to address this potential cost in the future. As this standard will be reviewed every three years and as capacity is likely to not be reached until at least the year 2005, the Commission does not consider this potential cost to be ripe for consideration as a primary decision criterion at this time.

Conclusions:

The Commission recognizes that the economic value of Cherry Creek Reservoir is quite significant as is indicated by the best available evidence. Combining market and non-market values, Cherry Creek beneficial use values are in the range of at least five million dollars and may be worth as much as nearly 100 million dollars. These are not estimates of total value, but rather the dollar values associated with potential losses attributable to less stringent standards. The Commission notes that the potential losses are substantially greater than the costs to prevent them. Although the Commission would caution against the natural temptation to directly weigh these cost and value-loss measures in a cost-benefit approach, both because the beneficial use values may be underestimated and because of the uncertainties surrounding future costs. These figures nonetheless demonstrate that maintaining the water quality at Cherry Creek Reservoir is quite defensible on economic grounds. For these reasons the Commission finds that it has acted in an economically responsible and reasonable manner and thus determines these regulations to conform with the requirements of the Colorado Water Quality Control Act in regard to economic reasonableness.

FISCAL IMPACT STATEMENT REGARDING THE ASSIGNMENT OF A PHOSPHORUS STANDARD TO CHATFIELD RESERVOIR

The development of a phosphorus standard for Chatfield Reservoir involved study through the cooperative efforts of both private and public interests. A recommendation was prepared and presented in a Clean Lakes Study report that would protect classified beneficial uses. As no testimony was forthcoming at the rulemaking hearing regarding the costs of these controls and the recommended standard was unchallenged, the Commission finds that this standard conforms with the requirements of consideration of economic reasonableness and that it is, in fact, reasonable from an economic perspective.

Adopted: April 1, 1985
Effective: May 30, 1985

38.19 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE - SEGMENTS 11 AND 12, CACHE LA POUDRE RIVER

The provisions of 25-8-202(1)(b) and (2); and 25-8-204 C.R.S. provide the specific statutory authority for adding the numeric standards adopted by the Commission.

The standard of 2.7 mg/liter NO2-N is based upon an equation derived from published studies and a bioassay conducted by the Division on fathead minnows, representing the predominant family in these segments. The bioassay and the studies indicate that as the concentration of chloride increases, the toxicity of nitrite decreases. As a result of the bioassay the Division calculated a 96-hour LC 50 of 40.6 mg/l, based on the annual average chloride of 20 mg/l in Segments 11 and 12. The Division then determined the nitrite standard by dividing the calculated LC 50 value by an acute-chronic ratio. A literature review of nitrite toxicity to fish, submitted to the Division by the City of Fort Collins, suggests that the acute-chronic ratio is between 5 and 10 for salmonids and channel catfish. Based on this information, the Division determined that an acute-chronic ratio of 15 for fathead minnows could be used to calculate the stream standard and still provide an adequate margin of safety for the aquatic life in the stream.

Based on these factors the equation is:

Nitrite Standard = (1.99 x 20 mg/l (Chloride Conc.) + 0.7258) ÷ 15 (acute-chronic ratio)

This standard is determined to be protective of a balanced aquatic life population found in these segments in recognition of the cold water/warm water transitional characteristics of Segment 11 and the relative paucity of toxicity data on certain species found in the segment.

FISCAL IMPACT STATEMENT - SEGMENTS 11 AND 12, CACHE LA POUDRE RIVER

The primary fiscal impact of these regulations can be summarized as a potential for decreased treatment costs to the rate payers associated with the Cities of Fort Collins, Windsor, and Greeley. Additionally, the treatment costs related to the Kodak wastewater discharge may be decreased.

These potentials for decreased costs are associated with no expected decrease in the quality of aquatic life protection in these segments, as recent scientific findings have indicated that the species present will tolerate higher levels of nitrite concentrations. Thus, no impact upon beneficial uses is expected.

38.20 STATEMENT OF BASIS AND PURPOSE COAL CREEK, SEGMENT 7(b)

1. This action is consistent with the action taken by the Commission and EPA in adopting and approving use classifications and water quality standards for Ralston Creek and Big Dry Creek which Segment 7(b) of Coal Creek most closely resembles.

2. The Commission has considered only water quality standards for Coal Creek, Segment 7(b) in these proceedings. A regional water quality management plan, including wasteload allocations, for the entire area, taking into account Segments 9 and 10 of Boulder Creek as well as Coal Creek, must be completed before water quality standards requiring advanced wastewater treatment by municipal dischargers can be justified, if at all. The completion of the Lafayette plant expansion will improve the quality of water in the segment and provide a window of opportunity for such information to be produced prior to the imposition of such stringent requirements.

3. A marginal population of non-game fish species and other aquatic life exists in Coal Creek. The most significant factors limiting aquatic life in this segment are physical habitat and natural conditions. Due to agricultural diversions and return flows, the stream is extremely shallow and the bed is sandy, not cobble. There are no deep pools or resting places for fish. The stream bank is eroded and lack of riparian vegetation raises both the temperature and pH, which increases the unionized portion of ammonia. Improvements in the physical habitat of both Coal Creek and Boulder Creek might eliminate the need for ammonia removal by the treatment plants, by impeding the conversion of ammonia to its unionized form. However, there is no evidence to support any projection of habitat improvements, and this cannot be required by law.

4. In its natural condition, without the contributions of effluent from Erie, Lafayette, and Louisville, lower Coal Creek was dry a significant portion of the year. Data from the only USGS gauging station on Coal Creek, the Plainview station about 3 miles above Segment 7(b), indicates no flow approximately 21 days in a normal year. Its Q7-10 is zero.

5. Because the segment has a low fish carrying capacity, requiring the three municipal dischargers on the segment to go to some form of AWT would result in only a marginal improvement in the numbers of fish in lower Coal Creek and would result in no greater diversity of species.

6. These changes in water quality standards do not represent a degradation of water quality since existing treatment levels must be maintained to meet technology-based requirements. The standards amended by these rules exceed the water quality necessary to protect the existing and designated uses, and are not sufficient to cause a better use to be achieved. Nor will downstream water quality be adversely affected by these amendments. It was previously assumed by the Commission, based on inadequate information, that the standards adopted at that time could be met at existing levels of treatment.

7. Species consistent with existing and designated uses will be protected even though they are not prevalent in numbers or importance. Maintenance of existing quality will not result in increased mortality, reductions in growth, or reproductive impairment.

8. Water quality standards originally established and amended by these rules might necessitate, and result in, an improvement in water quality notwithstanding the fact that such improvement would not enhance the maintenance or attainment of existing and designated uses due to physical habitat and natural conditions.

9. The benefits achieved by the implementation of AWT that would be required to achieve the .1 mg/1 unionized ammonia water quality standard bare an unreasonable relationship to the economic costs and impacts of AWT. This conclusion is based on a consideration of costs for capital improvements and maintenance, and the impact of tap fees and sewer charges as compared to the benefits that might be achieved.

10. "Full protection" of existing species as defined in "EPA Questions and Answers on Anti-degradation", United States Environmental Protection Agency, August, 1985, is unwarranted because:

    (1) it would be futile in view of physical conditions;

(2) it bares an unreasonable relationship to the economic costs and impacts;

(3) it is not warranted by Clean Water Act or EPA Regulations, and the "Questions and Answers" do not represent binding national policy.

11. Construction of an expanded wastewater treatment plant at Lafayette, as planned, should improve water quality in Coal Creek beyond existing quality, because excess capacity will allow additional nitrification to take place before discharge to the stream.

12. Based on the costs for ammonia removal, the combined cities may well decide that the more cost effective alternative would be to limit discharges to Coal Creek and pump their effluent into lower Boulder Creek. The effect would be to substantially reduce flows in Coal Creek, placing more stress on the fish than under existing conditions, which would have a significant detrimental impact on aquatic life in Coal Creek.

13. Despite the deletion of numeric water quality standards the stream will not experience any water quality degradation and existing aquatic life will be protected. Discharges must meet secondary treatment requirements and may later be required to install AWT to meet water quality standards or wasteload allocations necessary to protect Boulder Creek. The few fish that now live in lower Coal Creek will be protected at current levels, and aquatic life will be enhanced by the achievement of secondary treatment requirements on a more consistent basis. Lafayette can now move ahead with its site applications for an expanded secondary treatment plant, recognizing that it may well have to go to AWT to protect the .06 mg/l unionized ammonia standard in Boulder Creek.

14. More information is necessary to understand the interrelationships between Segment 7(b) of Coal Creek and Segments 9 and 10 of Boulder Creek. The DRCOG, as 208 water quality management agency, has been requested to develop a plan for this sub-region, including the development of wasteload allocations necessary to assure compliance with water quality standards and use classifications.

15. The Commission rejects arguments that it should delete all standards for inorganics and metals in this segment, as was done for Big Dry Creek and Lower Ralston Creek. The aquatic life in Lower Coal Creek, however limited in numbers and species, needs to be protected by these standards.

16. This action does not violate the EPA anti-degradation policy (40 CFR 131.12) because existing instream uses and the water quality level necessary to protect them shall be continued to be maintained. Furthermore, this action does not constitute allowing lower water quality since the previous .1 mg/l unionized ammonia standard incorporated, and was conditioned by, "footnote" concept and was approved on that basis.

FISCAL IMPACT STATEMENT FOR COAL CREEKSEGMENT 7(b) OF BOULDER CREEK

The deletion of the unionized ammonia standard for Coal Creek will have no identifiable fiscal or economic impact.

The standard for Boulder Creek (into which Coal Creek flows) may ultimately have an economic impact (in the form of increased ammonia removal) upon the three Coal Creek dischargers, since the Boulder Creek standard must nonetheless be protected. This possible result was acknowledged by the Coal Creek discharges but is still speculation at this time.

38.21 STATEMENT OF BASIS AND PURPOSE

Authority

The provisions of section 25-8-202(1)(b) and (2) and section 25-8-204, C.R.S. (1982 Supp.) provide the specific statutory authority for these regulations.

Introduction

The United States Environmental Protection Agency, Region 8 (EPA), has withheld approval of the ammonia and chlorine water quality standards adopted by the Water Quality Control Commission for segment 15 pending reconsideration of those standards at a later date.

Reconsideration of the stream standards is necessary to complete the classifications and standards for segment 15 so that the Commission can resubmit the segment standards and classifications to EPA for approval.

Segment 15 is classified for warm water class II aquatic life, drinking water, recreation and agriculture uses. There are other high plains, front range streams also classified as warm water class II aquatic, but the Commission recognizes that each stream is unique and may vary in their degree of suitability for classified uses. Although segment 15 has habitat suitable for aquatic life (albeit less than ideal habitat), fish populations were found to be significantly less when compared with other front range streams. Dr. Lewis attributed this primarily to ammonia and to a lesser extent chlorine.

Chlorine

The residual chlorine standard of .003 mg/l was agreed to by all parties, the Water Quality Control Division, and the Division of Wildlife as being appropriate. Evidence presented at the hearing indicated that total fish populations in the segment could increase by more than 50 percent if the chlorine standard of .003 mg/l is met. When combined with the ammonia standard of 0.1 mg/l, the total potential fish population of this segment could be achieved. The chlorine standard is based upon both table values in the basic standards and regulations (designed to protect aquatic life) as well as data presented at the hearing. This standard, therefore, is technically supportable and will protect and improve aquatic life in this segment. The Commission accepts Denver Metro's evidence regarding the need for a temporary modification of .15 mg/l for residual chlorine to August 31, 1988 in order to enable Denver Metro to come into compliance with the adopted standard. The adopted standard will require a higher degree of treatment, and the availability of grant funds to Denver Metro are uncertain.

Ammonia (NH 3)

Evidence presented at the hearing by Denver Metro's water quality expert, Dr. Lewis, and the Division, demonstrate that an unionized ammonia standard of 0.1 mg/l will protect and improve the classified uses of segment 15, particularly the aquatic life of the segment. The evidence also suggests that an unionized ammonia standard based upon EPA criteria is overly stringent. Testimony indicated that the total fish abundance in segment 15 is significantly suppressed by ammonia and chlorine levels in the segment. By reducing levels of ammonia in the stream, fish populations could increase to near full potential if combined with chlorine removal. The 0.1 unionized ammonia standard for the segment should achieve these results and is technically feasible based upon the data presented at the hearing.

For purposes of his study Dr. Lewis grouped the testing stations of his comparison region into three groups based upon their concentrations of chlorine, ammonia and dissolved oxygen. Ammonia concentrations for group I, which Dr. Lewis regarded almost identical to segment 15, were greater than 0.1 mg/l. Group II had ammonia concentrations of 0.05 to 0.1, and group III had concentrations of less than 0.05. Based upon evidence it is apparent that the benefit to aquatic life from improving the water quality of segment 15 (with regard to ammonia) from group I to group II would be substantial, whereas further improving the ammonia quality of segment 15 from group II to group III would have little appreciable benefit to aquatic life. The Commission therefore finds that there is considerable benefit to be gained by adopting a 0.1 mg/l standard for ammonia

Furthermore, the unionized ammonia standard of 0.1 mg/l is an extrapolation of findings in an earlier bioassay on fathead minnows in the Cache La Poudre River which resulted in a 0.1 mg/l standard being adopted for many east slope plains warm water class II aquatic life streams.

Since implementation of the ammonia standard will require a higher degree of treatment and will cost millions of dollars in capital costs (for which the availability of grant funds is uncertain), the Commission is adopting a temporary modification of .2 mg/l for the ammonia standard, which shall expire on August 31, 1988. The temporary modification is on the condition that Metropolitan Denver Sewage Disposal District No. 1 demonstrate to the Commission by August 31, 1987, substantial progress toward achieving the underlying standard by August 31, 1988. Because of inadequate evidence regarding the possibility of accelerating Denver Metro's projected completion date of the facilities necessary to comply with the ammonia standard, the Commission is adopting a temporary modification consistent with that for chlorine in an effort to accelerate Denver Metro's compliance with the ammonia standard. However, the Commission recognizes that circumstances may require an extension of the temporary modification consistent with the basic standards regulation, section 3.1.7, 5 C.C.R. 1002-8.

Dissolved Oxygen

Evidence presented during the hearing indicated that the existing dissolved oxygen standard of 5.0 mg/l is more stringent than necessary to protect aquatic life during nonspawning seasons and that a standard of 4.5 mg/l during that time of year when spawning is not occuring would be adequate to protect aquatic life. However, it was agreed that the 5.0 mg/l standard for dissolved oxygen should be retained during the spawning season. Dr. Lewis estimated that the bulk of spawning occurred from May 1 through July 15. Therefore, the Commission retains the existing 5.0 mg/l standard for dissolved oxygen in order to cover the spawning season (May 1 through July 15), and adopts a 4.5 mg/l standard during the rest of the season. The Commission finds that these standards will protect aquatic life and that they are consistent with EPA's recent dissolved oxygen criteria document.

Nitrite (N02-N)

Relaxing the nitrite standard from .5 mg/l to 1.0 mg/l is based upon bioassay work by the Water Quality Control Division. Evidence presented at the hearing indicates that the 1.0 mg/l nitrite standard will protect aquatic life.

Concern was expressed at the hearing that ammonia removal might increase levels of nitrites and nitrates in the segment and downstream from the segment, and that excessive nitrite or nitrate levels may cause public health problems. The evidence shows, however, that nitrite and nitrate levels will not exceed drinking water standards and that the possible public health effects are as of yet inconclusive. However, in order to monitor the levels of nitrites and nitrates the Commission is requesting annual reports by the Division of nitrite and nitrate levels in Thornton's water supply.

FISCAL IMPACT STATEMENT

Inroduction

The precise assessment of economic impacts associated with these changes is difficult to determine in that some standards changes may tend to offset one another in terms of costs, and treatment for one standard may facilitate compliance with other standards.

Cost

The cost impacts of these regulations will fall upon the dischargers of waste water to the segment. Although the Division notes that there are three municipal dischargers on this segment (South Adams Water & Sanitation, Brighton, and Denver Metro), preliminary evidence indicates that there is sufficient flow such that only the Denver Metro plant is expected to experience a cost impact.

Although the bulk of the information regarding economics addressed chlorine and ammonia removal, the Division estimated that it is not likely that easing of nitrate concentrations will have any discernible effect upon the treatment cost of Denver Metro, though the potential exists for some increased efficiency. Although the Cities of Thornton and Westminister indicated that they may elect to remove nitrites from their drinking water system (if ammonia removal causes a significant increase in nitrite levels), this option was based primarily upon lack of confidence in drinking water standards and the cost therefor are as of yet unquanified.

The cost of dechlorination in order to meet the chlorine standard was considerably less expensive than the cost for ammonia removal. Annual cost to the Denver Metro service population for chlorine removal varied, but Dr. Walsh estimated that the cost would range about 45 cents per year per household. Denver Metro agreed that these costs were economically reasonable.

Because of the direct connection between dissolved oxygen levels and ammonia removal, the costs of meeting the dissolved oxygen standard are included in the cost figures for ammonia removal.

The cost impacts of ammonia removal varied considerably, and depended upon the alternative which was being discussed. However, Dr. Walsh testified that if the costs and benefits of ammonia removal under the Lewis proposal (which is the standard being adopted by the Commission) were combined with the costs and benefits of chlorine removal, the costs for ammonia removal ranged from $6 million to $80 million, with annual operating and maintenance expenses ranging from $500,000 to $750,000. Dr. Walsh estimated that the cost to the Denver Metro service population would be $6.58 per year household under the Lewis proposal. Although the costs of meeting the 0.1 mg/l ammonia standard will be considerable, they are nonetheless reasonable in view of the fact that, when combined with the costs of chlorine removal, are comparable to the benefits to be gained. However, the costs of further improving segment 15 from group II to group III are substantial, and when compared with the marginal benefits from such improvement, are not reasonable. In view of the testimony presented concerning Denver Metro's financial strength as well as Dr. Walsh's testimony that the cost of chlorine and ammonia removal under the Lewis proposal were comparable to the benefits, the Commission therefore finds these standards economically reasonable.

Benefits

The benefits to be gained by chlorine removal sufficient to meet the chlorine standard are considerable, and combined with ammonia removal to meet the unionized ammonia standard, the benefits are substantial. Dr. Lewis estimates that in terms of aquatic life, the full population potential of the segment could be realized by meeting these two standards. The Division anticipates significantly enhanced recreation and fishery uses in addition to aesthetic appeal. This in time can be linked to enhance property values in the vicinity of segment 15. These factors will contribute significantly to the multiple-use viability of this segment, including the estimated $15 million Adams County anticipates spending to develop an urban park along segment 15.

Summary

The types and groups of persons that stand to bear the cost of this action are primarily the wastewater customers of Denver Metro. The beneficiaries are all persons who use of may use segment 15 of the South Platte or derive benefit in relation to its quality. Considering the relatively modest impact of these costs, the significant costs of ammonia removal, and the nature of the benefits that are likely to be accrued, these regulations appear to be economically reasonable.

Amended: May 9, 1986, Ralston Creek, Segment 17 of Clear Creek
Effective: June 30, 1986

38.22 STATEMENT OF STATUTORY AUTHORITY:

38.22 STATEMENT OF STATUTORY AUTHORITY:

The provisions of sections 25-8-202(1)(b), (f) and (2); 25-8-204; and 25-8-207, C.R.S. (1982 & 1985 Supp.), provide the specific statutory authority for the regulatory review conducted by the Commission in this proceeding.

Section 25-8-207, C.R.S. (1985 Supp.), was added to the Colorado Water Quality Control Act, effective June 4, 1985. Under section 25-8-207, the Commission, upon its own motion or upon petition, is required to review any previously adopted classification or standard for consistency with section 25-8-207 or the policies set forth is sections 25-8-102 and 25-8-104. Further, the Commission is required to make a finding of inconsistency where the classifications or standards for aquatic life are more stringent than necessary (as more fully described in section 25-8-207 (1)(a)) or where any classifications or standards were adopted based upon material assumptions that were in error or no longer apply. When an inconsistency is found, the Commission shall declare the inconsistent classifications or standards void ab initio and simultaneously establish appropriate classifications or standards.

STATEMENT OF BASIS AND PURPOSE:

From March 1983 through September 1984, surveys of water quality, aquatic macroninvertebrates and fish were conducted on Ralston Creek, Segment 17 of the Clear Creek, South Platte River Basin. These surveys were designed by Robert G. Otto, Ph.D., and independent consultant for Cotter Corporation. They were designed specifically with regard to statutory requirements for the Commission to classify state waters and promulgate water quality standards. The studies were conducted by Dr. Otto in conjunction with the U.S. Geological Survey (with respect to the water quality survey) and with the assistance of the Colorado Division of Wildlife (with respect to the fishery survey). The results of these surveys were submitted to the Commission at its July 1, 1985 meeting.

In establishing the proposed revision to the numeric standards, various computational and statistical methodologies have been utilized to allow for the best definition of ambient quality in the stream and to provide for reliable standards of ambient quality for Ralston Creek. The use of varying computational techniques acknowledges the natural variations among the constituents in Ralston Creek and ensures that an appropriate numeric value is assigned for each constituent.

With regard to Cotter Corporation's proposals, the Commission took the following actions for the following reasons.

Ammonia (NH3 mg/l, unionized). Prior to the commencement of the public hearing, Cotter withdrew its proposed change for unionized ammonia because of misinterpretation of the data supplied by the U.S.G.S. Therefore, the Commission did not change the existing standard for unionized ammonia.

Cyanide (free) and Chromium (tri and hex). Prior to the public hearing Cotter entered into a stipulation with the cities of Arvada and Westminster whereby Cotter withdrew its proposal to delete the standards for cyanide (free) and chromium (tri and hex). Evidence presented at the hearing also indicates that Cotter is not discharging cyanide or chromium and therefore retaining the existing standards will have no effect on Cotter. Therefore, the Commission has retained the standards for chromium and cyanide.

Temperature. The Commission declined to adopt Cotter's proposed standard for temperature and voted to retain the existing standard because the standard is not per se enforceable and because the standard recognizes that there will be exceedences of the temperature limitation as borne out by Cotter's evidence.

Dissolved oxygen. The Commission voted to retain the existing dissolved oxygen standard because the evidence indicates that spawning does in fact occur in the segment (although perhaps on a limited basis) and because the evidence suggests that retaining the dissolved oxygen standard would not pose a hardship to Cotter Corporation. Since the existing level of dissolved oxygen is necessary to protect what spawning does occur in Ralston Creek and since there has been no demonstration of a need to revise the standard, the Commission retains the existing dissolved oxygen standard.

The Commission adopts the following changes as proposed by Cotter based upon the finding that the previous standards are inconsistent with section 25-8-207 and the policies set forth in sections 25-8-102 and 25-8-104. The Commission therefore finds that the prior standards are void ab initio and that the following standards are appropriate because they more accurately reflect ambient water quality and will adequately protect existing uses:

Copper (Cu) .005 mg/l soluble

Lead (pb) .005 mg/l with a seasonal qualifier of .025 mg/l during periods when stream flow exceeds 50 cfs.

Iron (Fe, soluble) .3 mg/l with a seasonal qualifier of 0.5 mg/l in May and June.

Iron (Fe, total) 1.0 mg/l with a seasonal qualifier excluding the spring high flow period that exceeds 50 cfs.

Mercury (Hg). Due to the lack of data concerning mercury, the source of mercury in Ralston Creek, and its potential for bioaccumulation, the Commission retained the existing mercury standard of 0.7 micrograms per litre.

However, in order to allow an opportunity to collect more data, the Commission adopted a temporary modification of 0.13 micrograms per litre for mercury, which shall expire two years from the effective date of these regulations.

FISCAL IMPACT STATEMENT:

There was no evidence presented at the hearing that suggests there will be any fiscal or economic impact as a result of the standards adopted by the Commission. The costs, if any, of the standards, will be incurred by Cotter who proposed the standards adopted by the Commission and who discharges pursuant to a permit into Ralston Creek.

Although there are no monetary benefits specifically identified with the adopted standards, the standards are designed to protect existing uses of Ralston Creek which Cotter estimates to be substantial.

Amended: September 18, 1986, Swede Gulch, Segments 4a,b, & c of Bear Creek
Effective: October 30, 1986

38.23 STATEMENT OF STATUTORY AUTHORITY:

This rule is adopted pursuant to the provisions of the Colorado Water Quality Act, Colo. Rev. Stat. 25-8-203, 204, and 207, and the Commission's regulations, 5 Colo. Code Reg. 1002-8.

STATEMENT OF BASIS AND PURPOSE:

A. Revised Segment

By this Rule, the Commission creates two new segments in the Bear Creek Basin as follows:

Segment 4b: Swede Gulch, including all ponds, lakes and reservoirs, from its headwaters to its confluence with Kerr Gulch.

Segment 4c: Swede Gulch, including all ponds, lakes, and reservoirs, from its confluence with Kerr Gulch to its confluence with Bear Creek.

In addition, the definition of the current Segment 4 of Bear Creek Basin is modified to read as follows:

> "4a. All tributaries to Bear Creek, including all lakes and reservoirs, from a point immediately below the confluence with Cub Creek to the confluence with the South Platte River, except for specific listing in Segments 4b, 4c, 5 and 6."

B. Classifications

The classifications applicable to Segments 4b and 4c are as follows:

a. Class 2 - Cold Water Aquatic Life
b. Recreation Class 1 - Primary Contact
c. Domestic Water Supply
d. Agriculture

C. Standards

In order to protect the aquatic life found in Swede Gulch, the Commission's numeric standards for the Aquatic Life protection, with metals values as appropriate for water with a hardness between 100 and 200 mg/l, are adopted for Segments 4b and 4c. A dissolved oxygen standard of 6.0 mg/l shall apply to Segment 4b, and a dissolved oxygen standard of 7.0 mg/l (during the spawning season) shall apply to Segment 4c.

In order to protect the drinking water supply uses of Swede Gulch waters, the combined quantity of nitrate and nitrite for both segments 4b and 4c shall not exceed 10 mg/l. Additionally, the numeric standards for chromium (trivalent), selenium, iron, and manganese, derived from the Class 1 - Domestic Water Supply classification currently applicable to Segment 4 of Bear Creek Basin, are adopted for Segments 4b and 4c.

In order to protect the primary contact recreational uses of Swede Gulch, a water quality standard of 200 fecal coliforms/100 ml is adopted for Segments 4b and 4c.

D. Background

This rulemaking proceeding under Colo. Rev. Stat. 25-8-207 was initiated by a petition under Colo. Rev. Stat. 25-8-207 submitted by a group of homeowners who reside in Swede Gulch (the "Petitioners"). These Petitioners claimed, and the Commission finds, that the existing classifications applicable to Swede Gulch were in error, due to a lack of specific information on Swede Gulch in the limited rulemaking proceedings and failed to take into account existing and potential uses of Swede Gulch waters. At the public hearing on this Petition, evidence was introduced by the Petitioners and their expert witnesses, and the Colorado Division of Wildlife, demonstrating the following facts:

1. Rainbow trout stocked in several ponds in Swede Gulch thrive and overwinter in the ponds, creating a successful fishery.

2. The lower segment of Swede Gulch provides habitat for rainbow and other species of trout, and rainbow trout are actively spawning in this segment.

3. The Petitioners and other residents of Swede Gulch swim and recreate in the ponds and stream of Swede Gulch in a manner likely to result in the ingestion of small quantities of water.

4. Petitioners and other residents of Swede Gulch take their drinking water from wells which have a close hydrological connection to the surface water flows in Swede Gulch.

5. The present water quality meets or exceeds the water quality standards applicable to the uses which are to be protected through this rulemaking.

This rule has been adopted in order to fulfill the Commission's statutory and regulatory obligations which include (a) the mandate that present and potential beneficial uses of state waters be protected; (b) the mandate that waters should be classified for the highest uses attainable; and (c) the mandate that no further water quality degradation should be allowed which would interfere with or become injurious to existing uses.

E. Aquatic Life Classifications

The Commission finds that the waters of Swede Gulch provide habitat for cold water biota, including trout, and that the waters of Swede Gulch do not normally exceed 20°C. Although the ponds and lower portion of Swede Gulch constitute permanent water bodies, the aquatic life in portions of the Swede Gulch stream channel is limited by flow and streambed characteristics, rather than by water quality. For this reason, the Commission has designated both upper and lower segments of Swede Gulch as Class 2 - Cold Water Aquatic Life.

F. Aquatic Life Water Quality Standards

Based on the testimony of the Petitioners, the Petitioner's expert witnesses, and the Colorado Division of Wildlife, the Commission finds that the numeric standards adopted for the protection of cold water aquatic life (5 Colo. Cod Reg. 1002-8, Tables I, II, and III) are necessary to protect the aquatic life currently found in Swede Gulch. Each of these standards (together with standards applicable to the other use classifications adopted by this rule), is listed in the attached Table.

With respect to dissolved oxygen, the Commission finds that spawning occurs in lower Swede Gulch and accordingly adopts a dissolved oxygen standard of 7.0 mg/l during the spawning season in order to protect spawning activity for segment 4c. The Commission is not convinced that spawning presently occurs in upper Swede Gulch and therefore adopts the less stringent dissolved oxygen standard of 6.0 mg/l for Segment 4b. If spawning is later demonstrated to occur in upper Swede Gulch, the Petitioners may seek amendment of this standard.

G. Recreation Classification

Based on the extensive testimony of the Petitioners and other local residents, the Commission finds that primary contact recreational activity has occured on portions of Swede Gulch from its headwaters to its confluence with Bear Creek and that a Recreation Class 1 - Primary Contact classification is appropriate for both upper and lower segments of Swede Gulch.

In order to maintain consistency with similar classifications elsewhere in the state, the Commission decided not to impose a seasonal qualification of the recreation classification.

H. Recreation Standards

The Commission finds that the numeric table value water quality standards for Primary Contact Recreation are necessary to protect the current recreational uses in Swede Gulch. The Commission finds that the current fecal coliform standard (200/100 ml) is sufficient to protect people engaging in primary contact recreation. The Commission therefore rejects the Petitioners' request for a more stringent fecal coliform standard of 2.2/100 ml.

The Commission recognizes, however, that the Petitioners have raised certain valid concerns about the appropriateness of the current Primary Contact Recreation fecal coliform standard, and the Commission hereby states its intention to consider the Petitioner's proposed fecal coliform standard on a state-wide basis during its next scheduled review of the basic water quality standards.

I. Domestic Water Supply and Agricultural Classifications and Standards

The Commission finds that the domestic water supply and agriculture classifications currently applicable to Swede Gulch are correct and should remain in place. The Petitioners' request for a total ammonia standard of 0.5 mg/l (associated with the water supply classification) is rejected. This standard is applied only to waters subject to direct intake for municipal drinking water use. There is no such direct municipal use of the surface waters in Swede Gulch; therefore, the total ammonia standard would be inappropriate. The Commission finds that a standard for nitrate of 10 mg/l will protect the waters of Swede Gulch for domestic water supply purposes, provided the combined quantity of nitrate and nitrite does not exceed 10 mg/l. Additionally, the numeric standards for chromium (trivalent), selenium, iron, and manganese, derived from the Class 1 - Domestic Water Supply classification currently applicable to Segment 4 of the Bear Creek Basin, are adopted for Segments 4b and 4c.

J. Conditions to Rulemaking

The Commission finds that the adoption of protective classifications and standards for Swede Gulch through the present rulemaking may be insufficient, in itself, to fully protect the current uses of Swede Gulch waters. The Commission will request that the Denver Regional Council of Governments study present and potential sources of non-point pollution in the Swede Gulch drainage, and make recommendations to the Commission for a strategy to mitigate such pollution. The Division or the Commission will also review, at the appropriate time, the availability of alternate points of treatment for sewage generated in Swede Gulch, including specifically the feasibility of treating such sewage at the existing Kittredge wastewater treatment plant.

FISCAL IMPACT STATEMENT

The Commission finds that these use classifications and water quality standards are economically reasonable. During the public hearing on June 2 and 3, the Commission solicited evidence of economic impacts. While the present rule might increase the cost of wastewater treatment for future dischargers in Swede Gulch, no evidence of specific economic impacts was introduced by the sole opponent to the proposed rule, El Rancho Metropolitan District. (El Rancho currently has pending before the Water Quality Control Division an application for the location of a wastewater treatment plant in the headwaters of Swede Gulch.)

On the other hand, the Petitioners and other witnesses before the Commission testified that they believe the degradation of existing water quality in Swede Gulch would have significant adverse impacts on the value of their property in Swede Gulch. Degradation of Swede Gulch waters could also mean the loss of valuable trout spawning and nursery habitat, and the loss of the established fisheries in the ponds in the Gulch.

The Commission concludes that the rule may impose additional economic burdens on dischargers in Swede Gulch, but these burdens were not made the subject of specific testimony. The Commission concludes that these burdens, if any, would be economically reasonable in light of the significant economic benefits accruing to the residents of Swede Gulch and the citizens of Colorado.

38.24 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE, SEGMENT 15, SOUTH PLATTE RIVER

The provisions of 25-8-202(1)(b) and (2), and 25-8-204 C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with 24-4-103(4), (8)(d) C.R.S., the following statements of basis and purpose of fiscal impact.

BASIS AND PURPOSE:

The U.S. Environmental Protection Agency, Region VIII, ("EPA"), declined to approve certain temporary modifications for residual chlorine and unionized ammonia adopted by the Commission on April 8, 1986. EPA also declined to approve the application of the 4.5 mg/l dissolved oxygen standard during the period July 16 through July 31. Finally, EPA approved the dissolved oxygen standards adopted by the Commission as instantaneous minima. Reconsideration of these stream standards was necessary so that the standards disapproved by EPA could be modified.

Temporary Modifications

On December 2, 1986, EPA issued an NPDES discharge permit to the Metropolitan Denver Sewage Disposal District No. 1 ("Metro District"). EPA contemporaneously issued a compliance order requiring the Metro District to construct dechlorination facilities and to upgrade its chlorination facilities to meet a final total residual chlorine limitation of 0.003 mg/l by October 1, 1988. In order to avoid the controversy over whether the temporary modifications for residual chlorine and unionized ammonia adopted by the Commission were in accordance with the terms of EPA's regulations, and in view of the compliance order issued by EPA, the Metro District proposed that the temporary modifications be deleted. Although the Commission believes the temporary modifications were properly issued in this case, the Commission has deleted these temporary modifications in order to minimize controversy in this matter.

Dissolved Oxygen:

Evidence presented during the March 1986 hearing indicated that the previous dissolved oxygen standard of 5.0 mg/l was more stringent than necessary to protect aquatic life during non-spawning periods and that a standard of 4.5 mg/l would protect aquatic life. An expert witness on behalf of the Metro District testified that most of the spawning occurred from May 1 through July 15. A Division witness testified that he would prefer that the spawning period extend from May 1 through July 31. The Commission adopted a spawning period of May 1 through July 15. Thereafter, EPA disapproved and indicated that the spawning period must extend at least through July 31. Because not much is known about the spawning periods of the warm water fish in the South Platte, it is not possible to exactly define the spawning period. In order to avoid further controversy over this issue, the Metro District proposed that the spawning period be extended to July 31, and the Commission has accordingly revised the date.

The issue of whether the dissolved oxygen standards were monthly averages or instantaneous minima was not an issue at the March 1986 hearing. In general, the water quality standards adopted by the Commission are 30 day averages. However, the Commission has never specified the averaging period applicable to D.O. Subsequent to the March 1986 hearing, during the EPA review process, EPA contacted the Division concerning the averaging period applicable to dissolved oxygen. Based on this contact EPA approved the dissolved oxygen standards as instantaneous minima. The Metro District did not agree with this EPA action. It believed the D.O. standard was a 30 day average and that its testimony at the March, 1986 hearing supported its position. In an attempt to minimize this controversy, the Metro District and the Division subsequently met and agreed to propose a six number standard for dissolved oxygen. The standards proposed in the notice for this hearing incorporated the agreement by the Division and the Metro District.

On the date that this hearing commenced (May 4, 1987) EPA informed the Commission that it could not approve the proposal if it were adopted. As a result, the Metro District requested a continuance to July 7, 1987, to give it time to try and work out any differences. Subsequently, EPA expressed a preference not to change the presently applicable standard of 5.0/4.5 mg/l. In a further effort to minimize controversy, the Metro District agreed to withdraw its proposed changes to the dissolved oxygen standards. Consequently, the Commission made no changes to the D.O. standards adopted in April, 1986. The

Commission, the EPA, and the Metro District all recognize that the issue of the averaging period is not resolved and may need to be reconsidered by the Commission at some time in the future.

FISCAL IMPACT:

In view of the compliance schedule adopted in the discharge permit issued by EPA to the Metro District which is substantially the same as the temporary modifications deleted herein, there should be no cost difference to the state or the affected dischargers.

It is unknown whether the lengthening of the spawning period will result in more stringent effluent limitations during this two week period. More stringent limitations may result in increased costs to dischargers to Segment 15 including the Metro District. Such costs are difficult to quantify, as are the benefits of extending the spawning period. The Commission concludes that the extension of the spawning period is economically reasonable.

Both EPA and the Division used modeling to assess compliance with the D.O. standards in the development of discharge permits for the Metro District. It is recognized that if the Division and/or EPA change their modeling approach to implementation of the D.O. standard then changes to the permit effluent limitations may result. If such changes are more stringent, then the discharger will be faced with additional costs. The Commission, EPA, and the Metro District recognize that in such event the issues associated with the D.O. standard may need to be reconsidered.

EPA's approval of the water quality standards for Segment 15 is a precondition for award of a construction grant pursuant to Title II of the Clean Water Act. The Metro District has made known its intentions to seek grant assistance to build the facilities necessary to meet the requirements of its NPDES permit. Hence, if the changes to the water quality standards were not made, the Metro District may be precluded from obtaining a significant amount of grant funds. This would result in a significant negative financial impact on the Metro District.

The types and groups of persons that stand to bear any cost of this action are primarily the wastewater customers of the Metro District. The beneficiaries are all the persons who use or may use Segment 15 or derive benefit based on its level of water quality. Considering the anticipated modest impact of any costs possibly associated with this action, and the nature of the benefits that are likely to accrue, these regulations appear to be economically reasonable.

Parties to said rulemaking hearing:

City of Thornton, represented by J.J. Petrock, Broadhurst, Petrock & Fendel.
Metro Denver Sewage Disposal District No. 1 represented by Jerry W. Raisch, Vranesh and Raisch.

38.25 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; BOWLES LAKE:

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

BASIS AND PURPOSE:

The evidence regarding present and prospective beneficial uses of Bowles Lake indicates that current use classifications and standards for Bowles Lake incorporated in Segment 16, South Platte River, South Platte River Basin, are insufficient to maintain and protect current uses and water quality in the Lake. Segment 16 of the South Platte River is classified as Class 2 recreation and Class 2 aquatic life. As established by evidence produced by the Town of Bow Mar: (1) Bowles Lake, a.k.a. Patrick Reservoir or

Bow Mar Lake is continually used for primary contact activities, such as swimming, boating and other recreational activities; (2) the Lake receives an uninterrupted, year-round water flow; (3) the Lake supports a diversity of warm water biota, including a variety of fish species indicative of Class 1 status; and (4) the Lake is an integral part of a rare urban wetland and wildlife area. The Commission believes that classification of Bowles Lake as Class 2 aquatic life, and the failure to assign numeric water quality standards adequate to protect the uses of Bowles Lake, was due to an oversight and not based on any finding that this Lake is not worthy of such protection.

The Commission believes that these uses and qualities support reclassification of Bowles Lake as a Class 1 warm water aquatic life and recreational lake. Therefore, the Commission has concluded that segment descriptions, stream classifications, and water quality standards for Segment 16 of the South Platte River, South Platte River Basin, should be amended by carving from Segment 16 a separate Segment 17(c) for Bowles Lake. This Segment 17(c) should be classified as a Class 1 recreational and warm water aquatic life water body and should continue to be classified as suitable for agricultural use. To support the higher classifications given Segment 17(c), appropriate numeric water quality standards have been assigned. These standards are based on values from Tables I, II, and III of the Basic Standards and Methodologies, except for aluminum, zinc, and silver, for which the standards are based on existing ambient quality in Bowles Lake. Although aluminum standards have not been routinely applied to other segments, the Commission determined that such a standard is appropriate here due to a potential source of contamination upgradient from the lake. Existing ambient quality was evidenced by water quality samples taken for Bowles Lake by the Town of Bow Mar. These standards reflect and protect the existing uses and water quality of Bowles Lake as well as foreseeable potential uses of the Lake.

Further, the Commission finds that upgrading the water quality classifications and standards for Bowles Lake is economically reasonable.

FISCAL IMPACT STATEMENT:

The Denver Water Board testified that reclassification of Bowles Lake and adoption of proposed water quality standards may have a direct fiscal impact on a proposal by the Denver Water Board to construct sludge drying beds immediately adjacent to and upgradient of Bowles Lake. The Denver Water Board testified that if these sludge ponds are built, and, as a result of these regulatory changes, are required to be lined, the Denver Water Board could incur an additional construction cost of approximately $800,000. The Denver Water Board also stated that these regulatory changes may have additional fiscal impact on proposed plans to construct sludge ponds by increasing environmental permitting costs.

The Commission finds that the Denver Water Board's claim of fiscal impact as a result of these regulatory changes in somewhat speculative at this time. The Water Board testified that its project may not impact Bowles Lake, and lining therefore may not be required. The Commission finds that even if such costs are incurred, upgrading of water quality classifications and standards for Bowles Lake is necessary to protect the waters of the state and justifies any indirect or direct fiscal impact resulting from this water quality reclassification.

Incorporation of numeric water quality standards for Bowles Lake into future discharge permits under the Colorado Water Quality Control Act may have a negative fiscal impact on applicants for such a discharge permit. Local residents will benefit from protection of a valuable area resource. The reclassification may also provide benefits for the State of Colorado and its citizens by protecting a valuable fishery.

Parties to Rulemaking Hearing:

Town of Bow Mar

38.26 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; DECEMBER, 1987 HEARING ON MULTIPLE SEGMENTS:

38.26STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; DECEMBER, 1987 HEARING ON MULTIPLE SEGMENTS:

The provisions of 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; 25-8-207 and 25-8-402 C.R.S. provide the specific statutory authority for adoption of these regulatory amendments. The Commission also adopted, in compliance with 24-4-103(4), and 24-4-103(8)(d), C.R.S., the following statements of basis and purpose and fiscal impact.

BASIS AND PURPOSE:

The changes considered and adopted are addressed below by segment.

1. Page 1, Segment 1b

   A new high quality class 2 segment has been created for tributaries within the Lost Creek and Mt. Evans Wilderness Areas. These wilderness areas were designated by Congress since the last triennial review. The creation of this high quality class 2 segment provides the same level of protection afforded other wilderness areas in Colorado.

2. Page 1, Segment 2a

   The Division recommended a possible resegmentation of lower Beaver Creek, with classifications and standards different from the rest of this segment. The Commission declined to make any changes at this time, and decided that this issue should be addressed further in a rulemaking hearing scheduled for September, 1988.

3. Page 1, Segment 2c

   London Mine Venture proposed that numeric standards for several metals be revised for this segment, which is South Mosquito Creek. The Commission adopted revised numeric standards for cadmium, copper, lead and zinc, designed to provide protection for the aquatic life in Mosquito Creek. The previous temporary modification for lead was deleted. New three-year temporary modifications for zinc and mercury were adopted. The zinc temporary modification is calculated from data from a sampling point below the London Mine Venture discharge, and is based on the period likely to be necessary to achieve compliance with the underlying standard. The mercury temporary modification is based on the level necessary to protect aquatic life. The underlying standard for mercury is based on the level necessary to protect human health, assuming bioaccumulation of mercury in fish tissue. If a bioaccumulation study is completed on this segment, prior to the expiration of the temporary modification, the Commission will reconsider the appropriateness of the underlying standard.

4. Page 2, Segment 4

   Three metals standards have been revised for this segment, the North Fork of the South Platte. The revised cadmium and lead standards are based on ambient quality, using the $\bar{x}$ + s methodology. These standards have been calculated from all available, representative data for times when the Roberts Tunnel is not discharging. The Commission believes that this data is most representative of naturally occurring stream conditions. The revised silver standard is based on the mean of the available data for times when the Roberts Tunnel is not discharging. Because of the extreme variability in the available data base for silver, the Commission decided that use of the $\bar{x}$ + s methodology may be underprotective in this site-specific circumstance. Since the revised standard is also the same as the current detection level for silver, this standard is now at the same level that would have been used for enforcement under the prior standard.

5. Page 2, Segment 5c

   A new segment has been created to establish separate classifications and standards for Gooseberry Gulch. The evidence indicates that this dry gulch should be classified cold water

aquatic life class 2, with limited numeric standards. Inadequate information regarding this specific tributary was available at the time of the original 1980 classification proceeding.

6. Page 2, Segment 6

The Denver Water Board proposed relaxing the cadmium standard for this segment, which is the South Platte mainstem from the North Fork to Bowles Avenue, from 0.0005 mg/l to 0.0009 mg/l. After reviewing the available evidence, the Commission has decided to make no change in this standard at this time. The Commission has determined that the existing standards do not warrant a finding of "inconsistency" within the meaning of section 25-8-207, C.R.S. This decision reflects calculations of ambient quality (using the $\bar{x}$ + s methodology) based on data collected by the Division, the Denver Water Department, and Riverside Technology Inc. The Commission agreed with the Division recommendation that Corps of Engineers data not be included in the calculation because it appears to have been analyzed by a different methodology. The Corps data had a much higher detection level, and statistical analysis indicates a highly significant difference between the Corps data and the combined data set from the other sources.

7. Page 3, Segment 10b

A new upstream segment has been created on West Plum Creek, with its aquatic life classification changed to cold water class 1. Available evidence indicates that this stream segment is not habitat-limited. The stream supports a reproducing brook trout fishery and several fish species that are rare in Colorado. The reclassification results in the dissolved oxygen standard being changed to 6.0 mg/l, 7.0 mg/l spawning, the unionized ammonia standard changed to 0.02 mg/l and the nitrite standard changed to 0.05 mg/l.

8. Page 3, Segment 14

This segment is the South Platte mainstem from Bowles Avenue to the Burlington Ditch diversion. The Division proposed that the temporary modification for unionized ammonia be deleted. The Littleton/Englewood Bi-City Wastewater Treatment Plant (Bi-City) proposed that the temporary modification be extended for an additional three years. The Commission has extended the temporary modification for one additional year, so that Bi-City and DRCOG can complete, with the Division's cooperation and review, a wasteload allocation for this segment during that additional year.

The temporary modification in question has been in place since 1981. The evidence indicates that since that time the underlying 0.06 mg/l unionized ammonia standard generally has been met in-stream. However, excursions have occurred, and high flows during the past few years may have contributed to lower in-stream concentrations. Bi-City has initiated efforts toward complying with the underlying standard, with a combination of in-stream ammonia level evaluations and assessment of wastewater technologies and facilities.

The Commission had previously requested that a wasteload allocation be performed for this segment. Completion of the wasteload allocation during the next year will aid Bi-City, and possibly other dischargers, in planning appropriate treatment to assure long-term compliance with the underlying ammonia standard.

9. Page 4, Segment 17b

The name of this segment has been corrected to read "Sloan Lake." In addition, the "goal" qualifier on the warm water aquatic life class 1 classification has been removed, so that the classification is now in effect. The lake presently is supporting aquatic life typical of this classification and is also the recipient of a Clean Lakes grant to improve its water quality.

10. Page 6, Segment 1a

The phrase “including all mainstem reservoirs” has been added to the description of this Bear Creek mainstem segment. This change will provide protection for Evergreen Reservoir, which is a heavily used urban fishery as well as a Denver Water Board water supply reservoir.

11. Page 6, Segments 1b, 1c, 2

The descriptions of each of these segments have been revised to reflect the change in name of Mt. Carbon Reservoir to Bear Creek Reservoir. For segment 1c, the recreation classification of Bear Creek Reservoir has been changed from class 2 to class 1, with a fecal coliform standard of 200 mpn/100ml. This change is consistent with the existing quality of the reservoir, and recognizes the potential for swimming in the reservoir.

12. Page 7, Segment 7

A new high quality class 2 segment has been created for Bear Creek tributaries within the Mt. Evans Wilderness Area. This wilderness area was designated by Congress since the last triennial review. The creation of this high quality class 2 segment provides the same level of protection afforded other wilderness areas in Colorado.

13. Page 10, Segment 14

At the outset of the hearing, the Commission granted a motion from several parties to limit its consideration of any changes to segment 14 of Clear Creek as a result of this hearing to that portion of the stream below the Croke Canal. The remainder of segment 14 will be addressed in a February, 1989 hearing.

The Commission has declined to implement a proposal by Coors and Golden that the aquatic life classification be deleted from segment 14. The Commission has determined that the existing classification does not warrant a finding of “inconsistency” within the meaning of section 25-8-207, C.R.S. The evidence submitted, including that from Coors and Golden, demonstrates that there is aquatic life present in segment 14, although it is limited by unfavorable flow and streambed characteristics.

The Commission has revised the numeric standards for zinc and copper, and has established temporary modifications for cadmium, zinc, copper and mercury. The temporary modifications for cadmium, zinc and copper are based on existing ambient quality (using the x+s methodology) and have been adopted for six years. The underlying standards for these three metals are set at levels that the information currently available indicates should be attainable within a 20-year period. Improvement in quality is expected to occur as a result of upstream mining waste cleanups pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The temporary modifications recognize that cleanup of the past impacts and resulting water quality improvement will take time. The appropriateness of the temporary modifications, and the achievability of the underlying standards will be reviewed in the next triennial review.

The temporary modification for mercury, adopted for one year, is based on the level necessary to protect aquatic life. The underlying standard for mercury is based on the level necessary to protect human health, assuming bioaccumulation of mercury in fish tissue. If a bioaccumulation study is completed on this segment prior to the expiration of the temporary modification, the Commission will reconsider the appropriateness of the underlying standard.

The Commission has declined to grant the Coors and Golden request to revise the silver standard for segment 14. Using the x+s methodology, the existing ambient level of silver is less

that the 0.0002 mg/l detection limit. Coors and Golden relied principally on an EPA water quality criterion for silver of .0041 mg/l, and on a new metals methodology that has not yet gone into effect under the State program. The .0041 mg/l level is an acute criterion, and therefore does not indicate what an appropriate standard is to protect against chronic impacts. The Commission has adopted a new metals methodology that will become effective July 31, 1988. After that time, the silver standard can be reviewed under the new methodology. Finally, the fact that the standard proposed by Coors and Golden is more stringent that drinking water standards is irrelevant, since the standard is necessary to protect aquatic life.

14. Page 11, Segment 15

Coors and Golden proposed that the aquatic life class 1 goal be eliminated for this segment, leaving a warm water aquatic life class 2 classification in place. The Division and the Division of Wildlife testified that the conditions supporting a class 1 classification have been achieved, and recommended removing the goal qualifier to leave a class 1 classification in place. Coors and Golden testified that class 1 conditions cannot be achieved in segment 15 due to substantial dewatering of this segment by diversions. The Commission decided that the evidence supporting a classification change in either direction is inconclusive at present and therefore decided to make no change in the classification at present.

The Commission's decisions with respect to metals standards for this segment parallel those for segment 14, and the preceding subsection of this Statement of Basis and Purpose explains the rationale for the action. For segment 15, the Division proposed that the current temporary modification for unionized ammonia be deleted. Wheatridge Sanitation District expressed concern regarding this proposal, especially in view of uncertainty regarding the implications of upstream discharge and water management decisions that currently are in flux. The Commission decided to extend the temporary modification for one year, to allow time for these uncertainties to be better resolved.

15. Page 11, Segments 17 and 18

The descriptions of these two Ralston Creek segments have been revised to reflect a change in name of Blunn Reservoir, now known as Arvada Reservoir. For segment 17, the Commission has deleted the temporary modification for mercury and changed the mercury standard to 0.00014 mg/l. This revised standard is based on existing ambient quality, using the x+s methodology. A site-specific evaluation of methylmercury in trout from the creek indicates an absence of methylmercury in the fish tissue. This indicates that protection of human health will be attained with respect to any fish consumed from this segment. The aquatic life also would be protected from chronic effects at this level.

16. Page 11, Segment 19

A new high quality class 2 segment has been created for Clear Creek tributaries within the Mt. Evans Wilderness Area. This wilderness area was designated by Congress since the last triennial review. The creation of this high quality class 2 segment provides the same level of protection afforded other wilderness areas in Colorado.

17. Page 12, Segment 3

Warm water aquatic life class 1 and recreation class 1 classifications have been added to Great Western Reservoir, along with appropriate corresponding table value standards for a mean alkalinity of 100 to 200 mg/l. The evidence indicates that these standards are met by existing ambient quality in the reservoir.

18. Page 13, Segment 4b

Habitat improvement on this segment of South Boulder Creek since 1980 has assured the attainment of cold water aquatic life class 1 conditions. Therefore, the goal qualifier has been deleted, leaving the underlying classification in place.

19. Page 13, Segment 5

The Commission has changed the zinc standard for this segment of South Boulder Creek from 0.05 mg/l to 0.067 mg/l, and changed the copper standard from 0.005 mg/l to 0.016 mg/l. These revised standards are based on existing ambient quality, using the x+s methodology. In performing this calculation, Public Service Company proposed that a value equal to the detection limit be used whenever an analysis is reported as “less than detection limit.” The Commission has instead adopted standards based on its consistent practice of using “zero” in calculations including values reported as “less than detection limit.” So long as a consistent approach is followed in discharge permit monitoring and enforcement, this approach is reasonable.

20. Page 17, Segment 4

The Division and the Division of Wildlife proposed changing the Barr Lake warm water aquatic life classification from class 2 to class 1. The Division proposed that the unionized ammonia standard be changed from 0.1 mg/l to 0.06 mg/l.

The Commission finds that Barr Lake is habitat limited and that its current aquatic life class 2 classification and accompanying standards are correct. This finding is based on the evidence presented at the hearing by the parties that Barr Lake is not capable of sustaining a wide variety of warm water species due to poor physical habitat, wide fluctuations in water levels, and potentially uncorrectable water quality conditions. Some of the factors considered by the Commission in making this finding include that the reservoir is dominated by carp; the poor physical habitat includes poor substrate which limits fish reproduction; the fluctuations in water levels are extreme and range between 31,500 and 300 acre feet; and potentially uncorrectable water quality conditions are caused by releases of nutrients from existing bottom sediments by reservoir drawdown and wind/wave action. Finally, the Commission finds that achieving the more restrictive unionized ammonia standard associated with class 1 aquatic life may not be technically or economically feasible.

21. Page 25, Segment 3

Empire Reservoir has been added to the description of this segment, to correct an oversight in the 1980 South Platte hearing. Empire Reservoir is extensively used for fishing and hunting and has public access.

22. Page 26, Segment 2

Stalker Lake has been added to the description of this segment. This lake, which is a prime fishery, was overlooked in the 1980 hearing. It is managed by the Division of Wildlife and has produced several state records for warm water fish.

23. Page 27, Segment 6

A reference to “segments 1 through 6" has been corrected to “segments 1 through 5.”

FISCAL IMPACT:

There should be no substantial fiscal impacts as a result of the majority of changes adopted.

For South Mosquito Creek, two metals standards have been made more stringent and two more lenient. The more stringent standards, particularly for zinc, may require additional treatment and/or site clean-up costs for London Mine. London Mine testified that treatment costs to achieve the previously applicable standards could exceed $400,000. However, any such impact will be eased by the temporary modification for zinc. The benefits of the revised standards consist principally of assuring protection of aquatic life.

The revised standards for cadmium, lead and silver for segment 4, the North Fork of the South Platte, are each less stringent than the prior standards. Therefore, the revised limits should result in a reduced fiscal impact on any activities subject to regulation under these standards.

New segment 4a (Gooseberry Gulch) has a potential beneficial impact to dischargers on that segment since their treatment facilities would be controlled by less stringent standards than are presently in effect particularly with respect to ammonia.

Limiting of the temporary modification on segment 14 of the South Platte to one additional year will require some form of ammonia removal at the Littleton-Englewood wastewater treatment plant in the future. The delineation of this cost will be dependent upon the type of treatment, technology used, and the period of time each year that it would be required. Bi-City estimated the cost of required nitrification facilities at $7,000,000. There are also considerable benefits to the uses of segment 14 as well as downstream segment 15 associated with the maintenance of a 0.06 mg/l unionized ammonia standard. However, these benefits can not be quantified at this time.

The revised fecal coliform standard for Bear Creek Reservoir could affect treatment costs for upstream dischargers in the future, as growth occurs. However, no major impact is expected in the near future, since the revised standard is met by existing reservoir quality.

For segments 14 and 15 of Clear Creek, the revised standards for zinc and copper could increase treatment costs in the future for any dischargers discharging metals to these segments. These revised standards also could increase the costs of upstream cleanups pursuant to CERCLA, in an amount that cannot be quantified at this time. The temporary modifications adopted for several metals are more lenient than the existing standards. Therefore, these changes will ease the economic impact on dischargers for the period while they are in effect.

The revised mercury standard for segment 17 of Ralston Creek will have a beneficial fiscal impact on dischargers to that segment. Cotter Corporation testified that this change will avoid increased treatment costs in excess of $500,000.

The revised zinc and copper standards for segment 5 of South Boulder Creek are more lenient than the previous standards, and therefore should reduce the potential fiscal impact on any dischargers in this segment. Public Service Company testified that the cost of treatment to meet the previous standards could exceed $50,000,000. Although the ambient quality-based standards recommended by Public Service differed somewhat from the ambient quality-based standards adopted by the Commission, no specific evidence was submitted regarding any treatment costs that could be necessary to meet the new standards. However, because the revised standards are based on ambient quality, and because there was no evidence that copper levels in the Public Service outflow are less than its inflow, treatment should not be required so long as the standards are applied in a manner consistent with the basis for their adoption.

No new fiscal impacts will result from those segments for which classifications and standards were left unchanged, such as lower Beaver Creek, segment 6 of the South Plate mainstem, and Barr Lake.

PARTIES TO SOUTH PLATE
DECEMBER 1987
RULEMAKING HEARING

1. City of Westminster
2. Division of Wildlife
3. Douglas County
4. Littleton-Englewood Bi-City Wastewater Treatment Plant
5. Adolph Coors Company and City of Golden
6. City of Lakewood
7. Metropolitan Denver Sewage Disposal District #1
8. City of Arvada
9. City of Broomfield
10. London Mine Venture
11. City of Thornton
12. Public Service Company
13. City & County of Denver Board of Water Comm.
14. WheatRidge Sanitation District
15. City of Littleton
16. Cotter Corporation
17. Farmers Reservoir and Irrigation

38.27 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; OCTOBER, 1988 HEARING ON MULTIPLE SEGMENTS:

The provisions of 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; 25-8-207 and 25-8-402 C.R.S. 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:

The changes considered and adopted are addressed below by segment.

1. Page 1, Segment 1a
   Page 1, Segment 2a
   Page 3, Segment 8
   Page 3, Segment 10a
   Page 3, Segment 10b
   Page 3, Segment 12
   Page 3, Segment 13
   Page 4, Segment 17a
   Page 5, Segment 1
   Page 5, Segment 2
   Page 6, Segment 3
   Page 7, Segment 4b
   Page 7, Segment 4c
   Page 7, Segment 6

   Numerical standards for metals for these segments have previously been based on table values contained in Table III of the Basic Standards and Methodologies for Surface Water. Table III has been substantially revised, effective September 30, 1988. From the information available, it appears that the existing quality of these segments meets or exceeds the quality specified by the revised criteria in Table III, and new table value standards based thereon have therefore been adopted.

2. Page 2, Segment 5c

   This new segment was established as a result of a December, 1987 hearing to remove it from the listing for tributaries with an aquatic life cold water class 1 classification and classify it aquatic life cold water class 2 with no numeric standards for aquatic life. This segment still retains the water

supply designation, but numeric values to protect this use were inadvertently removed along with the aquatic life standards. Table values to protect water supply therefore have been readopted for this segment.

3. Page 2, Segment 7

The effect of this resegmentation is to add a water supply classification, and corresponding numeric standards, to Brush Creek and Filter Gulch. Although the water in these streams is not currently used for water supply, the evidence indicates that there is a potential future use for water supply in the Denver system, particularly should the Kassler Water Treatment Plant be reopened. In addition, there was evidence of a hydrologic connection to ground water that could potentially be used in the Denver system.

The Commission rejected a proposal by Martin Marietta to apply the standards only at the point of water supply intake, in part because the evidence indicated that the precise point on intake into the Denver system cannot be predicted at this time. However, the Commission did adopt a footnote specifying that the standards for Brush Creek and Filter Gulch apply only at the downstream of the Martin Marietta property line. The evidence indicates that the entire reach of both streams above the property line is located on Martin Marietta property, and that there is no foreseeable use of the water for water supply purposes before it leaves the Martin Marietta property.

4. Page 3, Segment 11

This resegmentation has been adopted to provide increased protection for fish species located in the new segment 11b which are relatively rare in Colorado. Four species of the fish community, the Johnny darter, The Iowa darter, the common shiner and the northern redbelly dace are relatively rare in Colorado. Of these four species only the Johnny darter is common in more than two or three waters in the entire state. Only in West Plum Creek and tributaries are those species relatively common.

West Plum Creek is unique in the South Plate drainage. It is the only transition zone stream that does not receive large pollutant loadings. A water is a transition stream in the region where the stream leaves the mountains and enters the plains region of Colorado. The highest diversity of fish species is normally found in this transition reach. The four species noted above all seem to require cool, clear water, slower currents with rooted aquatic vegetation.

These species have generally disappeared in other front range transition streams where nutrient loadings from domestic sewage plants are common. These waters include Boulder Creek, the Cache la Poudre and the Saint Vrain. Although one or two of these species may be found in some of these waters, only in the West Plum Creek system is the native fish assemblage still intact.

The use, a diverse native fish community, is still present in the West Plum Creek system. Protection for the use was not present without this resegmentation. Most tributaries were class 2 warm water with no standards. Because of the lack of appropriate numeric standards, discharge permits for entities discharging to most tributaries of West Plum Creek would not include restrictions for parameters such as chlorine and ammonia, which are toxic to fish. To provide needed protection for these populations the Commission has adopted numeric standards for all tributaries of West Plum Creek.

5. Page 4, Segment 15

Table III of the Basic Standards and Methodologies for Surface Water has been substantially revised, effective September 30, 1988. The Metropolitan Denver Sewage Disposal District No. 1

(Metro District) requested that the new Table III be applied to segment 15 as soon as possible because the Metro District renewal discharge permit sets forth a compliance schedule requiring compliance with a water quality-based effluent limitation for silver based on the old Table III methodology. Application of the new Table III methodology will result in calculation of a less restrictive effluent limitation for silver that can be met without additional treatment facilities. The Basic Standards and Methodologies for Surface Water also provide for the development of site specific and ambient quality-based standards in lieu of the table values. The Commission has adopted such standards for mercury and zinc.

The ambient quality-based chronic standard for dissolved mercury is 0.4 ug/l which is equal to the 85th percentile of the available data. The acute standard for mercury is the table value of 2.4 ug/l. In addition to presenting data supporting a chronic ambient quality-based standard of 0.4 ug/l for mercury, the Metro District presented evidence at the hearing that the methylmercury concentrations in fish flesh from fish is segment 15 ranged between 0.19 and 0.29 mg/kg. This is well below the FDA limit of 1 mg/kg. Thus, the Commission concludes that the ambient-based chronic limit of 0.4 ug/l dissolved mercury protects the classified uses of segment 15 and that no additional treatment is necessary to meet this standard.

The Metro District also presented evidence in the hearing that 1.0 ug/l mercury is the lowest level that can be reliably achieved with specified limits of precision and accuracy during routine laboratory operating conditions. Based on this evidence, the Metro District requested that a “practical quantification limit” (PQL) equal to 1.0 ug/l be established for mercury for this stream segment.

The Commission declined to modify the ambient quality-based standard to incorporate the 1.0 ug/l PQL at this time, principally because the PQL concept has not previously been applied to Colorado water quality standards, and the Commission is not yet persuaded that its adoption on this site-specific basis is necessary or appropriate. The Commission agreed to consider this issue further at its February, 1989 hearing on the South Plate water quality standards. In the meantime, the Division may take the appropriateness of a mercury PQL into account in considering appropriate discharge permit limits for the Metro District.

For zinc, acute and chronic equations differing from the aquatic life protection formulas in the Basic Standards were adopted. The equations are based on revised water quality criteria for zinc which were published in 1987 by the U.S. Environmental Protection Agency. This new criteria document was published after the “Metals Committee” had completed its work in preparing its recommended actions for the amendments to the Basic Standards. The Table III zinc standards for agriculture and water supply are being adopted without change.

Application of the new Table III and the site-specific standards for mercury and zinc will provide the level of protection necessary to assure the maintenance of the use classification assigned to segment 15. (warm water aquatic life class 2, agriculture, water supply and recreation class 2).

6. <u>Page 22, Segment 12</u>

Table III of the Basic Standards and Methodologies for Surface Water has been substantially revised, effective September 30, 1988. Kodak Colorado Division requested that the new table be applied to segment 12 as soon as possible because the Kodak renewal discharge permit sets forth a compliance schedule requiring compliance with a water quality-based effluent limitation for silver based on the old Table III methodology. This effluent limit represented a 50% reduction in the concentration of silver. This limit could not be met with existing wastewater treatment facilities. Application of the new Table III will result in calculation of a less restrictive effluent limitation for silver that can be met without the addition of additional treatment facilities. Application of the new Table III will provide the level of protection necessary to assure the maintenance of the use classifications (recreation class 2, warm water aquatic life class 2 and agriculture) assigned to Segment 12.

LIST OF PARTY PARTICIPANTS
TO THE OCTOBER, 1988 SOUTH PLATE
PUBLIC RULEMAKING HEARING

1. Kodak Colorado Division
2. Metropolitan Sewage Disposal District No. 1
3. Public Service of Colorado
4. City and County of Denver
5. Chatfield Basin Association
6. Martin Marietta Corp.
7. The City of Boulder
8. Landfill Inc.
9. Division of Wildlife

38.28 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE: (1989 Big Thompson segments 4 and 5 revisions)

The provisions of 25-8-202(1) (b) and (2); 25-8-204; 25-8-207 and 25-8-402 C.R.S. 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:

This action amends metals standards for segments 4 and 5 of the Big Thompson River, to apply the new "table values" for metals contained in the Basic Standards and Methodologies for Surface Water. Because the Commission has previously determined that these Table III values adequately protect the classified uses, no adverse impact from these revisions is anticipated. The adoption of these amendments will help assure economically reasonable regulation of the stream segments in question by limiting the risk of unnecessarily stringent protection.

38.29 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; OCTOBER, 1988 HEARING - BRUSH CREEK AND FILTER GULCH

The provisions of 25-8-202(1) (a), (b) and (2); 25-8-203; 25-8-204; 25-8-207 and 25-8-402 C.R.S. provide the specific statutory authority for adoption of these regulatory amendments. Please note that changes adopted as a result of this hearing for several other segments are addressed in 3.8.25. The Commission also adopted, in compliance with 24-4-103(4), C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE:

The previous segment 7 has been resegmented into segments 7a and 7b. Segment 7a is the same as the previous segment 7, except that "7b" is added to the list of excluded segments. Segment 7b is described as: Mainstem of Brush Creek and Filter Gulch from the source to the confluence with the South Plate River.

The effect of this resegmentation is to add a water supply classification, and corresponding numeric standards, to Brush Creek and Filter Gulch. Although the water in these streams is not currently used for water supply, the evidence indicates that there is a potential future use for water supply in the Denver system, particularly should the Kassler Water Treatment Plant be reopened. In addition, there was evidence of a hydrologic connection to ground water that could potentially be used in the Denver system.

The Commission rejected a proposal by Martin Marietta to permanently apply all of the standards only at the point of water supply intake, in part because the evidence indicated that the precise point of intake into the Denver system cannot be predicted at this time. However, the Commission did adopt a footnote specifying that-except for the dissolved oxygen, pH, and fecal coliform standards that have previously

been in effect for the full stream reaches-the standards for Brush Creek and Filter Gulch apply only at and downstream of the Martin Marietta property line. The evidence indicates that the entire reach of both streams above the property line is located on Martin Marietta property, and that there is no foreseeable use of the water for water supply purposes before it leaves the Martin Marietta property.

In addition, the Commission adopted a three-year temporary modification, such that during this period the sulfate standard will apply only at the point of any present or future water supply intakes. The purpose of this temporary modification is to allow Martin Marietta adequate time to construct a pipeline to move its discharge to the mainstem of the South Plate. This approach is appropriate due to the unique facts applicable to this situation, including (1) Martin Marietta's good faith commitment to pursue construction of a pipeline, and (2) the lack any apparent public health consequences or impacts on other classified uses, since there is no active water supply intake in this area at present and since the sulfate standard is based on a secondary (not health -related) drinking water standard. The Commission does not intend these determinations to serve as a general precedent or to change the Commission's established policy that in the vast majority of circumstances ambient water quality standards are appropriately applied to the entire reach of identified stream segments.

LIST OF PARTY PARTICIPANTS TO OCTOBER, 1988 SOUTH PLATE RIVER BASIN

1. Kodak Colorado Division
2. Metropolitan Sewage Disposal District No. 1
3. Public Service of Colorado
4. City and County of Denver
5. Chatfield Basin Association
6. Martin Marietta Corp.
7. The City of Boulder
8. Landfill Inc.
9. Division of Wildlife

38.30 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; FEBRUARY, 1989 HEARING ON MULTIPLE SEGMENTS:

The provisions of 25-8-202(1) (a), (b) and (2); 25-8-203; 25-8-204; 25-8-207 and 25-8-402 C.R.S. 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:

The changes considered and adopted are addressed below by segment.

1. Page 9, Clear Creek, Segment 6
   Page 9. Clear Creek, Segment 9
   Page 12, Big Dry Creek, Segment 3
   Page 13, Boulder Creek, Segment 2
   Page 13, Boulder Creek, Segment 3
   Page 13, Boulder Creek, Segment 4b
   Page 14, Boulder Creek, Segment 9
   Page 15, Boulder Creek, Segment 12
   Page 16, St. Vrain Creek, Segment 2
   Page 19, Big Thompson River, Segment 7
   Page 19, Big Thompson River, Segment 8
   Page 19, Big Thompson River, Segment 11
   Page 19, Big Thompson River, Segment 12
   Page 20, Big Thompson River, Segment 14 (now deleted)
   Page 21, Cache La Poudre River, Segment 2
   Page 21, Cache La Poudre River, Segment 3

Page 21, Cache La Poudre River, Segment 4
Page 21, Cache La Poudre River, Segment 6
Page 22, Cache La Poudre River, Segment 9
Page 23, Cache La Poudre River, Segment 14
Page 23, Cache La Poudre River, Segment 15
Page 23, Cache La Poudre River, Segment 16
Page 24, Laramie River, Segment 2
Page 25, South Plate River, Segment 3
Page 26, Republican River, Segment 1
Page 26 Republican River, Segment 2
Page 26, Republican River, Segment 3

Numerical standards for metals for these segments have in most instances previously been based on table values contained in Table III of the Basic Standards and Methodologies for Surface Water. Table III has been substantially revised, effective September 30, 1988. From the information available, it appears that the existing quality of these segments meets or exceeds the quality specified by the revised criteria in table III, and new table value standards based thereon have therefore been adopted. There are also some of these segments whose previous standards were based in part on ambient quality, since their quality did not meet old table values based on alkalinity ranges. However, these segments generally have much higher hardness than alkalinity, and the new table values (based on hardness-dependent equations) are now appropriate as standards. In addition to these revisions, the segment desriptions have been clarified for Laramie River, Segment 2, and Cache La Poudre River, Segment 4. As a “housekeeping” clarification, the previous Big Thompson Segment 14 has been deleted, with these waters added into Big Thompson Segment 12. Finally, a High Quality 2 designation has been added to Cache La Poudre River, Segment 2, and the description of this segment has been revised to include waters within wilderness areas and those designated as “wild rivers” since the original hearings for this basin. This designation is appropriate in accordance with the recently revised antidegradation provision in the Basic Standards and Methodologies for Surface Water.

2. Page 10, Clear Creek, Segment 11

The table value standards for metals have been adopted for this segment, except for cadmium, copper, and zinc. This is one of a few segments in South Plate Basin that has historic dissolved metals data base. USGS station 0671, Clear Creek at Golden, shows for mean hardness of 77 mg/l. Ambient standards based on the 85th percentile are appropriate for cadmium, copper and zinc. The geometric mean of fecal coliform data at the Water Quality Control Division’s routine monitoring station is 66 MPN/10 ml. This is well below the 200 MPN/100 ml criteria for Recreation Class 1 and the change in classification and standards is justified on a water quality basis.

3. Page 18, Big Thompson River, Segment 1

This segment’s description has been revised to add a wilderness area that has been designated since the original hearings for this segment. In addition, in accordance with the new antidegradation provisions, appropriate use classifications and table value numeric standards have been adopted for this segment, to apply in the event that degradation is determined to be necessary following an activity-specific antidegradation review.

4. Page 19, Big Thompson River, Segment 9

A new acute standard for ammonia has been adopted for this segment, based on the recent revisions to Table II of the Basic Standards and Methodologies for Surface Water. In addition, the chronic ammonia standard has been changed to 0.1 mg/l. The evidence indicates that this segment is correctly classified as a class 2 aquatic life segment, but that the variety of aquatic life in this segment may be adversely impacted by factors other than ammonia and does not warrant

protection at the 0.06 mg/liter un-ionized ammonia level that the Division originally proposed. Standards greater that 0.06 are allowable according to footnote 1 of Table II of the Basic Standards and Methodologies for Surface Waters 3.1.0 (5 CCR 1002-8), which sets out a range of 0.06 to 0.1 mg/liter un-ionized ammonia for class 2 aquatic life, and specifies that standards greater than 0.08 mg/liter may be considered "where a higher risk of sublethal effects is justified by habitat limitations or other water quality factors". The Commission believes this to be the case for this segment and that there is uncertainty that the aquatic life would be enhanced with a standard in the 0.06 to 0.08 range, as opposed to a 0.1 mg/liter standard. The 0.1 standard is consistent with the other warm-water class 2 aquatic life streams in the vicinity.

The Division has identified three dischargers on this segment which potentially will be affected by a change in the chronic standard. A change to 0.1 from the existing 0.13 mg/liter un-ionized ammonia standard could result in additional effluent treatment being required of the City of Berthoud, but will not likely result in additional treatment for Adolph Coors Company of Johnstown.

5. Page 12, Boulder Creek, Segment 4.b. (and new 4.c., 4.d.), Page 14, Boulder Creek, Segment 8

Previously the tributaries to South Boulder Creek between Hwy 93 and South Boulder Road were listed under the description for both segments Segment 8 and 4.b. This overlap in segment description was brought to the Division's attention in May, 1988, by the Hazardous Materials and Waste Management Division of the Health Department, during negotiations over the Marshall Landfill CERCLA Consent Decree.

By listing these tributaries under Segment 4.b. it is the Commission's intent to establish classifications that are consistent with tributaries to South Boulder Creek upstream of Highway 93. One of the tributaries in 4.b. known as Cowdrey Drainage, would receive treated wastewater from a proposed treatment plant for the Marshall Landfill. Due to site-specific considerations on Cowdrey Drainage, Segment 4.b. was therefore resegmented into 4.b. (with exclusions) and new segments 4.c. and 4.d. Visits of the site and data collection indicate that intermittent surface flows from upper Cowdrey Drainage are intercepted by the Davidson Ditch and do not reach the lower portion of the drainage. Site-specific differences in use, upstream and downstream of the Davidson Ditch, account for the differences in numeric standards and use classifications.

A water supply classification has been included in segment 4.c. due to the presence of municipal water rights of the Cities of Louisville and Lafayette. According to the District 6 Water Commissioner of the Division of Water Resources, Louisville has not yet exercised its right to divert water for municipal use, but that Lafayette has diverted water for municipal use to Wanaka Reservoir, the City's storage reservoir. It is thus clear that there is a potential and existing use made of water from the upper segment (4.c.) of the Cowdrey Drainage.

6. Page 16, St. Vrain, Segment 3

Barbour Ponds have been added to the description of this segment. Barbour Ponds are open to public fishing and contain reproducing populations of fish. The change is appropriate in that there are no sludge beds on the bottom of the ponds and water level fluctuations are not extreme. Without the change of classification the Division's ability to regulate anyone who discharges or causes a fish kill by dumping a toxicant to the waterways feeding the waters would be limited.

7. Page 20, Big Thompson River, Segment 12 (Previously Segment 14)

Lon Hagler reservoir has been added to the description of this segment. Lon Hagler is open to public fishing and contains reproducing populations of fish. The change is appropriate in that there are no sludge beds on the bottom of the reservoir and water level fluctuations are not extreme. Without the change in classification the Division's ability to regulate anyone who

discharges or causes a fish kill by dumping a toxicant to the waterways feeding the waters would be limited.

8. Page 14, Boulder Creek, Segment 7.b.

Revised metals standards, based on the new Table III in the Basic Standards and Methodologies for Surface Water have been adopted for this segment. The City of Louisville requested that the new Table III be applied to Segment 7.b. as soon as possible because the City's renewed discharge permit sets forth a compliance schedule requiring the city to determine the facilities' ability to comply with water quality-based effluent limitations for each metal for which there is a stream standard. Application of the new table III methodology will allow the City to proceed with the compliance schedule required in its renewed discharge permit and determine the facilities' ability to comply with the potential limitations. Application of the new standards will provide the level of protection necessary to assure the maintenance of the use classifications (Recreation Class 2, warm Water Aquatic Life Class 2, and Agriculture), assigned to segment 7.b.

LIST OF PARTY PARTICIPANTS
TO THE FEBRUARY, 1989 SOUTH PLATE

1. Division of Wildlife
2. Cities of Westminster & Thornton
3. Metropolitan Denver Sewage Disposal District #1
4. The City of Louisville
5. Northern Colorado Water Conservancy District and Municipal Subdistrict
6. City of Boulder
7. North Front Range Water Quality Planning Association
8. Adolph Coors Company
9. The North Poudre Irrigation Company
10. City of Northglenn
11. City of Arvada
12. City of Ft. Collins
13. Thompson Water Users Association
14. The Cache La Poudre Water Users Association
15. Campbell Development, Inc.
16. Landfill, Inc.

38.31 FINDINGS REGARDING BASIS FOR TEMPORARY RULE ADOPTED JULY 11, 1989

The Commission adopted revised classifications and water quality standards for all tributaries to Standley Lake and Great Western Reservoir, on a temporary basis. These classifications and standards are effective immediately and will remain in effect until March 30, 1990, unless permanent standards are adopted at an earlier date. The Commission is scheduling a rulemaking hearing for December, 1989 to consider permanent adoption.

This action creates a new segment for tributaries to Great Western Reservoir and Standley Lake in northern Jefferson County, which encompasses Walnut Creek and Woman Creek, the two streams which drain the Rocky Flats Plant. Heretofore, these tributaries were included in the general classification of Big Dry Creek Segment 1, which does not include the water supply classification, and which contains only dissolved oxygen, pH, and fecal coliforms as standards. Recent attention to the drainage of Walnut Creek and Woman Creek into the Great Western Reservoir and Standley Lake, both of which are actually used as public water supplies, has heightened the need to protect all waters entering the reservoirs via the adoption of the water supply classification and associated standards.

Immediate adoption of these rules on a temporary basis is imperatively necessary to preserve the public health, safety and welfare by insuring that the appropriate water quality standards are incorporated into federal permits for the Rocky Flats Plant and that water supply standards are met at the point of

discharge. This in turn will provide an extra layer of protection of downstream water supplies from the two reservoirs, each of which are already classified as domestic water supplies.

The United States Environmental Protection Agency is currently in the process of renewing its NPDES discharge permit for the Rocky Flats Plant. EPA intends to issue the permit for public comment by October 1, 1989. Appropriate standards would not be effective by October 1 if the procedures set forth in section 25-8-402(1), C.R.S. were followed. These standards thus would not become a part of the federal permit. Immediate adoption of these rules pursuant to section 24-4-103(6), C.R.S. is in the public interest and will insure that the appropriate classifications and standards become a part of the federal permitting process.

The numeric standards adopted include:

(1) D.O., pH and fecal coliform standards from Table I of the Basic Standards and Methodologies for Surface Water;

(2) Standards to protect agriculture and domestic water supply uses, for physical and biological, inorganic and metals parameters from Tables I, II and III of the Basic Standards and Methodologies for Surface Water;

(3) Drinking water supply standards for carcinogenic and non-carcinogenic organic chemicals (Tables A and B);

(4) Additional standards for organic chemicals based on EPA Gold Book fish and water ingestion criteria (Table C); and

(5) Standards for several radionuclides not included in the list of statewide standards contained in section 3.1.11 of the Basic Standards and Methodologies for Surface Water (Table D).

For the organic pollutants contained in Tables A and B, the practical quantitation limits (PQLs) listed as “detection levels” are to be used as the compliance thresholds. For any organic pollutants listed in Table C that do not appear in Tables A or B, the Commission intends that these standards be applied in accordance with PQLs determined appropriate by the Colorado Department of Health laboratory.

PARTIES TO THE PROCEEDINGS

1. City of Broomfield
2. Environmental Defense Fund

38.32 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE (GREAT WESTERN RESERVOIR, STANDLEY LAKE AND TRIBUTARIES)

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

(1) Segmentation

The Commission has revised the segmentation for certain tributaries to the Big Dry Creek drainage. Two separate segments have been established for portions of the Walnut Creek and Woman Creek basins, which flow from property occupied by the Rocky Flats Plant to Great Western Reservoir and Standley Lake, respectively.

Segment 4 encompasses all of Woman Creek and its tributaries except for pond C 2, and the lower portion of Walnut Creek and its tributaries above Great Western Reservoir. This segment has been established to facilitate the application of water quality classifications and standards that will help protect the uses of water in the downstream segments - Great Western Reservoir and Standley Lake.

Segment 5 encompasses the upper watersheds of North Walnut Creek and South Walnut Creek, as well as Pond C-2, which is located adjacent to Woman Creek. A separate segment has been established for these waters because they are currently impacted by the wastewater management system at the plant. Walnut Creek has been segmented at two points immediately downstream on ponds A-4 and B-5 -- the last in a series of ponds constructed on the streams at the Rocky Flats complex. This is to recognize that the upper portions of Walnut Creek and these “instream” ponds currently contain some treated sanitary wastewater and storm water runoff from the Rocky Flats facility and cannot be expected to meet the high quality of water required by the standards as the water leaves the plant ponds. Similarly, Pond C-2 near Woman Creek collects runoff from the plant site, and so has been included in segment 5.

(2) Classifications

The Commission previously adopted new water supply classifications for Walnut Creek and Woman Creek on a temporary basis, as the result of a rulemaking hearing held in July, 1989. The continuation of extensive, protective use classifications and water quality standards for Standley Lake, Great Western Reservoir, and the major tributaries which drain into them is necessary because of the drinking water use made of the reservoirs, and the threat to human health posed by the Rocky Flats industrial complex which is immediately upstream. Except for the addition of a water supply classification for segments 4 and 5, the existing classifications for these streams and reservoirs have been left in place.

For segment 5, a “goal” qualifier has been added to the classifications, in recognition of the current impact of Rocky Flats operations on these waters, as described in (1) above. A goal of classification for all uses is appropriate since Rocky Flats has committed in the recent Agreement in Principle between the State and the Department of Energy (DOE) to pursuing elimination of discharges from the plant site. As a matter of policy, the Commission believes that these state waters should be returned as soon as possible to a condition that will support a full range of uses.

At the hearing, the DOE argued that a water supply classification should not be applied to segments 4 and 5 because water is not withdrawn directly from these segments for drinking water and because of the potential that water from these segments may be diverted around the two downstream water supply reservoirs in the future. The Commission recognizes that water is not withdrawn directly from Walnut or Woman Creek for water supply purposes. This classification has been added to these segments because of the Commission’s policy determination that it is appropriate to establish an extra layer of protection for the major water supplies in Great Western Reservoir and Standley Lake, particularly considering the proximity upstream of a major industrial, complex utilizing nuclear materials.

Although it appears from the evidence that some potential exists for diverting Walnut and Woman Creek water around the two reservoirs in the future, the water supply classification for these streams is currently appropriate. As long as a significant potential exists that the water in these creeks will enter the downstream water supplies, the option for that use should be protected. This is particularly true since it was demonstrated this past summer that discharges from the Rocky Flats Plant can, with appropriate treatment if necessary, meet the standards (or associated compliance thresholds) that are now being adopted. If in the future permanent diversion structures are constructed, with an appropriate capacity to assure that Walnut and Woman Creek water will not enter the two reservoirs, the Commission can reconsider the appropriateness of the water supply classification at that time.

(3) Standards

Several sets of new water quality standards have been adopted for the waters addressed in this hearing. With respect to organic chemicals, two sets of numerical standards adopted on a temporary basis in July (Tables A and B) have in the interim been adopted statewide, and therefore were not addressed in this hearing. The "Additional Organic Chemical Standards" adopted for segments 2, 3, 4 and 5 in this hearing (Table 1) include 1) standards based on fish and water ingestion criteria from EPA's "Gold Book"; 2) standards for two herbicides: atrazine and simazine; and 3) a "zero" standard for other manmade organics, for which no numerical limit has been established.

Assignment of the criteria as standards to protect humans from health risk posed by consuming both fish and water is appropriate on both the reservoirs as well as the tributary streams because of the large numbers of people who depend on these reservoirs as their drinking water supply. In addition, Standley Lake is a popular fishery and provides many fishermen with edible species which are likely consumed regularly along with the potable water supplied from the lake. Great Western Reservoir also contains fish, and although fishing is presently forbidden, the potential for allowing that use in the future is possible, and water quality adequate to support that use should be preserved. Assigning the organics standards to tributaries is necessary to provide an extra layer of protection to the waters entering the lakes, and to allow a means of limiting the introduction of organics into the environment at the source, due to the short distance between the sources and the reservoirs.

The inclusion of standards for atrazine and simazine is necessary because these two herbicides are potential carcinogens, and both have been detected in water samples from Rocky Flats in the on-site holding ponds. The standards are based on a proposed MCL for atrazine and a current EPA Health Advisory for simazine. Both are established at levels protective of human health.

Consistent with the approach taken by the Commission in establishing statewide organic chemical standards in section 3.1.11 of the Basic Standards and Methodologies for Surface Water, the Commission has adopted detection levels based on practical quantitation limits (PQLs) to be used as compliance thresholds for the standards in Table 1. The PQLs for these compounds were derived by the Colorado Department of Health laboratory. The PQLs are based on the gas chromatography (GC) laboratory analysis except where noted. This is consistent with analyses that have been required to date for water discharged from the Rocky Flats Plant.

A narrative standard has been adopted for other organic chemicals, interpreting the existing statewide "no toxics in toxic amount" provision (Section 3.1.11(1)(d)) as zero, with the compliance threshold for enforcement based on appropriate PQLs. The Commission has determined as a policy matter that this standard is appropriate due to the inability to predict with certainty at this time all chemicals of potential concern that could be discharged to these waters. If it is determined that this approach in unnecessarily stringent for a particular chemical that is found to be present, based on use-protective numerical criteria for such a chemical, then such criteria can be used to set a different numerical standard for that chemical in the future. In the meantime, in the absence of better information the Commission has chosen as a matter of policy to err in the direction of minimizing organic chemical pollution of state waters.

The adoption of the organic chemical standards described above should not have a major economic impact on the Rocky Flats Plant. From extensive sampling of the plant's on-site holding ponds prior to discharges this past summer, the only organics detected at levels exceeding the standards (or applicable PQLs) now being adopted were atrazine and simazine. Counsel for the DOE conceded the appropriateness of the proposed standards for these two constituents during the Commission's hearing. Moreover, to the extent that there is an economic impact of complying with such standards, that impact was essentially already incurred by DOE by entering into the Agreement in Principle with the State of Colorado in June, 1989.

The Commission also has adopted new radionuclide standards for segments 2, 3, 4 and 5. The adoption of these standards is appropriate due to the risk of discharge of radionuclides from the Rocky Flats Plant. For curium and neptunium, the standards are based on criteria developed by the International Commission on Radiological Protection. For gross alpha, gross beta, plutonium, americium, tritium and uranium, standards are based on existing ambient quality in the respective segments.

Adoption of these standards is not expected to have a major economic impact on the Rocky Flats Plant. In particular, the ambient quality-based standards have been established taking any existing impact from Rocky Flats into account. Moreover, the specific standards are based on the mean plus approximately two standard deviations of the available data (upper 95 percent confidence limit of the mean) which in this case is more lenient than the 85th percentile normally used by the Commission for ambient quality-based standards. Even if there were an economic impact on the Rocky Flats Plant, as a matter of policy the Commission believes it is appropriate to limit radionuclides in state waters to their lowest practical level, to minimize environmental exposure to such constituents. At the same time, these standards clearly are sufficient to protect the classified uses, since they are all below (more stringent than) current drinking water standards or other available health-based criteria for these radionuclides.

At the hearing, DOE argued that the Commission should not adopt radionuclide standards because DOE is self-regulating with respect to such pollutants. The Commission is authorized by the federal Clean Water Act and the Colorado Water Quality Control Act to adopt ambient water quality standards. The issue of regulatory authority over discharges from DOE facilities is not within the scope of this hearing and need not be addressed in adopting such standards. However, even if there are restrictions on the ability of the State or EPA to implement these standards, their adoption by the Commission is appropriate, to inform DOE and the public of the levels that this Commission believes can and should be met.

In addition to the organic chemical and radionuclide standards, the Commission has adopted the aquatic life, water supply and agricultural values for inorganics and metals from Tables II and III of the Basic Standards and Methodologies for Surface Water as standards for segments 4 and 5. These additional standards will help provide the extra layer of protection for the uses of waters in the downstream segments (2 and 3). The Commission also revised the metals standards for Standley Lake, to correspond with the new table values contained in Table III.

For segment 5, the Commission has adopted a narrative temporary modification based on existing ambient quality, to remain in effect until February, 1993. In accordance with the discussion of this segment above, temporary modifications appear necessary due to the current impacts of Rocky Flats Plant operations, until such time as those impacts can be eliminated and the underlying classifications and standards achieved. Temporary modifications at a level of ambient quality does not reduce environmental protection in the short run, since public health is protected by the more stringent requirements on the downstream segments.

The goal of the Commission is for the classifications and standards of segment 4 to be achieved in segment 5 as soon as possible. It is recognized that Rocky Flats may not be able to meet the standards immediately and that temporary modifications may be necessary. However, insufficient data presently exists upon which to develop a full set of numerical temporary modifications at this time. It is expected that sufficient data should be generated in the next 3 years to allow time to collect adequate data for DOE to decide whether to seek numeric temporary modifications for particular parameters.

(4) Designations

Based on their existing classifications and the evidence submitted at the hearing regarding their existing quality, the Commission has determined that it is appropriate to adopt a High Quality 2 designation for the waters in Great Western Reservoir and Standley Lake (segments 2 and 3).

From the best information currently available, it appears that existing quality in these reservoirs for the 12 parameters listed in section 3.1.8(1)(b)(i) (C) of the Basic Standards and Methodologies for Surface Water is better than that specified in Tables I, II and III for the protection of aquatic life class 1 and recreation class 1 uses.

Parties to the December 4, 1989 Hearing

1. The City of Arvada
2. Environmental Defense Fund
3. The City of Broomfield
4. The City of Westminster
5. Department of Energy

38.33 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; MARCH, 1991 HEARING ON SEVERAL SEGMENTS:

The provisions of 25-8-202(1) (a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402 C.R.S. 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:

First, the Commission has revised the introductory language for the tables in section 3.8.6. The purpose of this language is to explain the references to “table value standards” (TVS) that are contained in the Tables. These provisions also include the adoption of new hardness equations for acute and chronic zinc standards throughout the basin. Based on information developed since the “Basic Standards” were revised, these new equations have been determined to represent more appropriate zinc criteria. New information contained in a 1987 EPA zinc criteria document indicates Colorado’s zinc criteria is overly restrictive, especially at hardness in the range of 50 to 200 mg/l. Adoption of the Colorado zinc criteria as site-specific TVS standards may potentially cause undue treatment costs to dischargers who would be regulated by those standards until they could be adjusted through a section 207 hearing or during the next round of basin hearings.

The existing criteria for zinc contained in the “Basic Standards” was developed by the Commission’s Water Quality Standards and Methodologies Committee. At the time of development, the EPA zinc criteria document was not available. Because of some limited data indicating a consistent chronic toxicity level at water hardnesses of 200 mg/l or less, the Commission adopted a chronic criteria of 45 ug/l for hardness of 0 to 200 mg/l. This is much more stringent than EPA criteria which, as an example, specifies chronic zinc levels of 59 ug/l and 190 ug/l at hardness of 50 mg/l and 200 mg/l, respectively.

The Commission also has adopted additional organic chemicals standards for certain aquatic life segments. The standards added in section 3.8.5(2) (e) are based on water and fish ingestion criteria contained in the U.S. Environmental Protection Agency’s Quality Criteria for Water, 1986 and updates to this document through 1989, which is commonly referred to as the “Gold Book”. The standards are being applied to all Class 1 aquatic life segments, and for those Class 2 segments for which there is evidence of significant fishing, which is likely to result in human consumption of the fish. The standards are based on a 10-6 risk factor.

The application of these standards to waters where actual or potential human ingestion of fish is likely is important in assuring that Colorado achieves full compliance with the toxics requirement of section 303(c)(2)(B) of the federal Clean Water Act. It is reasonable to assume that most Class 1 aquatic life segments, because of their variety of fish species and/or suitable habitat, have the potential for fishing and the resultant human consumption of the fish or other aquatic life.

One other general issue should be addressed at the outset. Several parties to this proceeding submitted documents expressing concern regarding the adoption of high quality 2 designations because of potential impact on water rights held by these entities. The Commission transmitted these documents to the State Engineer and the Colorado Water Conservation Board to solicit any comments that they might have. In its transmittal letter, the Commission stated its preliminary assessment that the proposed adoption of high quality 2 designations did not present the potential to cause material injury to water rights.

The high quality designation merely indicates that an antidegradation review will be required for certain activities. In its regulations, the Commission has specifically provided that in an antidegradation review "any alternatives that would be inconsistent with section 25-8-104 of the Water Quality Control Act shall not be considered available alternatives." If an issue should arise as to whether the antidegradation review criteria prohibiting material injury are being applied correctly to a specific proposed activity, that issue would be considered during that specific review process, including going through consultation with the State Engineer and Water Conservation Board.

The Commission received a letter back from the State Engineer, stating his agreement with the Commission's preliminary assessment. No letter was received from the Water Conservation Board, although the Board had previously indicated its agreement with a similar conclusion when this issue was raised in an earlier rulemaking hearing. Upon consideration of all of the available information, the Commission has determined that the adoption of high quality 2 designations in this proceeding does not cause material injury to water rights.

The other changes considered and adopted are addressed below by segment.

A. Overview of Segment-Specific Changes

Two issues were in controversy for several of the segments addressed in this hearing. The most controversial was whether to apply a high quality 2 designation to certain waters. In several instances, designations proposed by the Water Quality Control Division were opposed on the basis that there was inadequate information to support such a designation. The three most common challenges to the adequacy of the information were: (1) detection limits for some data were too high to determine whether ambient quality was better than "table values;" (2) for some segments there was not adequate data for some or all of the twelve parameters referenced in section 3.1.8(2) (b) (i) (C); (3) for some segments the sample location(s) of available data were too limited to generalize the results to the whole segment.

The Commission explicitly considered establishing minimum data requirements when it adopted the current antidegradation regulation, and consciously rejected that option. Rather, the Commission recognized that it would be necessary to rely on best professional judgement to determine what constitutes representative data in a specific situation. These issues are not new, or unique to high quality designations. The Commission has for years been required to make water quality classification and standards decisions in the absence of perfect information. Requiring substantial, recently acquired data for all parameters from multiple locations in each segment before establishing high quality designations would assure that very few waters in Colorado would receive this protection for many years to come. As a policy matter, the Commission has determined that high quality designations may appropriately be established based on a lower threshold of available data than that suggested by several parties to this proceeding.

The Commission acknowledges that the data base for the key parameters on a number of segments that were considered for high quality designation is less than ideal. On some segments, there is no specific data available from points within the segments for some of the key parameters. In addition, some of the data represents the results of a small number of samples, or samples taken at a small number of locations on the segments. In light of this fact, the Commission continues to encourage all interested parties to participate in efforts to improve the data base, and thereby further strengthen the decision-making process.

The Commission also notes that having adequate information upon which to base a high quality designation is not dependent solely on the availability of specific data for a particular segment. Relevant information may include data from downstream segments, comparison of available data with that for similar streams, and information regarding the presence or absence of activities likely to adversely impact the quality of the segment in question.

Where there is a substantial basis for considering a high quality 2 designation, in the face of some residual uncertainty the Commission has chosen to err in the direction of providing the protection. This policy decision is strongly influenced by the ease with which designations can be changed if better data is developed in the future. Unlike classifications, downgrading restrictions do not apply to water quality designations. If new site-specific data is developed that demonstrates that a particular high quality designation is improper, it can and should be removed by the Commission.

With respect to detection limits, the Commission has chosen to continue the same policy that it has followed for over ten years--i.e. to treat data reported as below detection limits as being equivalent to zero. While other methodologies have been proposed and may be defensible, the Commission has determined that this approach is reasonable and appropriate. Requiring routine analysis to below table value standard levels for all constituents would substantially increase monitoring costs for the state and the public. Moreover, the Commission believes that the “zero” assumption is fair, so long as it is applied consistently throughout the water quality regulatory system. Use of zeros in the water quality designation or standard-setting process may marginally err in the direction of increased protection. However, when zeros are used in applying standards to specific dischargers, those dischargers benefit by the assumption that there is more assimilative capacity available in the stream (allowing higher levels of pollutants to be discharged) since the existing pollution is considered to be zero rather than some level between zero and the detection limit.

A second recurring issue addressed for multiple segments in this hearing is the appropriate basis for recreation class 1 classifications. The Commission generally has declined to change the recreation classification from class 2 to class 1 unless there was evidence submitted that class 1 uses were present or likely for the waters in question. Unless the use is present or likely, application of use-protection-based water quality standards does not appear appropriate. At the same time, the Commission notes that this approach does not diminish application of antidegradation protection requirements for high quality waters. Where the existing quality is adequate, a high quality 2 designation has been established, requiring antidegradation requirements to be met before any degradation is allowed, even though the recreation classification is class 2.

A related issue is the determination of which uses warrant the class 1 recreation classification. The recreation classification definition in section 3.1.13 (1) (a) (i) of the Basic Standards and Methodologies for Surface Water refers to “activities when the ingestion of small quantities of water is likely to occur,” and states that “such waters include but are not limited to those used for swimming.” In the past the Commission often has applied the class 1 classification only when swimming occurs, and not where other recreational uses that may result in ingestion of small quantities of water occur. The Commission now believes it is appropriate for the class 1 classification also to be applied for uses such as rafting, kayaking, and water skiing. The Commission has continued its approach to recreation classifications applied in the last three basin-specific hearings (Gunnison, Lower Colorado, Upper Colorado), for the reasons articulated at length in those proceedings.

B. <u>Aquatic Life Class 1 with Table Values added; New High Quality 2 Designations</u>

South Platte River segments 3, 4, 5b and 6
Bear Creek segment 1a

Clear Creek segments 1, 3a and 4
Boulder Creek segment 4a

Numerical standards for metals for these segments have in most instances been based on table values contained in Table III of the previous Basic Standards and Methodologies for Surface Water. Table III has been substantially revised, effective September 30, 1988. From the information available, it appears that the existing quality of these segments meets or exceeds the quality specified by the revised criteria in Table III, and new acute and chronic table value standards based thereon have therefore been proposed. There are also some of these segments whose previous standards were based in part on ambient quality, since their quality did not meet old table values based on alkalinity ranges. However, these segments generally have much higher hardness than alkalinity, and the new table values (based on hardness-dependent equations) are now appropriate as standards. The one exception is Clear Creek segment 3a, for which an ambient quality-based lead standard has been adopted.

A High Quality 2 designation has been established for each of these segments. The best available information in each case indicates that the existing quality for dissolved oxygen, pH, fecal coliform, cadmium, copper, iron, lead, manganese, mercury, selenium, silver and zinc is better than that specified in Tables I, II, and III of the Basic Standards and Methodologies for Surface Water, for the protection of aquatic life class 1 and their existing recreation classification. The Commission notes that a stipulation has been agreed to by the Water Quality Control Division and the Chatfield Basin Association, addressing antidegradation reviews for discharges affecting phosphorus concentrations in the South Platte segment 6.

C. Aquatic Life Class 1, Retaining Tables Values; New High Quality 2 Designations

South Platte River segments 1a, 2a, 8, 10b, 12, and 13
Bear Creek segments 3 and 6
Clear Creek segment 6
Boulder Creek segment 3
Big Thompson River segments 7 and 12
Cache la Poudre River segments 3, 4, 6, and 15
Laramie River segment 2
Republican River segment 2

Table values contained in Table III of the Basic Standards and Methodologies for Surface Water, effective September 30, 1988 have already been adopted for these segments. High quality 2 designation is adopted for each of these segments based on their cold water class 1 aquatic life or warm water class 1 aquatic life and recreation class 1 classifications, and based on available water quality data.

Big Thompson segment 12 has been resegmented, to place several lakes that were in this segment into a new segment 14. The waters remaining in segment 12 have been reclassified recreation class 1, due to the presence of water skiing.

With respect to Cache La Poudre segment 6, it is the Commission's intention to endorse the position of the Division, that because the inlet to Halligan Reservoir changes, the segment boundary also changes. In the event that Halligan Reservoir is expanded, it is the Commission's intention that the expanded portion of the reservoir will assume the designations, classifications and standards of the existing reservoir, and that antidegradation review would not be required for the expansion under existing regulations.

The Commission designated Cache La Poudre segment 3 as high quality 2 because water quality samples taken from the Division station in the uppermost reaches of segment 10, just below the boundary of segment 3, indicate that the existing quality for all 12 parameters is better than the relevant table values. The Northern District opposed designating segment 3 as high quality 2,

principally because of its concern that such designation may adversely affect the development and use of its water rights. The Northern District expressed particular concern that this designation could be applied in a manner that would prevent or seriously impede the development of its proposed Poudre Project. The Commission does not believe that the mere designation of a segment as high quality 2 adversely affects water rights, and it points out that section 25-8-104 of the State Water Quality Act would prohibit the application of the high quality 2 designation in a manner that would supersede, abrogate, impair, or cause material injury to the exercise of water rights, including the Northern District's development of the Poudre Project.

Two parties supported resegmenting segment 3 so that it corresponds with the boundaries of the Poudre River designated a scenic river under the federal Wild and Scenic Rivers Act. NFRWQPA supported creating a new segment out of the leftover downstream portion of segment 3, between the boundary of the Wild and Scenic Rivers designation to the Monroe Gravity Canal, and the Northern District recommended including this remaining portion of segment 3 in the upper portion of segment 10. The Commission determined that resegmenting to create a new segment was unnecessary because the standards and classifications for the newly created segment would remain the same as that for the resegmented segment 3, and the water quality data supported designating the entire existing segment 3 as high quality 2. Including the lower portion of segment 3 into segment 10 was rejected because it raised problems with downgrading, as segment 10 is classified as class 2 aquatic life, whereas segment 3 is classified as class 1 aquatic life.

D. <u>Existing High Quality 1 or 2 Segments; New Classifications and Standards</u>

South Platte River segments 1b and 9
Bear Creek segment 7
Clear Creek segment 19
Boulder Creek segment 1
St. Vrain Creek segment 1
Big Thompson segment 1
Cache la Poudre River segment 1
Laramie River segment 1

Except for Cache La Poudre segment 1 and Laramie River segment 1, these segments were already described as High Quality Class 2, and available information indicates that the parallel new High Quality 2 designation continues to be appropriate for each. All are within wilderness areas. In addition, the following use classifications, and associated table value standards, are proposed for these segments:

Recreation - Class 2
Cold Water Aquatic Life - Class 1
Water Supply
Agriculture

These classifications and standards are appropriate based on the best available information regarding existing quality. These provisions would apply in the event that degradation is determined to be necessary following an activity-specific antidegradation review.

Cache la Poudre segment 1 and Laramie River segment 1 were already described as High Quality Class 1, and available information indicates that the parallel new High Quality 1 designation continues to be appropriate for each.

E. <u>New Use-Protected Designations; No Change in Numeric Standards</u>

South Platte River segments 5c, 7a, 7b, 10a, 11a, 16, and 17a
Cherry Creek segments 1 and 4
Clear Creek segments 8, 11, 12, 16, 17, and 18b
Big Dry Creek segments 1, 4, and 5
Boulder Creek segments 4c, 4d, 5, 7b, 8, and 11
St. Vrain Creek segment 6
Middle South Platte segment 3
Big Thompson River segments 4, 5, 6, 10, and 13
Cache la Poudre River segments 8, 12, 13, and 16
Lower South Platte River segments 2 and 3
Republican River segments 1, 6, and 7

Except for Clear Creek segment 11 and Lower South Platte segment 3, these segments all qualify for a use-protected designation based on their present classifications. All except Big Thompson segment 13, which is classified only for water supply, are aquatic class 2 streams, or warm water aquatic class 1 streams with a class 2 recreation classification. Existing standards are recommended because these segments have only a minimal number of standards, with no metal or nutrient standards, table value standards have already been adopted, or there is insufficient data to recommend dissolved standards.

Clear Creek segment 11 is designated use-protected because it has three parameters that exceed table values. In addition, a typographical error has been corrected, to reflect the Commission's earlier decision for this segment to be recreation class 1. Lower South Platte segment 3 is designated use-protected because it is identified in the section 305(b) report as eutrophic.

Clear Creek segment 17 is one aquatic class 2 segment for which the Commission has adopted additional organic chemical standards based on water and fish ingestion criteria, because it supports fishing in its upper headwaters in Golden Gate State Park and in its lower reach including Arvada Reservoir. The Commission rejected a proposal to adopt these organics standards for Upper South Platte segment 16. The Commission encourages the Division to work with the Division of Wildlife and develop information prior ro the next triennial review as to which of these waters are in fact used for fishing.

The Commission has resegmented Clear Creek segment 18 and Big Dry Creek segment 1, to distinguish those waters that do and do not impact the Standley Lake water supply. New Clear Creek segment 18a and Big Dry Creek segment 6 have had a water supply classification and corresponding standards added.

No changes have been made in the standards for Big Dry Creek segments 4 and 5, located on and near the Rocky Flats Plant. Because the additional organics standards have been added to section 3.8.5(2), the formatting of the standards for these two segments has changed.

F. <u>New Use-Protected Designations; Revised Numeric Standards</u>

South Platte River segments 2b, 2c, 11b, and 15
Bear Creek segments 1b, 2, 4a, and 5
Cherry Creek segment 3
Clear Creek segments 5, 7, 13, 15, and 18a
Big Dry Creek segment 6
Boulder Creek segments 6, 7a, and 10
St. Vrain Creel segments 3 and 5
Middle South Platte segments 1 and 4
Big Thompson River segments 3 and 9
Cache la Poudre 7, 10, and 11

Lower South Platte River segment 1
Republican River segment 5

Except for Clear Creek segment 5, all of these segments are aquatic life class 2 streams with numeric standards to protect the existing aquatic life, or warm water aquatic class 1 streams with a class 2 recreation classification. Clear Creek segment 5 has three parameters that exceed table values. Numerical standards for metals have in most instances been based on table values contained in Table III of the previous Basic Standards and Methodologies for Surface Water. Table III has been substantially revised, effective September 30, 1988. Except as indicated below, from the information available, it appears that the existing quality of these segments meets or exceeds the quality specified by the revised criteria in Table III, and new acute and chronic table value standards based thereon have been adopted. There are also some of these segments whose previous standards were based in part on ambient quality, since their quality did not meet old table values based on alkalinity ranges. However, these segments generally have much higher hardness than alkalinity, and the new table values (based on hardness-dependent equations) are now appropriate as standards.

For Clear Creek segment 13, ambient quality-based standards have been adopted for copper, iron and zinc. For Lower South Platte segment 1, an ambient quality-based standard for iron has been adopted.

As noted above water supply classifications and corresponding standards have been adopted for new Clear Creek segment 18a and Big Dry Creek segment 6. Big Dry Creek segment 6 constitutes waters of the state, and does carry water into Standley Lake, which serves as a water supply for a large metropolitan area. Although opponents of the classification argued that Big Dry Creek segment 6 is a ditch, the Commission agreed with the proponents of the classification that it is a stream.

Middle South Platte segments 1 and 2 have been combined, since the classifications and standards are the same for both segments. Bear Creek segments 1b, 4a, and 5, Middle South Platte segment 4, Big Thompson segment 3, and Cache la Poudre segments 7 and 10, are additional aquatic life class 2 segments to which the Commission has applied the additional organics standards for water and fish ingestion, due to the presence of fishing.

<u>Clear Creek segments 5 and 7</u>

Segment 5, West Clear Creek, has 85th percentile concentrations that exceed table value standards for cadmium, manganese and zinc. Metal loads to this segment are affected by Woods Creek. Point source controls are expected to be implemented at the Urad facility by July, 1993 which discharges into Woods Creek. It is expected that these point source controls will improve water quality in both Woods Creek and the West Fork of Clear Creek below Woods Creek. Therefore temporary modifications are adopted until July 8, 1993 in order to implement the point source controls and to conduct studies for development of site specific criteria based standards which may replace some table value standards adopted at this time. It is expected that such site specific standards will protect the cold water aquatic life class 1 use classification of segment 5.

Segment 7, Woods Creek, is tributary to West Clear Creek and is a significant source of the metals load to West Clear Creek below the confluence with Woods Creek. The Division proposed numeric values based on achieving the proposed underlying standards and temporary modifications in West Clear Creek, by dividing the table value standard (at Woods Creek hardness = 120) for cadmium, manganese and zinc by a factor of 0.7 to account for the proportion of flow in West Clear Creek from Woods Creek. Likewise, proposed temporary modifications for West Clear Creek were divided by 0.7 to derive temporary modifications for Woods Creek. This is a departure from normal procedure due to difficulties in interpreting ambient data for Woods Creek in deciding appropriate underlying standards at this time. As

stated above, it is expected that point source controls will be implemented at the Urad facility by July, 1993 which will improve water quality in Woods Creek. Therefore, temporary modifications and underlying standards are adopted in segment 7 until July 8, 1993 in order to implement the point source controls and to conduct studies for development of site specific criteria based standards. The objective of these site specific criteria based standards for segment 7 will be to protect the cold water aquatic life class 1 use classification of segment 5. An example of an approach that will be considered was included in the written testimony of Climax Molybdenum Company. The Commission agrees that the standards for segment 5 and 7 will be reviewed prior to the next triennial review if it is presented with a proposal to modify the standards.

Upper South Platte segment 15

Revised one-day average standards for dissolved oxygen, and revised dissolved manganese and total residual chlorine standards have been adopted for this segment. The dissolved manganese standard is based on the 85th percentile concentration of the ambient data. The total residual chlorine standards are based on EPA's Ambient Quality Criteria for Chlorine - 1984 (EPA 440/5-84-030).

The dissolved oxygen standards are the same as those that are currently in effect for segment 15. These standards were adopted by the Commission in 1986 for segment 15 to protect its warm water aquatic life class 2 use and have not been achieved in the past. The Commission previously recognized the limitations of the segment in applying an unionized ammonia standard of 0.1 mg/L. In November 1990 the Metro District placed into operation nitrification/denitrification facilities which remove ammonia from about one-half of the Metro District's effluent. The capital cost of these facilities was over $50 million and annual O & M costs are over $2 million. These nitrification facilities are expected to improve the water quality in-stream for both un-ionized ammonia and dissolved oxygen. There is uncertainty about whether the new facilities will result in the segment meeting the current standards or whether additional nitrification facilities are necessary. A study performed for the Metro District on nitrification of the remainder of its effluent indicated that such facilities could cost between $70 million and $112 million with annual O & M costs of $2.2 to $4.7 million.

Continuing the current dissolved oxygen standards is appropriate to allow time to determine the level of water quality improvements which will be provided by the facilities that recently were placed into operation, to determine the alternatives which would be most effective if the standards are not met with the existing treatment facilities, and to develop information to develop scientific evidence on which to base site specific standards. It is not the Commission's intention to require the Metro District to construct additional nitrification/denitrification facilities before the above activities are accomplished.

During the period between now and the next triennial review, the Metro District has agreed to work with the Division and with EPA on: 1) the development of additional information on the location and extent of any instream dissolved oxygen problems; 2) studies to form a basis for acute and chronic site-specific standards for segment 15; and 3) determining the best methods of insuring that segment 15 supports its designated uses.

By readopting the current standards, the Commission has determined that these standards for segment 15 should be extended for three years. It is the intent of the Commission to reevaluate these standards during the next triennial review and to revise these standard if necessary. It is the Commission's intention that these standards continue to be applied as minimum 1-day means in conformance with the Division's established modeling procedures.

G. No Change in Classification; Revised Numeric Standards; No Designations

Clear Creek segments 2 and 10
St. Vrain Creek segment 4
Big Thompson segment 2

These are waterbodies whose classifications are appropriate for HQ2 designation (CW1 or WW1 and Rec 1) but had quality not suitable for a water supply classification or 85th percentile values of one or two parameters exceeding the criteria for class 1 aquatic life. Table value standards are adopted except for an ambient quality-based zinc standard for Clear Creek segment 2.

H. Changes in Classification; Revised Numeric Standards; No Designations

South Platte River segment 14 and 17b

These segments are waters used for recreational activities that include whole body contact. Therefore, the Commission has upgraded their recreation classification from class 2 to class 1. For segment 14, the class 1 classification has a seasonal qualifier so that it applies only from April through October, to reflect the period during which this use occurs.

I. Aquatic Life Class 2; New High Quality 2 Designations

Bear Creek segments 4b and 4c, Swede Gulch, are aquatic life class 2 cold water segments for which table value standards had already been adopted. After reopening the hearing on June 4, 1991 to receive additional testimony regarding these segments, the Commission decided to designate them high quality 2, since data shows that existing quality is better than table values for each of the parameters in question. In addition, the additional organics standards for fish and water ingestion were adopted due to the presence of fishing on these segments.

J. No Changes in Classifications or Standards; No Change in Designations

South Platte River segment 5a and 17c
Cherry Creek segment 2
Bear Creek segment 1c
Clear Creek segments 3b, 9, and 14
Big Dry Creek segments 2 and 3
Boulder Creek segments 2, 4b, 9 and 12
St. Vrain Creek segment 2
Big Thompson segments 8, 11, and 14
Cache la Poudre River segments 2, 9, and 14
Republican River segments 3 and 4

Bear Creek segment 1c is Bear Creek Reservoir for which a separate rule making hearing is scheduled for May, 1992. For the remainder of these segments, the Commission does not believe that the available information warrants changes in their classifications, standards, or designations at this time. The one exception to this is that for those segments that are aquatic life class 1, the Commission has adopted the additional organics standards for water and fish ingestion, as it has done throughout the basin.

The Commission notes that a stipulation has been agreed to by the Water Quality Control Division and the Cherry Creek Basin Water Quality Authority addressing antidegradation reviews for discharges affecting phosphorus concentrations in Cherry Creek segment 2, Cherry Creek Reservoir. That stipulation forms a part of the basis for leaving Cherry Creek Reservoir undesignated. The Commission also notes that a stipulation was entered into between the Division and Coors, with respect to Clear Creek segment 14.

Parties to the March, 1991 Hearing

1. City of Westminster
2. Metro Wastewater Reclamation District
3. Noth Front Range Water Quality Planning Association
4. Centennial Water & Sanitation
5. Chatfield Basin Authority
6. Jefferson Center Metropolitan District No. 1
7. City of Northglenn
8. Farmers' High Line Canal and Reservoir Company
9. Jackson Lake Reservoir and Irrigation Company
10. Northern Colorado Water Conservancy District and Municipal Subdistrict, Northern Water Conservancy District
11. Allenspark Water & Sanitation District & St. Vrain & Left Hand Water Conservancy District
12. City of Broomfield
13. Climax Mlybdenum Co.
14. City of Ft. Collins
15. Kodak Colorado Division
16. Hendricks Mining Co.
17. Division of Wildlife
18. City of Arvada
19. Agricultural Ditch and Reservoir Company
20. Adolph Coors Company
21. Farmers Reservoir & Irrigation
22. Martin Marietta Corporation
23. Littleton/Englewood Bi-City
24. City of Longmont
25. Cherry Creek Basin Water

38.34 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; JANUARY, 1992 HEARING ON SEVERAL SEGMENTS:

The provisions of 25-8-202(1) (a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402 C.R.S. 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:

1. Acute Ammonia Standards

The adoption of the acute un-ionized ammonia equations as standards for cold water and warm water aquatic life segments which have existing chronic un-ionized standards should provide a more accurate method for protecting these segments from short term water quality impacts due to ammonia. The Commission also believes this is consistent with its approach in other basins of adopting both acute and chronic standards for parameters (e.g. metals) for which acute and chronic criteria have been established in the Basic Standards. It will also bring a consistency to the application of un-ionized ammonia standards in the South Platte Basin itself, where in earlier hearings the Commission established both acute and chronic standards for un-ionized ammonia on six segments.

2. Mercury Standards

The designation of the total form of mercury as appropriate for the final residual value (FRV) mercury standards is consistent with a recent change to the Basic Standards. The Commission has determined that total mercury is the appropriate form to be regulated in water bodies where bioaccumulation of methyl-mercury in edible fish tissue could pose a risk to human health. The acute and chronic aquatic life mercury standards will continue to be applied as dissolved mercury

on those segments for which site-specific justification was made for their use in lieu of the FRV standard.

3. Chronic Un-ionized Ammonia Standards

The Commission agreed to change the table listing for all coldwater aquatic life segments for the chronic un-ionized ammonia standards listed as NH3 (ch)=TVS to read NH3 (ch)=0.02, for clarification and consistency with the way that the warmwater segments list the un-ionized ammonia standard. There is no change to the numeric standard for any segment with this action.

4. Segment 7b Temporary Modification

The Commission has agreed to extend the existing temporary modification for segment 7b of the Upper South Platte Basin, with a new expiration date of April 30, 1994. Martin Marietta Astronautics Group has been approached by the Colorado Department of Parks with a proposal to direct its treated wastewater effluent to a new wetlands to be constructed on Chatfield State Recreation Area property. Martin Marietta Astronautics Group, the Colorado Department of Parks, the Colorado Department of Health and several other organizations and agencies have met regularly over the past year in an effort to determine the feasibility of the project. There are several remaining issues to be addressed and resolved prior to construction. The currently proposed construction schedule for the wetlands does not support the April, 1992 deadline currently dictated by the regulations. The extension of the deadline is required in order to allow the wetlands project to proceed.

New regulations dealing with water quality standards in wetlands are being proposed. These new regulations may have an impact on the participation of Martin Marietta in the wetlands project. Martin Marietta needs additional time to evaluate the proposed new standards for impact to the wetland project.

Martin Marietta has been closely monitoring the sulfate levels in its treated effluent and the levels in the ground water withdrawal point (the five-sided well). Over the course of the monitoring period, sulfate levels in the ground water have remained unchanged, while sulfate levels in the effluent have shown a decrease of approximately 100 mg/l. The continued discharge of sulfate at the current levels is not expected to impact the ground water quality as existing trends have shown.

PARTIES TO THE PROCEEDINGS
OF THE PUBLIC RULEMAKING HEARING
JANUARY 6, 1992

1. Martin Marietta Astronautics Group
2. Division of Wildlife
3. North Front Range Water Quality Planning Association
4. The City of Fort Collins
5. Kodak Colorado Division

38.35 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; MAY 5, 1992 HEARING ON SEGMENTS 4c AND 4d OF BOULDER CREEK (COWDREY DRAINAGE) SOUTH PLATTE RIVER BASIN, 3.8.0 (5 CCR 1002-8)

The provisions of 25-8-202(1) (a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402 C.R.S. 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:

The City of Boulder (the "City") the Landfill, Inc. ("LI"), entered into a Consent Decree with the United States Environmental Protection Agency ("EPA") to implement the final remedy at the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA" or "Superfund") site known as the Marshall/Boulder Landfill (the "Landfill"). The final remedy was selected by EPA in the 1986 Record of Decision ("ROD") and includes the construction of a ground water collection system and treatment plant which will collect and treat contaminated ground water at the Landfill and discharge the treated ground water to Cowdrey drainage.

The chemicals of concern identified in the ROD include volatile and non-volatile organic chemicals which are being treated using carbon absorption treatment technologies. The final remedy also requires the reduction of metals in the influent to the treatment plant through the use of chemical precipitation processes. Neither of these treatment processes are designed for, or capable of, removing chloride from the influent.

Based on the 250 mg/l chloride water quality standard previously established by the Commission on Segments 4c and 4d of Cowdrey drainage, the EPA determined that the effluent limitation for the treatment plant for chloride would also be 250 mg/l. EPA determined that the 250 mg/l effluent limitation would be identical to the water quality standard since there are times of the year during which the discharge from the treatment plant to Cowdrey drainage would constitute the only flow in the intermittent stream. However, the upper bound estimate of the concentration of chloride in the effluent from the currently planned treatment is approximately 320 mg/l. Reopening the ROD and redesigning the treatment facility to remove chloride to concentrations below 250 mg/l would significantly increase the current capital and operational maintenance costs of the final remedy and would substantially delay implementation of the final remedy without a clear corresponding benefit to human health or the environment.

The 250 mg/l water quality standard for chloride was established on Cowdrey drainage based on the federal secondary drinking water standard for chloride. The secondary standard is a guideline which is recommended to public water system suppliers by the State and federal governments and is not enforceable against water suppliers under either federal or state law. The secondary standard is a recommended guideline because of taste or other aesthetic considerations but there is no evidence of human health effects at 250 mg/l.

These temporary modifications meet the criteria in Section 3.1.7(3)(a) of the Commission regulations. Human induced conditions exist which are correctable within a twenty year period, but a period of years will be required to implement the measures necessary to achieve compliance with the underlying standard. The elevated nitrate and nitrite levels are due to past human activities which a combination of human efforts in source control and natural processes will reduce or remove. If ground water contamination plume controls necessary to meet the underlying nitrate/nitrite standards are operated during the period of Site cleanup, resources may have to be diverted from the highest risk problems now facing the Site to fund that operation. Moreover, the most cost-effective use of resources to address the nitrate/nitrite contamination would be containment and closure of the source, as described further below.

Rocky Flats is implementing cleanup activities that will ultimately reduce nitrate and nitrite levels in ground water and loadings to surface water. The solar evaporation ponds were identified as the source area In the City and LI's request to revise the water quality standard for chloride to 320 mg/l, the City and LI demonstrated that the 320 mg/l standard is protective of all existing uses on Segments 4c and 4d. Based on the information provided to the Commission, the 320 mg/l standard was determined to be protective of the water supply use classification in that the federal secondary chloride standard will be met at the current points of use. Furthermore, the Commission determined that the 320 mg/l water quality standard is protective of aquatic life since EPA's Water Quality Criteria Document for Chloride (1988) indicates there are no adverse effects from chloride to the most sensitive aquatic life species identified in the aquatic life survey of Cowdrey drainage.

The Commission expressly determined that this modification of the water quality standard for chloride is appropriate considering: 1) that there are no current drinking water or aquatic life effects associated with

the standard adopted for these segments; 2) the substantial costs and delays associated with modifying the treatment facility at the Marshall/Boulder Landfill to treat for chloride; and 3) that this is a CERCLA remedy being implemented at the Landfill designed to remediate the potential human health and environmental impacts in the area and therefore, there is a net beneficial effect to the environment in general and water quality in Cowdrey drainage as a result of implementation of this remedy.

The Commission also has taken this action based on its understanding that the City and LI have agreed with EPA to conduct monitoring to confirm that chloride levels do not exceed 250 mg/l at the point of any current or potential water supply intakes or cause an exceedance of the 250 mg/l chloride standard in any waters receiving discharge from Cowdrey drainage. The Commission can reassess the water quality standards for segments 4c and 4d, including the 320 mg/l standard at a subsequent triennial review at which time the Commission may consider whether the water quality standards continue to be protective of the classified uses on these segments.

The Commission has retained the water supply classifications for these segments to help assure protection of possible future uses, as well as current downstream uses. The Commission's actions should not be interpreted as indicating that a number different than 250 mg/l is appropriate for the protection of actual water supply uses, or that transferring a treatment burden to water suppliers would be acceptable. Such tradeoffs may need to be considered with respect to Superfund cleanups in the future, but the issue is not presented by the facts of this situation.

PARTIES TO THE RULEMAKING HEARING
MAY 5, 1992

1. Landfill, Inc. and the City of Boulder
2. Division of Wildlife

38.36 STATEMENT OF BASIS , SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; MAY 4, 1992 HEARING ON SEGMENT 1c OF BEAR CREEK:

Basis and Purpose: Classifications, Standards, and Water Quality-based Designation:

In deciding the appropriate use classifications and standards the Commission relied on data presented in the Bear Creek Reservoir Clean Lakes Study, conducted by the Denver Regional Council of Governments (DRCOG) in 1990, on data collected by the Jefferson County Mountain Water Quality Association and the city of Lakewood on Water Quality Studies conducted by the Division in 1987, and on water quality data collected by the U.S. Army Corps of Engineers from 1979 through 1991.

Bear Creek Reservoir currently supports recreational uses such as small boating and fishing. Although swimming is not now allowed by the City of Lakewood, this use has occurred in the past and has the potential for occurring as part of future recreational activities at the Bear Creek Park. According to data collected by the Division, DRCOG, the Jefferson County Mountain Water Quality Association and City of Lakewood, the fecal coliform standard of 200 per 100/ml was consistently met in the reservoir. The Commission determined that based on these factors, the Recreation Class 1 is the appropriate classification for segment 1c and that the Goal Qualifier be deleted.

Information collected by the Division, DRCOG, Jefferson County Mountain Water Quality Association and city of Lakewood shows that the Aquatic Life Class 1 Cold Water use is substantially impaired during summer months because of low dissolved oxygen concentrations. This condition is correctable, and otherwise, the reservoir's physical habitat and water levels are currently capable of sustaining class 1 aquatic life. The Commission has thus retained the existing classification.

The Commission decided to retain the existing undesignated status of the water quality-based designations. In deciding this, the Commission considered the twelve key parameter test and other criteria.

For the key parameter test, ambient water quality data collected by the various agencies previously mentioned was compared to table values for all 12 of the key parameters for water quality-based designations. Due to the very limited amount of dissolved metals data, total metals data was used in the comparison for those metals specified as dissolved in the Basic Standards. It was assumed for these metals that if ambient total metals did not exceed the table values, then the dissolved fraction would therefore also not exceed the table values. The 50th percentile of the U.S. Army Corps of Engineers data was compared to the table values at an average reservoir hardness of 75 mg/liter.

Dissolved oxygen and possibly lead were the two parameters whose quality was worse than table value criteria. Dissolved oxygen concentrations frequently were less than the 6 mg/liter standard in the upper mixed layers (epilimnion and metalimnion) during periods of summer stratification in July, August, and September. The Division believes that if total recoverable or dissolved data were available, that lead would meet table values. Support for this claim comes from Division data collected on seven dates in 1987 which indicate that the 50th percentile would be less than the 5 ug/liter detection limit. By comparison the lowest Army Corps of Engineers lead data for the three collections in 1987 was 135 ug/liter. Thus based on the key parameter test, the reservoir could be designated HQ2. However, the Commission decided that due to the advanced degree of eutrophication the reservoir does not warrant a HQ2 designation at this time, but rather is best left undesignated.

Basic and Purpose: Narrative Phosphorus Standard:

The purpose of the narrative water quality standard for phosphorus is to restore and protect the classified beneficial uses of Bear Creek Reservoir, through improvement in trophic state by limiting concentrations of total phosphorus to the extent necessary to prevent excessive algal growth. This standard is intended to operate in conjunction with the Bear Creek Basin Control Regulation, which is being adopted concurrently, and will provide for significant reduction in phosphorus loads to the reservoir.

Data collected by the Division in 1987, by DRCOG during the Phase I Clean Lakes Diagnostic/Feasibility study in 1988 and 1989 and data collected during subsequent reservoir and inflow monitoring in 1990 and 1991, documented the water quality in the reservoir was noticeably degraded due to excessive algal production and resultant low dissolved oxygen conditions. Very high levels of nutrients including total phosphorus were measured. The reservoir trophic state was classified as hypertrophic to eutrophic. Blooms of undesirable blue-green algae were frequent, and were often dominated by species such as Aphanizomenon. Average growing season chlorophyll-a was 19 ug/liter with maximum values exceeding 90 ug/liter. Average secchi depth transparency was 1.7 meters. During summer stratification, the concentrations of dissolved oxygen were near zero throughout the entire hypolimnion layer (bottom unmixed layer of water ranging from 6 to 14 meters deep) and was frequently less than 6 mg/liter in the metalimnion. This eliminated most of the cold water habitat for trout in the reservoir during the months of July, August, and September.

The Commission determined that in order to improve the poor water quality and the resultant impacts on the beneficial uses and aesthetics, that the current trophic condition of hypertrophic to eutrophic will need to be improved. The Commission established that a reasonable goal for improvement is to shift the trophic condition to a range of mesotrophic to eutrophic. This desired condition would place Bear Creek Reservoir in a trophic state similar to those found in other important recreational reservoirs in the Denver-Metro region, such as Chatfield Reservoir which is classified as mildly eutrophic to mesotrophic (Figure 17, Pg. 117 in Bear Creek Reservoir Clean Lakes Study).

Because the focus of this narrative standard is improvement in trophic condition, it is important to establish the basis for trophic classification. Trophic state is a classification based on nutrient status and level of biological productivity. Lakes with few available nutrients and a low level of biological productivity are termed oligotrophic; those with high nutrient levels and a high level of productivity are termed eurotrophic. Those lakes between oligotrophic and eutrophoic are termed mesotrophic. Lakes in advanced eutrophy are termed hypertrophic. These terms are descriptive and are not exact. The system used in the Bear Creek Reservoir Clean Lakes Study (Figures 9 and 10, Pg. 88 and 89) provides for open

boundaries between categories, thus allowing for overlap in classification based on a probability of being classified into a particular category by a large number of limnologists.

Common indicators of nutrient status and productivity include water transparency, as measured by secchi depth; the amount of algae as measured by average and peak chlorophyll-a concentrations; and nutrient status as measured by average lake phosphorus concentration. Traditionally the average concentration of chlorophyll-a has been selected by the Commission as the indicator of lake condition. For Bear Creek Reservoir, however, peak algal biomass (chlorophyll-a) was selected as the most important of these indicators upon which to assess trophic response, because algae blooms are most often associated with impaired uses. To achieve the goal of change in trophic status, a 16 percent reduction in the frequency of nuisance algal blooms during the growing season would need to be achieved, as well as a reduction in frequency and magnitude of the peak chlorophyll-a concentrations.

Available scientific evidence indicates that, in general, the amount of algae is directly related to the concentration of nutrients, in particular total phosphorus. Experience in lake and reservoir restoration around the country during the past two decades has shown that control and limitation of phosphorus supply remains one of the most effective means of controlling eutrophication. In order to achieve a change in trophic status through reduction in algae growth there will, therefore, have to be a substantial reduction in total phosphorus concentration in the reservoir. The phase I study indicates that phosphorus concentrations in the reservoir averaged 111 ug/liter during the growing season. Water quality models predict a 16 percent reduction in frequency of blooms will require a 70% reduction in external phosphorus loading to the reservoir. There would also need to be concomitant in-lake treatment to reduce internal loading and to improve hypolimnion dissolved oxygen concentrations.

Because of the advanced state of eutrophication in Bear Creek Reservoir and the goal to improve degraded conditions, the normal approach of setting a fixed numeric in-lake phosphorus standard was not followed. In other Colorado reservoirs, ambient based phosphorus standards were adopted by the Commission to maintain the existing ambient chlorophyll-a levels and thereby maintain the existing trophic conditions. The narrative standard approach is used here as an alternative that provides flexibility in establishing phosphorus controls in the watershed. This flexibility is needed due to the uncertainty in predicting the specific in-lake phosphorus concentrations required to achieve the clean-up goal and in predicting the reservoir response to algae growth from nutrient reductions. The Commission believes that because of this more flexible approach that substantial monitoring of lake inflow and lake conditions will be required to track the success of reducing phosphorus loading to the reservoir, to make adjustments in point and non-point control strategies, and to document shifts in reservoir trophic state. The Commission intends that the standard be periodically evaluated at triennial reviews.

PARTIES TO THE RULEMAKING HEARING
MAY 4, 1992

1. Jefferson County Mountain Water Quality Association
2. Jefferson County
3. Denver Regional Council of Governments
4. Nicole & Charles Moody and Family
5. The City of Lakewood

38.37 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; NOVEMBER 2, 1992:

The provisions of 25-8-202, 25-8-204, 25-8-207 and 25-8-402 C.R.S., provide the specific statutory authority for adoption of these regulatory amendments. The Commission also adopted, in compliance with 25-4-103 (4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

Segment 5, West Clear Creek:

The cadmium value of 2.9 ug/l for the temporary modifications is based on the Division's proposal at the hearing. The manganese equation for the temporary modifications is based on the Climax hearing proposal which was based on toxicity tests using fathead minnows and ceriodaphnia dubia at four different hardness levels. The Radium 226 and 228 value of 10 piC/L (total recoverable) is based on a stipulation between the parties. It is to be measured at U-1 which is 0.3 miles downstream of the confluence of the West Fork of Clear Creek with Woods Creek, with a 60 day delay in reporting results in the discharge monitoring reports. The Commission has adopted this temporary modification in view of the uncertainty of the existing radium standard (e.g., the EPA has proposed a MCL of 20 piC/L each for radium 226 and radium 228 and the commission has scheduled a hearing in February 1994 to consider the statewide radionuclide standards) and because of the significant cost to Climax to meet the existing statewide radium standard. The Commission evaluated the standards for radium 226 of 21 piC/L and radium 228 of 6 piC/L proposed by Climax and considered the potential use of those standards in clean up actions. The Commission believes that further consideration should be given to the standards proposed by Climax in the statewide radionuclide hearing. The chronic zinc value for the temporary modifications is based on the Climax hearing proposal which was based on the recalculation method. The standards and temporary modifications agreed to herein will go into effect on July 9, 1993. The temporary modifications will expire, unless otherwise extended, on July 8, 1996. On July 8, 1996 unless the Commission has promulgated site-specific standards, the acute table value standard for zinc and the statewide standard for radium will be effective.

Segment 7, Woods Creek:

The site-specific criteria based standards for metals adopted for Segment 7 are based on a flow-dependent equation used by the Water Quality Control Division in the Urad and Henderson permits which incorporate the ambient concentration of metals in Segment 5, the acute and chronic flows for Segments 5 and 7, and the water quality standards or temporary modifications applicable in Segment 5. The equation and a description of its components are as follows:

$$WQS_{WC} = ((Q_{WC} + Q_{WFCC}) \times WQS_{WFCC} - (Q_{WFCC} \times C_{WFCC})) / Q_{WC}$$

WQS_{WC}	=	Water Quality Standards for Woods Creek
Q_{WC}	=	Flow for Woods Creek
Q_{WFCC}	=	Flow for West Fork Clear Creek
QS_{WFCC}	=	Water Quality Standards for West Fork Clear Creek
C_{WFCC}	=	Ambient Concentration in West Fork Clear Creek

The temporary modifications adopted by the Commission will lock in water quality improvements made by Climax to date, thus maintaining at least the status quo stream water quality, will ensure continued progress toward long-term improvements (the Commission recognizes that Climax is in the process of installing a water treatment plant at the Urad site which will be operational by July 1, 1993) and will provide further opportunity for the establishment of site-specific water quality standards. During the next three years, Climax will continue to monitor ambient chemical quality on Segments 5 and 7 and the aquatic community on Segment 5. In addition Climax will participate in the Clear Creek Watershed Initiative as well as the parties to this rulemaking with the objective of determining whether site-specific standards are appropriate. Methods used to develop site-specific standards shall be established with the participation of the Water Quality Control Division and the parties and shall consider designated downstream uses.

PARTIES TO THE NOVEMBER 2, 1992
RULEMAKING HEARING

1. Climax Molybdenum Company
2. City of Arvada
3. Division of Wildlife

4. Hazardous Materials & Waste Management Division, Colorado Department of Health
5. City of Westminster

38.38 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; OCTOBER 5, 1992 HEARING REGARDING SEGMENTS 2, 3, 4, AND 5 OF BIG DRY CREEK

The provisions of Colo. Rev. Stat. sections 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402 (1989 Repel. Vol. 11A & 1992 Supp.) provide the specific statutory authority for adoption of these regulatory amendments. The Commission also adopted, in compliance with Colo. Rev. Stat. section 24-4-103(4) (1988 Repel. Vol. 10A & 1992 Supp.), the following statement of basis and purpose.

BASIS AND PURPOSE

A. Beryllium Standard Applicable to Segments 2, 3, 4, and 5 of Big Dry Creek.

Because of the presence of beryllium at the Rocky Flats Plant, the Commission has determined that a site-specific beryllium standard should be added to Big Dry Creek segments 2 through 5, to further assure protection of the downstream water supplies that rely on Standley Lake and Great Western Reservoir. Adoption of the beryllium standard for segments 2 and 3 (not on the Rocky Flats site) as well as for segments 4 and 5, is consistent with the Commission's approach to the adoption of other numerical standards for these segments.

Subsequent to the last revisions to the South Platte Basin water quality standards, the Commission adopted a drinking water supply table in Table III of the Basic Standards and Methodologies for Surface Water for beryllium, equal to 0.0076 micrograms per liter (ug/l). 5 CCR 1002-8, section 3.1.16. The 0.0076 ug/l table value was based upon the 1990 IRIS data base cancer risk-based number. However, since the adoption of the Table III value for beryllium, the EPA has reevaluated the data and determined that there is only limited evidence of carcinogenicity via drinking water. Consequently, the EPA has recategorized beryllium as a Category II drinking water contaminant and promulgated a final drinking water rule providing a Maximum Contaminant Level Goal of 4 ug/l. 57 Fed. Reg. 31776, 31778 (July 17, 1992). Based upon the EPA's rationale as described in the federal register, the Commission believes that the 4 ug/l standard will be protective of the beneficial use of drinking water supply and so has adopted it as the water supply standard rather that the Table III value.

B. Readoption of "Table 2 - Site-Specific Radionuclide Standards" Applicable to Segments 2, 3, 4 and 5 of Big Dry Creek.

Following consideration of adoption of revisions to this regulation in January 1992, it was discovered that "Table 2 - Site-Specific Radionuclide Standards" was inadvertently omitted when the regulation, adopted by the Commission in January 1990, was filed with the Secretary of State, so that it did not appear in the official published version of the regulation. To correct this error, the Commission has readopted Table 2 in this proceeding. No substantive changes to the table have been considered or adopted.

C. Revision of Organic Standards and Practical Quantitation Limits Applicable to Segments 2, 3, 4 and 5 of Big Dry Creek.

The Commission has revised the organic standards and practical quantitation limits (PQLs) applicable to segments 2, 3, 4 and 5. These are included in a new subsection 3.8.5(2)(f) as a separate table denoted as Table 1A. This should clarify that the new Table 1A standards are applicable only to segments 2 through 5 of Big Dry Creek and that the presently existing tables in sections 3.8.5(2)(a) and (e) remain applicable to the balance of the South Platte, Laramie, Smoky Hill, and Republican River Basins.

The constituents appearing in Table 1A were chosen from the basin-wide tables in 5 CCR 1002-8, sections 3.8.5(2)(a) and (e) (10-91) and the site-specific Table 1 from 5 CCR 1002-8, section 3.8.5 (3-90). The standards and the PQLs for these constituents are derived from the state-wide tables, if there are state-wide standards and PQLs available. 5 CCR 1002-8, section 3.1.11(3) (10-91). The state-wide standards are adopted as site-specific standards for the limited constituents because they are based upon more current information than the former site-specific and basin-wide standards.

The state-wide standards for the individual organics composing halomethanes (HM) and polynuclear aromatic hydrocarbons (PAH) are adopted as the site-specific standards rather than the basin-wide standard for the group of HM and the pre-existing site-specific standard for the group of PAH. The basin-wide organic standards are adopted as site-specific standards for the organics for which there are no state-wide standards, except as noted. These include parathion, which is a class C carcinogen, and chloromethyl ether (BIS), which remains in the IRIS database since its adoption as a state-wide standard. The basin-wide standards for monohydric phenol, tetracholroethane and trichloroethylene are not adopted as site-specific standards. Monohydric phenol does not appear in the IRIS database and the other two organics appear to be typographical errors; the actual chemicals regulated by site-specific standards are trichloroethane 1,1,2 and tetrachloroethylene. Finally, the Commission retains the site-specific standards for simazine and atrazine because as stated in a previous statement of basis and purpose, these two herbicides are potential carcinogens, and both have been detected in water samples from Rocky Flats.

In July 1991, the Commission adopted PQLs for the state-wide organic chemical standards for use as compliance thresholds in discharge permits. The PQLs associated with the state-wide standards are applicable to segments 2, 3, 4 and 5 of Big Dry Creek in lieu of the basin-wide detection limits listed in 5 CCR 1002-8, section 3.8.5(2)(e). PQLs are detection levels based on the Colorado Department of Health's laboratory's best judgement for Gas Chromatography/Mass Spectrophotometry (GC/MS), except as otherwise noted in the "Basic Standards for Organic Chemicals" table in section 3.1.11. The underlying numeric standards and not the PQLs should be considered protective of water quality uses in segment 5, because detection levels vary from laboratory to laboratory and decrease as laboratory methods improve.

D. Interpretation of the "Free From Toxics" Narrative Standard Applicable to Segments 4 and 5.

In the January 1990 Rocky Flats site-specific hearing, the organics table (Table 1) contained a footnote referencing the narrative standards – "free from toxics" -- found in the Basic Standards Applicable to Surface Waters of the State, 5 CCR 1002-8, section 3.1.11 (1)(d). That section provides, in part:

> ...state surface waters shall be free from substances attributable to human-caused point source or nonpoint source discharge in amounts, concentrations or combinations:
>
> (d) which are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life;...

The footnote was inadvertently deleted when Table 1 was revised and reformatted, becoming the "Additional Organics Standards" table in the March 1991 basin-wide hearing. During the January 1990 rulemaking, the Commission interpreted the "free from toxics" narrative standard as zero due to the inability to predict with certainty all the chemicals of potential concern that were not then subject to numeric standards. Since then, the Commission, in the February 1991 site-specific ground water hearing, adopted an alternative approach with respect to constituents for which there are presently no numeric standards. The Commission is adopting that approach, found in 5 CCR 1002-8, section 5 CCR 1002-8, section 3.12.7(1)(c)(iv), as its interpretation of the surface water "free from toxics" standard in order to maintain consistency in regulation of the site-specific surface and ground waters.

The Commission interprets the surface water "free from toxics" standard found in section 3.1.11(1)(d) as follows with respect to segments 4 and 5 of Big Dry Creek. Where a toxic substance for which no numerical standard has been established is found in a detectable amount, notification shall be given as soon as possible to the operator of the Rocky Flats Plant; the United States Department of Energy; the United States Environmental Protection Agency; the Water Quality Control Division (which will consult as necessary with other components of the Colorado Department of Health); and the Cities of Arvada, Broomfield, Thornton and Westminster. Those entities will meet and attempt to reach a consensus concerning the appropriate numerical level for that substance. If consensus is achieved, the Division shall establish that number as a numerical protection level. Where consensus cannot be reached, the Division will determine the appropriate numerical protection level.

In setting a numerical protection level, the entities listed above will consider the classified uses of surface water segments 4 and 5 that need to be protected and establish the appropriate corresponding numerical protection levels for specific contaminants, based on those classified uses, as outlined in section 3.1.7 of the "Basic Standards and Methodologies for Surface Water." The entities will take into account reasonably available information.

A determination made by these entities or the Division in accordance with the procedure described above will not be deemed to constitute surface water quality standard-setting and will not be applicable outside segments 4 and 5.

If numerical protection levels are established by agreement of the entities, they will jointly petition the Commission for rulemaking to set a standard at the numerical protection level. If the Division establishes a numerical protection level without agreement of all entities, the Division shall ask the Commission to set a standard consistent with the numerical protection level.

If any interested person disagrees with a determination made by the Division in accordance with the procedure described above, it may petition the Commission to adopt a site-specific standard different from the numerical protection level. Any determination made by the Commission during the hearing process would then become binding on the Division, the Department of Energy, and the operator of the Rocky Flats Plant. At the request of the Department of Energy or the operator of the Rocky Flats Plant or an interested person, the Commission will consider such a hearing to be mandatory and de novo.

The footnote which was deleted from Table 1 when it was reformatted as the "Additional Organics Table" is readopted as footnote 1 of Table 1A.

E. <u>Extension of the Goal Qualifier and Temporary Modifications Applicable to Segment 5</u>.

1. Extension of the Temporary Modification for Radionuclides Applicable to Segment 5.

In the January 1990 hearing, the Commission provided that all water quality standards in segment 5 were subject to the temporary modification of "ambient quality" until February 1993. The Commission is extending this temporary modification, with respect to radionuclides only, until December 31, 1994.

The Commission has scheduled a rulemaking hearing for January 1994 to reconsider the current state-wide water quality standards for radionuclides. Following that hearing, the Commission has scheduled a rulemaking hearing for September 1994 to reconsider the site-specific radionuclides standards adopted for waters in the vicinity of the Rocky Flats Plant. In order to preserve the status quo with respect to radionuclide standards pending the outcome of that hearing, the Commission is extending the temporary modification on segment 5 as it applies to radionuclides until December 31, 1994.

2. Extension of Temporary Modification for Nonradionuclides Applicable to Segment 5.

The Commission is granting numeric temporary modifications of water quality standards applicable to segment 5 of Big Dry Creek for nine constituents.

In 1989, the Commission granted a temporary modification of all segment 5 standards of "ambient quality." In doing so, the Commission stated:

> It is recognized that Rocky Flats may not be able to meet the standards immediately and that temporary modifications may be necessary. However, insufficient data presently exists upon which to develop a full set of numerical temporary modifications at this time. It is expected that sufficient data should be generated in the next three years to allow time to collect adequate data for DOE to decide whether to seek numeric temporary modifications for particular parameters. 5 CCR 1002-8, section 3.8.30(3).

The threshold for granting a temporary modification of a standard is that the numeric standard is not being met at the present time. 5 CCR 1002-8, section 3.1.7(3). The data presented by the DOE and EG&G in this hearing indicate that there were only nine constituents for which the 85th percentile data value exceeded the water quality standards.

The Commission is adopting numeric temporary modifications of standards for nine constituents. The temporary modifications are based upon the 85th percentile of the ambient water quality data collected for carbon tetrachloride, tetrachloroethene, trichloroethylene, copper (total recoverable), iron (total recoverable), lead (total recoverable), zinc (total recoverable), manganese (dissolved) and ammonia (unionized).

The Doe and EG&G requested that the Commission should extend the temporary modification of "ambient quality" to all water quality standards in the segment. In support of their request, the DOE and EG&G argues that: segment 5 is used to collect and isolate water before discharge to downstream water supplies; requiring compliance with water quality standards in segment 5 would not result in additional protection to the public; requiring compliance with water quality standards in segment 5 would result in the construction of costly water treatment projects resulting in diversions of funds from the ongoing environmental cleanup at the plant site; and that ambient quality in segment 5 cannot be quantified because no location in segment 5 is representative of the segment. The Doe and EG&G further argued that narrative temporary modifications have not had an adverse effect on water quality in the last three years.

> ... that water is not withdrawn directly from Walnut or Woman Creek for water supply purposes. This classification has been added to these segments because of the Commission's policy determination that it is appropriate to establish an extra layer of protection for the major water supplies in Great Western Reservoir and Standley Lake, particularly considering the proximity upstream of a major industrial, complex utilizing nuclear materials. 5 CCR 1002-8, section 3.8.30(2).

No Proposal was presented to the Commission to remove segment 5 from state waters or to remove any of the classified uses from the segment. The Commission's policy determination to protect the water supply classification for the segment remains unchanged.

To be consistent with the regulation of other entities discharging to state waters, the Commission underscores the underlying water quality standards to be protective of water quality and uses in segment 5. The EPA and CDH have requested that the DOE

implement interim measures consisting of a water quality plan which minimizes the use of the segment 5 instream ponds for treatment. Furthermore, it is the Commission's belief that water quality and use protection levels should be based upon the water quality standards applicable to that segment and not upon any temporary modifications of the standards. The Commission does not believe that its actions will result in increased regulatory costs in order to comply with discharge permit requirements. Where effluent limits are based upon water quality standards, temporary modifications of water quality standards have been granted where the 85th percentile of data for each constituent exceeds the underlying standard. The temporary modifications granted reflect the standard methodology for characterizing ambient quality, therefore, the Commission does not believe that compliance with the discharge permit requirements should require extra treatment during the life of the temporary modifications. The DOE and EG&G argued that the standard methodology for characterizing ambient quality is not appropriate for segment 5 because they believe that the segment is so heterogenous that there is not uniformity to water quality throughout the segment. However, the Division testified that the 85th percentile methodology was adopted as a replacement for the mean plus standard deviation methodology in recognition of the fact that most stream water quality data is not normally distributed.

The Commission is adopting numeric, rather than narrative, temporary modifications. This is consistent with the general practice of the Commission. Numeric Temporary modifications will provide guidance to the EPA permit writers and will hold the DOE accountable for its discharges to state waters. Numeric temporary modifications should not place an undue burden on the DOE because they are based on the 85th percentile methodology for calculation of ambient quality.

Segment 5 water quality was determined in this hearing as the 85th percentile of the available data for segment 5. See 5 CCR 1002-8, section 3.1.7(1)(b)(ii). The application of the 85th percentile methodology is consistent with the Commission's actions in setting other temporary modifications throughout the state. Although DOE EG&G argued that the 85th percentile methodology did not result in a meaningful determination of segment 5 water quality, no alternative statistical methodology was proposed.

3. Extension of the Goal Qualifier for Use Classifications Applicable to Segment 5.

A "goal qualified" has been added to the classified uses to indicate that the segment 5 waters are not presently fully suitable but are intended to become fully suitable for the classified uses.

As similarly stated in the Statement of Basis and Purpose for the site-specific surface water standards adopted in January 1990, the Commission believes that segment 5 state waters should be returned as soon as possible to a condition that will support a full range of classified uses, including use as drinking water supply. As further stated in the previous Statement of Basis and Purpose, although plans have been made and funds have been spent to divert Walnut Creek and Woman Creek waters around Standley Lake and Great Western Reservoir -- what the parties have termed, "Option B" -- the water supply classification for these streams is currently appropriate. If in the future, permanent diversion structures are constructed, with an appropriate capacity to assure that Walnut and Woman Creek waters will not enter the two reservoirs, the Commission can reconsider the appropriateness of the water supply classification at that time.

The Commission's actions should not result in regulatory costs greater than those contemplated under the RCRA/CERCLA clean-up process.

PARTIES TO THE RULEMAKING HEARING
NOVEMBER, 1992

1. EG&G Rocky Flats, Inc. and the United States Department of Energy
2. City of Broomfield
3. City of Westminster
4. City of Arvada

38.39 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; MARCH 1, 1993 HEARING:

The provisions of 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402 C.R.S. 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:

The changes to the designation column eliminating the old High Quality 1 and 2 (HQ1, HQ2) designations, and replacing HQ1 with Outstanding Waters (OW) designation were made to reflect the new mandates of section 25-8-209 of the Colorado Water Quality Act which was amended by HB 92-1200. The Commission believes that the immediate adoption of these changes and the proposals contained in the hearing notice is preferable to the alternative of waiting to adopt them in the individual basin hearings over the next three years. Adoption now should remove any potential foe misinterpretation of the classifications and standards in the interim.

In addition, the Commission made the following minor revisions to all basin segments to conform them to the most recent regulatory changes:

1. The glossary of abbreviations and symbols were out of date and have been replaced by an updated version in section 3.8.6(2).

2. The organic standards in the Basic Standards were amended in October, 1991, which was subsequent to the basin hearings. The existing table was based on pre-1991 organic standards and are out of date and no longer relevant. Deleting the existing table and referencing the Basic Standards will eliminate any confusion as to which standards are applicable.

3. The table value for ammonia and zinc in the Basic Standards was revised in October, 1991. The change to the latest table value will bring a consistency between the tables in the basin standards and Basic Standards.

4. The addition of acute un-ionized ammonia is meant to bring a consistency with all other standards that have both the acute and chronic values listed. The change in the chlorine standard is based on the adoption of new acute and chronic criteria in the Basic Standards in October, 1991.

Finally, the Commission confirms that in no case will any of the minor update changes described above change or override any segment-specific water quality standards.

38.40 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: AUGUST 2, 1993 RULEMAKING HEARING:

The provisions of 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402, C.R.S. provide the specific statutory authority for adoption of these regulation 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:

The expiration date for the temporary modification for sulfate on the South Platte, segment 7b, mainstem of Brush Creek and Filter Creek has been extended from April 30, 1994 to January 31, 1995 to facilitate

the scheduled rulemaking hearing for this segment now scheduled for March, 1994. The Commission understands that changes to the current classifications for this segment are likely to be proposed which would result in altered, new or eliminated temporary modifications. Extending the current temporary modifications would accommodate that rulemaking schedule without disrupting regulatory decisions that are based on the current modifications.

38.41 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE, SEPTEMBER 7, 1993:

The provisions of 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; and 25-8-402 C.R.S. 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:

On November 30, 1991, revisions to “The Basic Standards and Methodologies for Surface Water”, 3.1.0 (5 CCR 1002-8), became effective. As part of the revisions, the averaging period for the selenium criterion to be applied as a standard to drinking water supply classification was changed from a 1-day to a 30-day duration. The site-specific standards for selenium on drinking water supply segments were to be changed at the time of rulemaking for the particular basin. Only one river basin, the South Platte, has gone through basin-wide rulemaking since these revisions to the “Basic Standards”. Through an oversight, the selenium standards was not addressed in the rulemaking for this basin and has since become an issue in a wasteload allocation being developed for segments 15 and 16 of the South Platte. Agreement on the wasteloads for selenium is dependent upon a 30-day averaging period for selenium limits in the effected parties permits. Therefore, the parties requested that a rulemaking hearing be held for the South Platte Basin to address changing the designation of the 10 ug/l selenium standard on all water supply segments from a 1-day to a 30-day standard. The Water Quality Control Division, foreseeing the possibility of a selenium issue arising elsewhere in the state, made a counter proposal to have one hearing to change the designation for the selenium standard on all water supply segments statewide. The Commission and the parties concerned with South Platte segments 15 and 16 agreed that this would be the most judicious way to address the issue.

The change in the averaging period may cause a slight increase in selenium loads to those segments which have CPDS permits regulating selenium on the basis of a water supply standard. However, these segments are only five in number and the use will still be fully protected on the basis that the selenium criterion is based on 1975 national interim primary drinking water regulations which assumed selenium to be a potential carcinogen. It has since been categorized as a non-carcinogen and new national primary drinking water regulations were promulgated in 1991 that raised the standard to 50 ug/l.

The Commission also corrected a type error in the TVS for Silver by changing the sign on the exponent for the chronic standard for Trout from + 10.51 to - 10.51.

38.42 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; FEBRUARY 8, 1994 HEARING ON SEGMENT 2 OF BIG DRY CREEK

The provisions of 25-8-202(1)(b), 25-8-204, and 25-8-402, C.R.S. provide specific statutory authority for adoption of this regulatory amendment. The Commission also adopted in compliance with 24-4-103(4), C.R.S. the following statement of basis and purpose.

The Cities of Westminster and Thornton submitted a rulemaking proposal to the Water Quality Control Commission in August, 1988 that included a numeric standard for total phosphorus in Standley Lake, Segment 2 of Big Dry Creek, South Platte Basin. The Commission did not adopt the proposed standards but requested that the parties jointly agree on a scope of work and funding mechanism to develop any necessary additional data to determine appropriate permanent water quality standards to protect Standley Lake as a water supply. Parties to the 1989 hearing, which included Westminster, Thornton, Northglenn,

Arvada, Golden, and Jefferson County, commissioned a study by the U.S. Geological Survey to develop additional data on Standley Lake in 1989 and 1990. In September, 1993, the Cities of Westminster, Thornton, and Northglenn (the Standley Lake Cities) submitted a rulemaking proposal to the Commission for a narrative water quality standard for phosphorus and total inorganic nitrogen, and a control regulation for point and nonpoint sources of nutrients in the Standley Lake Drainage, consisting of the Upper Clear Creek Basin; that portion of the Lower Clear Creek Basin tributary to Standley Lake and to the three canals (Farmers High Line Canal, Church Ditch, and Croke Canal) supplying Standley Lake; and Standley Lake itself (the Standley Lake Drainage).

In December, 1993, the Clear Creek Watershed Management Agreement (Agreement) was developed and signed by local governmental and private entities that would be affected by the proposed standards and control regulation. The Agreement provided for submission by the parties of an alternative rulemaking proposal for a narrative standard for Standley Lake. The entities that are party to the Agreement include the Upper Clear Creek Basin Association, the City of Golden, the City of Arvada, Jefferson County, the Jefferson Center Metropolitan District, the City of Westminster, the City of Thornton, the City of Northglenn, the City of Idaho Springs, Clear Creek County, Gilpin County, the Blackhawk-Central City Sanitation District, the City of Blackhawk, Central City, the Town of Georgetown, the Town of Empire, the Town of Silverplume, the Central Clear Creek Sanitation District, the Alice/St. Mary's Metropolitan District, Clear Creek Skiing Corporation, Henderson Mine, the Church Ditch Company, the Farmers High Line Canal and Reservoir Company, and the Farmers Reservoir and Irrigation Company.

The Commission adopted the alternative proposal for a narrative standard, which provides that the trophic status of Standley Lake be maintained as mesotrophic. The purpose of this narrative standard is to protect the classified beneficial uses of Standley Lake by maintaining the existing trophic condition. Trophic state or condition is a descriptive classification based on lake nutrient status and the level of biological productivity. Lakes with few available nutrients and a low level of biological productivity are termed oligotrophic; those with high nutrient levels and high productivity are termed eutrophic. Lakes that are in between oligotrophic and eutrophic are termed mesotrophic.

Data collected over the last nine years for chlorophyll a for Standley Lake indicate that the Lake has been mesotrophic over that period. The trophic status of Standley Lake is based on the average magnitude of trophic state indicators measured during the period from March 1 through November 30. The various entities involved in this proceeding have different theories as to the mechanisms determining the water quality in Standley Lake. The Standley Lake Cities believe that there is a risk of algal growth that would impact water supply uses of the Lake in its current state. In any event, the trophic status of the Lake should be maintained at mesotrophic to minimize the risk of use impairment.

The Commission has adopted numeric phosphorus standards for three other Colorado lakes to maintain existing trophic condition. The narrative standard approach is used here as an alternative that provides flexibility in establishing nutrient control and reduction strategies in the Standley Lake Drainage. This flexibility is needed due to uncertainty in identifying significant nutrient contributors to the Lake, in predicting the specific in-lake nutrient concentrations required to maintain the mesotrophic condition, and in predicting Lake response to algae growth from nutrient reduction.

The Commission found that requirements in the Agreement to conduct water quality monitoring of the Standley Lake Drainage, as well as implementation of best management practices and controls on a voluntary basis, provide a reasonable approach to reducing nutrient loading in the Standley Lake Drainage and maintaining the mesotrophic condition of the Lake. The Commission's intent is that the maintenance of a mesotrophic status be monitored in a cooperative effort by entities in the Standley Lake Drainage and that no new or more stringent effluent limitations or nutrient wasteload allocations be included in wastewater discharge permits for point sources in the Clear Creek Basin.

It is the intent of the Commission and the parties to this hearing that the results of additional testing and monitoring, and of implementation of certain best management practices and controls on a voluntary basis will be summarized and reported to the Commission annually until the next triennial review of this narrative standard in 1997. The first such annual report shall be made available to the Commission in

April of 1995. If at the Triennial Review in 1997 it appears that the narrative standard is not being met, and that substantial progress in reducing nutrient loads to the Lake is not being made, additional measures may be required in future rulemaking proceedings. Such additional measures could include numeric standards and/or effluent limitations for phosphorus and/or nitrogen in the Upper Clear Creek Basin, and additional best management controls in Standley Lake.

PARTY STATUS LIST
February 8, 1994

1. Cities of Westminster, Thornton and Northglenn
2. Denver Regional Council of Governments
3. City of Golden
4. Clear Creek Skiing Corporation
5. Upper Clear Creek Basin Authority
6. Colorado Department of Transportation
7. Jefferson Center Metropolitan District #1
8. Jefferson County
9. City of Arvada
10. Coors Brewing Company
11. Board of County Commissioners of the County of Gilpin and the Gilpin County Board of Health

38.43 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; APRIL 4, 1994 HEARING:

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

BASIS AND PURPOSE:

Section 3.8.5(2) has been revised to delete an outdated reference to a former provision of this regulation and to simplify the language of this subsection.

The 50 ug/l dissolved manganese standard formerly listed for segment b of Boulder Creek has been deleted to correct an apparent clerical error. No water supply classification has ever been applied to this segment, so this standard is inappropriate.

Segment 5 of Big Dry Creek

The Commission postponed the statewide radionuclide standards hearing from the previously scheduled date, based on delays in EPA's promulgation of drinking water radionuclide standards. Therefore, it is appropriate to extend the expiration of the temporary modifications for radionuclide standards included in the segment 5 standards from December 31, 1994 to December 31, 1996, and the Commission has done so.

Segments 7a and b

The Commission has revised the segmentation of two tributaries to the South Plate River. The previous segments of 7a, all tributaries to the South Plate River below the confluence with the North Fork to the outlet of Chatfield Reservoir, and b, mainstem of Brush Creek and Filter Gulch from the source to the confluence with the South Plate, have been combined into a single segment, 7.

The substantive effect of this consolidation is to withdraw the water supply classification from the previous segment b, making it identical to the previous segment 7a and, thus, obviating the need for separate segments. In 1988, the Commission adopted a water supply classification for segment b. The water

supply classification was established in order to protect water quality in the South Plate alluvium. In 1991, the Commission adopted an interim narrative standard for the Lower South Plate River Alluvium and Terrace Gravel System. See ' 3.12.5 (5 CCR 1002-8). The classification system adopted by the Commission in 1991 assures that the water quality of the South Plate Alluvium will be maintained. This eliminates the need for the water supply classification for Brush Creek and Filter Gulch.

The previous water supply classification was also based, in part, on the possibility of a hydrologic connection between Brush Creek and Filter Gulch to the ground water in the area of the Kassler Water Treatment Plant. However, evidence presented at the hearing demonstrated that the include of Brush Creek and Filter gulch on water quality in the South Plate alluvium is negligible and that the South Plate River is the major contributor to the alluvium in the area around the Kassler Water Treatment Plant.

When the Commission adopted the water supply classification for segment b in 1988, there was evidence of a possible future use for water supplied in the Denver water distribution system from the Kassler Plant should the Plant ever be reopened. However, the Kassler Plant has not been used as a water source since its termination in 1985, and there is no indication that the Kassler Plant will be reopened in the reasonably foreseeable future.

Clear Creek, Segments 14 and 15

Clear Creek segment 14 is currently classified for aquatic life warm 2, recreation 2, water supply and agriculture uses. Clear Creek segment 15 is classified for aquatic life warm 1 goal qualifier, recreation 2, water supply and agriculture uses. Temporary modifications are in existence for Segment 14 below the Croke Canal for cadmium, zinc, and copper. The temporary modifications are due to expire on June 30, 1994.

Coors operates two wastewater treatment plants at its facility in Golden, Colorado, discharging to Clear Creek segment 14 below the Croke Canal. The general wastewater treatment plant processes wastewater primarily from the City of Golden, but also from various industrial facilities which comprise the non-brewing operations at Coors. A process wastewater treatment plant processes only the waste from the brewing operations at Coors. The effluents from the two treatment plants are combined for discharge below the Croke Canal pursuant to Permit No. CO-0001163. During many months of the year the statistical flow in Clear Creek is very low or zero due to diversions for municipal and agricultural uses above the discharge. Consequently, the water quality standards are, in effect, the permit limits for the Coors discharge. If stream standards were to be set based upon table values and converted into discharge limitations, then the limits for copper and zinc could not be met with the current wastewater treatment technology. There is no economically feasible and technically reliable end of the pipe technology which would meet such low limits.

Brewing operations universally produce a waste which is high in biochemical oxygen demand. In the case of Coors, this results in highly alkaline wastewater. Alkalinity has an attenuating effect on the toxicity of certain metals to aquatic species. For this reason, Coors' effluent is capable of carrying metal levels that are above the current water quality standards without harm to the most sensitive aquatic organisms. Biomonitoring studies carried out by Coors consistently show that survival of Ceriodaphnia dubia and fathead minnows is very high even in 100 percent effluent. On the other hand, Clear Creek above the discharge point is often lethal to Ceriodaphnia dubia because of the high concentration of metals in Clear Creek and its low hardness and alkalinity. As a result of these observations, Coors conducted a study to be the basis for setting site-specific criteria-based standards proposed in this rulemaking.

Site-Specific Criteria Based Standards

The Commission's basic standards regulations provide for the establishment of site-specific water standards when justified by the results of a bioassay or comparable scientific study. It provides a mechanism for taking the wide variation of conditions that exist in Colorado into account when adopting site-specific standards. Adopting such site-specific standards simply means that different numerical

standards are adequate to protect the uses in question. Colorado Water Quality Control Division guidelines for developing site-specific aquatic life criteria are comparable to EPA's water effect ratio method for setting aquatic life criteria. The Division guidance regards development of site-specific water quality criteria as appropriate when ". . . existing standards, often based on laboratory defined criteria, are under protective or over protective of the aquatic life classification." The State guidance also refers to the need to protect the worse case conditions of in-stream toxicity. The water effect ratio procedure uses samples taken at low and high flow to address this concern. The procedure also uses the lowest, that is, the most conservative value, of the three that are generated. The Division guidance uses the most sensitive species to act as a surrogate for the protection of the ecosystem. The water effect ratio procedure uses Ceriodaphnia dubia as the most sensitive species and includes a secondary species to verify the results. The procedures establish the concentrations for metals that are acceptable for protecting the aquatic uses.

Coors conducted a water effect ratio study using biomonitoring tests to establish the level at which a metal is toxic in a given effluent and receiving water, specifically Clear Creek. In conducting the study, Coors worked closely with personnel from the Water Quality Control Division and EPA.

The study involved taking samples downstream of the discharge point, upstream of the discharge, and the effluent itself. Biomonitoring tests were run with samples at different dilutions with reconstituted laboratory water. The metals of interest are added in different concentrations in order to produce toxicity during the test. The data is used to establish the LC50 in accordance with the standard biomonitoring test procedures. Parallel tests are also performed with the same type of test organisms in reconstituted laboratory water with enough metal being added to produce an LC50 for the samples. The concentration of the metal that produced the LC50 in the downstream sample is then divided by the amount of metal that produced an LC50 in the reconstituted laboratory water. This ratio is called the water effect ratio. The ratio is designed to take into account the beneficial effect of the receiving stream and effluent that allow aquatic organisms to live at metals levels that are lethal in reconstituted laboratory water. Since reconstituted laboratory water is used in setting water quality standards by EPA, the water effect ratio is multiplied by the water quality standards to generate a new stream standard that is site-specific.

Coors chose Prospect Park in segment 15 as the downstream site, as it is sufficiently downstream of the effluent discharge so that mixing with the receiving stream is complete, but it is sufficiently close to the discharge point so that no other discharge would have been included in the sample. Two flow seasons were used and samples were taken at least three weeks apart as required by the water effect ratio guidance. Samples for upstream were taken at Vanover Park in golden above the Coors discharge point. Ceriodaphnia dubia and fathead minnows were used following accepted State and EPA protocol. As required, samples were spiked with specified metals in separate tests using copper, zinc and silver. The metal concentration for the Prospect Park sample was first adjusted to account for the amount of metals initially present in the sample before spiking. These final water effect ratio results were multiplied by the appropriate water quality standard to arrive at the site-specific criteria-based water quality standards. The analyses performed by Coors following the above procedure resulted in site-specific water quality standards that are now being proposed for zinc and copper.

<u>South Mosquito Creek, Segments 2b and 2c</u>

In 1987, the Commission adopted a three-year temporary modification for zinc in segment 2b and for zinc and mercury in segment 2c of South Mosquito Creek. The zinc temporary modifications were calculated from the sampling data collected below the London Mine Venture discharge. The underlying chronic zinc standards are 110 ug/1 and 250 ug/1, respectively. The temporary modifications for zinc are scheduled to expire on June 30, 1994. The current London Mine discharge permit referenced above is based upon the temporary modifications for zinc. Both the stream ambient data and the discharge data exceed the underlying standard. The underlying zinc standards are not being met due to human-induced conditions upstream from the London Mine, that is, historic mining activity has ceased. There is no current or anticipated mining activity occurring at the London Mine. Consequently, in the future the permit may deactivate. In the past, actions have been taken to improve the quality of the discharge by diverting flows with high levels of metals inside the mine. If necessary, additional future actions will be evaluated. The

available stream data are limited, particularly dissolved data, but will continue to be collected during the period of an extended temporary modification. The current limited data support the extension of the temporary modifications and additional data will continue to be collected from the stream and the mine discharge. The proposed temporary modifications are based upon sampling data. Further, natural surface drainage over surface zinc exposures into No Name Creek may cause South Mosquito Creek to contain more zinc than the standard would, at times, allow.

PARTIES TO THE RULEMAKING HEARING
APRIL, 1994

1. U.S. Department of Energy and EG&G Rocky Flats, Inc.
2. Martin Marietta
3. Coors Brewing Company
4. London Mine Venture
5. City of Arvada
6. City of Westminster
7. City of Broomfield

38.44 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE; OCTOBER 11, 1994 HEARING:

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

BASIS AND PURPOSE:

The dissolved oxygen standards applicable to segment 15 prior to this hearing were:

5.0 mg/L May 1 to July 31 for Early Life Stage (ELS); and
4.5 mg/L August 1 to April 30 for Older Life State (OLS).

These values were initially adopted in 1986 with the 5.0 mg/L ELS period ending on July 15. Although not adopted as such by the Commission, the EPA approved these values as instantaneous minima. EPA further declined to approve the application period of the 4.5 mg/L standard during the period July 16 through July 31. Subsequently, another hearing was held in 1987 and the period of application for the ELS was changed to July 31 to satisfy EPA. In the 1991 South Plate River basin hearing, the Commission "continued" the then applicable dissolved oxygen standards and stated its intention that these standards be applied as minimum 1-day means in conformance with the Division's established modeling procedures. At that time, the Commission, the Division and Metro agreed that Metro would do additional studies to form the basis for acute and chronic site-specific standards for Segment 15. These studies were undertaken by Metro with input and participation by the Division, EPA and the DOW. Based on the results of these studies, Metro proposed the dissolved oxygen standards included in the hearing notice for this hearing.

Prior to the hearing, EPA stated that a number of the proposed revisions did not satisfy its evaluation criteria and EPA did not have sufficient basis to approve certain portions of the proposal. On the other hand, EPA stated that enough information was presented to justify the acceptance of the following standards for Segment 15:

1. Early life stage protection period 7-day average 5.0 mg/L;
2. Older life stage protection period 1-day 2.0 mg/L instantaneous concentration; and
3. Older life stage 30-day average 4.5 mg/L.

EPA recommended that the Commission not take action on the standards until:

1. The actual results of dissolved oxygen improvements in the vicinity of 88th Avenue were documented and provide a basis for downstream reaeration designs;

2. Further studies to confirm the time of year, abundance, and location of early life stage of fish in Segment 15 have been conducted; and

3. Further laboratory tests on additional species have been done to confirm early life stage mortality and growth inhibition resulting from insufficient dissolved oxygen.

As a result, the October 1994 Commission hearing was continued to February 1995 so that the parties could develop a Memorandum of Understanding which addressed the outstanding concerns. Such a Memorandum of Understanding has been signed by the Division, the Division of Wildlife, EPA and Metro and is a part of the record in this proceeding. The Commission is adopting the final underlying DO standards, the interim underlying standards and the temporary modifications recommended in the Memorandum of Understanding.

The final underlying standards consist of those DO standards for which sufficient information was presented in the record by Metro for approval by EPA and adoption by the Commission.

The interim underlying standards for the ELS 1-Day Minimum and OLS 7-Day Mean of Minimums are based on the EPA national criteria for dissolved oxygen. It is anticipated that Metro will propose modifying these standards as a result of the further studies to be completed.

The temporary modifications for the 1-Day Minimums (ELS and OLS) and the 7-Day Mean of Minimums consist of the currently existing ambient conditions as monitored in 1993 and 1994 by the Division and Metro. These temporary modifications are effective until December 31, 1997.

It is anticipated that a hearing will be scheduled before the Commission in the spring of 1997 to consider modifications to the interim underlying DO standards. Metro may also request that revised temporary modifications be adopted to provide the time needed for construction of any improvements required to meet the 1997 standards.

PARTIES TO THE RULEMAKING HEARING

1. Metro Wastewater Reclamation District
2. Division of Wildlife

38.45 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE: APRIL 10, 1995 HEARING (SEGMENTS 4 AND 5 OF BIG DRY CREEK)

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

BASIS AND PURPOSE:

A. Summary

In this rulemaking proceeding, the Commission (1) resegmented segment 4 of Big Dry Creek into segments 4a and 4b, such that North and South Walnut Creek and Walnut Creek, from the outlet of ponds A-4 and B-5 to Indiana Street, now constitute segment 4b (upon which all of former segment 4's standards shall apply with the exception of the un-ionized ammonia standard which shall be removed from the segment), and all portions of segment 4 (on both Walnut and Woman Creeks) other than segment 4b shall be redesignated as segment 4a; and (2) removed the un-

ionized ammonia standard (both the underlying standard and temporary modifications) from segment 5 of Big Dry Creek.

B. Background

In December, 1989, the Commission revised the segmentation for tributaries to Big Dry Creek at the Rocky Flats Environmental Technology Site ("RFETS" or "the Site") by creating separate segments for portions of Walnut and Woman Creek drainages. Segment 4 encompassed all of Woman Creek and its tributaries except Pond C-2, an off-channel runoff storage pond, and those portions of Walnut Creek and tributaries above Great Western Reservoir except segment 5. Segment 5 encompassed those portions of North Walnut and South Walnut Creeks which feed, in part, the A- and B-series ponds directly downstream of the plant site and Pond C-2 on Woman Creek.

In the October, 1992 hearing, the WQCC adopted temporary modifications to standards on segment 5 for nine constituents, including un-ionized ammonia. The temporary modifications for ammonia were set to expire on April 1, 1996, after which the underlying standards of 0.06/0.1 mg/l (un-ionized) were to be in effect. Segment 4 ammonia standards of 0.06/0.1 mg/l did not include temporary modifications. The Division provided testimony at that hearing that the cost of an ammonia removal system for a wastewater treatment plant similar in size to that at RFETS would be upwards of $1.25 million.

C. Commission Decision

The results of DOE and EG&G's Bioassessment and Physical/Chemical Characterization of Walnut Creek and Woman Creek demonstrate that the impairment of aquatic life in segment 5 of Walnut Creek and in those portions of existing segment 4 of Walnut Creek below Ponds A-4 and B-5 is due to flow and habitat constraints rather than water quality conditions due to ammonia. As a result, the high cost of an ammonia removal system would be unjustified in light of the minimal expected improvement to be gained in Walnut Creek. Therefore, the Commission decided to accept the stipulation submitted and signed by all the parties at the rulemaking hearing to resegment segment 4 in the RFETS area, create a new segment 4b which has all of segment 4's standards with the exception of un-ionized ammonia, redesignate all remaining portions of segment 4 as segment 4a, and eliminate the un-ionized ammonia standard from segment 5.

Past Commission action is consistent with the action taken here. When the Commission removed the ammonia standard for segment b of Coal Creek, it did so on the basis of similar aquatic life impairment in the segment due to lack of flow, and the limited benefits that would be gained by the requirement of a costly ammonia removal system.

In making its decision, the Commission has considered EPA's view that the NPDES permit for the RFETS wastewater plant will be issued without an ammonia removal requirement, although additional ammonia monitoring will be required, and the Division's indication that it foresees no difficulty in issuing '401 certification on the basis of the present facts. The Commission's decision is also based on evidence that uses in downstream segments will be protected.

The Commission is also mindful that the Option B water diversion project protecting water supplies downstream of the Rocky Flats Plant is scheduled for completion within the next two years. This project will consist of a 100-year flood detention reservoir on Woman Creek to protect Standley Lake (the drinking water supply of the local cities of Westminster, Northglenn, and Thornton), and the elimination of Great Western Reservoir as a water supply for the City of Broomfield, with the procurement of an equivalent replacement water supply. Because of Option B, water flowing off plant site is not anticipated to affect any drinking water supplies downstream; thus, the local communities, DOE, the Division, and the Commission concur that the classifications and standards for the Big Dry Creek watershed should be reconsidered once Option B is in place.

PARTIES TO THE RULEMAKING HEARING FEBRUARY 13, 1995

1. United States Department of Energy and EG&G Rocky Flats, Inc.
2. The City of Westminster
3. The City of Broomfield
4. Colorado Division of Wildlife
**5. The City of Arvada
**6. U.S. Environmental Protection Agency's Region VIII Office

**Indicates Mailing List Status.

38.46 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (1995 Silver hearing)

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

BASIS AND PURPOSE

The changes described below are being adopted simultaneously for surface water in all Colorado river basins.

This action implements revisions to the Basic Standards and Methodologies for Surface Water adopted by the Commission in January, 1995. As part of a July, 1994 rulemaking hearing, the Commission considered the proposal of various parties to delete the chronic and chronic (trout) table values for silver in Table III of the Basic Standards. As a result of that hearing, the Commission found that the evidence demonstrated that ionic silver causes chronic toxicity to fish at levels below that established by the acute table values. It was undisputed that silver is present in Colorado streams and in the effluent of municipal and industrial dischargers in Colorado. The evidence also demonstrated that the removal of silver from wastewater can be costly. However, there was strongly conflicting scientific evidence regarding the degree to which silver does, or could in the absence of chronic standards, result in actual toxicity to aquatic life in Colorado surface waters. In particular, there was conflicting evidence regarding the degree to which the toxic effects of free silver are mitigated by reaction with soluble ligands to form less toxic compounds and by adsorption to particulates and sediments.

The Commission concluded that there is a need for additional analysis of the potential chronic toxicity of silver in streams in Colorado. The Commission encouraged the participants in that hearing, and any other interested parties, to work together to develop additional information that will help resolve the differences in scientific opinions that were presented in the hearing. The Commission believes that it should be possible to develop such information within the next three years.

In the meantime, the Commission decided as a matter of policy to take two actions. First, the chronic and chronic (trout) table values for silver have been repealed for the next three years. The Commission is now implementing this action by also repealing for the next three years, in this separate rulemaking hearing, all current chronic table value standards for silver previously established on surface waters in Colorado. Any acute silver standards and any site-specific silver standards not based on the chronic table values will remain in effect. The Commission intends that any discharge permits issued or renewed during this period will not include effluent limitations based on chronic table value standards, since such standards will not currently be in effect. In addition, at the request of any discharger, any such effluent limitations currently in permits should be deleted.

The second action taken by the Commission was the readoption of the chronic and chronic (trout) table values for silver, with a delayed effective date of three years from the effective date of final action. The Commission also is implementing this action by readopting chronic silver standards with a corresponding

delayed effective date at the same time that such standards are deleted from the individual basins. The Commission has determined that this is an appropriate policy choice to encourage efforts to reduce or eliminate the current scientific uncertainty regarding in-stream silver toxicity, and to assure that Colorado aquatic life are protected from chronic silver toxicity if additional scientific information is not developed. If the current scientific uncertainty persists after three years, the Commission believes that it should be resolved by assuring protection of aquatic life.

In summary, in balancing the policy considerations resulting from the facts presented in the July 1994 rulemaking hearing and in this hearing, the Commission has chosen to provide relief for dischargers from the potential cost of treatment to meet chronic silver standards during the next three years, while also providing that such standards will again become effective after three years if additional scientific information does not shed further light on the need, or lack of need, for such standards.

Finally, the Division notes that arsenic is listed as a TVS standard in all cases where the Water Supply classification is not present. This is misleading since Table III in the Basic Standards lists an acute aquatic life criterion of 360 ug/l and a chronic criterion of 150 ug/l for arsenic, but a more restrictive agriculture criterion of 100 ug/l. It would be clearer to the reader of the basin standards if, for each instance where the standard "As(ac/ch)=TVS" appears, the standard "As=100(Trec)" is being inserted as a replacement. This change should make it clear that the agriculture protection standard would prevail in those instances where the more restrictive water supply use protective standard (50 ug/l) was not appropriate because that classification was absent.

The chemical symbol for antimony (Sb) was inadvertently left out of the "Tables" section which precedes the list of segments in each set of basin standards. The correction of this oversight will aid the reader in understanding the content of the segment standards. Also preceding the list of segment standards in each basin is a table showing the Table Value Standards for aquatic life protection which are then referred to as "TVS" in the segment listings. For cadmium, two equations for an acute table value standard should be shown, one for all aquatic life, and one where trout are present. A third equation for chronic table value should also be listed. The order of these three equations should be revised to first list the acute equation, next the acute (trout) equation, followed by the chronic equation. This change will also aid the reader in understanding the intent of the Table Value Standards.

PARTIES TO THE PUBLIC RULEMAKING HEARING
JUNE 12, 1995

1. Coors Brewing Company
2. The Silver Coalition
3. Cyprus Climax Metals Company
4. The City of Fort Collins
5. The City of Colorado Springs

38.47 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (December, 1995 Rulemaking)

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

BASIS AND PURPOSE

The temporary modifications addressed in this hearing for segment 5 of Clear Creek for cadmium, manganese, zinc and radium were previously adopted with an expiration date of July 8, 1996. The Commission has extended the temporary modifications to March 31, 1997 so that these temporary modifications can be considered along with other issues in the July, 1996 hearing.

38.48 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (December, 1996 Rulemaking)

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

BASIS AND PURPOSE

The temporary modifications addressed in this hearing for segment 5 of Big Dry Creek were previously adopted with expiration dates of April 1, 1996 (for non-radionuclides) and December 31, 1996 (for radionuclides). The Commission has extended the temporary modifications to April 1, 1997 so that these temporary modifications can be considered along with other issues in a December, 1996 rulemaking hearing to consider surface and ground water quality standard issues for waters in the vicinity of the Rocky Flats Plant.

PARTIES TO THE RULEMAKING PROCEEDING

1. United States Department of Energy and Kaiser-Hill Company, LLC
2. City of Broomfield

38.49 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (West Fork of Clear Creek and Woods Creek, Segments 5 and 7 of Clear Creek, July, 1996)

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

BASIS AND PURPOSE

The Commission adopted temporary modifications for Cd, Mn, Zn and Ra as a result of the November 2, 1992 hearing. These temporary modifications expire on March 31, 1997. The need for temporary modifications for cadmium and zinc no longer exist. Therefore they are deleted and underlying table values are in effect. The need for radium temporary modification continues to exist for the same reasons set forth in the Basis and Purpose statement that accompanied the November 2, 1992 rulemaking. At this time a statewide radionuclide hearing is scheduled for July, 1997. This hearing may resolve the radium issue in this segment.

The site-specific manganese standard is based on a toxicity study commissioned by Climax. This study established a hardness based relationship for manganese toxicity on brown trout. Therefore, the table value based standard of 1000 µg/l is deleted and the hardness based equation is added. Due to the seasonal variation in hardness in Woods Creek and the West Fork of Clear Creek, the Commission intends that the hardness based equation for manganese to be applied on a seasonal basis in implementing the standard. Climax has committed to maintain the treatment levels for manganese it has achieved in the three years prior to this hearing. In the event that ambient stream levels of manganese exceed levels achieved in 1994 - 1996, the Commission may reconsider the manganese standard adopted herein. The Commission is aware that the Division of Wildlife may develop additional toxicity information on manganese in the future. Such information may provide a basis for reconsideration of the site-specific standard for manganese adopted by the Commission in this rulemaking.

PARTIES TO THE PUBLIC RULEMAKING HEARING
JULY 8, 1996

1. Climax Molybdenum Company
2. State of Colorado, Division of Wildlife

3. City of Westminster
4. U.S. EPA Region VIII
5. City of Golden

38.50 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (December 1996)

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

BASIS AND PURPOSE

1. Summary

In this rulemaking proceeding, the Commission reclassified Great Western Reservoir (Segment 3 of Big Dry Creek) from aquatic life warm water class 1 to class 2 and recreation class 1 to class 2, and revised the water quality standards to match the revised classifications. The Commission added an agriculture classification for segment 3 and retained the segment 3 water supply classification, but removed water supply standards. The Commission has also adopted changes to water quality standards in Segments 1, 2, 4a and 4b to reflect recent changes to or adoption of basic standards, changes in ambient conditions, and significant changes in the watershed. Finally, the Commission has adopted changes to water quality standards in Segment 5 to reflect recent changes to or adoption of basic standards, and changes in ambient conditions some of which require temporary modifications.

2. Background

a. Segment 1

The Commission adopted additional standards to protect the aquatic life and agricultural uses in place on Segment 1. While the segment has been classified for the warm water aquatic life class 2 and agricultural uses since 1981 only limited standards were assigned. Evidence provided at this hearing showed a significant increase in the number and species of fish present in the segment when compared to the evidence presented in 1981 and the Commission felt a higher level of protection was warranted. The Commission also adopted a chronic nitrite standard of 4.5 mg/l based on a recommendation that this level should be a maximum concentration allowed for waters whose chloride levels exceed 22 mg/l and contain fathead minnows and other nonsensitive fish species.

b. Segment 2

The Commission deleted the site-specific organic standards identified in Table 1A. Table 1A was adopted in 1989 prior to the Commission's adoption of basic standards for organic compounds. Table 1A was retained in 1992 because, although for most parameters the site-specific standards were identical to the basic standards, the table contained a few unique site-specific standards. The Commission has since adopted basic standards for all compounds found in Table 1A, and since the basic standards are applicable in Segment 2 Table 1A was deleted.

c. Segment 3

The changes adopted in this hearing for segment 3 are summarized above. Great Western Reservoir was initially constructed in 1904. Thereafter, it was used as an

irrigation reservoir until the 1950's when it was developed as a water supply reservoir by Broomfield.

In the initial South Plate River Basin rulemaking in 1981, the Commission classified Great Western Reservoir for water supply use only and adopted water supply related standards. In 1984, the City of Broomfield requested that Great Western Reservoir also be classified as Aquatic Life Warm Water 1 and Recreation 1 and that corresponding water quality standards be adopted. The basis for Broomfield's request was to provide additional protection to its water supply. The Commission adopted these additional use classifications and standards because the existing water quality met the standards even though the Class 1 aquatic life and recreation uses did not in fact exist.

In 1989, the Commission again responded to Broomfield's request to further protect the Great Western Reservoir water supply. The Commission established new segments, classifications and standards for Walnut and Woman Creeks. In this action, the Commission included, among other things, water supply classifications for Walnut and Woman Creeks even though these uses did not in fact exist in these segments. The basis for this action was "to establish an extra layer of protection for the major water supplies in Great Western Reservoir and Standley Lake, particularly considering the proximity upstream of a major industrial, complex utilizing nuclear materials." In the 1989 rulemaking, as well as in subsequent rulemakings, Broomfield stated that it would be appropriate to reconsider the classifications and standards of Big Dry Creek if physical changes were made whereby the threat to Broomfield's water supply was removed. Such changes will be implemented in 1997 with the elimination of Great Western Reservoir as a water supply by January 1, 1998, at the latest. In the 1995 rulemaking, the Commission stated:

Because of Option B, water flowing off plant site is not anticipated to affect any drinking water supplies downstream, thus, the local communities, DOE, the Division, and the Commission concur that the classifications and standards for the Big Dry Creek Watershed should be reconsidered once Option B is in place.

After the Great Western Reservoir Replacement Project is fully implemented in 1997, Great Western Reservoir will no longer be used as a water supply. Instead, Broomfield will use Great Western Reservoir as a storage facility for a waste water reuse project. Broomfield requested the Commission to modify the classifications and standards of Great Western Reservoir to reflect these changes in use effective January 1, 1998.

d. <u>Segments 4a and 4b</u>

In 1989 the Commission established Use Classifications and Water Quality Standards for Segment 4, which was subsequently divided (in 1995) into Segments 4a and 4b. The Commission adopted standards for reasons similar to those on which it based its action for Segment 3: - - as an added layer of protection for water users, especially water supplies, located downstream of a "major industrial complex utilizing nuclear materials".

Since 1989, a number of changes have taken place in the upper portion of the Big Dry Creek watershed. The two most significant changes are the implementation of Option B, described above, and the initiation of cleanup and closure of the Rocky Flats Environmental Technology Site.

In addition to the Great Western Reservoir Replacement Project, Option B projects also include the Woman Creek Reservoir, part of the Standley Lake Protection Project. This project was completed in 1995, and successfully isolated Standley Lake from the Woman Creek drainage, which crosses Rocky Flats. Together, these projects have significantly changed water flows and configurations in the Big Dry Creek watershed, assuring

protection of water supplies for Broomfield, Westminster and other neighboring municipalities.

Another significant change was that the Cold War officially ended in September 1991, marking an end to the nuclear weapons production era in this country. As a result, the mission of Rocky Flats was changed from weapons manufacturing to cleanup and closure; the DOE entered into discussions with the Colorado Department of Public Health and Environment and the Environmental Protection Agency to develop a new, comprehensive cleanup agreement for the Site, including a Vision for the Site's future, a commitment from DOE to remove the significant stockpile of nuclear materials from Rocky Flats by the year 2015, and an Action Level and Standards Framework that establishes numeric values that DOE, EPA and CDPHE will use to determine whether remedial action is necessary and how extensive such action must be to protect human health and the environment. DOE, EPA and CDPHE signed the final Rocky Flats Cleanup Agreement (RFCA) July 19, 1996.

The clean-up of Rocky Flats is expected to result in significant long-term improvements in the watershed of Big Dry Creek with respect to quantities and types of materials. However, during cleanup and de-activation and decommissioning there will be significant materials handling and removal activities which may impact water quality.

With respect to water quality, the Vision requires that ultimately "water leaving [Rocky Flats] will be of acceptable quality for any use." During the active cleanup period, currently estimated to occur during the next 10 to 15 years, water quality should allow the attainment of all classified uses except drinking water supply.

No change in use classification was proposed for Segments 4a and 4b. Because the final Vision for Rocky Flats is to protect all uses, the Water Supply use classification is retained on Segments 4a and 4b, with some modification to the related water quality standards during the active cleanup period. Water Supply Use standards based on primary drinking water standards are retained because downstream waters flow near populated areas where human contact with the water is possible. The agricultural standard for nitrate (100 mg/l) and the aquatic life protection standard for nitrite (4.5 mg/l[ch] based upon chloride concentrations per footnote 5, Table II, Inorganic Parameters of the Basic Standards and Methodologies for Surface Water) were adopted as temporary modifications. Water supply standards will remain the underlying standards. This will not pose a health risk because there is normally no connection of Segment 4 waters with existing water supplies. Water supply standards based on secondary drinking water standards (non-health based criteria), iron, manganese, chloride and sulfate, are removed because they do not pose a health risk.

To establish these temporary modifications for the period of active remediation at Rocky Flats, which DOE currently estimates will last 10 to 15 years, the Commission adopted the temporary modifications for a period of twelve years, expiring in the year 2009, subject to triennial review.

These temporary modifications meet the criteria in Section 3.1.7(3)(a) of the Commission regulations. Human induced conditions exist which are correctable within a twenty year period, but a period of years will be required to implement the measures necessary to achieve compliance with the underlying standard. The elevated nitrate and nitrite levels are due to past human activities which a combination of human efforts in source control and natural processes will reduce or remove. If ground water contamination plume controls necessary to meet the underlying nitrate/nitrite standards are operated during the period of Site cleanup, resources may have to be diverted from the highest risk problems now facing the Site to fund that operation. Moreover, the most cost-effective

use of resources to address the nitrate/nitrite contamination would be containment and closure of the source, as described further below.

Rocky Flats is implementing cleanup activities that will ultimately reduce nitrate and nitrite levels in ground water and loadings to surface water. The solar evaporation ponds were identified as the source area causing the highest nitrate levels in the ground water. Remedial actions are planned to ensure the contaminant source will be mitigated to protect surface water quality. Under the current DOE planning assumptions, the solar ponds will be closed by 2003. A decrease in ground water nitrate levels will have to occur after closure to achieve compliance with the underlying standard of 10 mg/l. The adoption of these temporary modifications will allow DOE to consider less expensive alternatives than currently in place for handling the contaminated ground water. The nitrate/nitrite temporary modifications will not increase health risks in downstream segments under the present situation in the Big Dry Creek basin because existing drinking water supplies have been or will soon be protected from contact with Site discharges. (See Section 2b above.) Also, nitrate loadings to the Site stream segments during the remediation period will not cause exceedences of ground water quality standards downgradient of the Site. DOE agreed to find an acceptable method to meet the applicable temporary modification.

Changes to water quality standards for uranium and gross beta are based on ambient conditions in Woman Creek. Based on the observed 85th percentile of ambient surface water conditions, the uranium standard for Woman Creek was changed to 11 pCi/L and the gross beta standard was changed to 8 pCi/L. These ambient standards are more restrictive than the gross beta drinking water guidance and the proposed EPA MCL for uranium. The use of ambient concentrations as stream standards is appropriate until the Commission takes action on statewide radionuclide standards.

With the concurrent action taken by the Commission to revise the basic standard for plutonium from 15 to 0.15 pCi/L and add a basic standard of 0.15 pCi/L for americium, the existing Site-specific standards of 0.05 pCi/L for plutonium and americium were dropped from Table 2. The basic standards for these two radionuclides are now applicable to Segments 4a and 4b. Application of the basic standard is appropriate for these segments because they are human health risk-based standards, protective against a 10-6 cancer risk associated with residential exposure, consistent with Commission policy.

Finally, Table 1A, which contains additional standards for organic parameters, was deleted for the same reasons identified in the discussion of Segment 2, above.

e. <u>Segment 5</u>

Changes made in Segments 4a and 4b described above were also made in Segment 5, which is restricted to the on-site ponds and upstream waters of Walnut Creek. Temporary modifications listed in Table 3 for six organic parameters were adopted in Segment 5 based on Safe Drinking Water Act maximum contaminant levels (MCLs). These levels are less stringent than the underlying "water + fish" basic standards, but are more restrictive than 1) the temporary modifications for organic parameters that were previously in effect, and 2) the aquatic life basic standards.

In the 1995 hearing on un-ionized ammonia, the Commission determined that Segment 5 does not constitute a fishery due to flow and habitat constraints. As explained elsewhere in this Statement of Basis and Purpose, waters leaving the Site will no longer flow into water supply reservoirs. (See Sections 2b and 2c above.) Therefore, non-achievement of the underlying water + fish standards in Segment 5 will not adversely affect human health. Moreover, the chronic aquatic life protection standards for these six organic

parameters are 2 to 4 orders-of-magnitude higher than the adopted temporary modifications, so aquatic life in Segment 5 will also not be adversely affected as a result of adoption of the temporary modifications. Finally, adoption of these temporary modifications will not adversely affect classified uses downstream because Segment 5 is entirely within the Rocky Flats Environmental Technology Site boundary. At the downstream end of Segment 5, which is still within the Site boundary, surface waters will meet the underlying standards both during and after the period of active remediation.

To establish these temporary modifications for the period of active remediation at Rocky Flats, which DOE currently estimates will last 10 to 15 years, the Commission is adopting these temporary modifications for a period of twelve years, expiring in the year 2009, subject to triennial review

These temporary modifications will allow the use of more cost-effective passive, in situ source control and plume remediation methods. If statewide standards had to be met in Segment 5 during the period of remediation, then ground water plumes contaminated with organic chemicals would have to be pumped continually and treated in above-ground facilities. Consequently, DOE would not be able to address its highest priority risks first and would ultimately spend more for remediation than currently planned.

With the concurrent action taken by the Commission to revise the basic standard for plutonium from 15 to 0.15 pCi/L and add a basic standard of 0.15 pCi/L for americium, the existing Site-specific standards of 0.05 pCi/L for plutonium and americium were dropped from Table 2. The basic standards for these two radionuclides are now applicable to Segment 5. Application of the basic standards is appropriate for this segment because the standard is human health risk-based, protective against a 10-6 cancer risk associated with residential exposure, consistent with Commission policy.

3. Basis for the Commission Decision

a. Segment 3 Use Classifications

Although Broomfield proposed that the water supply classification be removed, the Commission has retained the water supply classification even though Great Western Reservoir will no longer be used as a water supply. This assures that the Commission action is in compliance with the section of the federal Water Quality Standards Regulation (40 CFR 131.3(a)) which states that uses which are in place on November 28, 1975, will be maintained. Since the Reservoir will be abandoned as a domestic water supply by Broomfield and they have stated they have no plans to reinstate that use, there is no need for water supply standards to protect any present or future use. Further, the reclaimed wastewater that will be held by Great Western Reservoir will not be suitable for water supply. It will be suitable and will actually be used for agriculture purposes. Therefore, the Commission has added the agricultural classification.

In addition, the Commission has changed the aquatic life warm water 1 classification to class 2 because the class 1 use never has existed in fact and because the water in Great Western Reservoir will not be suitable for class 1. Class 2 is appropriate in this case because Great Western Reservoir waters are not capable of sustaining a wide variety of warm water biota, including sensitive species due to physical habitat, water flows or levels that result in substantial impairment of the abundance and diversity of species.

The Commission has changed the recreation class 1 classification to class 2 because the class 1 use never existed in fact and because the water in Great Western Reservoir will not be suitable for class 1 (i.e., the water is not suitable or intended to become suitable for recreation activities in or on the water such as swimming and boating). The waters

will be suitable for recreation uses on or about the water such as lakeside recreation. Therefore, Recreation Class 2 is appropriate.

b. Segment 1 Water Quality Standards

The Commission adopted additional standards to protect the aquatic life and agricultural uses in place on Segment 1. While the segment has been classified for the warm water aquatic life class 2 and agricultural uses since 1981 only limited standards were assigned. Evidence provided at this hearing showed a significant increase in the number and species of fish present in the segment when compared to the evidence presented in 1981 and the Commission felt a higher level of protection was warranted. The Commission also adopted a chronic nitrite standard of 4.5 mg/l based on a recommendation that this level should be a maximum concentration allowed for waters whose chloride levels exceed 22 mg/l and contain fathead minnows and other nonsensitive fish species.

The Commission rejected a proposal by the Division of Wildlife to adopt a more stringent unionized ammonia standard for segment 1, at 0.06 mg/l, because the Commission felt that there was not enough evidence to justify adopting the more stringent standard at the present time. The Commission encourages the Cities discharging to this segment, the Division of Wildlife and the Water Quality Control Division to work together to assess the future instream conditions in this segment resulting from anticipated effluent dechlorination efforts and municipal water supply and wastewater discharge operational changes.

c. Segment 2 Water Quality Standards

The Commission deleted the site-specific organic standards identified in Table 1A. Table 1A was adopted in 1989 prior to the Commission's adoption of basic standards for organic compounds. Table 1A was retained in 1992 because, although for most parameters the site-specific standards were identical to the basic standards, the table contained a few unique site-specific standards. The Commission has since adopted basic standards for all compounds found in Table 1A, and since the basic standards are applicable in Segment 2, Table 1A was deleted. The water supply based beryllium standard was moved to the numeric standards for metals.

d. Segment 3 Water Quality Standards

The Commission changed the fecal coliform standard from 200/100 ml to 2000/100 ml to reflect the change to the recreation class 2 classification. The chronic unionized ammonia standard was changed from 0.06 to 0.10 mg/l to reflect the change to the aquatic life warm water class 2 classification. Nitrite was changed from 0.5 to 2.7 mg/l based on application of footnote 5 Table II Inorganic Parameters of the Basic Standards and Methodologies for Surface Water. Nitrate, chloride and sulfate were deleted as a result of the conclusion that there is no current or foreseeable water supply use of this reservoir. Based on the absence of water supply use and addition of the agriculture classification, the following metals standards were changed; As(ac) = 50 (Trec) to 100 (Trec), CrIII(ac) = 50 (Trec) to CrIII(ac/ch) = TVS and the following standards were deleted; Fe(ch) = 300 (dis), Mn(ch) = 50(dis). Selenium was changed from 10(Trec) to 20 (ac) and 5(ch) to reflect the revised selenium standards adopted by the Commission in 1995. Finally, due to the absence of a water supply use, the site specific organics standards and water supply based beryllium standard were deleted. An agriculture based beryllium standard of 100 ug/l was added to the metals table. All of the changes for segment 3 will be effective January 1, 1998, to assure that Broomfield’s new water supply is fully in place.

e. Segments 4a and 4b Water Quality Standards

The Commission retained water supply as a use classification for Segments 4a and 4b, but as explained in the background above, because the water is not presently used for water supply, secondary drinking water-based standards for iron, manganese, chloride and sulfate were removed, the standard for nitrate was temporarily modified to 100 mg/L and the nitrite standard was temporarily modified to 4.5 mg/L. For Walnut Creek, all of these changes will be effective January 1, 1998, to assure that Broomfield's new water supply is fully in place. Ambient standards for total uranium of 11 pCi/L and 8 pCi/L for gross beta were adopted for the Woman Creek portion of Segment 4 to reflect the most current monitoring results for these waters, and basic standards for plutonium and americium were adopted for all portions of Segments 4a and 4b. Selenium was changed from 10 (Trec) to 20 (ac) and 5(ch) to reflect the revised selenium Table Value criteria adopted by the Commission in 1995. Table 1A site-specific standards were deleted. The qualifier adding the standard for beryllium was deleted by the addition of Be (ch)=4 to the numeric standards for metals.

f. Segment 5 Water Quality Standards

The Commission retained water supply as a use classification for Segment 5, but because the water is not used for water supply, secondary drinking water-based standards for iron, manganese, chloride and sulfate were removed, and the standard for nitrate was temporarily modified to 100 mg/L and nitrite was temporarily modified to 4.5 mg/L. Ambient standards for total uranium of 11 pCi/L and 8 pCi/L for gross beta were adopted for the Woman Creek portion of Segment 5 to reflect the most current monitoring results for these waters. Site specific standards for plutonium and americium were deleted to allow the newly adopted basic standards to apply to Segment 5. Selenium was changed from 10 (Trec) to 20 (ac) and 5(ch) to reflect the revised selenium Table Value criteria adopted bv the Commission in 1995.

Temporary modifications are adopted for parameters contained in Table 3 to reflect existing conditions and the temporary modification for radionuclides of ambient quality was removed.

g. Segment 3 Antidegradation Designation

The "Use Protected" designation was added based on the aquatic life warm water class 2 classification of Great Western Reservoir. This designation is consistent with the existing designations of Big Dry Creek Segments 1, 4a, 4b and 5.

PARTIES TO THE RULEMAKING

1. State of Colorado Division of Wildlife
2. U.S. Department of Energy
3. Kaiser-Hill Company, LLC
4. City of Broomfield
5. City of Westminster
6. U.S. EPA Region VIII
7. City of Thornton
8. City of Arvada
9. City of Northglenn

38.51 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE

The provisions of § 25-8-402 C.R.S. 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

In accordance with a 1995 Memorandum of Understanding between the Metro District, the Water Quality Control Division, the Colorado Division of Wildlife, and the U.S. Environmental Protection Agency, the Metro District completed during 1995 and 1996 seven supplemental laboratory tests of effects of varying levels of dissolved oxygen on particular species of fish. These tests were designed to provide additional information to assist in setting a final Older Life Stage 7-Day Mean of Minimums standard and a final Early Life Stage 1-Day (acute) standard.

Based on the tests performed for the Metro District, it was concluded that a 2.0 mg/L dissolved oxygen ("D.O.") standard for Older Life Stage 7-Day Mean of Minimums will protect fish from acute effects and is also likely to protect older life stages from adverse effects on growth. To assure protection from adverse effects on growth, a 2.5 mg/L standard for the Older Life Stage 7-Day Mean of Minimums was adopted.

In tests to provide a basis for an acute (instantaneous) standard for early life stages, it was concluded that a standard of about 3.0 mg/L would protect most fish likely to be in Segment 15 from adverse effects on survival during early life stages. Six fish species were tested in the laboratory during early life stages. Five fish were fully protected from adverse effects on survival at acute D.O. levels above 2.0 mg/L during early life stages. One fish species tested, the plains killifish, demonstrated approximately a 20% reduction in hatching and survival when exposed to repeated acute minima levels of 4.0, 3.0 and 2.0 mg/L, i.e., each of these levels resulted in the same effect on the plains killifish. Repeated acute levels of 1 mg/L resulted in greater suppression of hatch. It is recognized that a portion of the fish community in the river (10% - 20%) may have a reduction in hatch of approximately 20% at repeated D.O. minima below 5 mg/L D.O.

Based on the information that (1) Segment 15 is a Class 2 Aquatic Life stream with significant variations in flow and a predominantly unstable, sandy substrate, (2) there would be a minimal level of effect on the aquatic community as a whole (less than 5%), (3) that the cost of increased treatment outweighs the benefits to the fish community, and (4) the Metro District has agreed to make improvements to Segment 15 to improve the overall diversity and population of fish in the Segment; the Commission has determined that a site specific Early Life Stage 1-Day (acute) standard of 3.0 mg/L will be sufficiently protective for Segment 15.

The standards further provide for an Early Life Stage 7-Day average of 4.5 mg/l for the period July 1 to July 31 north of the Lupton Bottoms Ditch diversion. The Commission agrees with this modification of the Early Life Stage 7-Day average because it will avoid the necessity of building an active aeration facility in the lower end of Segment 15. It is expected that the 4.5 mg/l standard in this portion of Segment 15 will have little, if any, impact on growth and survival of fish. Any possible negative effect will be offset by the benefits of the other improvements (flow equalization, upstream drop structures and channel changes) to be made by the Metro District.

The temporary modifications and the schedule for the standards to become finally effective are based on the Metro District schedule for construction of improvements to increase the D.O. in Segment 15. The Water Quality Control Commission will review these Segment 15 D.O. standards and the implementation efforts in detail as a part of each triennial review until these standards become fully effective.

For the purpose of determining compliance with the standards, dissolved oxygen measurements shall only be taken in the flowing portion of the stream and at mid-depth, and at least six inches above the bottom of the channel. Dissolved oxygen measurements in existing man-made pools and in pools behind low-head dams built for reaeration are not to be used for determination of compliance with the standards. For the purpose of this regulation the extent of the man-made pools shall be defined in writing by the Division based on the best professional judgment of the Division and on advice by the Colorado Division

of Wildlife and the U.S. Environmental Protection Agency. The intent of excluding the existing man-made structures from the instream compliance monitoring for dissolved oxygen is to recognize that these pools are not natural to the river and that they exacerbate low dissolved oxygen problems. In defining the extent of these pools, it is recognized that pools comprise areas of lower velocity, increased sedimentation, and greater depth than other areas of the river; however, there may not be a sharp demarcation of what constitutes a pool using these criteria. Because of this and because the extent of pol area may vary, the judgment and consensus of several stream biologists will be used to define the upstream extent of each pool.

The Commission took notice of a Memorandum of Understanding ("MOU") between the Metro District, the WQCD, the DOW and EPA. This MOU sets forth the parties' agreement with respect to the dissolved oxygen standards. In addition, it details activities and improvements to be undertaken by the Metro District and includes an anticipated construction schedule. Among the improvements agreed to by the Metro District is flow equalization. Minimizing diurnal flow variations through construction and operation of flow equalization facilities is expected to provide important benefits to the aquatic life in Segment 15 of the South Platte River. With a reduction in daily variation in the river flow and the attendant improvement in fish habitat, the Commission finds that the site-specific numerical dissolved oxygen standards require less of a safety margin to provide sufficient protection to the aquatic life in Segment 15. The MOU provides that the Metro District agrees to design and construct facilities to significantly reduce variations in river flows caused by discharges from the Metro District's Central Treatment Plant.

PARTIES TO THE RULEMAKING HEARING

1. Metro Wastewater Reclamation District
2. Colorado Division of Wildlife

38.52 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (April, 1997 Multiple Segments Hearing)

The provisions of 25-8-202(1)(a) and (b); 25-8-203; 25-8-204; and 25-8-402 C.R.S. 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

As a result of this hearing, the Commission has decided to revise the water quality classifications and standards for several segments, as enumerated below.

Upper South Platte Segments 2b and 2c

The Commission extended the temporary modifications that existed in segments 2b and 2c of the Upper South Platte River Basin because the underlying standards are not being met due to human-induced conditions that are deemed correctable within a 20-year period. The London Mine is cooperating with the Water Quality Control Division and Division of Minerals and Geology to obtain a §319 grant to study alternatives to reduce pollutant loadings in segments 2b and 2c and to implement actions to effect reductions in metals loading in these segments.

A new temporary modification for manganese was adopted in segment 2c. The basis for this temporary modification is ambient data which shows a slight exceedance of the water supply based table value standard of 50 ug/l.

The duration of the proposed extension of temporary modifications in segments 2b and 2c and new temporary modifications in segment 2c is for three years. This will allow time for implementation of the §319 project. Upon completion, London Mine and the Water Quality Control Division will reassess the

water quality in segments 2b and 2c to see whether a further extension is warranted within the 20 year period included in §'3.1.7(3)(a)(i) of the Basic Standards.

Upper South Platte Segment 14

At the request of the Littleton/Englewood Wastewater Treatment Plant, the Commission revised the numeric water quality standard for dissolved manganese on segment 14 of the South Platte River from 50 ug/l to 190 ug/l. This revision is based on evidence that 190 ug/l is the 85th percentile of ambient dissolved manganese concentration in water samples taken during 1990, 1991, and 1996 from segment 14 of the South Platte River at a point upstream from the outfall of the Littleton/Englewood Wastewater Treatment Plant.

Upper South Platte Segment 15

For this hearing, the Water Quality Control Division proposed adopting “water + fish” organic chemical standards for segment 15. The Commission declined to adopt these standards for this segment at this time. The Commission does not believe that the information submitted provides sufficient evidence of recurring fishing in this segment that would result in a degree of exposure to potential pollutants that warrants the adoption of these standards. No information was included in the record regarding what fish species are present in segment 15.

Clear Creek Segment 14

Several changes to the standards for Clear Creek segment 14 were adopted. The first changes were to correct typographical errors in the table. They consisted of specifying a use-protected designation for the segment because of its aquatic life class 2 classification and moving the formulas for zinc and copper in the temporary modifications column to the main tables. (They were adopted as standards in 1993, not temporary modifications). The second, more substantive changes were to update the tables to reflect standards based on dissolved metals rather than the existing total recoverable. Data collected from 1990 through 1996 at a monitoring station located just upstream of the segment resulted in the adoption of substantially different standards for several metals. Temporary modifications were adopted for cadmium and manganese, with underlying standards based on the goals of metals removal associated with Superfund remediation projects in the upper Clear Creek basin. Ambient standards were not adopted for copper or zinc because of site-specific standards were adopted for these parameters in 1993 based on water effects ratio studies.

Big Thompson, Segments 1, 2, and 3

At the request of the Thompson River Project, the Commission upgraded the recreation classification for segments 1, 2, and 3 to Recreation Class 1 - Primary Contact based upon evidence that the actual uses of these segments currently include primary contact recreation.

PARTIES TO THE RULEMAKING HEARING

1. Littleton/Englewood Wastewater Treatment Plant
2. Thompson River Project
3. State of Colorado, Division of Wildlife
4. London Mine
5. City of Fort Collins
6. Metro Waste Water Reclamation District
7. Plum Creek Wastewater Authority
8. Jackson Creek Ranch, LLC
9. Coors Brewing Company
10. Perry Park Water & Sanitation District

11. North Front Range Water Quality Planning Association
12. U.S. EPA Region VIII

38.53 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JULY, 1997 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission has adopted a revised numbering system for this regulation, as a part of an overall renumbering of all Water Quality Control Commission rules and regulations. The goals of the renumbering are: (1) to achieve a more logical organization and numbering of the regulations, with a system that provides flexibility for future modifications, and (2) to make the Commission's internal numbering system and that of the Colorado Code of Regulations (CCR) consistent. The CCR references for the regulations will also be revised as a result of this hearing.

38.54 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; NOVEMBER, 1998 RULEMAKING

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

The Commission has recently approved a new schedule for triennial reviews of water quality classifications and standards for all river basins in Colorado. In this hearing the Commission has extended the expiration dates of temporary modifications [and, for the Animas Basin, the effective dates of underlying standards] without substantive review, so that the next substantive review of the temporary modifications can occur as part of the overall triennial review of water quality standards for the particular watershed. This will avoid the need for multiple individual hearings that would take staff resources away from implementation of the new triennial review schedule.

For segment 3 of St. Vrain Creek, the Commission has corrected the numerical standards by repealing dissolved iron and manganese standards and revising the arsenic standard, since there is no water supply classification for this segment.

38.55 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; May, 1999 RULEMAKING

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

Segment 5 of Big Dry Creek includes a series of ponds that lie below the Rocky Flats Environmental Technology Site (RFETS) sewage treatment plant outfall (discharge point STP1). These ponds are part of what is known as the B-Series ponds. More specifically, these ponds are designated as ponds B3, B4 and B5, in upstream to downstream order. This segment is currently classified and has numeric standards for radionuclides, including americium and plutonium.

During the decommissioning of the site, certain cleanup activities may increase the risk of an accidental release of radioactive materials into the sewage treatment plant (STP) collection system, and then into the environment. There may also be releases from soils as a result of surface runoff, which have in the past resulted in some short term excursions above stream standards in the Walnut Creek drainage. In either case, the specific parameters of concern are americium and plutonium.

While the risk of a release from the STP may be very small, if a release did occur, the ponds would reduce the potential for an off-site release to downstream segments. The current draft NPDES permit for the sewage allows RFETS to use an outfall that currently exists above the ponds - referred to as STP1. But, there are no numeric effluent limitations for americium or plutonium assigned to outfall STP1, due to legal disputes about the applicability of such limits.

The permit includes a second outfall below the ponds - known as STP2, which in effect is limited for americium and plutonium through a separate CERCLA based control mechanism - the Rocky Flats Cleanup Agreement (RFCA). While this outfall is not yet constructed, it is envisioned that eventually it will be the primary outfall for the STP.

Even after STP2 is operational, the permit will allow the discharge from STP1 under special circumstances. In order to allow this type of discharge, and because of the existing periodic excursions of stream standards - that are due to man-made conditions that will eventually be remediated, temporary modifications to the underlying numeric americium and plutonium standards are being adopted.

Although the current radionuclide standards have generally been attained in segment 5 in the past, the temporary modifications are being adopted due to the unique challenges associated with decommissioning a nuclear weapons facility. The temporary modifications are narrative standards, allowing the Walnut Creek portion of segment 5 americium and plutonium levels to be higher than the current underlying standards - up to a maximum level of whatever is necessary to maintain the numerical standards in the downstream segment. This downstream segment has compliance points and instream limits on americium and plutonium as part of the Rocky Flats Cleanup Agreement which require that the levels of these parameters be maintained within the stream standards.

The temporary modifications must be in place before the 401 Certification can be issued for the NPDES permit. The ultimate term of these temporary modifications is envisioned to be during the entire period of decommissioning, with an expiration date of December 31, 2009. The NPDES permit and several RFCA associated documents that are currently being revised directly affect the level of protection afforded to segment 5 and downstream segments. In order to ensure that adequate protections are included in these documents within a reasonable period of time, the temporary modifications will initially be adopted with an expiration date of December 31, 2000. During, the May, 2000, triennial review of the South Platte River Basin standards, the temporary modifications may be extended to December 31, 2009, to coincide with site closure, if there is sufficient reason to believe that downstream water quality standards will still be protected.

Because the STP does not discharge into the Woman Creek drainage, the temporary modifications adopted in the rulemaking only apply to the Walnut Creek drainage. The temporary modifications do not apply to the Woman Creek portion of the Big Dry Creek, segment 5, namely Pond C-2.

PARTIES TO THE RULEMAKING HEARING

1. City of Broomfield
2. City of Westminster
3. U.S. Department of Energy
4. Rocky Mountain Remediation Services, LLC
5. Kaiser-Hill, CO., LLC

38.56 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; SEPTEMBER, 2000 RULEMAKING

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

BASIS AND PURPOSE

Background and Overview

This rulemaking hearing was originally noticed to consider proposals by the Cherry Creek Basin Water Quality Authority (Cherry Creek Authority) for (1) revisions to the phosphorus standard for Cherry Creek Reservoir, (2) revisions to the Cherry Creek Reservoir Control Regulation, Regulation #72, and (3) approval of related amendments to the Denver Regional Council of Governments' (DRCOG) section 208 plan (Clean Water Plan). Prior to the hearing, because DRCOG did not approve and submit to the Commission proposed section 208 plan amendments, the Commission ruled that revisions to that plan would not be considered in this proceeding. If amendments to the section 208 plan are approved and submitted by DRCOG in the future, the Commission will consider them at that time.

As a result of the September, 2000 hearing, the Commission adopted revisions to the water quality standards for Cherry Creek Reservoir. Specifically, the Commission repealed the previous 35 mg/l phosphorus standard and adopted a seasonal mean chlorophyll a standard of 15 mg/l, measured in the upper three meters of the water column for the months of July through September, to apply annually, with an expected rate of compliance of nine years out of ten. As discussed further below, to implement this standard the Commission is also establishing a seasonal mean total phosphorus target of 40 mg/l.

Based on its initial deliberations following this hearing, the Commission decided not to adopt any revisions to the Cherry Creek Reservoir Control Regulation at this time. Rather, the Commission is continuing the portion of this rulemaking proceeding relating to potential revisions to the Control Regulation, to be considered further at the May, 2001 Commission meeting. In order to provide some guidance to the Water Quality Control Division (Division) staff, the Cherry Creek Authority, and other interested persons as efforts proceed to development appropriate Control Regulation revisions, this Basis and Purpose discussion provides the Commission's initial perspective on a number of the Control Regulation issues raised in this proceeding.

Chlorophyll a Standard and Total Phosphorus Target

As noted above, the Commission has repealed the previous 35 mg/l phosphorus standard and adopted a seasonal mean chlorophyll a standard of 15 mg/l, measured in the upper three meters of the water column for the months of July through September, to apply annually, with an expected rate of compliance of nine years out of ten. The Commission intends that the Division will develop a sampling methodology for implementation of this standard that is representative of overall reservoir quality.

In 1985, the Commission set a total phosphorus standard of 35 mg/l for Cherry Creek Reservoir, to limit chlorophyll a levels, thereby limiting eutrophication of the reservoir, and thus protecting the beneficial uses of the reservoir. The reservoir is classified for the following uses: Aquatic Life Warm 1, Recreation 1, Water Supply and Agriculture. The 35 mg/l total phosphorus standard was applied as a mean concentration during the growing season of July through September. In addition, a target of 15 mg/l chlorophyll a was established. The chlorophyll a target was also applied as a seasonal mean concentration. The Commission also adopted a full set of numeric standards to protect the uses of the reservoir. The phosphorus standard became effective May 30, 1985.

The statement of basis and purpose for the Commission's 1985 adoption of standards states that the intent of the total phosphorus standard was to limit chlorophyll a levels and thereby protect the classified

beneficial uses of the reservoir. "The purpose for adopting the .035 mg/L P standard for Cherry Creek Reservoir is to maintain the chl a level in Cherry Creek Reservoir at no higher than .015 mg/L." The 1982 Clean Lakes study of the reservoir determined that a range of chlorophyll a concentrations of 10 to 20 mg/l was identified as protective of the aquatic life uses, while a narrower range of 10 to 15 mg/l was determined to be protective of swimming. The chlorophyll a goal of 15 ug/l was a compromise level to protect both recreational and aquatic life uses.

In this rulemaking, evidence was presented that during each year from 1992 through 1999, the seasonal means for total phosphorus have been significantly higher than the 35 mg/l total phosphorus standard. In addition, several seasonal mean chlorophyll a values have exceeded the 15 mg/l chlorophyll a goal, particularly in recent years.

In this action, the Commission has adopted a chlorophyll a standard with a total phosphorus target. The Commission has selected this approach because the chlorophyll a level more directly relates to the uses to be protected than does total phosphorus. Chlorophyll a is a direct measure of algal biomass and overall productivity of the reservoir. The concentration of chlorophyll a reflects the aesthetic acceptability of the reservoir for recreational purposes. High concentrations of algae reduce the transparency of the reservoir. Swimming may be more desirable in waters of high transparency and low nutrient content. Aesthetically, people prefer clear, less green water to swim in.

Although excess algae is perceived by some to be merely an aesthetic quality, algal blooms resulting from excess nutrients can have profound consequences on the chemistry and biology of the reservoir. For example, there can be a shift in the algal community resulting in dominance by blue-green algae, which can produce taste and odor problems in the reservoir. High algal biomass can result in oxygen depletion in the lower waters during the summer and autumn. The oxygen depletion can result in fish kills.

Total phosphorus is used as a target to control production of chlorophyll a. There is uncertainty in the relationship between total phosphorus and chlorophyll a in Cherry Creek Reservoir, and the relationship could change in the future. Therefore, a 15 mg/l chlorophyll a standard with a total phosphorus target minimizes the need to revisit the standard in the future. The level of total phosphorus can be adjusted in the control regulation over time, if necessary, as more is learned about this relationship.

The Commission has determined that the chlorophyll a standard should apply annually. The Commission intends that the rate of compliance with the standard should be nine years out of ten on a rolling average. In other words, if for any ten-year period the seasonal mean chlorophyll a standard is met for at least nine of those years, the reservoir will be considered to be in attainment of the standard. Instantaneous exceedances are allowed in individual samples, so long as the seasonal mean for the standard is attained.

The total phosphorus target of 40 mg/l is based upon a regression model of seasonal mean total phosphorus versus seasonal mean chlorophyll a from 1992 to 1999 at Cherry Creek Reservoir. The Division used the 90% confidence intervals of the regression line to determine the target level of total phosphorus that would attain the 15 mg/l chlorophyll a standard. Therefore, it would be expected that for a given growing season, one would be 90 percent confident that a total phosphorus level of 40 mg/l would result in a chlorophyll a level at or below 15 mg/l.

Control Regulation Issues

As noted above, the Commission has chosen not to adopt any revisions to the Cherry Creek Reservoir Control Regulation, Regulation #72, at this time. Based upon the Commission's decision regarding adoption of the new chlorophyll a standard for the reservoir, the Commission believes that it would be beneficial for the Division, the Cherry Creek Authority and other interested persons to further examine appropriate revisions to the Control Regulation. In order to provide time for these discussions to occur, the portion of this proceeding relating to potential revisions to the Control Regulation is being continued to the May, 2001 Commission meeting. The Commission requests that prior to that time the Division work

cooperatively with the Cherry Creek Authority and other interested persons to develop a new proposal for Control Regulation revisions.

In order to provide some guidance to the Division, the Cherry Creek Authority, and other interested persons as efforts proceed to develop appropriate Control Regulation revisions, the Commission offers the following initial perspective on a number of the Control Regulation issues raised in this proceeding:

1. Concern was expressed by the Division and several other participants in the hearing regarding potential in-lake phosphorus management by the application of alum. The Commission believes that control efforts should emphasize preventive, source control measures and that in-lake treatment options should be at the bottom of the priority list. Moreover, the Commission expressed concern regarding the potential negative impacts of in-lake treatment on aquatic life and water quality.

2. The Cherry Creek Authority proposed a methodology that accounts for the pounds of phosphorus delivered to the reservoir as an “in-stream delivery ratio” of what is actually released into the watershed. The Commission is not necessarily opposed to use of the in-stream delivery ratio concept, but is not yet persuaded of its viability. Concerns were expressed regarding whether this concept appropriately accounts for a long-term mass balance for phosphorus. The Commission believes that there is a need for more data and analysis to provide a strong rationale that this concept will work before it is implemented as a basis for the provisions of the Control Regulation.

3. The current Control Regulation authorizes a phosphorus trading program for the Cherry Creek watershed. In adopting the trading program in 1997, the Commission stated that “[t]he goal of the Trading Program is to allow those trades which will have a net water quality benefit in the Basin and maintain the inlake chlorophyll a level of 15 mg/l.” Data that has become available subsequent to adoption of the trading program raises significant concerns regarding current attainment of this chlorophyll a level, which is now being established as a standard for the reservoir. Therefore, the Commission now has serious reservations about the suitability of the trading program until such time as the reservoir is in compliance with the chlorophyll a standard.

4. The Commission believes that an effective public education component should be included in the overall efforts to improve and subsequently maintain the quality of Cherry Creek Reservoir.

5. The Commission believes that there may be a need for strong stormwater discharge controls in the Cherry Creek Basin, as one component of overall control efforts. Development of a revised Control Regulation should carefully review the status of current stormwater controls and the possible need for additional measures.

6. For any revised Control Regulation, the Commission believes that there is a need for a comprehensive, ongoing overall monitoring program to demonstrate that the total maximum daily load established is being achieved.

7. The Commission does not believe that the need for or cost-effectiveness of reverse osmosis treatment has been demonstrated at this time.

In summary, the Commission believes that efforts to develop a revised Control Regulation should focus on identifying what source control efforts are feasible, particularly over the next three to six years, to move aggressively toward compliance with the 15 mg/l chlorophyll a standard. The Commission recognizes that at present there is still legitimate debate and disagreement regarding what level of water quality is attainable in the reservoir over the long run. However, the evidence demonstrates that there are a number of technically and financially feasible projects and other control efforts that have not yet been implemented.

The Commission has determined as a matter of policy that at this time it is appropriate to maintain a conservatively protective chlorophyll a standard and associated total phosphorus target as the basis for near-term control efforts. As those efforts are implemented over time and more information is developed regarding influences on and the attainability of identified levels of reservoir water quality, both the Control Regulation and the underlying standards can be revisited. Indeed, the statutory triennial review process requires that they be revisited at three-year intervals. In the meantime, the Commission urges all interested parties to work cooperatively to determine the most effective measures to implement in the next few years to move aggressively toward improvement of the quality of the water in Cherry Creek Reservoir.

PARTIES TO THE RULEMAKING

1. The Cherry Creek Basin Water Quality Authority
2. The City of Greenwood Village
3. Roxborough Park Metropolitan District
4. Plum Creek Wastewater Authority
5. Colorado Division of Wildlife
6. Arapahoe County Water & Wastewater Authority
7. The City of Thornton
8. Denver Regional Council of Governments
9. Clean Water Action
10. United Citizens of Arapahoe Neighborhoods
11. Chatfield Watershed Authority
12. U.S. Environmental Protection Agency, Region VIII
13. The City of Westminster
15. Sierra Club
16. Warm Water Coalition
17. Cherry Creek State Park
18. Colorado Trout Unlimited

38.57 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; NOVEMBER, 2000 RULEMAKING

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. Resegmentation

Some renumbering and/or creation of new segments was made in the basin due to information which showed that: a) the original reasons for segmentation no longer applied; b) new water quality data showed that streams should be resegmented based on changes in their water quality; and/or c) certain segments could be grouped together in one segment because they had similar quality and uses. The following changes were made:

Upper So. Platte segment 6 was split into segments 6a, 6b and 6c to reflect the difference in water quality standards and land use, namely segment 6a is the portion above the Chatfield Reservoir, segment 6b is the reservoir, and segment 6c is the portion below the reservoir.

Upper So. Platte segment 16 was divided into 16a, 16b and 16c to reflect the difference between Sand Creek and the other tributaries, and to recognize the uses of Aurora

Reservoir. The mainstem of Sand Creek became segment 16a; Aurora Reservoir became 16 b, and the all remaining tributary portion became 16c.

Clear Creek segment 13 was divided into two segments to address differences in water quality and uses. Segment 13a is the mainstem and tributaries above Black Hawk's water supply; 13b is the mainstem and tributaries below Black Hawk's water supply to the confluence with Clear Creek.

Clear Creek segment 14 was split into segments 14a and 14b to reflect differences in access for recreational use. The dividing point is the Denver Water conduit #16 crossing, approximately .5 miles above Youngfield Street, with 14b, the lower segment having a recreation 1a classification.

Clear Creek segment 16 was split into segments 16a and 16b to reflect actual water supply uses. Lean Gulch and its tributaries above the outlet of Maple Grove Reservoir will be segment 16a.

Clear Creek segment 17 was divided into two segments to recognize the difference in uses of Arvada reservoir. Arvada Reservoir is now segment 17a, with the remaining tributaries to Ralston Creek as segment 17b.

Clear Creek segment 18b was reconfigured to reflect actual water supply uses. Kelly Lake and Van Bibber Creek above the Kelly Lake diversion were moved to Clear Creek segment 18a.

St. Vrain Creek segment 4 was divided into two segments to address the water quality in James Creek which has been affected by historical mining. Segment 4a is now Lefthand Creek and tributaries except for James Creek, and Segment 4b is James Creek and its tributaries.

Big Thompson segment 4 was split into segment 4a, 4b and 4c to reflect differences in uses and water quality characteristics. The dividing point between 4a and 4b is the Greeley-Loveland Canal diversion. Segment 4a, above the diversion will have water supply and aquatic life cold 2 uses. The dividing point between segments 4b and 4c is County Road 11H, above the Loveland wastewater treatment plant.

Cache la Poudre segments 1 and 2 were combined into a new segment 1. This combines those waters within the Rawah, Neota, Comanche Peak and Cache la Poudre Wilderness Areas with those in the Rocky Mountain National Park into 1 segment.

Cache la Poudre segments 3 and 4 were combined into segment 2. This combines the mainstem, and waters tributary to the Upper Cache la Poudre (and not in segment 1) into 1 segment. Segments 3 and 4 were deleted.

Middle South Platte segment 3 was split into segment 3 and segment 5 to reflect differences in recreational uses. Segment 3 remains the "all tributaries" segment; segment 5 will be Lone Tree, Crow, and Boxelder Creeks.

Lower So. Platte segment 2 This "all tributaries" segment was split into portions that have perennial flow and support diverse aquatic communities and those that do not. Segment 2b is the portion on the north side of the river with aquatic communities and segment 2a is the portion without. Vancil Reservoir was moved to segment 5.

Republican River segment 6 was reconfigured to reflect aquatic life uses. Chief Creek was moved to segment 3 which has an aquatic life cold 1 classification.

B. Wetlands

In March 1993, the Commission amended the Basic Standards and Methodologies for Surface Water, Regulation #31 (5 CCR 1002-31) to include wetlands in the stream classification and standards system for the State. Due to that action, it became necessary to revise the segment description for all segments of the "all tributary" type to clarify that wetlands are also part of the tributary system for a given mainstem segment. All tributary wetlands now clearly carry the same classifications and standards as the stream to which they are tributary as provided for in 31.13(1)(e)(iv).

C. Manganese

The aquatic life manganese criterion was initially changed in the 1997 revisions to the Basic Standards (5 CCR 1002-31) from a single chronic dissolved criterion to acute and chronic hardness-based equations. The equations were further modified in the 2000 revisions to the Basic Standards. The new manganese acute and chronic equations were added as table value standards in 38.6(3). As a result of the adoption of these new TVS, all segments classified for aquatic life use that had a chronic total recoverable manganese standard of 1,000 ug/l had the 1,000 standard stricken and replaced with Mn (ac/ch)=TVS.

D. Selenium

The regulation in 38.6 (3) listed the table value standards for selenium as Acute=135 ug/L and Chronic=17 ug/L. This was updated to reflect the existing acute and chronic criteria for selenium listed in the Basic Standards as Acute=18.4 ug/L and Chronic=4.6 ug/L which was adopted in 2000 by the Commission. This change means that all segments with standards for selenium given as TVS now have these lower acute and chronic standards. Because of this change, on all segments classified for a water supply use, the chronic total recoverable selenium of 10 ug/L was stricken and replaced with Se (ac/ch)=TVS.

E. Outstanding Waters Designations

Several segments or waterbodies were designated outstanding waters (OW) due to their meeting certain criteria pursuant to section 31.8(2)(a). Other segments that already had the OW designation but whose classifications and/or standards were inconsistent with the those prescribed by the Commission for OW waters in other basins in Colorado were corrected. These changes are discussed below for each segment.

1) Add Outstanding Waters Designation: Segments which already include wilderness areas in their description were designated OW. The water quality of the following segments met the 12 parameter test and other requirements of 31.8(2)(a):

Upper So. Platte segment 1b
Bear Creek segment 7
Clear Creek segment 19
Boulder Creek segment 1
St. Vrain segment 1
Big Thompson segment 1

2) Add classifications and standards: Classifications (recreation 1, aquatic life cold 1, water supply and agriculture) and table value standards were added to two segments that already were designated OW, to be consistent with Commission actions in other basins. These segments are:

Cache La Poudre segment 1 (newly configured)
Laramie River segment 1

F. Temporary Modifications

There were several segments which had temporary modifications that were reviewed, and decisions were made as to delete them or to extend them, either as is or with modification of the numeric limits.

Upper So. Platte segment 2b, Mainstem of Mosquito Creek from the confluence with South Mosquito Creek to its confluence with the Middle Fork of the South Platte River: This segment had a temporary modification for zinc. The TMDL for iron, lead, manganese, cadmium and zinc in the Mosquito Creek areas was submitted to EPA in June 2000. The Commission determined, after review of the information presented at the hearing, that the temporary modification should be revised to reflect data collected from the segment in the past few years. It was determined that an expiration date of 6/30/04 would provide sufficient time for the Division, the Division and Minerals and Geology, and the stakeholders to determine the appropriate steps to address the issue.

Upper So. Platte segment 2c, South Mosquito Creek from the source to the confluence with Mosquito Creek: This segment had temporary modifications for cadmium, iron, zinc and manganese. Water quality in segment 2c is highly affected by the discharge of water from two tunnels, and waters in segment 2c flow into segment 2b, discussed above. The temporary modifications were revised to reflect current information and extended to 6/30/04.

Upper So Platte segment 15 Mainstem of South Platte River from the Burlington Ditch Diversion in Denver to a point immediately below the confluence with Big Dry Creek: Temporary modifications for fecal coliform and E. coli at existing quality, for chronic selenium of 5.2 ug/L and acute selenium of 18.4 ug/L were adopted for this segment that will expire 6/30/04.

Upper So Platte segment 16a Mainstem of Sand Creek from the source to the confluence with the South Platte River: Temporary modifications for chronic selenium of 12 ug/L with no acute selenium standard were adopted for this segment that will expire 6/30/04.

Clear Creek segment 14, Mainstem of Clear Creek from the Farmers Highline Canal diversion in Golden Colorado to Youngfield Street in Wheatridge, Colorado: This segment had temporary modifications for cadmium and manganese. The temporary modifications were reviewed and deleted to reflect data collected recently from the segment.

Big Dry Creek segment 5, Mainstems of North and South Walnut Creek including all tributaries, lakes and reservoirs, from their sources to the outlets of ponds A-4 and B-5, on Walnut Creek, and Ponds C-2 on Woman Creek. All three ponds are located on Rocky Flats property: This segment had temporary modifications for americium and plutonium set to expire 6/30/01 and nitrate and nitrite set to expire 12/31/09. The Commission decided to delete the americium and plutonium temporary modifications. The original reason for adopting those modifications was to expedite 401 certification of the NPDES permit. Since DOE has chosen not to reconfigure the outfall and that proposed reconfiguration formed part of the basis for the americium and plutonium temporary modifications, these modifications are no longer needed on that basis. In regards to the nitrate and nitrite temporary modifications, the Commission decided to keep the expiration date.

Big Dry Creek segment 4a: Mainstem and all tributaries to Woman and Walnut Creeks from sources to Standley Lake and Great Western Reservoir except for specific listings in Segments 4b and 5. This segment had temporary modifications for nitrate and nitrite set to expire 12/31/09. The Commission decided to keep the expiration date.

Big Dry Creek segment 4b, North and South Walnut Creek and Walnut Creek, from the outlet of ponds a-4 and b-5 to Indiana Street This segment had temporary modifications for nitrate and nitrite set to expire 12/31/09. The Commission decided to keep the expiration date.

Big Thompson segment 4c, Mainstem of the Big Thompson from County Road 11 to I-25: A temporary modification for fecal coliform of 2000 and E coli of 181 was adopted for this segment that will expire 6/30/2004.

Big Thompson segment 5, Mainstem of the Big Thompson River from I-25 to the confluence with the South Platte River: Temporary modifications for chronic selenium of 8 ug/L, and fecal coliform of 2000 /100 ml were adopted for this segment that will expire 6/30/2004.

Big Thompson segment 9, Mainstem of the Little Thompson River from the Culver Ditch diversion to the confluence with the Big Thompson River: A temporary modification for chronic selenium of 12 ug/L was adopted for this segment that will expire 6/30/2004.

Clear Creek segment 13b, Mainstem of North Clear Creek including all tributaries, lakes reservoirs, and wetlands from a point just below the City of Black Hawk's water supply intakes to the confluence with Clear Creek: Temporary modifications were adopted for chronic cadmium (6.9 ug/L), copper (45 ug/L), total recoverable iron (17,292 ug/L), manganese (4,570 ug/L) and zinc (1750 ug/L) which will expire 6/30/2004.

G. Recreation Classifications/Fecal Coliform and E. Coli Standards

The biological standards were updated to include the dual standards for E. coli and fecal coliform, which were adopted by the Commission in the 2000 revisions to the Basic Standards. As stated in the statement of basis for the Basic Standards revisions, the Commission intends that dischargers will have the option of either parameter being used in establishing effluent limitations in discharge permits. In making section 303(d) listing decisions, in the event of a conflict between fecal coliform and E coli data, the E. coli data will govern. The Commission believes that these provisions will help ease the transition from fecal coliform to E. coli standards.

In a continuation of the Commission's efforts to comply with the requirements contained in the federal Clean Water Act that all waters of the nation should be suitable for recreation in and on the water (known as the "swimmable" goal), the Commission reviewed all Recreation Class 2 segments. In Colorado, the "swimmable" goal translates into Recreation Class 1a, with the 200/100 ml fecal coliform and 126/100 ml E. Coli standards, and Class 1b with the 325/100 ml fecal coliform and 205/100 ml E. coli standards. Class 1a indicates waters where primary contact uses have been documented or are presumed to be present. Class 1b indicates waters where a reasonable level of inquiry has not documented any class 1 uses, but no use attainability analysis has been performed demonstrating that a recreation class 2 classification is appropriate. To maintain the existing Recreation Class 2 with the 2000/100 ml standard on a segment, it must be shown that there is minimal chance that a Recreation Class 1 activity could exist (e.g. ephemeral or small streams that have insufficient depth to support any type of Recreation Class 1 use or very restricted access).

The classifications for segments previously classified Recreation Class 1 were changed in this hearing to Class 1a, to reflect the revisions to the Basic Standards. This does not represent a

substantive change in the status for these segments. A recreation 1a classification of a segment is not intended to imply that primary contact recreation would be allowed by the owner or operator of any water body in the segment. A recreation 1a classification is intended to only affect the segment's use classification and water quality standards, and does not imply public or recreational access to waters with restricted access within the segment.

Based on the information received in the record that showed Recreation Class 1a uses are in place in at least a portion of the segment, the Commission changed the following formerly Class 2 segments to Class 1a with a 200/100 ml fecal coliform and 126/100 ml E. coli standard:

Upper South Platte segments: 1a, 14
Saint Vrain segments: 6
Middle South Platte segments: 1, 3
Big Thompson segments: 4a(from 5/1 – 10/15), 4b(from 5/1 – 10/15). 4c(from 5/1 – 10/15), 6, and 14
Cache La Poudre segments: 11, 12, 13a

The following segments were classified Recreation Class 1a based on the policy reflected in the Basic Standards and Methodologies for Surface Water without a factual determination that there are existing Class 1 uses on these segments. These include segments for which the Division's Exhibit 2 for this hearing states that there are "documented or potential" uses, without other evidence of existing Class 1 uses being present in the record.

Upper So. Platte segments: 1b, 4, 5a, 5b, 5c, 7, 9, 10a, 10b, 11a, 15, 16a, 16b, 16c, 17a
Cherry Creek segments: 1, 3, and 4
Bear Creek segments: 1a, 1b, 2, 3, 4a, 5, 7
Clear Creek segments: 1, 5, 8, 12, 13a, 13b, 14b, 15, 16a, 17b
Big Dry Creek segment: 4a
Boulder Creek segments: 1, 3, 5, 6, 7a, 7b, 8, 10, 11
Saint Vrain segments: 1, 2, 3, and 5
Middle So. Platte segment 4
Big Thompson segments: 9, 10
Cache La Poudre segments: 7, 8, 10, 15, and 16
Lower So. Platte segments: 1, 2b
Republican segments: 1, 3, 4, and 5

For the segments listed immediately above, the last paragraph of section 31.6(2)(b) will apply to future changes to the recreation classification where a proper showing is made through a use attainability analysis that a recreation Class 2 classification is appropriate, without application of the other downgrading criteria in this section. Moreover, the Commission is relying in part on testimony from EPA that completion of a use attainability analysis showing that a lower recreation classification is appropriate satisfies applicable downgrading criteria. Based on these factors, the Commission intends that in a future rulemaking hearing the test for adopting a recreation Class 2 classification would be the same as if it had been considered in this hearing.

Based on evidence in the record that a reasonable level of inquiry has failed to identify any existing class 1 recreation uses, the Commission changed the following segment to Class 1b with a 325/100 ml fecal coliform and 205/100 ml E. coli standard:

Big Thompson segment 5(from 5/1 – 10/15)

The following segments retained their Recreation Class 2 classification with 2,000/100mL fecal coliform and 630/100 ml E. coli standard because use attainability analyses demonstrate that a Recreation Class 1a or 1b use is unattainable.

Clear Creek segments: 7, 14a, 16b, 17a, 18a, and 18b
Big Dry Creek segments: 1, 3, 4b, 5, 6
Big Thompson segments: 4a, 4b, 4c, 5 (10/16 – 4/30)
Cache La Poudre segment 13b
Lower So. Platte segment 2a
Republican segments: 6, 7

The classification for Clear Creek segment 14a is based on the fact that access to this portion of the stream is restricted, since it is located principally on Coors Brewery property, is fenced and patrolled. The classifications for Clear Creek segments 16b, 18a, and 18b and Big Dry Creek segments 1 and 6 are based on the fact that these are narrow, shallow streams and that no evidence was presented that any portion of the streams are conducive to full body immersion. In addition, for Big Dry Creek segment 1, there was evidence that canoeing has occurred only on a supervised basis for a limited stretch, and the decision also considers the steepness of the stream banks, thick riparian vegetation that limits access, the fact that the bike path is set back from the stream in many areas and that the lower portion of the stream runs through a primarily agricultural area. Also, for Big Dry Creek segment 6 there was evidence that this is an ephemeral stream and that Fortune Reservoir will not be releasing water to this stream. For Clear Creek segment 17a, Arvada Reservoir, the basis for the Class 2 conclusion is that the reservoir is fenced, posted as no swimming, and patrolled, with only boating

H. Aquatic Life Segments without Full Standards

The Commission reviewed information regarding Aquatic Life Class 2 segments where the full set of inorganic aquatic life protection standards have not been applied. Generally, these are dry segments with only rudimentary aquatic life. The Commission's policy has been that rather than adopt the full set of inorganic standards for these segments, standards for dissolved oxygen, pH and fecal coliform provide sufficient protection. The segments which were reviewed in this hearing and for which sufficient evidence was received for them to retain their present classifications and standards are:

Lower So. Platte segment 2a
Clear Creek segment 8
Boulder Creek segment 4c (numerics are for water supply)
Republican segments 6, 7

Segments where investigation showed that fish populations were present were upgraded with the addition of the full suite of inorganic standards. These segments are:

Upper So. Platte segments 11a, 16a, 16b, and 16c
Cherry Creek segment 4
Clear Creek segments 16, 18b
Big Dry Creek segment 1
Boulder Creek segments 8, 11
Saint Vrain segment 6
Middle So. Platte segment 3
Big Thompson segments 6, 10
Cache La Poudre segments 8, 13
Lower So. Platte segment 2b

I. Ambient Quality-Based Standards

There are several segments in the South Platte Basin that contain ambient standards. Ambient standards are adopted where natural or irreversible man-induced conditions result in water quality levels higher than table value standards. EPA had requested that the Commission review the information that is the basis for these standards as well as any new information that would

indicate whether they are still appropriate, need to be modified, or should be dropped. The Division reviewed the reason for the ambient standards and provided testimony that justified ambient standards being retained without adjustment on the following segments:

Upper So. Platte segments 2b, 2c, 5a, 14, and 15
Clear Creek segment 11 (Cu, Mn, Zn only)
Clear Creek segments 2,13b, 14
Big Dry Creek segments 2, 3, 4a, 4b, 5, 6

The Division reviewed the information about ambient water quality levels and provided testimony that justified the ambient standards on Upper So. Platte segment 6c, Mn(ch) = 90 ug/l (dis).

The ambient standard for gross beta on the Woman Creek portion of Big Dry Creek segment 4a was corrected. It had originally been proposed and adopted as 8, not the value of 5 as shown in the table.

Ambient standards were removed from the following segments due to new data and/or changes to the basic standards which indicated ambient standards were no longer appropriate:

Clear Creek segment 3a, changed to Pb(ac/ch) = TVS
Clear Creek segment 11, changed to Cd(ac/ch) = TVS
Middle So. Platte segment 1, changed to Fe(ch) = 1000(trec)
Lower So. Platte segment 1, changed to Fe(ch) = 1000(trec)
Big Thompson segment 9, changed to Fe(ch) = 1000(trec)

J. Organic Standards

The organic standards were updated to include changes which were adopted by the Commission in the 2000 revisions to the Basic Standards (see 31.11 in Regulation No. 31). “Water + Fish” organic standards 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. The “Fish Ingestion” organic standards are 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. Existing site-specific applications of additional organics (as noted in the Qualifier column of Table 38.6) were modified to conform to this change.

Information was reviewed regarding Aquatic Life Class 2 segments that have fish that are presently being taken for human consumption or have fisheries that would indicate the potential for human consumption. That information showed that additional segments had the potential for consumption of fish. These waterbodies, which include the urban and rural lakes where fishing routinely occurs, were designated to receive the full protection of numeric Fish Ingestion organic standards:

Upper South Platte segment 16c
Middle South Platte segments 1 and 3
Big Thompson segments 4 and 6
Cache La Poudre segments 11 and 12

The waterbodies which also have water supply classifications and therefore need water + fish organics are:

Clear Creek segments 17a, 17b
Cache la Poudre segment 8

Water bodies that had existing "additional organics" were examined to determine which needed water + fish organics and which needed fish ingestion organics. The following segments changed to water + fish organics:

Bear Creek segments 1b, 4a, 4b, 4c and 5
Big Thompson segment 3
Cache la Poudre segments 7, 10

The following segment changed from additional organics to fish ingestion organics:

Middle So. Platte segment 4

K. Water Supply Classifications

These segments had the Water Supply classification added to them. The associated water supply standards will now apply to segments:

Clear Creek segments 2, 13a and 16a
Cache La Poudre segment 8
Big Thompson 4a

L. Modification of Water Supply Standards

Water supply standards were modified to conform to the changes made by the Commission in the 2000 revisions to the Basic Standards (see Regulation No. 31 at 31.11(6)). The Commission modified the water supply standards for iron, manganese, and sulfate that are based on secondary drinking water standards (based on esthetics as opposed to human-health risks). The numeric values in the tables were changed to Fe(ch) = WS(dis), Mn(ch) = WS(dis), and SO4 = WS. These abbreviations mean that for all surface waters with an actual water supply is, the less restrictive of the following two options shall apply as numerical standards, as discussed in the Basic Standards and Methodologies 31.11(6): either (i) existing quality as of January 1, 2000; or (ii) iron = 300 ug/L (dissolved); Manganese = 50 ug/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 determined as the result of a site-specific rulemaking hearing that such standards are appropriate.

M. Other Site-Specific Revisions

Upper So Platte segment 5c: The upper pH limit was corrected and changed from 8.5 to 9.0.

Upper So Platte segment 14: The seasonal class 1 recreational designation was changed to a year round class 1a.

Upper So. Platte segment 15: As a result of this hearing, the Commission has decided to revise the pH standard for a two mile reach of Segment 15 of the So Plate River (Segment 15) to expand the permissible pH range of this reach to a range of 6.0 to 9.0. The Metro District submitted evidence that its effluent periodically can be depressed below a pH of 6.5 through natural biological treatment processes; however, its effluent does not go below a pH of 6.0. The Metro District would not consistently be able to meet a pH permit limit set at the current pH stream standard of 6.5.

In making its decision to change the pH standard, the most important question for the Commission was the protection of aquatic life in Segment 15. The Metro Waste Water Reclamation District submitted good scientific evidence that the fish and biota in Segment 15

would be protected at the pH level of 6.0. The District also showed that the River pH naturally rebounds even when the Metro District's pH level is below 6.5. The Commission also considered evidence showing that a number of other states have pH range standard of 6.0 to 9.0. Finally, the Metro District also submitted information showing that adding chemicals to its effluent to raise pH or changing facilities and operations to raise pH would be an unnecessary and unreasonable expenditure of public funds.

Upper So. Platte segment 17c, Bowmar Lake. The site-specific aluminum standard was changed from Al(ch) = 200, to Al(ch) = TVS. The dissolved oxygen criterion was corrected and changed from 6.0 to 5.0 mg/l. This reflects the water quality for an Aquatic Life Warm 1 fishery.

Big Thompson segment 13. This segment lacked Aquatic Life, Recreation, and Agriculture Classifications. Aquatic Life Warm 2, Recreation 1, and Agriculture Classifications with their associated standards were added to this segment.

Cache la Poudre segment 13b. A site-specific ammonia standard of 0.1 mg/L was set for this segment.

Boulder Creek segment 11. Water supply classification was added.

Lower So. Platte segment 3. The dissolved oxygen standard was corrected and changed from 6.0 to 5.0. This reflects the water quality standards for warm water fisheries.

N. Farmers Reservoir and Irrigation Company Proposal

The Farmers Reservoir and Irrigation Company (FRICO) proposed the adoption of total phosphorus and total nitrogen standards and more restrictive fecal coliform standards for Upper South Platte River segments 14 and 15 and for Middle South Platte River segments 1, 3 and 4. Based upon the evidence submitted in this rulemaking, the Commission has decided not to adopt the standards proposed by FRICO.

With respect to the proposed fecal coliform standards, the available evidence does not support a determination that the risks posed by agricultural worker contact with irrigation water or by consumption of raw edible crops is greater than the risk posed by primary contact recreation uses. The Commission is adopting recreation class 1a standards for each of these five segments as a result of this hearing. Therefore, no need has been demonstrated at this time for the adoption of more restrictive fecal coliform standards to protect the designated uses of these segments.

FRICO proposed the adoption of nitrogen and phosphorus standards to address the eutrophic conditions in Barr Lake and Milton Lake. Although the evidence does indicate concerns regarding the existing water quality in both of these reservoirs, the Commission does not believe that an adequate technical basis has been provided at this time for the specific numerical nutrient standards proposed. The Commission does believe that there is a need for an effort to address the issue of South Platte plains reservoir eutrophication, and that consideration should be given to a possible Clean Lakes Study as one alternative to advance the understanding of these systems.

Finally, the Commission does not believe that the evidence submitted supports the contention by FRICO that the proposed 2.0 mg/l total nitrogen standard is necessary to protect sensitive crops irrigated by water from the segments in question.

O. City of Thornton Proposal

The City of Thornton (Thornton) advanced two alternative proposals in this hearing. Alternative 1 proposed that numerical standards be added to Upper South Platte River segments 6 and 14 for giardia lamblia, nitrate, total organic carbon (TOC) and phosphorus. In its prehearing statement, Thornton withdrew its nitrate proposal. Alternative 2 proposed the adoption of a narrative standard providing that the water quality in these segments "be improved and maintained to remove present impairments to water supply uses and to allow water supply uses applying the standards of 5 CCR 31.13(d) at all times." The proposed standard also provided that: "Implementation of the narrative standard will be by agreement of the stakeholders on required numeric water quality standards and the means to achieve those standards." Based upon the evidence submitted in this rulemaking, the Commission has decided not to adopt either Thornton proposal.

With respect to alternative 1, the evidence submitted does not support the proposed giardia lamblia standard as an appropriate pathogen indicator or as a direct measurement of human health risk. The evidence does not distinguish giardia levels or risk at these locations as compared to other waters in the state, and does not demonstrate that the proposed standard is needed to protect the water supply use for these segments. With respect to TOC, the evidence does not support a conclusion that the gross measure of TOC is an appropriate or effective measurement to address potential human health concerns regarding specific organic compounds such as disinfection by-products. Finally, although phosphorus levels may have an impact on the trophic condition of the terminal storage reservoirs that are filled by water from the segments in question, the Commission does not believe that an adequate technical basis has been provided at this time for the specific numerical standards proposed.

The Commission has decided not to adopt alternative 2 because it believes that more analysis is needed before reaching conclusions regarding the adequacy of the existing water quality in these segments for water supply use and potential implementation mechanisms to assure that adequate quality is maintained. The Commission believes that the issue of adequate water quality for effluent-dominated water supply segments warrants further consideration. The Commission urges the interested parties to work together on resolving this issue, with leadership from the Division.

PARTIES TO THE RULEMAKING HEARING

1. The City of Thornton
2. River Watch
3. Selenium Stakeholder Group of Conoco, Inc., Metro Wastewater Reclamation District, Ultramar Diamond Shamrock, and the City of Aurora
4. Farmers Reservoir and Irrigation Company
5. Climax Molybdenum Company
6. Metro Wastewater Reclamation District
7. Centennial Water and Sanitation District
8. The City of Broomfield
9. The City of Fort Collins
10. Kodak Colorado Division
11. London Mine LLC
12. The Denver Regional Council of Governments
13. United States Department of Energy, Rocky Flats Field Office
14. Coors Brewing Company
15. The City of Arvada
16. The City and County of Denver, Acting By and Through its Board of Water Commissioners
17. Colorado Bird Observatory
18. The Colorado Wastewater Utility Council
19. Upper South Platte Watershed Protection Association
20. The Town of Lochbuie
21. The City of Northglenn

22. The City of Black Hawk
23. The City of Golden
24. The City and County of Denver
25. The City of Aurora, Colorado, acting by and through its Utility Enterprise
26. Kaiser-Hill Company LLC
27. Lockheed Martin Astronautics
28. Thompson Water Users Association
29. The Cache La Poudre Water Users= Association
30. U.S. Department of the Interior
31. The Upper Clear Creek Watershed Association
32. North Front Range Water Quality Planning Association
33. The City of Westminster
34. The South Adams County Water and Sanitation District
35. The City of Glendale
36. Colorado River Water Conservation District
37. The City of Loveland
38. The Supervisory Committee of the Littleton/Englewood Wastewater Treatment Plant
39. Roxborough Park Metropolitan District
40. Plum Creek Wastewater Authority
41. The Chatfield Watershed Authority
42. Boxelder Sanitation District
43. The Northern Colorado Water Conservancy District and its Municipal Subdistrict
44. Colorado Division of Wildlife
45. The City of Brighton
46. U.S. EPA Region VIII
47. The City of Greeley

38.58 FINDINGS IN SUPPORT OF ADOPTION OF EMERGENCY REVISIONS TO REGULATION NO. 38, CLASSIFICATIONS AND NUMERIC STANDARDS SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN, REPUBLICAN RIVER BASIN, SMOKY HILL RIVER BASIN [5 CCR 1002-38]

The Commission adopted revisions to Regulation No. 38, Classifications And Numeric Standards South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin, on February 3, 2001.

The published version of Regulation No. 38 contains a number of typographical errors. The Water Quality Control Division uses the water quality standards in this regulation to calculate Colorado Discharge Permit System permit effluent limits. Where the Division must use the standards containing typographical errors, the permit limitations would be calculated incorrectly. Depending on the individual circumstances, this could lead to discharge of pollutants that might adversely impact public health. In other circumstances, a discharger might be forced to expend additional funds to meet an effluent limitation based on a published standard that contains typographical errors.

If the Commission does not adopt revisions to Regulation 38 on an emergency basis, discharge permits may be issued incorrectly; that would result in an unnecessary adverse impact on the public. The Commission finds that immediate adoption of these revisions to Regulation 38 is imperatively necessary to preserve public health and welfare and that compliance with the requirements of section 24-4-103, C.R.S., would be contrary to the public interest.

38.59 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; SEPTEMBER, 2001, RULEMAKING

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

As the result of a November, 2000 rulemaking hearing, the Commission adopted numerous changes to this regulation. Subsequent to final adoption and publication of those changes, several errors in the revised regulation were identified. These errors, including errors in the equations in the TVS table and footnotes to that table, and omissions in the dissolved oxygen standards footnotes for segment 15, were originally corrected in an emergency rulemaking hearing on May 14, 2001. In this rulemaking the Commission has re-adopted these corrections to make the emergency rule changes permanent.

38.60 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE, DECEMBER, 2001 RULEMAKING

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

BASIS AND PURPOSE

In the spring of 2001, the Commission established a new schedule for major rulemaking hearings for each of its water quality classifications and standards regulations, as part of the triennial review process. As part of the transition to this new schedule, in order to facilitate an efficient and coordinated review of all water quality standards issues in this basin, in this hearing the Commission decided to extend the existing temporary modifications of water quality standards previously adopted for segments in this basin, so that such temporary modifications will not expire prior to the next scheduled major rulemaking hearing for this basin.

38.61 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JULY, 2004 RULEMAKING

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. Waterbody Segmentation

Some renumbering and/or creation of new segments was made in the basin due to information which showed that: a) the original reasons for segmentation no longer applied; b) new water quality data showed that streams should be resegmented based on changes in their water quality; and/or c) certain segments could be grouped together in one segment because they had similar quality and uses. The following changes were made:

The description of Clear Creek segment 10 was clarified to exclude specific listings in Clear Creek segment 19.

The description of Clear Creek segment 18a was modified to remove Leyden Creek and Van Bibber Creek and extend the segment to the confluence with Clear Creek in recognition of recreational uses. Leyden Creek and Van Bibber Creek were moved to Clear Creek segment 18b.

Little Dry Creek was moved from Clear Creek segment 16b to Clear Creek segment 18b to reflect its uses.

Boulder Creek segment 12 was deleted (Boulder Reservoir) as it was determined this waterbody is in the St. Vrain Creek basin.

St. Vrain Creek segment 7 was created (Boulder Reservoir, Coot Lake, and Left Hand Valley Reservoir).

Middle South Platte River segment 1 was broken into 1a and 1b to accommodate the site-specific dissolved oxygen standard applied on the South Platte River from the confluence with Big Dry Creek to the confluence with St. Vrain Creek.

Middle South Platte River segment 4 was amended to add Milton Reservoir.

Certain tributaries in the vicinity of Denver International Airport were placed into separate segments to accommodate site-specific standards:

Upper South Platte segments	16d:	Second Creek
	16e:	Third Creek
	16f:	Barr Lake Tributary
Middle South Platte segments	3b:	Hayesmount Tributaries
	5b:	Boxelder Creek

A separate segment, Upper South Platte segment 16g, was established for Marcy Gulch to accommodate site-specific standards.

A new Clear Creek segment 9b was established to accommodate site-specific standards for Trail Creek.

B. Recreation Classifications and Standards

Based on the information received that showed Recreation Class 1a uses are in place or are presumed to be present in at least a portion of the segment, the Commission changed the following segments from Recreation Class 2 to Recreation Class 1a with a 200/100 ml fecal coliform and 126/100 ml E. coli standard:

Clear Creek segment 18a

The Commission also changed the existing Recreation Class 2 classification to Class 1b for the following segments, with corresponding fecal coliform and E. coli standards:

Big Dry Creek segment 1
Cache La Poudre 13b (seasonal)

The following segment retained its Recreation Class 2 classification, however the Commission changed the standard to 200/100 ml fecal coliform and 126/100 ml E. coli standard.

Clear Creek segment 17a

The following segments retained their Recreation Class 2 classification with 2,000/100mL fecal coliform and 630/100 ml E. coli standard after sufficient evidence was received that a Recreation Class 1a or 1b use was not attainable.

Clear Creek segment 7
Big Dry Creek segment 3
Big Dry Creek segment 4b

Big Dry Creek segment 5a and 5b
Big Dry Creek segment 6
Middle South Platte River segment 5
Lower South Platte River segment 6
Lower South Platte River segment 7

The following segments retained their seasonal Recreation Class 1a/Recreation Class 2 classification.

Big Thompson River segment 4a
Big Thompson River segment 4b
Big Thompson River segment 4c

The following segments retained their seasonal Recreation Class 1b/Recreation Class 2 classification.

Big Thompson River segment 5

C. Aquatic Life Segments without Full Standards

The Commission reviewed information regarding Aquatic Life Class 2 segments where the full set of inorganic aquatic life protection standards have not been applied. Generally, these are dry segments with only rudimentary aquatic life. There were no changes adopted by the Commission.

D. Revised Aquatic Life Use Classifications

The Commission reviewed information regarding existing aquatic communities. There were no Aquatic Life Use Classifications changes adopted by the Commission.

E. Ambient Quality-Based Standards

There are several segments in the South Platte, Laramie, Republican, and Smoky Hill River Basins that are assigned ambient standards. Ambient standards are adopted where natural or irreversible man-induced conditions result in exceedances of table value standards. EPA had requested that the Commission review the information that is the basis for these standards as well as any new information that would indicate whether they are still appropriate, need to be modified, or should be dropped.

The Commission did not adopt any changes to the ambient quality-based standards.

F. Temporary Modifications

There were several segments where temporary modifications that reflect current ambient conditions were adopted or retained. Temporary modifications were generally set to expire on February 28, 2010 to coincide with the next triennial review except as otherwise noted. The segments and the constituents are:

Upper South Platte River segment 4; Cu(ch), Zn(ch)
Upper South Platte River segment 5b, Zn(ch)
Upper South Platte River segment 15; E. Coli, F. Coli
Upper South Platte River segment 16a; Se(ch), Se(ac)=no standard
Upper South Platte River segment 16c; Se(ch), Se(ac)=no standard
Clear Creek segment 2; Cu(ch), Mn(ch), Zn(ch)
Clear Creek segment 3a; Zn(ch)

Clear Creek segment 3b; Pb(ch), Zn(ch)
Clear Creek segment 6; Zn(ch)
Clear Creek segment 9a; Cu(ch)
Clear Creek segment 9b, Cd(ch), Cu(ch), Mn(ch), Pb(ch), Zn(ch)
Clear Creek segment 11; Mn(ch), Zn(ch)
Clear Creek segment 13b; Cd(ch), Mn(ch), Zn(ch)
Clear Creek segment 15; E. Coli
Big Dry Creek segment 1; E. Coli, Se(ch), F. Coli
Big Dry Creek segment 5: NO3, NO2, 6 organic chemicals
Boulder Creek segment 2; E. Coli for the portion below Broadway Street in Boulder
Boulder Creek segment 7b; E. Coli
Boulder Creek segment 10; E. Coli
St. Vrain Creek segment 4b; Cu(ch), Pb(ch)
St. Vrain Creek segment 6; Se(ch)
Middle South Platte River segment 1b; NH3 (ch)
Middle South Platte River segment 5a; NH3 (ch)
Middle South Platte River segment 5b; D.O.
Big Thompson River segment 4b; Se(ch)
Big Thompson River segment 5; Se(ch)
Big Thompson River segment 9; Se(ch), E. Coli
Big Thompson River segment 10; Se(ch)
Cache La Poudre River segments 11 and 12; NO2 as a 30-day average
Cache La Poudre River segment 12; E. Coli for the portion below Eaton Draw in Greeley
Lower South Platte River segment 1; Se(ch), NO3 (ch)
Lower South Platte River segment 2b; Se(ch) for Springdale Creek, Se(ch) and E. Coli for Beaver Creek

The following segments had temporary modifications which are being removed because current ambient conditions are meeting the underlying standards:

Upper South Platte segment 2c; Fe (dis)
Upper South Platte River segment 15; Se (dis)
Clear Creek segment 13b; Fe (dis)
Big Dry Creek segment 4a and 4b; NO3, NO2
Big Thompson segment 4c; F. Coli, E. Coli

G. <u>Addition of Water Supply Use Classification and Standards</u>

These segments had the Water Supply classification added to them. The associated water supply standards will now apply to segments:

Upper South Platte River segment 5b
Clear Creek segment 18b
Middle South Platte River segment 1a
Middle South Platte River segment 1b
Middle South Platte River segment 4
Lower South Platte River segment 1

H. Agriculture Standards

Numeric Standards to protect Agricultural Uses were adopted for the following segments:

Lower South Platte River segment 2a
Republican River segments 6 and 7.

I. Use Protected Designation

Use Protected Designation was added to Upper South Platte River segment 16a. The Use Protected Designation was adopted by the Commission in 2000 but was inadvertently omitted in the regulation.

K. Other Site-Specific Revisions

1. Upper South Platte Segments 2a, 2b, 2c

The Commission made the following changes to Segment 2b, Mosquito Creek and Segment 2c, South Mosquito Creek.

Segmentation: South Mosquito Creek from the source to the confluence with No Name Creek was removed from Segment 2c and put in Segment 2a.

Water Quality Standards: The Commission adopted type iii temporary modifications based on uncertainty for Mosquito Creek of Zn (ch) = 283 µg/L and South Mosquito Creek of Zn (ch) = 400 µg/L and Cd (ch) = 3.3 µg/L; and underlying standards for Mosquito Creek of Zn (ch) = 220 µg/L and South Mosquito Creek Zn (ch) = 280 µg/L.

There are two significant sources of zinc in the Mosquito Creek Basin, the London Mine Water Tunnel and the Extension Tunnel. The Water Tunnel flow is about ten times the flow of the Extension Tunnel and the Extension Tunnel zinc concentrations is about one hundred times the Water Tunnel. The zinc load from the Extension Tunnel greatly exceeds the load from the Water Tunnel. Based on the evidence presented, the Commission found that it is economically infeasible to treat the Water Tunnel flows with currently available treatment technology. However, it is feasible to treat the Extension Tunnel flows. Under current limited operations, the Extension Tunnel Treatment Plant produces water with an estimated 85th percentile zinc concentration of 5,000 µg/L. The Commission heard evidence that the existing Extension Tunnel treatment plant can be upgraded to improve its reliability and will likely be able to achieve water with a 30-day average concentration of 500 µg/L.

The temporary modifications for Segments 2b and 2c were based on the 85th percentile of the predicted zinc concentrations with treatment at the Extension Tunnel (5,000 µg/L) and the underlying standards for Segments 2b and 2c were based on the assumption that the Extension Tunnel treatment can achieve levels of 500 µg/L. No treatment of the Water Tunnel discharge was assumed in developing the temporary modifications or underlying standards for either segment. Monthly design flows were those included in the 2001 TMDL developed by the Division for the Extension Tunnel and actual flows for the Water Tunnel. The duration of the temporary modifications is through February 28, 2007.

The Commission's action establishing a technology-based standard and temporary modifications in this case is based on the unique facts and assumptions associated with the London Mine and Mosquito Creek Basin site, including the willingness of THF Prairie Center Development to undertake improvement and operation of the Extension Tunnel Treatment Plant. The Commission does not intend this action to establish a precedent for any other site-specific water quality standards. It is the Commission’s intent that these standards should be reviewed and updated as appropriate based on the stream monitoring data collected after the completion of improvements and full operation of the Extension Tunnel Treatment Plant. Finally, the Commission notes that there is a need to continue to review in the future the feasibility of reducing zinc levels in these waters by means other than treatment of the extension tunnel discharge.

2. Upper South Platte River Segments 6a and 6b

The Chatfield Watershed Authority submitted two alternative proposals for a temporary modification of water quality standards for total phosphorus and selected metals in Segments 6a and 6b of the South Platte River Basin. The temporary modifications were requested in response to concerns over the potential effects of runoff from the Hayman Wildlands Fire. The runoff may contain increased levels of total phosphorus and metals, which impede attainment of water quality standards in the South Platte River system and Chatfield Reservoir.

The Authority and the Division have concluded that additional monitoring data is required to establish whether there is a basis for temporary modifications and, if any, the appropriate numeric values to adopt. The Authority therefore withdrew its proposal for a temporary modification of standards. The Authority, in cooperation and coordination with the Division and other interested parties has committed to the development and implementation of a monitoring plan designed to collect needed data on both metals and nutrients within Chatfield Watershed, including Chatfield Reservoir. Additional monitoring data will help the Chatfield Authority and the Division determine what, if any, long-term modifications may be necessary to the uses and water quality standards for Chatfield Reservoir

The point source and storm water discharge permit holders in the Chatfield Watershed, which contribute a small percentage of the total phosphorus load to the Reservoir, discharge regulated constituents, including phosphorus. These dischargers will continue treatment and best management practices so as to minimize nutrient and metal loads in the Chatfield Watershed. The Authority and the Division have agreed that point source discharge permit holders and stormwater permittees who are in compliance with their permit limits and terms for a constituent will not have those limits or terms modified prior to any future adjustment of classifications or standards by the Commission to the extent any observed water quality standards exceedances are attributable to other factors such as the Hayman Fire. However, the Authority has agreed to cooperate with the Division in the identification and promotion of enhanced stormwater control BMPs which could be implemented on a voluntary basis prior to any such adjustment if warranted by monitored conditions in the watershed.

3. Upper South Platte segments 6c, 10a, 14, 15, 16a, 16g and Middle South Platte segment 1a

The South Platte Coalition for Urban River Evaluation, Metro Wastewater Reclamation District, and the Plum Creek Wastewater Authority cooperated on a study to develop adjustments to the acute and chronic numeric standards for copper using a water effect ratio (WER). The segments in question are the mainstem segments of the Upper and Middle South Platte Rivers from the confluence with Marcy Gulch to the confluence with the St. Vrain River (USP River Segments 6c (downstream of Marcy Gulch), 14, 15 and new Middle South Platte Segment 1a (commencing at the confluence with Big Dry Creek and continuing to a point just upstream of the confluence with the St. Vrain River), Plum Creek Segment 10a (below Plum Creek Wastewater Authority discharge), Marcy Gulch (new USP Segment 16g) and Sand Creek (USP Segment 16a).

The standards are adjusted to include the mean final water-effect ratio calculated for each segment. These WERs were developed using Streamlined Water-Effect Ratio Procedures for the Discharges of Copper USEPA-2001 (USEPA-822-R-01-005), based on toxicity testing and The Biotic Ligand Model: Technical Support Document for its Application to the Evaluation of Water Quality Criteria for Copper USEPA 2003 (USEPA-822-R-03-027), which predicts copper toxicity to four common freshwater species using site water quality data. Specifically, EPA's 2003 draft Copper Criteria that relies on the

BLM was used to confirm the results of the Streamlined Water-Effect Ratio (SWER) Procedure.

The proponents submitted evidence that indicated that simply relying on EPA's Streamlined Water Effect Ratio Procedure would have resulted in a larger adjustment to the acute and chronic table values for copper. Application of the BLM resulted in a more conservative adjustment to the table value standards. The results of the BLM are specifically sensitive to changes in alkalinity and dissolved organic carbon (DOC) in the site water. In this instance, the site water quality data did not indicate a seasonal variation in DOC or alkalinity, to a degree that resulted in any significant seasonal variation in the BLM results. The parties acknowledge that this lack of seasonality may not be present in all waters and future application of the BLM method should include an analysis of seasonal variability. The parties also acknowledge that should additional species be added to the BLM that they would be considered in future BLM model runs.

4. Upper South Platte Segment 15

The Commission extended the temporary modifications for fecal coliform and E.coli = existing quality because the standards are not being met because of human-induced conditions deemed correctable within a twenty-year period. The Commission recognizes that the Metro District has voluntarily operated its facilities to meet the underlying TVS and that the District is in the process of upgrading its treatment facility at a cost of $7.8 million to reliably meet TVS.

The Commission adopted site-specific dissolved oxygen (D.O.) standards for Segment 15 in 1995. However, since these site-specific standards were adopted portions of the text were inadvertently deleted from the Colorado Code of Regulations. The Commission re-adopted the 1995 standards to ensure that a complete and accurate text of the site-specific D.O. standards is included in the regulations.

5. Upper South Platte segment 16a

The City of Aurora, Suncor Energy, and Valero Energy (Selenium Stakeholders) requested the Colorado Water Quality Control Commission (Commission) extend the temporary modification pursuant to section 31.7(3)(a) of the Basic Standards for selenium on Upper South Platte River Basin Segment 16a (Sand Creek). More time is needed to determine the appropriate selenium standard for Segment 16a.

The Selenium Stakeholders developed a study plan in March 2001 to identify sources of elevated selenium in Sand Creek and determine if they are man-made or natural sources, and to determine the appropriate selenium standard for Segments 15 and 16a. Studies included collecting water quality, sediment quality, habitat, fish population and density, fish tissue, and macroinvertebrate samples for Sand Creek. Technical memoranda summarized data, and were critiqued and discussed with the Water Quality Control Division, EPA Region 8, Colorado Division of Wildlife, and US Fish and Wildlife Service (collectively the "Agencies"). The refineries also examined treatment and alternative discharge options. The data collection efforts outlined in the Study Plan were completed in October 2003; however, the Selenium Stakeholders and Agencies agreed that there is not enough information on the sources of elevated selenium concentrations in Sand Creek to come forward to the Commission with a recommendation at this time. Furthermore, the US EPA is in the process of developing an update to the selenium criteria document that may help to better define appropriate selenium standards for Segment 16a. Additional time is necessary to determine the source of the selenium, its impact on aquatic life, and determine an appropriate standard.

6. Upper South Platte Segments 16d, 16e, 16f; Middle South Platte Segments 3b, 5b

The Commission adopted resegmentation and corresponding site-specific dissolved oxygen standards for segments in the vicinity of Denver International Airport (DIA). These changes were proposed by DIA following a site-specific study that included an extensive stakeholder process. Ambient-quality-based numerical dissolved oxygen standards were adopted for Second Creek, Third Creek and Box Elder Creek. Narrative dissolved oxygen standards were adopted for Barr Lake and Hayesmount Tributaries.

The adoption of these site-specific, ambient quality-based dissolved oxygen standards is based upon the cumulative information provided by three separate, credible lines of evidence provided during this rulemaking. The Commission's action is dependent on the unique, site-specific nature of this cumulative evidence and should not be interpreted as precedent for the revision of dissolved oxygen standards for other Colorado surface waters.

First, the evidence resulting from the Receiving Water Study demonstrates that the previously effective table value standards for dissolved oxygen are exceeded by natural conditions in Second Creek. It further showed that there is not a substantial difference in the dissolved oxygen levels attained naturally in Second Creek and those attained in Third Creek, taking into account the influence of DIA.

Second, the biological evidence provided demonstrates that there are more biota present in the streams impacted by DIA's operations than would be present without the presence of DIA. The evidence indicates that habitat and flow are the primary stressors limiting the aquatic life use for these segments. It is not apparent that increased controls of fugitive releases of deicing fluid from DIA would result in increases in aquatic life in the affected segments.

Third, the evidence demonstrates that DIA is currently implementing a state-of-the-art system for the control of aircraft deicing fluids. These controls are implemented pursuant to a stormwater discharge permit. In addition, DIA will remain a predominant land use in this area for the foreseeable future and will continue to be required to utilize aircraft deicing fluid for air travel safety. Therefore, remaining fugitive releases of such fluids can reasonably be viewed as irreversible at this time. This conclusion can and should be revisited in the future if available control technologies continue to evolve and improve.

The ambient standards adopted for Second Creek, Third Creek and Box Elder Creek were calculated based on extensive field data. Daytime only data (6:30 a.m. to 6:30 p.m.) were used in the calculation of the ambient standards because it is anticipated that in the future, field data will be collected during those hours. In addition, a review of available data from downstream waters demonstrates that the table value dissolved oxygen standard is attained.

A site-specific narrative dissolved oxygen standard was adopted for Hayesmount and Barr Lake tributaries. These water bodies are ephemeral with flow only occurring in response to precipitation events. No dissolved oxygen data are available for these surface waters to calculate an ambient quality based standard. The aquatic habitat associated with these waters is greatly limited and any residual water following a stormwater runoff event will be present only for very short periods of time. Accordingly, the narrative dissolved oxygen requirements to protect Class 2 Warm Water Aquatic Life and Agriculture uses are appropriate.

The Colorado Division of Wildlife (CDOW) participated in the stakeholder process and stated that it was in general agreement with DIA's proposal, but had a few reservations. CDOW remains interested in conducting additional chemical and biological monitoring on the segments subject to DIA's proposal, and will contemplate incorporating sampling on the subject segments into their annual biological monitoring program. CDOW intends to

prepare proposed sampling plans for discussion with DIA. DIA may participate in the collection of additional chemical and biological data on the relevant segments on a voluntary basis.

FRICO also participated in the stakeholder process, but opposed the DIA proposal. In its Responsive Prehearing Statement, FRICO offered alternative proposals for re-segmentation and dissolved oxygen standards relating to Recreation 1a, Agricultural, and Water Supply use classifications. It also raised other concerns related to the proposal and/or DIA's industrial stormwater discharge. Based on the written material and oral testimony provided for this hearing, the Commission concludes that FRICO's concerns have been effectively rebutted and that adoption of the proposal is appropriate. The alternative resegmentation proposed by FRICO is inconsistent with the Commission's general approach to segmentation, which is based upon natural drainages, not transbasin water diversions. FRICO has not demonstrated that the proposed dissolved oxygen standards are inadequate to protect aquatic life, or that additional dissolved oxygen standards are necessary to protect other uses of downstream waters. The Commission supports the efforts of the Division's stormwater program to seek agreement on notification of FRICO of events at DIA that could affect downstream water quality.

7. Upper South Platte Segment 16g

The Commission created a new segment 16g for Marcy Gulch, which was previously included in the segment 16c "all tributaries" segment. In addition to the site-specific copper water effects ratio adopted for this segment as noted above, the Commission found that the "fish ingestion" standards for organic chemicals should not apply to this segment. Specifically, the Commission found that Marcy Gulch does not contain fish of a catchable size and that fishing does not take place on a recurring basis. Because Centennial withdrew its request for site-specific ammonia standards for this segment, the Commission determined that it was inappropriate to revise the Marcy Gulch ammonia standard in this hearing.

8. Clear Creek Segments 2, 9a, 9b, 11, and 13b

Type iii temporary modifications were adopted for selected trace metals in Clear Creek segments 2, 9a and 9b, 11 and 13b. These temporary modifications are based on ambient water quality levels, using the 85th percentile values calculated by the Water Quality Control Division from the period of record 1999-2003 for a systematic and consistent database developed and maintained by various stakeholders.

Clear Creek segment 13b currently has temporary modifications in place for cadmium, copper, iron, manganese, and zinc. The temporary modifications for cadmium, manganese, and zinc were recalculated based on the most recent 5 years of record, and adopted as described above. The previous temporary modifications for copper and iron are no longer needed (ambient data shows the current underlying standards are being met) and were therefore deleted.

The Commission created a new segment 9b, encompassing Trail Creek, and adopted standards reflecting ambient water quality. Trail Creek has water quality not representative of either segment 2, of which it was formerly part, or the rest of segment 9.

Underlying standards for segments 2, 9a, 11 and 13b remain unchanged; they will be reviewed after the completion of the efforts to resolve uncertainty, as described below.

Numerous efforts are underway to clean up sources of metals pollution in this heavily mining impacted area, including Superfund projects. There remains considerable

uncertainty concerning what level of water quality can ultimately be achieved. Examples of recent remediation projects include Argo Tunnel water treatment, Little 6, Big 5 and Minnesota Mine tailings pile removal. EPA and CDPHE have investigated many additional sites for remediation. A primary effort is nearing completion involving Superfund Operable Unit 4 (OU4), principally involving conditions in the North Fork (segments 13a and b), but including a few areas along the mainstem. This RI/FS and the ROD are due to be completed in 2004. A CDPHE remediation project in Virginia Canyon is due to begin this year. The Upper Clear Creek Watershed Association ("UCCWA") anticipates receipt of a Section 319 grant in 2004 to identify additional non-point source projects, potential funding sources and implementation issues to be resolved prior to cleanups. UCCWA submitted a Plan to Resolve Uncertainty for Clear Creek segments 2, 9a, 11 and 13b. The information generated under the plan is expected to permit the Commission to determine the extent to which existing quality is the result of natural or irreversible human-induced conditions, and to adopt an appropriate standard.

Ambient quality-based temporary modifications are adopted until the above studies are completed and the uncertainty regarding the underlying standards is resolved. These are adopted as type iii temporary modifications pursuant to §31.7(3)(a)(iii) of the Basic Standards. As provided in §31.7(3)(b) of the Basic Standards, the Commission intends that the temporary modifications be used in establishing any applicable control requirements while they are in effect, due to the uncertainty that warranted the adoption of the temporary modifications. The evidence supports the following findings by the Commission with respect to Clear Creek segments 2, 9a, 11 and 13b:

1. There is an appropriate plan in place to remove the uncertainty;

2. The plan includes an implementation schedule that will resolve the uncertainty within the time required for Colorado to develop total maximum daily loads, if needed;

3. The plan is, as of July 2004, being implemented.

9. <u>Clear Creek Segment 5</u>

Segment 5, Mainstem of West Clear Creek from the confluence with Woods Creek to the confluence with Clear Creek.

The Commission adopted site-specific zinc standards based on the protection of cold water biota, resulting in a new acute equation, e0.8404(ln(hard))+1.8810, and a new chronic equation, e0.8404(ln(hard))+1.5127, for this segment. These equations were derived using the recalculation procedure removing warm water biota from an updated version of the U.S. EPA zinc toxicity database (expanded from the "1995 updates"). To develop the site-specific standards for Segment 5, a new acute database was created consisting of only those species expected to represent the biota typical of cold water, high elevation stream systems. Non-resident amphipods and isopods were included as surrogates for mayflies which are resident species but for which no toxicity data exist at this time. The four most sensitive genera from this database were identified and a new final acute value (FAV) and acute equation were determined. The final chronic value (FCV) and resultant chronic equation were calculated using an updated acute-to-chronic ratio (2.891). The Commission believes that acute and chronic zinc criteria based on coldwater biota (i.e., trout and benthic macroinvertebrates) are more representative of the conditions present in this segment than TVS. The Commission recognizes that if mayfly toxicity data become available in the future that such data would be considered in the zinc recalculation process.

10. <u>Big Dry Creek Segment 1</u>

The Water Quality Control Division proposed that the classification of Big Dry Creek Segment 1 be changed from Recreation Class 2 to Recreation Class 1a. Broomfield opposed this change based on a 2000 Use Attainability Analysis and a 2003 Student Survey of Recreational Uses. To resolve the issue, Broomfield proposed that the segment be classified Recreation Class 1b. The Commission adopted this revised proposal.

Broomfield proposed a narrative temporary modification for selenium of existing quality based on uncertainty. The Division proposed a numeric temporary modification of 7 µg/L. Based on additional selenium data submitted by Broomfield, the Division revised its proposal to 11 µg/L. Broomfield agreed with this revised proposal and it was adopted by the Commission.

11. Big Dry Creek Segment 5

Segment 5 contains a goal qualifier (last column Table 1) and temporary modifications for nitrate, nitrite and several organic parameters (Table 3). The Division proposed that the temporary modifications and goal qualifier expiration dates be moved from 2009 to 2006 to coincide with the accelerated date for cleanup and closure of Rocky Flats set by DOE and Kaiser-Hill. These two parties have provided assurance that "active remediation of groundwater contamination … will continue past the completion of the contract between DOE and Kaiser-Hill" and that it will be the responsibility of DOE to oversee this work. They also stated that it is their "intent to accelerate the timeframe to meet the underlying standards." Based on these commitments and the fact that this portion of the site cannot be taken off the National Priorities List until the ongoing remediation efforts are completed, the Division withdrew the proposal for the earlier expiration dates.

The Commission added a footnote to Table 2 providing that for the portions of Walnut and Woman Creeks within Segment 5 (where the majority of the surface disturbing cleanup activities are currently occurring) the methodology for determining attainment is changed to allow for a 12-month flow-weighted rolling average (computed monthly) method to measure ambient levels of plutonium and americium. The Commission has determined that this change is appropriate due to the unique circumstances related to the accelerated Rocky Flats clean up.

The Division proposed temporary modifications for fecal coliform and E. Coli, Broomfield agreed with this proposal and it was adopted by the Commission.

In addition, for Big Dry Creek segment 5, secondary drinking water standards were removed that had been incorrectly added to this segment. The Commission determined in its 1996 Regulation No. 38 Rulemaking Hearing that secondary drinking water standards would not be applied for Big Dry Creek segments 4a, 4b and 5.

12. Middle South Platte Segment 1a

The Commission adopted a change to the D.O. standards for the upper reach of Middle South Platte Segment 1 (from Big Dry Creek to the St. Vrain Creek) to be consistent with the site-specific standards immediately upstream in Segment 15 of the Upper South Platte River. This change recognizes that the South Platte River is effluent dominated (e.g., effluent makes up a majority of the flow in the River during a majority of the year).

The Metro District undertook extensive studies of DO and the affects of low-DO levels on aquatic life during the 1990's. These studies included toxicology testing of nine different species of fish that are either found or expected in the South Platte River and clearly showed that fish can tolerate short-term DO levels below the current statewide standard

for warm water aquatic life of 5.0 mg/L. This work resulted in the site-specific DO standard the Commission adopted for Segment 15 of the South Platte River. That site-specific DO standard includes instantaneous standards for both older life stages (8/1 - 3/31) of 2.0 mg/L, and early life stages (4/1 - 7/31) of 3.0 mg/L. Early life stages are further protected by a 7-day average DO standard of 5.0 mg/L, while older life stages have a 30-day average DO standard of 4.5 mg/L. Regular aquatic life sampling events in Segment 15 have demonstrated these site-specific DO standards are protective of the aquatic life in the segment.

14. Middle South Platte Segment 6

Lost Creek is as its name describes a creek that disappears. Two segments are separated by dry land with no visible stream channel for more than one mile. The segment south of US Highway 76 is characterized by unconnected ditches that disappear into fields and pumped wells. This segment is located in the Lost Creek Ground Water Basin. It is a designated over-appropriated ground water basin. Well pumping for irrigated agriculture reduces groundwater tables and result in tail water ditches having no flow for significant time periods. Irrigation ponds regularly are pumped dry and freeze in the winter. Rudimentary benthic matter found in tail water ditches, seasonal stock ponds and isolated wetlands created by irrigation seepage is not tributary to the segment of Lost Creek north of Highway 76 that is tributary to the South Platte River. Further depletion of the Basin ground water by exportation is anticipated in the future. A use attainability analysis was submitted supporting a Recreational Class 2 use. Evidence demonstrated no access to and no recreational use of Don Sloan's two stock ponds that also receive treated effluent for storage and land application.

15. Other Miscellaneous Revisions

Numeric standards associated with a water supply classification were deleted from Upper South Platte segment 7, since that classification was previously removed from this segment.

Upper South Platte River segment 5b and Lower South Platte River segment 1, water supply TVS for arsenic and chromium III were applied.

Cherry Creek segment 2, E. Coli = 126/100 ml was applied.

Clear Creek segment 5, the water supply TVS for chromium III was applied.

Boulder Creek segment 4c and 4d, Cowdrey Drainage, had site-specific standards that were changed to table value standards.

The Commission corrected several typographical and spelling errors, and clarified segment descriptions.

PARTIES TO THE RULEMAKING HEARING

1. Upper Clear Creek Watershed Association
2. Selenium Stakeholders Group
3. Town of Keenesburg & Don Sloan
4. Chatfield Watershed Authority
5. The City and County of Denver, Department of Aviation, Denver International Airport
6. London Mine LLC
7. Climax Molybdenum
8. Plum Creek Wastewater Authority

9. Centennial Water & Sanitation District
10. Metro Wastewater Reclamation District
11. South Platte CURE
12. City and County of Broomfield
13. The City of Aurora,
14. Kaiser-Hill Company, LLC
15. Colorado Division of Wildlife
16. The City of Littleton
17. The Water Supply and Storage Company
18. North Front Range Water Quality Planning Association
19. The United States Department of Energy, Rocky Flats Project Office
20. Farmer's Reservoir and Irrigation Company
21. THF Prairie Center Development, LLC
22. The City of Westminster
23. The Supervisory Committee of the Littleton/Englewood Wastewater
24. Colorado Trout Unlimited
25. The City of Golden
26. South Suburban Park & Recreation District
27. Roxborough Park Metropolitan District
28. Lockheed Martin Space Systems Company
29. The Northern Colorado Water Conservancy District
30. U.S. EPA Region VIII
31. City of Black Hawk
32. Xcel Energy
33. Denver Regional Council of Governments

38.62 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; DECEMBER 12, 2005 RULEMAKING, EFFECTIVE DATE OF MARCH 2, 2006

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

In the process of digitally mapping the segments in the South Platte River Basin, Laramie River Basin, Republican River Basin, and Smoky Hill River Basin, the Division discovered errors and inconsistencies between segment descriptions. To resolve these issues the Commission adopted changes in the following segment descriptions:

Upper South Platte segment 16a
Middle South Platte segment 5a.

38.63 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; AUGUST 14, 2006 RULEMAKING, EFFECTIVE DATE OF SEPTEMBER 30, 2006

As a result of this hearing, the Commission adopted a temporary modification of "existing quality" for the Wapiti Meadows Wetlands portion of segment 2 of the Big Thompson River. The temporary modification is for dissolved oxygen, e. coli, ammonia, nitrate, boron, cadmium, copper, lead, mercury, nickel, selenium, silver and zinc and expire on 12/31/2009. Upper Thompson Sanitation District's (UTSD) effluent provides essentially the entire flow to the wetland. The existing quality is thus defined as the historical quality of the UTSD discharge to Wapiti Wetlands. For the purposes of permitting during the course of the temporary modification, existing quality means continuation of current UTSD effluent quality.

This temporary modification is based upon uncertainty regarding the appropriate underlying standards needed to protect the water quality dependant functions of the wetland. The temporary modification

recognizes current conditions and allows time for the UTSD and others to conduct a study of the existing wetland and determine appropriate attainable ambient-based numeric standards to protect the wetland, and to evaluate the water quality dependant functions of the wetland, including flood flow alteration/sedimentation, toxic materials retention, nutrient removal, wildlife diversity and abundance, ground water recharge and recreation. A study plan, which was jointly developed by the UTSD, the Division, the Bureau of Reclamation, and EPA, was submitted to the Commission.

The results of the study could also become the basis for adopting a site-specific wetlands use classification as provided for in section 31.13 of The Basic Standards and Methodologies For Surface Water (Regulation 31). The Commission anticipates that this option will be considered at the time underlying standards for this segment are reviewed by the Commission.

PARTIES TO THE RULEMAKING

1. The Upper Thompson Sanitation District
2. North Front Range Water Quality Planning Association

38.64 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: January 2007 Rulemaking Hearing; Final Action February 12, 2007; Revisions effective July 1, 2007

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

BASIS AND PURPOSE:

The Commission revised the basin-wide temperature standards as part of the 2007 rulemaking hearing. These changes clarify the numeric temperature standards that will be in effect until the basin-wide rulemaking hearing in June of 2009. At that time, the Commission intends to consider segment specific temperature standards for all segments with aquatic life uses.

The Commission applied 17 ºC as an interim chronic standard for small, high elevation streams that are likely to be habitat for brook trout and cutthroat trout. First, second and third order streams are defined at section 31.5 in the Basic Standards.

The Commission also applied 18.2 ºC as an interim chronic standard to waters designated by the Colorado Wildlife Commission as “Gold Medal Fisheries”. The Commission agrees that it is important to protect these fisheries that provide important recreational and tourism opportunities in the headwaters of Colorado. This standard is based on a criterion to protect rainbow trout. The Colorado Division of Wildlife presented evidence that rainbow trout thrive in Gold Medal fisheries because they are provided the necessary forage base and thermal conditions to maximize their consumption and growth. Because these thermal conditions also represent the upper temperature tolerance range for this species, it was determined that an interim standard of 20°C would not be adequate to protect these fisheries.

For the remainder of the cold water segments, the Commission left the current 20 ºC in place as an interim standard with the clarification that it is a chronic standard. The existing 30 ºC criterion for warm water segments was left in place as an interim standard with the clarification that is also to be applied as a chronic standard.

PARTIES TO THE RULEMAKING HEARING

1. The Temperature Group (City of Aurora, City of Boulder, Colorado Springs Utilities, Littleton/Englewood Wastewater Treatment, The Metro Wastewater Reclamation District, Colorado Mining Association, Colorado Rock Products Association, Tri-State Generation & Transmission Assn., Xcel Energy, Denver Water, Northern Colorado Water Conservancy District, Southeastern Colorado Water

Conservancy District)
2. City of Grand Junction
3. City of Loveland
4. City of Pueblo
5. Metro Wastewater Reclamation District
6. City of Aurora
7. City of Boulder
8. Colorado River Water Conservation District
9. Colorado Wastewater Utility Council
10. Bear Creek Watershed Association
11. Chatfield Watershed Authority
12. Mountain Coal Company, L.L.C.
13. Northern Colorado Water Conservancy District
14. Colorado Rock Products Association
15. Littleton/Englewood Wastewater Treatment Plant
16. Northwest Colorado Council of Governments
17. Southeastern Colorado Water Conservancy District
18. Colorado Mining Association
19. Colorado Division of Wildlife
20. South Platte Coalition for Urban River Evaluation
21. City and County of Denver
22. City of Colorado Springs and Colorado Springs Utilities
23. City of Westminster
24. Board of Water Works of Pueblo
25. Coors Brewing Company
26. City and County of Broomfield
27. Centennial Water and Sanitation District
28. Plum Creek Wastewater Authority
29. Climax Molybdenum Company
30. Cripple Creek & Victor Gold Mining Company
31. Tri-State Generation and Transmission Association
32. Xcel Energy
33. Sky Ranch Metropolitan District No. 2
34. Parker Water and Sanitation District
35. CAM-Colorado and CAM Mining LLC
36. Aggregate Industries – WCR, Inc.
37. Grand County Water and Sanitation District #1, Winter Park Water and Sanitation District, Winter Park West Water and Sanitation District and Fraser Sanitation District
38. Trout Unlimited and Colorado Trout Unlimited
39. Colorado Contractors Association
40. United States Environmental Protection Agency, Region 8
41. Hot Springs Lodge and Pool
42. Denver Regional Council of Governments

38.65 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE MARCH 2007 RULEMAKING REGARDING AMMONIA STANDARDS

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:

At the June 2005 Basic Standards rulemaking, the Commission adopted the 1999 Update of Ambient Water Quality Criteria for Ammonia (US EPA, Office of Water, EPA-822-R-99-014, December 1999) as the numeric ammonia criteria for Colorado. These new criteria are in the form of total ammonia rather

than un-ionized ammonia. The Commission modified the ammonia equations in 35.6(3) and footnotes to conform to Regulation # 31.

Consistent with the approach outlined in the Basic Standards statement of basis and purpose, the Commission provided flexibility for dischargers faced with the possibility of new, more stringent effluent limits.

Temporary modifications were generally set to expire on 12/31/11. This date is set far enough in the future to allow facilities to consider their specific circumstances and to develop a plan regarding how to proceed, yet soon enough to assure that facilities are making progress in developing facility plans. For those that feel the underlying standards are inappropriate, time is allowed to study the receiving water and develop a proposal for an alternate standard. For those that need time to plan, finance or construct new facilities, time is allowed to develop that facility improvement plan.

The intent of the Commission is that in general, the permits for dischargers to warm water segments, that need time to achieve compliance, will contain schedules of compliance in the next renewal. The Commission understands that such a compliance schedule may include time to complete necessary sub-tasks or milestones. For example, this might include time to do facility planning, make financing arrangements, pre-design, design, construction, startup and commissioning.

There are several opportunities to revisit the duration of the temporary modifications before they expire on 12/31/2011. For those segments in the Upper and Lower Colorado Basins (Regulations # 33 and 37), persons can come forward at the Issues Formulation hearing in November 2007 with their intent to seek a site-specific adjustment in the June 2008 hearing. For those segments in the South Platte Basin (Regulation No 38), persons can come forward at the Issues Formulation hearing in November 2008 with their intent to seek a site-specific adjustment in the June 2009 hearing. In addition, all of these temporary modifications will be subject to the Annual Temporary Review process which will have hearings in December 2009 and 2010.

The Commission intends that the temporary modifications adopted in this rulemaking are “type i” temporary modifications, with specific exceptions where a demonstration was made that there is uncertainty regarding the appropriateness of the underlying standard.

The Commission has adopted “type iii” temporary modifications for Upper South Platte segment 5c with an expiration date of 12/31/10; and a “type i” temporary modification for Upper South Platte segment 15 with an expiration date of 12/31/2014.

The issues raised in this rulemaking hearing have highlighted the need to clarify the relationship between the temporary modification tool and the compliance schedule tool in Colorado’s water quality management program. The Commission requests that the Division consider this issue further, with input from interested stakeholders, and bring forth any suggested revisions/clarifications for the 2010 Basic Standards rulemaking.

In the meantime, because of the Commission’s previously expressed concerns regarding the unique and widespread challenges associated with compliance with the new ammonia standards, the Commission’s intent with respect to temporary modifications and compliance schedules regarding these new ammonia standards is as follows:

- Where a demonstration has been made that a period of time longer than the end of 2011 will be required for compliance with the new ammonia standards, the Commission has approved an appropriate site-specific temporary modification expiration date.

- For segments where the 12/31/11 expiration date applies, and for which discharge permit renewals may be issued prior to that date, it is the Commission’s intent, consistent with section 31.14(15)(a), that the Division have the authority to issue compliance schedules that may not

result in full attainment of the ammonia standard prior to expiration of the renewal permit. Such compliance schedules should be issued only where the Division determines that a specific demonstration has been made that additional time is needed to attain the standard. In such cases, the Commission anticipates that permits would include milestones that assure reasonable progress toward attainment of the standard.

The Commission also adopted a site-specific period for the protection of early life stages for Upper South Platte Segment 15 and Middle South Platte Segment 1a that is consistent with early-life stage assumption included in the site-specific dissolved oxygen standard for these segments. This early life stage period is the result of significant scientific investigation performed during the mid 1990's when the dissolved oxygen standard was developed.

PARTIES TO THE RULEMAKING

1. Boxelder Sanitation District
2. Estes Park Sanitation District
3. City of Pueblo
4. The City of Boulder
5. The Metro Wastewater Reclamation District
6. The Colorado Wastewater Utility Council
7. The Paint Brush Hills Metropolitan District
8. The Grand County Water & Sanitation District #1, the Winter Park West Water & Sanitation District, the Fraser Sanitation District and the Winter Park Water & Sanitation District
9. Mountain Water & Sanitation District
10. The Town of Gypsum
11. The City of Grand Junction
12. City and County of Broomfield
13. Centennial Water & Sanitation District
14. Town of Erie
15. The City of Fort Collins
16. Plum Creek Wastewater Authority
17. The City of Sterling
18. Eastern Adams County Metropolitan District
19. The City of Littleton
20. Two River Metro District
21. H Lazy F Mobile Home Park
22. Rock Gardens Mobile Home
23. Blue Creek Ranch
24. The City of Greeley
25. US EPA

38.66 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: JULY 9, 2007 RULEMAKING FOR CACHE LA POUDRE SEGMENTS 11 AND 12; EFFECTIVE SEPTEMBER 30, 2007

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:

Fort Collins originally proposed site-specific water effect ratios for Segments 11 and 12 of the Cache la Poudre River using a combination of the streamlined Water Effect Ratio (WER) and the Biotic Ligand Model (BLM). Similar proposals were submitted by two parties in the June 2007 Arkansas River Basin hearing. These proposals were opposed by the Division and EPA who recommended that type iii temporary modifications be adopted pursuant to Regulation 31.7(3)(a)(iii). Ultimately in the Arkansas

Basin hearing, the Commission adopted temporary modifications of "current condition" with an expiration date of December 31, 2009. Fort Collins modified its proposal in this proceeding accordingly.

This temporary modification recognizes the uncertainty created by the evolving guidance regarding use of the WER, BLM, or other appropriate copper standard to protect the aquatic life use, as well as uncertainty about whether protective levels can feasibly be attained in the effluent of the Fort Collins WWTF. An additional source of uncertainty is whether or not a translator study will provide adequate relief for the WWTF.

The temporary modification has been set to expire on December 31, 2009. During the term of the temporary modification, Fort Collins will investigate the efficacy of a translator from dissolved criterion to a potentially dissolved (or total recoverable) permit limit. In addition, the Commission anticipates that there will be an expanded dialogue between EPA, the Division and interested parties regarding the appropriate methods for setting site-specific copper stream standards.

With a 2009 expiration date, Fort Collins' progress will be reported to the Commission at the December 2007 and December 2008 annual Temporary Modification Review hearing, and the need for the temporary modification will be reviewed at that time. If a translator is inadequate, the Commission recognizes that more time may be needed to develop a site-specific standards proposal.

The temporary modification is set at "current condition." It is the intention of the Commission that when implementing this temporary modification in a CDPS permit, and interpreting the term current condition, the division will assess the current effluent quality, recognizing that it changes over time due to variability in treatment plant removal efficiency and influent loading from industrial, commercial, and residential sources. One necessary element of an approach to maintain the current condition would be a requirement that the total loading from commercial and industrial contributors be maintained at that level as of the date of adoption of the temporary modification and that neither the concentration nor the frequency of high concentration shall increase over historic levels and frequency.

PARTIES TO THE RULEMAKING HEARING

1. City of Fort Collins
2. City of Greeley
3. U. S. Environmental Protection Agency, Region 8

38.67 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: JULY 9, 2007 RULEMAKING FOR BOULDER CREEK SEGMENT 9; EFFECTIVE SEPTEMBER 30, 2007

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:

The city of Boulder (“Boulder”) originally proposed a Biotic Ligand Model (BLM)-based copper Water Effect Ratio (WER) for Segment 9 of Boulder Creek from the city of Boulder wastewater treatment plant (WWTP) point of discharge to the confluence with Coal Creek. After discussions with the Division and EPA regarding use of the Biotic Ligand Model in Colorado, Boulder revised its proposal by requesting a type iii temporary modification for copper based on uncertainty pursuant to Rule 31.7(3)(a). The Commission adopted Boulder’s revised proposal.

The temporary modification recognizes the uncertainty created by the evolving guidance regarding use of a WER, BLM, or other appropriate copper standard to protect the aquatic life use in Colorado, as well uncertainty about whether protective levels can feasibly be attained in the effluent of the Boulder WWTP.

An additional source of uncertainty is whether or not a translator study will provide adequate relief for the WWTP.

The temporary modification has been set to expire on December 31, 2009. During the term of the temporary modification Boulder will investigate whether a copper translator (from a dissolved criterion to a potentially dissolved or total recoverable permit limit) will address its needs. In addition, the Commission anticipates that there will be an expanded dialogue between EPA, the Division and interested parties regarding the appropriate methods for setting site-specific copper stream standards.

With a 2009 expiration date, Boulders' progress will be reported to the Commission at the December 2007 and December 2008 annual Temporary Modification Review hearings and the need for a temporary modification expiration date beyond December 31, 2009 will be reviewed at that time. If a translator is inadequate, the Commission recognizes that more time may be needed to develop a site-specific standards proposal.

The temporary modification is set at "current condition." It is the intention of the Commission that when implementing this temporary modification in a CDPS permit, and interpreting the term current condition, the Division will assess the current effluent quality, recognizing that it changes over time due to variability in treatment plant removal efficiency and influent loading from industrial, commercial, and residential sources. One necessary element of an approach to maintain the current condition would be a requirement that the total loading from commercial and industrial contributors be maintained at that level as of the date of adoption of the temporary modification and that neither the concentration nor the frequency of high concentration shall increase over historic levels and frequency.

PARTIES TO THE RULEMAKING HEARING

1. City of Boulder
2. City of Lafayette
3. U. S. Environmental Protection Agency, Region 8

38.68 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: DECEMBER 10, 2007 RULEMAKING REGARDING TEMPORARY MODIFICATIONS; EFFECTIVE MARCH 1, 2008

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of temporary modifications to determine whether the temporary modification should be modified, eliminated or extended.

Language was added to subsection 38.6(2) to explain the terms "type i" and "type iii" temporary modifications.

In three general cases, the Commission decided to delete temporary modifications, thereby allowing the underlying standards to go into effect:

a. Segments with no known permitted dischargers:
   - Upper So. Platte segment 5b, Geneva Creek, temporary modification for zinc.
   - Lower So. Platte segment 2b, temporary modifications for selenium and E coli.

b. Segments with permitted dischargers where the dischargers are not expected to discharge the parameters of concern at levels that exceed the standard:

- Upper So. Platte segment 4, temporary modification for copper and zinc.
- Upper So. Platte segment 15, temporary modifications for fecal coliform and E. coli.
- Clear Creek segment 15, temporary modifications for E. coli.
- Big Dry Creek segment 1, temporary modifications for fecal coliform and E. coli.
- Boulder Creek segment 2, temporary modifications for E. coli.
- Boulder Creek segment 7b, temporary modifications for E. coli.
- Boulder Creek segment 10, temporary modifications for E. coli.
- Big Thompson segment 5, temporary modifications for selenium.
- Big Thompson segment 9, temporary modifications for selenium and E coli.
- Big Thompson segment 10, temporary modifications for selenium.
- St. Vrain segment 4b, temporary modifications for copper and lead.
- Cache La Poudre segment 12, temporary modifications for E. coli.
- Lower So. Platte segment 1, temporary modifications for selenium.

c. Segments where there may be permitted dischargers but for which no questions have been raised about the appropriateness of the standard. In these cases, instream levels exceed the previous ammonia TVS or the existing nitrate standard:

- Middle So. Platte segment 1b, temporary modification for ammonia.
- Middle So. Platte segment 5b, temporary modification for ammonia.
- Lower So. Platte segment 1, temporary modification for nitrate.

Temporary modifications provide time for sand and gravel dischargers to work with the Division to determine the most appropriate way to make progress towards resolving non-attainment of underlying selenium standards. The Commission added "type iii", but took no action on the expiration date for the following segments.

- St Vrain segment 6, temporary modification for selenium.
- Big Thompson segment 4b, temporary modification for selenium.

Because parties are working to resolve uncertainty and are on schedule to address these segments at the regularly scheduled basin-wide rulemaking (June 2009), the Commission either added "Type iii" or made the reference consistent, but took no action on the expiration date for the temporary modifications for the following segments:

<u>Upper So Platte segments 16a and 16c:</u> (temporary modifications for selenium). The Selenium Stakeholders presented evidence that they are making progress on their study of selenium sources and appropriate underlying standards and will make a proposal for the 2009 rulemaking hearing.

<u>Big Dry Creek segment 5</u>: (temporary modifications for nitrate, nitrite, benzene, carbon tetrachloride, 1,2-dichloroethanen, 1,1-dichloroethene, tetrachloroethylene, and trichloroethylene). The temporary modification was identified as a “type i” temporary modification. The Department of Energy submitted evidence that progress is continuing and that the temporary modifications are necessary because of the Clean Up agreement.

1. Big Dry Creek Cities (City of Westminster, City of Northglenn, and City and County of Broomfield)
2. Colorado Rock Products Association
3. City of Grand Junction
4. City of Colorado Springs and Colorado Springs Utilities
5. Upper Clear Creek Watershed

Boulder Creek, segment 9, Cache La Poudre segments 11 and 12: (temporary modification for copper). The City of Boulder (Boulder Creek) and the City of Fort Collins (Cache La Poudre) submitted evidence that they are making progress on their translator studies.

Clear Creek segments 2, 3a, 3b, 6, 9a, 9b, 11, 13b: (temporary modifications for zinc, lead, copper, manganese, and cadmium - not all segments have all metals). Evidence was submitted that indicated that the Upper Clear Creek Watershed Association is making progress on their study of appropriate underlying standards and will make a proposal for the 2008 rulemaking temporary modification review hearing. The Commission adjusted the expiration date to 7/1/2009.

Big Dry Creek segment 1: The Big Dry Creek Cities presented evidence that the natural or irreversible human-induced ambient water quality levels for selenium in Big Dry Creek Segment 1 at times exceed the relevant table value standard, and an ambient quality based standard, calculated in a manner consistent with Basic Standards requirements, is adequate to protect classified uses. The Commission accepts the Big Dry Creek Cities' evidence as accurate. The Commission expressly finds that the natural or irreversible human-induced ambient water quality levels for selenium in Big Dry Creek Segment 1 exceed the relevant table value standard. Moreover, the proposed ambient quality based standard is adequate to protect classified uses and represents the highest reasonably attainable standard, based on analysis of available data that show elevated instream conditions are attributable to natural or irreversible human induced conditions.

Strong seasonal variation associated with highly managed flow conditions (e.g., releases of irrigation water from Standley Lake) significantly influences selenium concentrations, particularly in the portion of the stream above the wastewater treatment plants. As a result, the Commission adopts seasonal ambient quality based site-specific standards for selenium applicable to Big Dry Creek Segment 1. During the irrigation season (April through October), ambient standards are 7.4 µg/L chronic (dis) and TVS µg/L acute (dis). Ambient-based non-irrigation season (November through March) standards are 15 µg/L chronic (dis) and 19.1 µg/L acute (dis). These calculations are based on the 85% (chronic) and the 95% (acute for the non-irrigation season) of the ambient selenium data collected at three specific instream monitoring locations (bdc1.5, bdc2.0 and bdc4.0) upstream of the three municipal wastewater treatment plant discharges, however, it is the Commission's intent that the existing spatial variability of selenium in Big Dry Creek be maintained. This composite approach was jointly developed by the Cities and the Water Quality Control Division as a reasonable method to establish the ambient based standards and to assess attainment of future stream standards for Segment 1 of Big Dry Creek. The ambient quality based site-specific standards for selenium (acute and chronic) shall apply to the entirety of Big Dry Creek Segment 1. The Commission also removes the temporary modification currently in place for selenium in Big Dry Creek Segment 1.

PARTIES TO THE RULEMAKING

1. Big Dry Creek Cities (City of Westminster, City of Northglenn, and City and County of Broomfield)
2. Colorado Rock Products Association
3. City of Grand Junction
4. City of Colorado Springs and Colorado Springs Utilities
5. Upper Clear Creek Watershed Association
6. City of Black Hawk and Black Hawk / Central City Sanitation District
7. Department of Energy Office of Legacy Management
8. City of Aurora
9. Shell Frontier Oil & Gas, Inc.
10. City of Boulder
11. Tri-Lakes Wastewater Treatment Facility
12. Security Sanitation District
13. City of Fort Collins

1. Big Dry Creek Cities (City of Westminster, City of Northglenn, and City and County of Broomfield)
2. Colorado Rock Products Association
3. City of Grand Junction
4. City of Colorado Springs and Colorado Springs Utilities
5. Upper Clear Creek Watershed

14. Metro Wastewater Reclamation District
15. U.S. EPA

38.69 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: NOVEMBER 10, 2008 RULEMAKING FOR UPPER SOUTH PLATTE SEGMENT 6b; EFFECTIVE MARCH 30, 2009

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

The Commission revised the site-specific phosphorus standard and changed the chlorophyll goal to a standard for Chatfield Reservoir (Upper South Platte segment 6b) and revised the Chatfield Reservoir Control Regulation (Regulation No 73) to be consistent with these revised standards.

Current Review: The Commission directed the Division to undertake a technical review of the scientific basis for the Chatfield Reservoir phosphorus standard for the following reasons:

A. The phosphorus standard has been exceeded several times in the last decade, while the associated chlorophyll goal has not. The incongruity suggests that the original basis for linking chlorophyll and phosphorus concentrations in the lake should be revisited.

B. The protocol for computing the average phosphorus concentration, which determines attainment of the phosphorus standard, needs to be clarified. The evolution of sampling protocols for Chatfield Reservoir may have inadvertently created a bias in the average phosphorus concentration, with the potential to make it inconsistent with the original intent of the standard.

C. A review commissioned by the Basin Authority in 2005 identified concerns about the TMAL and the underlying assumptions. Based in part on this review, the Commission directed the Division and the Authority "to examine the TMAL and its underlying assumptions."

The technical review showed:

A. Current Condition: Chatfield Reservoir presently has good water quality and uses are being attained. The Commission believes that good conditions have been maintained by having implemented effective phosphorus control strategies through adoption of Control Regulation No. 73. The data record amassed through more than 20 years of water quality monitoring shows that trophic condition has remained stable, and it provides a comprehensive basis for assessing the variability in those characteristics (chlorophyll and phosphorus) of trophic condition that are recommended as standards.

B. Characterizing Chlorophyll: Typical summer average chlorophyll is about 6 µg/l, and there has been no trend for increasing concentration over the 26-year period of study. Concentrations vary from year to year, but have exceeded 10 µg/l only 5 times in 24 years, and only twice since 1990.

C. Role of Phosphorus: The Commission believes that eutrophication of Chatfield Reservoir has been averted through the control of phosphorus loads from the watershed. Adoption of the control regulation made this possible by imposing concentration limits on point source discharges and by facilitating implementation of nonpoint source management. There has been no trend for increasing phosphorus in Plum Creek, where most of the development has occurred. Domestic dischargers are to be commended for their role in making this effort a success.

D. Characterizing Phosphorus: Typical summertime concentrations of phosphorus have been about 0.020 mg/L, and there has been no trend for increasing phosphorus in the lake. Summer median concentrations have exceeded 0.030 mg/L in only 3 of 24 years. It is appropriate to maintain phosphorus as a standard, rather than a goal, because of its importance in characterizing trophic condition, and because it is the direct link to the control regulation.

E. Old Relationship Between Chlorophyll and Phosphorus: The existing phosphorus standard is not consistent with the existing chlorophyll goal. Phosphorus concentrations at or below the level of the standard have yielded chlorophyll much lower than the goal. The mismatch is the result of relying entirely on one year of data and assuming that all variation in chlorophyll is explained completely by the phosphorus concentration in the reservoir.

F. Defining a New Chlorophyll-Phosphorus Linkage: The conventional regression approach used in the Clean Lakes Study to link chlorophyll and phosphorus in the context of trophic condition has shown its weaknesses. The Division believes a better linkage is based on the simple ratio of chlorophyll to phosphorus, which records the net responsiveness of the resident algal community to the amount of phosphorus present in the lake. It is a “net” value because it reflects the balance of growth (nutrients, light, temperature) and loss (grazing, washout, settling) processes. The measured ratios offer an empirical basis for defining expectations for chlorophyll given the available phosphorus.

G. Allowable Frequency of Exceedance: The original nutrient criteria (phosphorus standard and chlorophyll goal) did not specify the frequency with which exceedances would be allowed. There is no general precedent for nutrient criteria, which are assessed once a year on the basis of a seasonal average, but the Division believes that one exceedance is allowable in five years.

H. Sampling Requirements: A more complete definition of sampling protocols is needed to clarify the basis for assessing attainment of these site-specific standards in the future.

Revised Water Quality Standards for Chatfield Reservoir: With the benefit of the lengthy historical record now available, the Commission believes it is appropriate to set chlorophyll and phosphorus standards consistent with the trophic condition that has been maintained. The Commission adopted a chlorophyll standard of 10 µg/l and a phosphorus standard of 0.030 mg/L to preserve the intended trophic condition and protect uses. Each standard is to be attained in four of five years.

Because the phosphorus and chlorophyll standards are defined as seasonal averages, some additional guidance is required concerning timing and location of samples to be used in calculating the average. Samples are to be collected at a site near the dam and should be representative of conditions in the mixed layer. Past monitoring has resulted in 6 samples during the summer months (July, August, and September); it is anticipated that the same level of effort will be applied in the future. For assessment, the average (arithmetic mean) is calculated for the summer samples in each year.

Development of Assessment Thresholds: For Chatfield Reservoir, a distinction is made between the standard and an assessment threshold. The assessment threshold is designed to address the concern about the risk of incorrectly counting an exceedance when a high summer value is the result of natural variability, but does not indicate a substantive change in trophic condition. The approach is justified by the special nature of the pollutants (chlorophyll and phosphorus are not toxic) and the site-specific nature of the concern about false exceedances. Another reason for establishing an assessment threshold that is different than the standard is that the site-specific standard is derived from historical data, which creates the expectation that a number of exceedances will occur. Natural variability, especially for chlorophyll, is sufficient to produce much more uncertainty in the assessed value than in the standard, which was derived from the set of all summer averages. The Commission is establishing assessment thresholds for Chatfield Reservoir nutrient standards based on this unique combination of circumstances and does not intend this action to be a precedent for other standards and/or other segments. “Assessment thresholds” were developed by calculating the standard error of each summer average. A regression of the upper confidence limit on the average provides an equation that can be used to specify the upper confidence

limit (90%) for any particular concentration (e.g., the standard). Assessment thresholds were added in section 38.6,(4) with a reference in the standards table "qualifier" column." The resulting assessment thresholds were chlorophyll = 11.2 µg/l, summer average, 1 in 5 year allowable exceedance frequency and phosphorus = 0.035 mg/l, summer average, 1 in 5 year allowable exceedance frequency.

At the same time that this change was adopted in Regulation No. 38, the Commission adopted changes in the Control Regulation for Chatfield Reservoir (Regulation No. 73) that are consistent with the revised standard.

PARTIES TO THE RULEMAKING

1. Chatfield Watershed Association
2. Plum Creek Wastewater Authority
3. Colorado Division of Wildlife
4. Roxborough Water and Sanitation District
5. Dominion Water and Sanitation District
6. U. S. EPA
7. Denver Regional Council of Governments

38.70 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE: DECEMBER 2008 RULEMAKING REGARDING TEMPORARY MODIFICATIONS; EFFECTIVE MARCH 30, 2009

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

Pursuant to the requirements in the Basic Standards (at section 31.7(3)), the Commission reviewed the status of temporary modifications to determine whether the temporary modification should be modified, eliminated or extended.

Segments with no change to expiration dates:

Temporary modifications provide time for sand and gravel dischargers to work with the Division to determine the most appropriate way to make progress toward resolving non-attainment of underlying selenium standards. The Commission took no action on the expiration date for the following segments. The temporary modifications will expire on 2/28/10.

St Vrain segment 6: temporary modification for selenium
Big Thompson segment 4b: temporary modification for selenium.

Because parties are working to resolve uncertainty and are on schedule to address these segments at the regularly scheduled basin-wide rulemaking (June 2009), the Commission took no action on the expiration date for the temporary modifications for the following segments:

Upper So. Platte segment 5c: (temporary modifications for ammonia). The Mountain Water and Sanitation District presented evidence that they are making progress on their study of aquatic life classification and appropriate underlying standards and will make a proposal for the June 2009 rulemaking hearing.

Big Dry Creek segment 5: (temporary modifications for nitrate, nitrite, benzene, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethene, tetrachloroethylene, and trichloroethylene). The Department of Energy submitted evidence that progress is

continuing and that the temporary modifications will be addressed in the June 2009 rulemaking hearing.

Boulder Creek, segment 9, Cache La Poudre segments 11 and 12: (temporary modification for copper). The City of Boulder (Boulder Creek) and the City of Fort Collins (Cache La Poudre) submitted evidence that they are making progress on their translator studies.

Big Thompson, segment 2, Wapiti Meadow: (temporary modification for dissolved oxygen, E coli, ammonia, nitrate, boron cadmium, copper, lead, mercury, nickel, selenium, silver and zinc). The Upper Thompson Sanitation District submitted evidence that they are making progress on developing site-specific standards for the wetland and will make a proposal for the June 2009 rulemaking hearing.

Upper Clear Creek basin: The Commission considered proposals regarding temporary modifications and underlying standards for Clear Creek segments 2, 3a, 3b, 6, 9a, 9b, 11 and 13b.

Manganese acute and chronic aquatic life standards were added to segments 2 and 9b.

The Commission declined to modify other underlying standards at this time and noted that it would be willing to revisit underlying standards in the June 2009 basin-wide hearing, including any proposals from the Upper Clear Creek Watershed Association.

Since there are no permitted dischargers, the Commission deleted the temporary modification, thereby allowing the underlying standards to go into effect for the following segments:

Clear Creek segments 3a, 3b, 6 and 9b.

The numeric temporary modifications for segments 2, 9b, 11 and 13b were revised to reflect current conditions. A new temporary modification of the iron standard was added for segment 13b. A ten year period of record was used in these cases because of the wider range of hydrologic conditions that is captured by this period. These type iii temporary modifications were set to expire on 12/31/2014 as follows:

Clear Creek segment 2: Cu= 7.4 µg/l, Zn= 254 µg/l
Clear Creek segment 9a: Cu= 9.6 µg/l
Clear Creek segment 11: Zn= 325 µg/l
Clear Creek segment 13b: Cd= 4.7 µg/l, Mn= 3841 µg/l, Zn= 1582 µg/l, Fe(trec)= 7941 µg/l.

Since considerable water quality improvement in this basin has been made since 2000, the Commission adopted an alternative baseline to be used for antidegradation review for the reviewable segments (segments 1, 2, 4, 3a, 3b, 6, 9a, 9b, 10 and 13a). A notation was added to the designation column of reviewable segments “9/30/00 baseline does not apply”. Pursuant to section 31.8(3)(c)(ii)(B) of the Basic Standards, the baseline will be determined at the time of the first new or increased water quality impact. This will ensure that the improved water quality will be used as the baseline.

Sand Creek, Upper So. Platte segment 16a: Suncor Energy, (U.S.A.), Inc. (Suncor) requested the Commission to extend the type iii temporary modification pursuant to section 31.7(3)(a) of the Basic Standards for selenium of segment 16a of the South Platte River (Sand Creek) to 12/31/2014. More time is needed to determine what criteria are necessary to protect the use in Segment 16a and how additional treatment will be provided.

The Commission extended the selenium temporary modifications and updated the underlying narrative standard with the notation of "current condition" rather than a numeric value. The Commission's intent of

using the notation "current condition" is to preserve the status quo during the term of the temporary modification. Dischargers to this segment shall maintain the existing selenium water quality and loading characteristics of their effluent, as reflected in current permits. The Commission does not intend the temporary modifications to apply to new facilities or in Preliminary Effluent Limitations.

Toll Gate, East and West Toll Gate Creeks, Upper So Platte segment 16h: The City of Aurora presented evidence that the natural or irreversible human-induced ambient water quality levels for selenium in Toll Gate Creek, East Toll Gate Creek, and West Toll Gate Creek at times exceed the relevant table value standard, and that an ambient quality-based standard, calculated in a manner consistent with Basic Standards requirements, is adequate to protect classified uses. The Commission accepts the City of Aurora's evidence as accurate. The Commission expressly finds that the natural or irreversible human-induced ambient water quality levels for selenium in Toll Gate Creek, East Toll Gate Creek, and West Toll Gate Creek exceed the relevant table value standard. Moreover, the proposed ambient quality based standard is adequate to protect classified uses and represents the highest reasonably attainable standard, based on analysis of available data that show elevated instream conditions are attributable to natural or irreversible human-induced conditions.

The Commission created a new segment, segment 16h, and adopted ambient quality-based site-specific standards for selenium applicable to Toll Gate Creek, East Toll Gate Creek, and West Toll Gate Creek in Segment 16h. The ambient quality-based standards are based on the 85th percentile (chronic) and the 95th percentile (acute) of the selenium data collected at three specific instream monitoring locations (TG6, ET1 and WT1). The instream attainment locations have been added to section 38.6(4). Percentiles are:

Toll Gate Creek (TG6): 85th percentile = 26.5 µg/l chronic (dis), 95th percentile = 29.5 µg/l acute (dis).

East Toll Gate Creek (ET1): 85th percentile = 14.3 µg/l chronic (dis), 95th percentile = 15.9 µg/l acute (dis).

West Toll Gate Creek (WT1): 85th percentile = 50.6 µg/l chronic (dis), 95th percentile = 119.2 µg/l acute (dis).

The Commission removed the temporary modification currently in place for selenium in Toll Gate Creek, East Toll Gate Creek, and West Toll Gate Creek in Segment 16c, and added "16h" to the list of exceptions in the 16c segment description.

PARTIES TO THE RULEMAKING

1. Upper Clear Creek Watershed Association
2. City of Aurora
3. Suncor Energy (USA)
4. Tri-Lakes Wastewater Treatment Facility; Upper Monument Creek Regional Wastewater Treatment Facility; Security Sanitation District; and Fountain Sanitation District
5. Hazardous Materials and Waste Management Division and the U.S. Environmental Protection Agency's Superfund Remediation Programs
6. Colorado Division of Wildlife
7. City of Boulder
8. U.S. Department of Energy, Office of Legacy Management
9. City of Black Hawk and Black Hawk/Central City Sanitation District
10. City of La Junta
11. City of Fort Collins
12. Colorado Trout Unlimited
13. U.S. EPA
14. City of Colorado Springs and Colorado Springs Utilities

38.71 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: JANUARY 12, 2009 RULEMAKING; EFFECTIVE MARCH 30, 2009

The provisions of C.R.S. 25-8-202(1)(b) and (2); 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

The Commission considered revisions to Table 2 standards for uranium, gross alpha and gross beta for segments 4a, 4b, and 5 of Big Dry Creek.

The previous uranium standards (10 pCi/L for Walnut Creek and 11 pCi/L for Woman Creek) were set in 1996 based on the then current ambient conditions. Recently, post-closure surface water runoff has decreased and the relative contribution of uranium from groundwater has increased. However, the effects of this hydrologic change have not been quantified. In addition, increased treatment of the Solar Pond Plume area will result in a decrease in uranium from that source. Since there is continued uncertainty about the eventual equilibrium surface water uranium concentrations, the Commission decided that human health-based criteria were more appropriate than table value standards, new ambient-based standards or maintaining the current standards. The question of determining the “lowest practical level” will be left to the future when DOE completes a feasibility study of enhanced treatment of the Solar Pond Plume.

The Commission adopted a total uranium standard of 16.8 µg/L to protect human health since the goal for the Rocky Flats site has been to protect all uses. This concentration-based criterion was derived using a reference dose of 0.0006 mg/kg/day and a relative source contribution of 0.8 (see Policy 96-2, Equation 1-1). Based upon a conversion factor of 0.67 pCi/µg uranium, 16.8 µg/L equates to 11.3 pCi/L.

The gross alpha and gross beta standards were deleted. Gross alpha was removed because the site-specific standards for specific alpha-emitting radionuclides are adequate to protect water quality and designated uses. Gross beta was removed because beta emitters are not present at the site at levels above background.

PARTIES TO THE RULEMAKING

1. U.S. Department of Energy, Office of Legacy Management
2. City of Northglenn
3. City of Westminster
4. City and County of Broomfield
5. City of Thornton
6. U.S. EPA

38.72 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: MARCH 10, 2009 RULEMAKING REGARDING CHERRY CREEK RESERVOIR; FINAL ACTION AUGUST 10, 2009; EFFECTIVE DATE JANUARY 1, 2010

The provisions of C.R S. 25-8-202(1) (b), (c) and (2); 25-8-204; 25-8-205 and 25-8-402; C.R.S. 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.

At the same time that these changes were adopted in Regulation #38, the Commission adopted consistent changes in Regulation #72, Cherry Creek Reservoir Control Regulation (5 CCR 1002-72).

BASIS AND PURPOSE

The classified uses for the Cherry Creek Reservoir (Reservoir) include warm water aquatic life class 1, recreation class E (formerly 1a), water supply, and agriculture. The Reservoir is mildly eutrophic and has limited releases given the primary role of Cherry Creek Dam as a flood control structure. As a result of the data and analyses brought forward as part of the March 2009 Rulemaking Hearing, the Commission adopted revisions to the water quality standard for chlorophyll *a* in the Reservoir. Specifically, the Commission has changed the seasonal chlorophyll *a* standard from15 µg/l to18 µg/l to be attained four out of five years. The Commission also adopted the "class E" recreation classification to replace the previous "class 1a" label, and replaced the fecal coliform numeric standard with an E. coli numeric standard of 126/100ml to be consistent with Regulation #31 (5 CCR 1007-31). In conjunction with the adoption of a revised chlorophyll *a* standard, the Commission also adopted a number of changes to Regulation #72 (5 CCR 1002-72).

Background and Overview

During the September 2000 Rulemaking Hearing, the Commission repealed the prior total phosphorus water quality standards for the Reservoir and adopted a chlorophyll *a* standard of 15 µg/l (previously a "goal"), to be measured in the upper three meters of the water column during July through September. At that time, the Commission recognized that further data was needed to establish a scientifically appropriate chlorophyll *a* standard. To this end, the Commission directed the Cherry Creek Basin Water Quality Authority (Authority), with oversight by the Water Quality Control Division (Division), to conduct a number of special studies.

In 2000, the Commission also retained a Total Maximum Annual Load (TMAL) of 14,270 pounds of total phosphorus to the Reservoir provided in Regulation #72, with a consideration that this be a "phased TMAL" while the Authority completed the requested studies. An in-lake phosphorus goal, which was a July through September seasonal average, was set at 40 µg/l based on the Division's 90% confidence level that this goal would result in the attainment of the chlorophyll *a* standard.

The Commission further recognized in the 2000 Rulemaking Hearing the uncertain relationship between chlorophyll *a* and total phosphorus, such that the correlation resulting from that Rulemaking Hearing could change based on the analysis of the additional data obtained by the identified studies. The Commission's recognition of that uncertainty and the data modeling information obtained since that time provide the basis for adjusting the chlorophyll *a* standard in this rulemaking.

Chlorophyll *a* Standard

Between 1999 and 2008, the Authority gathered data to expand the data set used by the Commission to reach its decisions in the September 2000 Rulemaking. The Authority used this data and previously collected data in its modeling efforts to evaluate whether a chlorophyll *a* standard of15 µg/l could feasibly be attained nine out of ten years. The Authority concluded that such a standard could not be attained and set forth to identify a feasibility-based chlorophyll *a* standard.

<u>The Current Standard is not Attainable.</u> Based on the evidence presented in the prehearing filings and at the March 2009 rulemaking hearing, the Commission agrees that a chlorophyll *a* standard of15 µg/l cannot be feasibly attained nine out of ten years.

The Commission reaches this conclusion, based on the evidence presented throughout this process, for three reasons. First, the current chlorophyll *a* standard was an admitted compromise between parties with competing interests, where scarce Reservoir data existed to support the parties' respective positions. Second, to achieve a chlorophyll *a* standard of15 µg/l, the Reservoir's long-term seasonal (July to September) mean chlorophyll *a* concentration would need to be less than10 µg/l, a value not observed within the Reservoir since 1991. The only way to achieve a long-term average summer chlorophyll *a* concentration at that level would be to require the reduction of flow-weighted total phosphorus concentrations into the Reservoir by more than 30 percent beyond the lowest value observed entering the Reservoir. Finally, even the background concentrations are substantially above the concentration needed to achieve a chlorophyll *a* concentration of15 µg/l.

Current Water Quality Protection Efforts. The evidence indicates that although the Cherry Creek Basin has experienced unprecedented growth during the past 20 years, the Authority and its partners have succeeded in implementing nutrient controls to help maintain the Reservoir's water quality. The Commission acknowledges that the Authority, its member agencies, and partners have improved wastewater treatment and have installed best available technology, installed nonpoint source controls, and utilized its land use agency responsibilities to control phosphorus in the watershed and inflow to the Reservoir.

The evidence also indicates that the Authority considered additional watershed management practices that it could implement in the future. By reviewing the outcome of the Authority's analyses presented during this rulemaking process, the Commission concludes that the additional practices identified to date are not feasible at this time. Some practices would be exorbitantly expensive, and it is unclear when and to what extent additional nutrient reductions might be realized within the Reservoir. Nutrient reductions depend in part on future development and current economic conditions create uncertainty regarding the pace and scope of future development. In addition, access and liability-based legal issues may preclude the Authority from implementing certain future practices.

The Commission also acknowledges that the Authority and its member agencies are committed to continuing watershed improvements, understanding that the watershed conditions are expected to improve with time and effort. While the Commission acknowledges that the additional future watershed management practices considered by the Authority are infeasible at this time, the Commission expects current water quality management strategies to continue and, as necessary, become more aggressive over time to attain water quality objectives and protect the uses of the Reservoir.

Science and Policy Support the Commission's Adoption of a 18 µg/l Chlorophyll *a* Standard. Based on the evidence advanced by the parties to this rulemaking, the Commission concludes that the appropriate assessment period by which to measure attainment with the standard should be five years, with attainment expected in four out of five years. The Commission understands that an assessment period of five years will allow the Division and the Authority to respond more promptly to attainment issues, such that water quality can be managed more effectively. Moreover, the Commission acknowledges that this adjusted assessment period would also preclude longer periods of time during which the standard could be exceeded, which could have a greater adverse impact on the Reservoir's water quality.

Recognizing that the 15 µg/l standard is not attainable, the Commission has chosen to set a standard that provides protection of reservoir uses to the maximum degree practical, recognizing present uncertainty as to the specific chlorophyll *a* level that will prove to be attainable over time. The Commission has determined as a matter of policy that it would be premature to set a chlorophyll *a* standard based solely on the assumption that no additional improvement is feasible. The Commission believes that it is important to retain the goal of full protection of the Reservoir's uses.

The adopted standard (18 µg/L) was developed from a prediction of the "most likely" chlorophyll *a* concentration and a measured variability component. Prediction of the most likely chlorophyll *a* concentration (16.2 µg/L) was based on an equation, created through the reservoir modeling effort, relating chlorophyll to input, flow-weighted phosphorus concentration (0.177 mg/L). The most likely chlorophyll concentration represents a long-term mean, which is not the appropriate value for a standard to be attained 80% of the time (in four of five years). The 80th percentile value is calculated from the long-term mean and a measured variability component (standard deviation of 2.3 µg/L). The standard deviation used in this calculation is smaller than the one proposed by the CCBWQA, which had argued that it should be based on an 8-year record of "existing conditions." However, the Commission chose to base the standard on the most recent five years of data as a matter of policy, to better reflect optimism about what can be achieved for this reservoir. Because chlorophyll concentrations have been less variable over the last five years than over the last eight years, a smaller standard deviation is employed in development of the appropriate standard.

Future Watershed Practices

Given the Authority's duty to continue its water quality control management strategies, the Commission's adoption of a 18 µg/l chlorophyll *a* standard will not result in a reduction or change in the Authority's commitment to controlling chlorophyll *a* in the Reservoir. The Commission's adoption of revisions to Regulation #72 (5 CCR 1002-72) reflect the Authority's commitment to maintain current water quality management strategies and, as necessary, become more aggressive over time to attain water quality objectives and protect the uses of the Reservoir.

In accordance with statutory requirements, both the control regulation and the underlying standards will be revisited as efforts are implemented over time, such that more information is developed regarding influences on, and the attainability of, identified levels of Reservoir water quality.

PARTIES TO THE RULEMAKING

1. Cherry Creek Basin Water Quality Authority
2. Parker Water and Sanitation District
3. Colorado Division of Wildlife
4. Arapahoe County Water and Wastewater Authority
5. Meridian Metropolitan District
6. City of Greenwood Village
7. U. S. Environmental Protection Agency (EPA), Region 8
8. City of Aurora Water Department
9. Denver Water

38.73 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: MAY 11, 2009 RULEMAKING; FINAL ACTION AUGUST 10, 2009; EFFECTIVE JANUARY 1, 2010

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

The Commission revised the site-specific narrative nutrient criteria to include numeric standards for chlorophyll and total phosphorus for Bear Creek Reservoir (Bear Creek segment 1c).

Current Review: The Commission directed the Division to undertake a technical review of the scientific basis for the Bear Creek Reservoir narrative nutrient standard and Control Regulation (Regulation #74) for the following reasons:

A. There are no numeric goals for assessing water quality conditions related to excessive algal growth.

B. There is no firm basis for determining what level of nutrient control is consistent with the water quality goals.

C. The allowable load is not specified in the Control Regulation, making it impossible to determine the appropriateness of allocations.

D. There is an implied acceptance of aeration as a permanent basis for treating the symptoms of algal productivity that is higher than the target specified in the narrative standard.

The technical review showed:

A. Current Condition: Water quality has been monitored in Bear Creek Reservoir since 1987. The reservoir is more productive than allowed by the existing narrative standard, which specifies a

target trophic condition between mesotrophic and eutrophic. A more productive condition has been sustained despite significant reductions in external phosphorus load. The present level of productivity would cause depletion of hypolimnetic oxygen (also contrary to the narrative standard) if aerators were not operated to destratify the reservoir.

B. Characterizing Chlorophyll: Chlorophyll concentrations declined after phosphorus loads were reduced. Since 1995, typical summer average chlorophyll is about 24 µg/L, but there are large differences among years. The differences appear to be associated with hydraulic residence time such that the highest average chlorophyll concentrations tend to be the years of longest residence time (lowest inflow).

C. Role of Internal Phosphorus Load: External phosphorus loads were reduced significantly in the early 1990s largely through efforts made by domestic dischargers to control effluent phosphorus concentrations. As a result, phosphorus concentrations at the beginning of summer are relatively low. However, through the process of internal release, phosphorus concentrations increase steadily through the summer months. The net effect of internal release is more conspicuous in low-flow years, because high inflows provide more dilution. Over the long term, internal release should diminish because the external load has been reduced, but it could take 10-15 years until internal release becomes negligible.

D. Characterizing Phosphorus: Phosphorus concentrations declined sharply after controls were imposed in the early 1990s. Since 1995, typical summertime concentrations of phosphorus have been about 44 µg/L, but there are large differences among years. Differences are associated with hydraulic residence time as mentioned previously for chlorophyll. It is appropriate to set a numeric standard for phosphorus because of its importance in characterizing trophic condition, and because it is the direct link to the control regulation.

E. Defining a Chlorophyll-Phosphorus Linkage: The simple ratio of chlorophyll to phosphorus defines the site-specific, net responsiveness of the resident algal community to the availability of phosphorus. It is a “net” value because it reflects the balance of growth (nutrients, light, temperature) and loss (grazing, washout, settling) processes. For the purpose of linking chlorophyll and phosphorus standards, which are summer average concentrations, the response ratio also must be a seasonal value derived from Bear Creek Reservoir.

F. Allowable Frequency of Exceedance: There is no general precedent for setting an allowable frequency of exceedance for nutrient criteria, which are assessed once a year on the basis of a seasonal average, but the Division believes that one exceedance in five years is an appropriate frequency for allowable exceedances.

Revised Water Quality Standards for Bear Creek Reservoir: With the benefit of the lengthy historical record now available, the Commission believes it is appropriate to set numeric chlorophyll and phosphorus standards. Both standards are considered attainable when the internal release of phosphorus becomes negligible, which is expected to occur in less than 20 years. Each standard has an allowable exceedance frequency of once in five years.

A. Chlorophyll Standard: The Commission adopted a chlorophyll standard of 10 µg/L. The existing narrative was translated to a numeric value by defining the chlorophyll concentration at the mesotrophic-eutrophic boundary. A concentration of 8 µg/L, which represents the boundary according to the OECD trophic classification scheme, was accepted as the typical condition expected for Bear Creek Reservoir. The typical value was translated to an 80th percentile (once-in-five year exceedance threshold) using a very strong statistical relationship developed from a set of Colorado lakes. The 80th percentile value, which is 10 µg/L, is the chlorophyll standard.

B. Phosphorus Standard: The Commission adopted a phosphorus standard of 32 µg/L. The standard is calculated by use of a response ratio that relates the observed summer average chlorophyll concentration to the observed summer average phosphorus concentration. The

median of historical distribution of response ratios (0.318) was used on the assumption that all historical values are equally likely to represent future conditions. The Commission heard testimony that a larger ratio (and thus a smaller phosphorus standard) might be preferred, but was not persuaded that a statistical argument or a mechanistic explanation would support that position.

C. Assessment: Because the phosphorus and chlorophyll standards are defined as seasonal averages, some additional guidance is required concerning timing and location of samples to be used in calculating the average. Samples are to be collected at a site in deep water near the dam and should be representative of conditions in the mixed layer. Past monitoring has resulted in 5 or 6 samples during the summer months (July, August, and September); it is anticipated that the same level of effort will be applied in the future. For assessment, the average (arithmetic mean) is calculated for the summer samples in each year.

At the same time that this change was adopted in Regulation #38, the Commission considered changes in the Control Regulation for Bear Creek Reservoir (Regulation #74) that would be consistent with the revised standard. The Commission decided to make no changes to Regulation #74 at this time, preferring instead to wait for TMDL development to establish new phosphorus allocations that can be implemented in the Control Regulation.

Adoption of a Temporary Modification for Chlorophyll and Phosphorus Standards in Bear Creek Reservoir: The underlying standards are not being attained in most years due to the seasonal augmentation of phosphorus concentrations from internal sources. It is uncertain how long internal release will persist, although it is expected that it will disappear within 20 years. In addition, the existing TMDL with wasteload allocations is now canceled by the new standard, and there is uncertainty about how the new standards might be translated into point source permit limits. A type iii temporary modification set at “existing conditions” to expire 12/31/2014, is adopted in order to recognize the uncertainty regarding how soon the internal load will be reduced. It will also provide certainty regarding effluent limits over the short term while a TMDL is completed which will include new wasteload allocations. During the interim, sediment monitoring will be initiated to track internal phosphorus levels over time. Progress on resolving uncertainty will be reviewed in the annual temporary modification hearings in December 2012 and 2013.

PARTIES TO THE RULEMAKING

1. Colorado Division of Wildlife
2. Bear Creek Watershed Association
3. U. S. Environmental Protection Agency (EPA), Region 8
4. Denver Water

38.74 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JUNE 8, 2009 RULEMAKING, FINAL ACTION AUGUST 10, 2009, EFFECTIVE JANUARY 1, 2010

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. Waterbody Segmentation

The Commission decided to split lakes and reservoirs from segments that contained both streams and lakes and reservoirs so that new temperature standards could be adopted. The water supply use was presumptively applied to these segments in the absence of information indicating that the water supply

use is neither existing nor potentially existing. Lakes and reservoirs were deleted from the following segments that previously encompassed both streams and lakes and reservoirs:

Upper South Platte River Segments 1a, 1b, 2a, 3, 4, 5b, 7, 8, 9, 11a, 11b, 16c, and 16g
Cherry Creek Segment 4
Bear Creek Segments 1a, 3, 4a, 5, and 7
Clear Creek Segments 1, 2, 3a, 6, 9a, 9b, 10, 12, 13a, 13b, 16a, 17b, 18a, and 19
Big Dry Creek Segment 1
Boulder Creek Segments 1, 2, 3, 4a, 4b, 6, 8, and 11
St. Vrain Creek Segments 1, 2, 4a, 4b, 5, and 6
Middle South Platte River Segment 3a
Big Thompson River Segments 1, 2, 6, 8, and 10
Cache La Poudre River Segments 1, 2, 6, 8, and 13a
Laramie River Segments 1 and 2
Lower South Platte River Segments 2a and 2b
Republican River Segments 6 and 7

The following lakes and reservoirs segments were created:

Upper South Platte River Segments 18, 19, 20, 21, 22, and 23
Cherry Creek Segments 5 and 6
Bear Creek Segments 1d, 8, 9, 10, 11, and 12
Clear Creek Segments 20, 21, 22, 23, 24, and 25
Big Dry Creek Segment 7
Boulder Creek Segments 13, 14, 15, 16, and 17
St. Vrain Creek Segments 8, 9, 10, 11, 12, and 13
Middle South Platte River Segment 7
Big Thompson River Segments 15, 16, 17, 18, and 19
Cache La Poudre River Segments 17, 18, 19, 20, 21 and 22
Laramie River Segments 3 and 4
Lower South Platte River Segments 4 and 5
Republican River Segment 8

The following segments were deleted when the constituent waterbodies were merged with other segments:

Upper South Platte River Segments 6c and 10b
Bear Creek Segments 4b and 4c

Some renumbering and/or creation of new segments was made due to information which showed that: a) the original reasons for segmentation no longer applied; b) new water quality data showed that streams should be resegmented based on changes in their water quality; and/or c) certain segments could be grouped together in one segment because they had similar quality and uses. In particular, segmentation was changed to facilitate adoption of the new temperature standards into individual segments. The following changes were made:

<u>Upper South Platte River 1a</u>: The segment description was amended to exclude lakes and reservoirs, and the segment now ends at the inlet of Cheesman Reservoir. Lakes and reservoirs formerly included in this segment are now part of Segment 19. The portion of the segment from Cheesman Reservoir to a point immediately above the confluence with the North Fork of the South Platte River is now part of Segment 6a. The alteration of the segment boundary, the amendment of the description, and the resultant creation of Segment 19 were necessary to facilitate the adoption of appropriate temperature standards.

<u>Upper South Platte River 1b</u>: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 18. The amendment of

the description and the resultant creation of Segment 18 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 2a: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 19. The amendment of the description and the resultant creation of Segment 19 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 3: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 19. The amendment of the description and the resultant creation of Segment 19 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 4: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 19. The amendment of the description and the resultant creation of Segment 19 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 5b: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 19. The amendment of the description and the resultant creation of Segment 19 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 5d: This segment was created to encompass the portion of Gooseberry Gulch and its tributaries downstream of Sunset Trail in order to retain trout-specific standards for acute cadmium and chronic silver that are being deleted from Segment 5c. This segment was formerly a portion of Segment 5c.

Upper South Platte River 6a: The segment description now begins at the outlet of Cheesman Reservoir. The added portion of the segment, which extends from the Cheesman outlet to a point immediately above the confluence with the North Fork of the South Platte River, was formerly in Segment 1a. The alteration of the segment boundary was necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 6c: The Commission deleted segment 6c and revised the description for Segment 14, incorporating the section of the mainstem South Platte River currently in segment 6c into Segment 14. This change was necessary for the purpose of setting appropriate temperature standards. This change was based on use-attainability analyses provided by Centennial Water and Sanitation District and the Division, which indicated this portion of the South Platte River has temperature and fish communities more appropriately classified as warm water aquatic life with warm stream tier II as the appropriate temperature standard. This finding is based on fish community sampling conducted over a 20-yr period and temperature data collected for nearly 9 years. The retention of water in Chatfield Reservoir sufficiently warms the water in the South Platte River so that a cold water biological community cannot be fully supported, nor can a cold water temperature standard be attained. Most of the aquatic community consists of warm water species.

Although the Commission has determined that the aquatic community and ambient temperatures are not consistent with a cold water aquatic life classification for the stretch of the river below Chatfield Reservoir, the Commission recognizes the continued presence of trout in this stream reach. The Commission also recognizes that the upper reaches of the South Platte below Chatfield Reservoir provide an important urban fishery resource, including a trout fishery supported by Colorado Division of Wildlife stocking. Therefore, the Commission strongly supports the ongoing efforts of stakeholder groups to improve the fishery habitat below Chatfield. Maintaining and improving this fishery that provides nearby fishing access for those in the Denver metropolitan area is an important and worthwhile goal.

Upper South Platte River 7: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 19. The amendment of the description and the resultant creation of Segment 19 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 8: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 20. The amendment of the description and the resultant creation of Segment 20 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 9: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 20. The amendment of the description and the resultant creation of Segment 20 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 10a: The segment description was amended to incorporate a remnant of Segment 10b (described below). Lakes and reservoirs which would have been included in this segment are now part of Segment 20. The amendment of the description and the resultant creation of Segment 20 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 10b: The segment has been deleted to address a long-standing lack of clarity about the disposition of West Plum Creek and its tributaries. The small portion of West Plum Creek above Perry Park pond, as well as Stark Creek and Gove Creek below the National Forest boundary, that were formerly in this segment are now part of Segment 10a. Lakes and reservoirs which would have been included in this segment are now part of Segment 20. The amendment of the description and the resultant creation of Segment 20 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 11a: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 21. The amendment of the description and the resultant creation of Segment 21 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 11b: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 21. The amendment of the description and the resultant creation of Segment 21 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 14: The segment description now begins at the outlet from Chatfield Reservoir. The portion of the segment from the Chatfield outlet to Bowles Avenue was formerly in Segment 6c. The alteration of the segment boundary was necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 16c: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 22 or 23. The amendment of the description and the resultant creation of Segments 22 and 23 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 16g: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 22 or 23. The amendment of the description and the resultant creation of Segments 22 and 23 were necessary to facilitate the adoption of appropriate temperature standards.

Upper South Platte River 18: The segment description was created to encompass lakes and reservoirs within the boundaries of the Lost Creek and Mt. Evans Wilderness areas. This segment includes lakes and reservoirs formerly within Upper South Platte River Segment 1b.

Upper South Platte River 19: The segment description was created to encompass lakes and reservoirs in the South Platte River system from headwaters to Chatfield Reservoir, except for specific listings in Segment 18. It includes Antero, Spinney Mountain, Elevenmile, Cheesman, and Strontia Springs. This segment includes lakes and reservoirs formerly within Upper South Platte River Segments 1a, 2a, 3, 4, 5b, and 7.

Upper South Platte River 20: The segment description was created to encompass lakes and reservoirs in the Plum Creek system within National Forest boundaries, and lakes and reservoirs in the Bear Creek drainage (part of the Plum Creek system) between the National Forest boundary and to the inlet of Perry Park Reservoir (Douglas County). This segment includes lakes and reservoirs formerly within Upper South Platte River Segments 8, 9, and 10b.

Upper South Platte River 21: The segment description was created to encompass lakes and reservoirs in the Plum Creek system except for specific listings in Segment 20. This segment includes lakes and reservoirs formerly within Upper South Platte River Segments 11a and 11b.

Upper South Platte River 22: The segment description was created to encompass lakes and reservoirs in watersheds tributary to the South Platte River from the outlet of Chatfield Reservoir to a point immediately below the confluence with Big Dry Creek, except for specific listings in the subbasins of the South Platte River, and in Segments 16b, 17a, 17b, 17c, and 23. This segment includes lakes and reservoirs formerly within Upper South Platte River Segments 16c and 16g.

Upper South Platte River 23: The segment description was created to encompass lakes and reservoirs in watersheds tributary to the South Platte River within City and County of Denver, except for specific listings in the subbasins of the South Platte River, and in Segments 16b, 17a, 17b, and 17c. This segment includes lakes and reservoirs formerly within Upper South Platte River Segments 16c and 16g.

Cherry Creek 4: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 5 or 6. The amendment of the description and the resultant creation of Segments 5 and 6 were necessary to facilitate the adoption of appropriate temperature standards.

Cherry Creek 5: The segment description was created to encompass lakes and reservoirs in the Cherry Creek system from the source of East and West Cherry Creeks to the confluence with the South Platte River, except for specific listings in Segments 2 and 6. This segment includes lakes and reservoirs formerly within Cherry Creek Segment 4.

Cherry Creek 6: The segment description was created to encompass lakes and reservoirs in the Cherry Creek system that are within the boundaries of the City and County of Denver. This segment includes lakes and reservoirs formerly within Cherry Creek Segment 4.

Bear Creek 1a: The segment description was amended to exclude lakes and reservoirs, and the segment now ends at the inlet of Evergreen Lake. Lakes and reservoirs formerly included in this segment are now part of Segment 1d (Evergreen Lake) or 9. The portion of the segment from Evergreen Lake to the Harriman Ditch is now new Segment 1e. The alteration of the segment boundary, the amendment of the description, and the resultant creation of Segments 1e and 9 were necessary to facilitate the adoption of appropriate temperature standards. The description also was amended to exclude the mainstem of Bear Creek from the source to the boundary of the Mt. Evans Wilderness Area; that portion of the mainstem was moved to Segment 7, which includes all tributaries within the Wilderness Area.

Bear Creek 1c: The segment description now contains only Bear Creek Reservoir. Soda Lakes were moved to the new Segment 11, which is a warm water aquatic life segment. The fish species present in Soda Lakes are more representative of a warm water lake.

Bear Creek 1d: The segment description was created for Evergreen Lake, which was formerly within Segment 1a. Creation of Segment 1d was necessary to facilitate the adoption of appropriate temperature standards.

Bear Creek 1e: The segment description was created for the portion of the Bear Creek mainstem between the outlet of Evergreen Lake and the Harriman Ditch, which was formerly part of Segment 1a. Creation of Segment 1e was necessary to facilitate the adoption of appropriate temperature standards.

Bear Creek 3: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 9. The amendment of the description and the resultant creation of Segment 9 were necessary to facilitate the adoption of appropriate temperature standards.

Bear Creek 4a: The segment description was amended to exclude lakes and reservoirs and to adjust the downstream boundary consistent with a change to Segment 1a. Lakes and reservoirs formerly included in this segment are now part of Segment 11. The amendment of the description and the resultant creation of Segment 11 were necessary to facilitate the adoption of appropriate temperature standards. The boundary change necessitates moving Cub Creek to Segment 5.

Bear Creek 4b: The segment has been deleted. Swede Gulch and associated wetlands formerly in this segment were incorporated into Segment 5. Lakes and reservoirs formerly included in this segment are now part of Segment 10. The amendment of the description and the resultant creation of Segment 10 were necessary to facilitate the adoption of appropriate temperature standards.

Bear Creek 4c: The segment has been deleted. Swede Gulch and associated wetlands formerly in this segment were incorporated into Segment 5. Lakes and reservoirs formerly included in this segment are now part of Segment 10. The amendment of the description and the resultant creation of Segment 10 were necessary to facilitate the adoption of appropriate temperature standards.

Bear Creek 5: The segment description was amended to exclude lakes and reservoirs, and to remove streams in the Turkey Creek system. Lakes and reservoirs formerly included in this segment are now part of Segment 10 or 12. Streams in the Turkey Creek system are now part of Segment 6a. The description also has been amended to incorporate Swede and Kerr Gulches formerly included in Segments 4b and 4c, and Cub Creek, which was formerly part of Segment 4a. The amendments of the description and the resultant creation of Segments 6a, 10, and 12 were necessary to facilitate the adoption of appropriate temperature standards.

Bear Creek 6a: The segment description was created for the portion of the Turkey Creek system that was formerly part of Segment 5. Creation of Segment 6a was necessary to facilitate the adoption of appropriate temperature standards. The decision to create Segment 6a and companion Segment 6b, rather than assign a higher (unused) number, was influenced by a desire to keep the elements of Turkey Creek in close proximity in the tables.

Bear Creek 6b: The segment description matches that of former Segment 6.

Bear Creek 7: The segment description was amended to exclude lakes and reservoirs. Lakes and reservoirs formerly included in this segment are now part of Segment 8. The amendment of the description and the resultant creation of Segment 8 were necessary to facilitate the adoption of appropriate temperature standards. In addition, the description was amended to incorporate the mainstem of Bear Creek within the Wilderness Area, which formerly was part of Segment 1a.

Bear Creek 8: The segment description was created to encompass lakes and reservoirs in the Bear Creek system from the sources to the boundary of the Mt. Evans Wilderness area. This segment includes lakes and reservoirs formerly within Bear Creek Segment 7.

Bear Creek 9: The segment description was created to encompass lakes and reservoirs in the Bear Creek system from the boundary of the Mt. Evans Wilderness area to the outlet of Evergreen Lake. This segment includes lakes and reservoirs formerly within Bear Creek Segments 1a and 3, except for Evergreen Lake.

Bear Creek 10: The segment description was created to encompass lakes and reservoirs in drainages of Swede Gulch, Sawmill Gulch, Troublesome Gulch, and Cold Springs Gulch from source to confluence with Bear Creek. This segment includes lakes and reservoirs formerly within Bear Creek Segments 4b, 4c, and 5.

Bear Creek 11: The segment description was created to encompass lakes and reservoirs from the outlet of Evergreen Lake to the confluence with the South Platte River, except as specified in Segments 1c, 10, and 12; it includes Soda Lakes. This segment includes lakes and reservoirs formerly within Bear Creek Segments 1c and 4a.

Bear Creek 12: The segment description was created to encompass lakes and reservoirs in the Turkey Creek system from the source to the inlet of Bear Creek Reservoir.

Clear Creek 2a: This segment was created to encompass the mainstem of Clear Creek, including all tributaries and wetlands, from the I-70 bridge above Silver Plume to a point just above the confluence with West Fork Clear Creek, except for specific listings in Segments, 3a and 3b. The resegmentation of Segment 2 was necessary in order to better represent differences in water quality between this segment and Segments 2b and 2c.

Clear Creek 2b: This segment was created to encompass the mainstem of Clear Creek, including all tributaries and wetlands, from the confluence with West Fork Clear Creek to a point just below the confluence with Mill Creek, except for specific listings in Segments 4 through 8. The resegmentation of Segment 2 was necessary in order to better represent differences in water quality between this segment and Segments 2a and 2c.

Clear Creek 2c: This segment was created to encompass the mainstem of Clear Creek, including all tributaries and wetlands, from a point just below the confluence with Mill Creek to a point a point just above the Argo Tunnel discharge, except for specific listings in Segments 9a, 9b, and 10. The resegmentation was necessary in order to better represent differences in water quality between this segment and Segments 2a and 2b.

Clear Creek Segment 20: This segment was created to encompass lakes and reservoirs within the boundary of the Mt. Evan Wilderness Area. This segment includes lakes and reservoirs formerly within Segment 19.

Clear Creek Segment 21: This segment was created to encompass lakes and reservoirs within the Clear Creek system from its source to the Farmer's Highline Canal diversion in Golden, Colorado, except for those in Segments 20, 22, and 25; and Upper Long Lake. This segment includes lakes and reservoirs formerly within Segments 1, 2, 3a, 6, 9a, 9b, and 10.

Clear Creek Segment 22: This segment was created to encompass lakes and reservoirs within the North Clear Creek drainage from a point just below the confluence with Chase Gulch to its confluence with Clear Creek. This segment includes lakes and reservoirs formerly within Segment 13b.

Clear Creek Segment 23: This segment was created for Ralston Reservoir. This segment includes a lakes/reservoir formerly within Segment 17b.

Clear Creek Segment 24: This segment was created to encompass lakes and reservoirs in the Clear Creek system from the Farmers Highline Canal diversion in Golden, Colorado to the confluence with the South Platte River, except for specific listings in Segments 17a, 21, and 23.

Clear Creek Segment 25: This segment was created for Guanella Reservoir. Guanella Reservoir was formerly within either Segment 2 or 5. It is not clear to which segment it belonged.

Big Dry Creek Segment 7: This segment was created to encompass lakes and reservoirs in the Big Dry Creek system from the source to the confluence with the South Platte River, except for specific listings in Segments 2, 3, and 5. This segment includes lakes and reservoirs formerly within Segment 1.

Boulder Creek Segment 2a: This segment description was amended to remove the portion of the Boulder Creek system from a point immediately below the confluence with North Boulder Creek to a point immediately above the confluence with South Boulder Creek. The Commission moved that portion of the Boulder Creek system to a newly created Segment 2b, to facilitate the adoption of appropriate temperature standards.

Boulder Creek Segment 2b: This segment was created to encompass the Boulder Creek system from a point immediately below the confluence with North Boulder Creek to a point immediately above the confluence with South Boulder Creek. The Commission created this segment from portions of the Boulder Creek system split from Segment 2a to facilitate the adoption of appropriate temperature standards.

Boulder Creek Segment 13: This segment was created to encompass lakes and reservoirs tributary to Boulder Creek that are within the boundary of the Indian Peaks Wilderness Area. This segment includes lakes and reservoirs formerly in Segment 1.

Boulder Creek Segment 14: This segment was created to encompass lakes and reservoirs tributary to Boulder Creek from the source to a point immediately above the South Boulder Creek confluence. This segment includes lakes and reservoirs formerly in Segments 2 and 3.

Boulder Creek Segment 15: This segment was created to encompass lakes and reservoirs tributary to South Boulder Creek from the source to Highway 93 and all lakes and reservoirs tributary to Coal Creek from the source to Highway 93. This segment includes lakes and reservoirs formerly in Segments 4a, 4b and 6.

Boulder Creek Segment 16: This segment was created to encompass lakes and reservoirs tributary to South Boulder Creek from Highway 93 to the confluence with Boulder Creek and all lakes and reservoirs tributary to Coal Creek from Highway 93 to the confluence with Boulder Creek. This segment includes lakes and reservoirs formerly in Segments 4b and 8.

Boulder Creek Segment 17: This segment was created to encompass lakes and reservoirs tributary to Boulder Creek from a point immediately below the South Boulder Creek confluence to the confluence with St. Vrain Creek. This segment includes lakes and reservoirs formerly in Segment 11.

St. Vrain Creek Segment 2a: The segment description was amended to remove the portion of the St. Vrain Creek system from the eastern boundary of the Roosevelt National Forest to Hygiene Road. The Commission moved that portion of the St. Vrain Creek system to a newly created Segment 2b, to facilitate the adoption of appropriate temperature standards.

St. Vrain Creek Segment 2b: This segment was created to encompass the St. Vrain Creek system from the eastern boundary of the Roosevelt National Forest to Hygiene Road. The Commission created this segment from portions of the St. Vrain Creek system split from Segment 2a to facilitate the adoption of appropriate temperature standards.

St. Vrain Creek Segment 4a: This segment description was amended to remove the portion of the Left Hand Creek system from a point immediately below the confluence with James Creek to Highway 36. The Commission moved that portion of the Left Hand Creek system to a newly created Segment 4c, to facilitate the adoption of appropriate temperature standards.

St. Vrain Creek Segment 4c: This segment was created to encompass the Left Hand Creek system from a point immediately below the confluence with James Creek to Highway 36. The Commission created this segment from portions of the Left Hand Creek system split from Segment 4a to facilitate the adoption of appropriate temperature standards.

St. Vrain Creek Segment 8: This segment was created to encompass lakes and reservoirs tributary to St. Vrain Creek that are within the boundary of the Indian Peaks Wilderness Area and Rocky Mountain National Park. This segment includes lakes and reservoirs formerly in Segment 1.

St. Vrain Creek Segment 9: This segment was created to encompass lakes and reservoirs tributary to St. Vrain Creek from sources to Hygiene Road. This segment includes lakes and reservoirs formerly in Segment 2.

St. Vrain Creek Segment 10: This segment was created to encompass lakes and reservoirs tributary to Left Hand Creek from sources to Highway 36. This segment includes lakes and reservoirs formerly in Segments 4a and 4b.

St. Vrain Creek Segment 11: This segment was created to encompass Barbour Ponds. This segment includes lakes and reservoirs formerly in Segment 3.

St. Vrain Creek Segment 12: This segment was created to encompass lakes and reservoirs tributary to Left Hand Creek from Highway 36 to the confluence with St. Vrain Creek. This segment includes lakes and reservoirs formerly in Segment 5.

St. Vrain Creek Segment 13: This segment was created to encompass lakes and reservoirs tributary to St. Vrain Creek from Hygiene Road to the confluence with the South Platte River. This segment includes lakes and reservoirs formerly in Segment 6.

Middle South Platte River Segment 5a: This segment description was amended to remove Crow Creek and Box Elder Creek from their sources to their confluences with the South Platte River. The Commission moved those portions of Crow Creek and Box Elder Creek to a newly created Segment 5c, to facilitate the adoption of appropriate temperature standards.

Middle South Platte River Segment 5c: This segment was created to encompass Crow Creek and Box Elder Creek from their sources to their confluences with the South Platte River. The Commission created this segment by splitting Crow Creek and Box Elder Creek from Segment 5a to facilitate the adoption of appropriate temperature standards.

Middle South Platte River Segment 7: This segment was created to encompass lakes and reservoirs tributary to the South Platte River from a point immediately below the confluence with Big Dry Creek to the Weld/Morgan County line. This segment includes lakes and reservoirs formerly in Segment 3a.

Big Thompson River Segment 15: This segment was created to encompass lakes and reservoirs tributary to the Big Thompson River within Rocky Mountain National Park. This segment includes lakes and reservoirs formerly in Segment 1.

Big Thompson River Segment 16: This segment was created to encompass lakes and reservoirs tributary to the Big Thompson River from the boundary of Rocky Mountain National Park to the Home Supply Canal diversion. This segment includes lakes and reservoirs formerly in Segment 2.

Big Thompson River Segment 17: This segment was created to encompass lakes and reservoirs tributary to the Big Thompson River from the Home Supply Canal diversion to the confluence with the South Platte River. This segment includes lakes and reservoirs formerly in Segment 6.

Big Thompson River Segment 18: This segment was created to encompass lakes and reservoirs tributary to the Little Thompson River from the source to the Culver Ditch diversion. This segment includes lakes and reservoirs formerly in Segment 8.

Big Thompson River Segment 19: This segment was created to encompass lakes and reservoirs tributary to the Little Thompson River from the Culver Ditch diversion to the confluence with the Big Thompson River. This segment includes lakes and reservoirs formerly in Segment 10.

Cache La Poudre River Segment 2a: This segment description was amended to remove the portion of the Cache La Poudre River system from a point immediately below the confluence with the South Fork Cache La Poudre River to the Monroe Gravity Canal/North Poudre Supply canal diversion. The Commission moved that portion of the Cache La Poudre system to a newly created Segment 2b, to facilitate the adoption of appropriate temperature standards.

Cache La Poudre River Segment 2b: This segment was created to encompass the Cache La Poudre system from a point immediately below the confluence with the South Fork Cache La Poudre River to the Monroe Gravity Canal/North Poudre Supply canal diversion. The Commission created this segment from portions of the Cache La Poudre system split from Segment 2a to facilitate the adoption of appropriate temperature standards.

Cache La Poudre River Segment 13a: This segment description was amended to remove North Branch Boxelder Creek, South Branch Boxelder Creek and Sand Creek from their sources to their confluences with the mainstem of Boxelder Creek. The Commission moved that portion of the Cache La Poudre system to a newly created Segment 13c, to facilitate the adoption of appropriate temperature standards.

Cache La Poudre River Segment 13c: This segment was created to encompass North Branch Boxelder Creek, South Branch Boxelder Creek and Sand Creek from their sources to their confluences with the mainstem of Boxelder Creek. The Commission created this segment from portions of the Cache La Poudre system split from Segment 13a to facilitate the adoption of appropriate temperature standards.

Cache La Poudre River Segment 17: This segment was created to encompass lakes and reservoirs tributary to the Cache La Poudre River from within Rocky Mountain National Park and the Rawah, Neota, Comanche, and Cache La Poudre Wilderness Area. This Segment includes lakes and reservoirs formerly in segment 1.

Cache La Poudre River Segment 18: This segment was created to encompass lakes and reservoirs tributary to the Cache La Poudre River from the boundaries of Rocky Mountain National Park and the Rawah, Neota, Comanche, and Cache La Poudre Wilderness Area to the Monroe Gravity Canal/North Poudre Supply Canal diversion. This Segment includes lakes and reservoirs formerly in segment 2.

Cache La Poudre River Segment 19: This segment was created to encompass lakes and reservoirs tributary to the North Fork of the Cache La Poudre River from the source to the inlet of Halligan Reservoir. This segment includes lakes and reservoirs formerly in Segment 6.

Cache La Poudre River Segment 20: This segment was created to encompass lakes and reservoirs tributary to the North Fork of the Cache La Poudre River from the inlet of Halligan Reservoir to the confluence with the Cache La Poudre River. This segment includes lakes and reservoirs formerly in Segment 8.

Cache La Poudre River Segment 21: This segment was created to encompass lakes and reservoirs tributary to the Cache La Poudre River from the Monroe Gravity Canal/North Poudre Supply Canal

diversion to the confluence with the South Platte River. This segment includes lakes and reservoirs formerly in Segment 13a, with the exception of Fossil Creek Reservoir.

Cache La Poudre River Segment 22: This segment was created to encompass Fossil Creek Reservoir, which was formerly in Segment 13a.

Laramie River Segment 2a: This segment description was amended to remove the portion of the Laramie River mainstem from the National Forest boundary to the Colorado/Wyoming border. The Commission moved that portion of the Laramie River mainstem to a newly created Segment 2b, to facilitate the adoption of appropriate temperature standards.

Laramie River Segment 2b: This segment was created to encompass the Laramie River mainstem from the National Forest boundary to the Colorado/Wyoming border. The Commission created this segment from portions of the Laramie River system split from Segment 2a to facilitate the adoption of appropriate temperature standards.

Laramie River Segment 3: This segment was created to encompass lakes and reservoirs tributary to the Laramie River from within the Rawah Wilderness Area. This segment includes lakes and reservoirs formerly in Segment 1.

Laramie River Segment 4: This segment was created to encompass lakes and reservoirs tributary to the Laramie River from the Rawah Wilderness Area to the Colorado/Wyoming border. This segment includes lakes and reservoirs formerly in Segment 2.

Lower South Platte River Segment 2b: This segment description was amended to remove a portion of Beaver Creek from its source to the Fort Morgan Canal. This upper portion of Beaver Creek is now in Segment 2a.

Lower South Platte River Segment 4: This segment was created to encompass lakes and reservoirs tributary to the South Platte River from the Weld/Morgan County line to the Colorado/Nebraska border. This segment includes lakes and reservoirs formerly in Segment 2a.

Lower South Platte River Segment 5: This segment was created to encompass lakes and reservoirs tributary to the South Platte River north of the South Platte River and below 4,500 feet in elevation in Morgan County, north of the South Platte River in Washington County, north of the South Platte River and below 4,200 feet in elevation in Logan County, north of the South Platte River and below 3,700 feet in elevation in Sedgwick County, and the mainstems of Beaver Creek, Bijou Creek and Kiowa Creek from their sources to the confluence with the South Platte River. This segment includes lakes and reservoirs formerly in Segment 2b.

Republican River Segment 8: This segment was created to encompass lakes and reservoirs tributary to the Republican and Smoky Hill Rivers in Colorado. This segment includes lakes and reservoirs formerly in Segments 6 and 7.

B. Revised Aquatic-Life Use Classifications

The Commission reviewed information regarding existing aquatic communities. The following changes to the aquatic-life use classification were made based on review of the fish communities:

Upper South Platte River Segment 10b: Cold 1 to Warm 1 (now part of Segments 8 and 10a)
Upper South Platte River Segment 12: Cold 1 to Warm 1
Upper South Platte River Segment 6c: Cold 1 to Warm 1 (now part of Segment 14)
Bear Creek Segment 1c (Soda Lakes only): Cold 1 to Warm 2 (now part of Segment 11)

C. Recreation Classifications and Standards

As part of the Basic Standards hearing of 2005, recreation classifications were revised into four new classifications. The Commission reviewed the previous segment classifications (1a, 1b and 2) and determined the appropriate new classification based on classification criteria presented as part of the Basic Standards Hearing, use attainability analyses or other basis. In addition, during the 2005 Basic Standards Hearing, the transition from the use of the fecal coliform standard to *E. coli* standard was completed. Fecal coliform criteria were deleted from the numeric standards.

Based on information that showed existing primary contact recreation use is in place in at least a portion of the segment, the Commission converted the following segments from Recreation Class 1a to Recreation Class E with a 126/100 ml *E. coli* standard:

Upper South Platte River Segments 1a, 1b, 2a, 2b, 2c, 3, 4, 5a, 5b, 6a, 6b, 7, 8, 9, 10a, 11a, 11b, 12, 13, 14, 15, 16a, 16b, 16c, 16d, 16e, 16f, 16g, 16h, 17a, 17b, and 17c
Cherry Creek Segments 1, 2, 3, and 4
Bear Creek Segments 1a, 1b, 1c, 2, 3, 4a, 5, 6b, and 7
Clear Creek Segments 1, 2a, 3a, 3b, 4, 5, 6, 8, 9a, 9b, 10, 11, 12, 13a, 13b 14b, 15, 16a, 18a, and 19
Big Dry Creek Segments 2 and 4a
Boulder Creek Segments 1, 2a, 3, 4a, 4b, 4c, 4d, 5, 6, 7a, 7b, 8, 9, 10, and 11
St. Vrain Creek Segments 1, 2a, 3, 4a, 4b, 5, 6, and 7
Middle South Platte River Segments 1a, 1b, 3a, 3b, and 4
Big Thompson River Segments 1, 2, 3, 4a, 4b, 4c, 6, 7, 8, 9, 10, 11, 12, 13, and 14
Cache La Poudre River Segments 1, 2a, 6, 7, 8, 9, 10, 11, 12, 13a, 14, 15, and 16
Laramie River Segments 1 and 2a
Lower South Platte River Segments 1, 2b, and 3
Republican River Segments 1, 2, 3, 4, and 5

The following segments were converted from Recreation Class 1b to Recreation Class P with a 205/100 ml *E. coli* standard:

Big Dry Creek Segment 1
Big Thompson River Segment 5
Cache La Poudre River Segment 13b

Based on a review of existing Use Attainability Analyses showing that primary contact recreation does not occur or is not attainable, the following segments were converted to Recreation Class N classification with a 630/100 ml *E. coli* standard:

Clear Creek Segments 7, 14a, 16b, and 18b
Big Dry Creek Segments 3, 5, and 6
Middle South Platte River Segments 5a, 5b, and 6
Big Thompson River Segments 4a, 4b, 4c, and 5
Cache La Poudre River Segment 13b
Lower South Platte River Segment 2a
Republican River Segments 6 and 7

The following segment was converted from Recreation Class 2 to Recreation Class N classification, with a 126/100 ml *E. coli* standard in conformance with Commission decisions in 2004.

Clear Creek Segment 17a

The Department of Energy (DOE) provided information supporting the appropriateness of retaining the recreation N use classification for the portion of Big Dry Creek Segment 5 located within the Central Operable Unit (COU) in its responsive pre-hearing statement. The Hazardous Materials and Waste Management Division confirmed this information to be accurate. Recreational activities are currently

prohibited within the COU and are expected to continue to be prohibited for the next 20 years. The final record of decision for the Rocky Flats Site, the Rocky Flats Legacy Management Agreement (RFLMA), and the environmental covenants currently prohibit recreational uses for the COU. Fences, "no trespassing" signs, and operational controls currently prevent public access to the COU. A portion of Big Dry Creek Segment 5, North Walnut Creek from its source to the western edge of the COU, lies outside of the COU. DOE proposed and the Commission agreed to move this portion of North Walnut Creek from Segment 5 to Segment 4b. Additionally, DOE proposed and the Commission agreed to move a portion of Big Dry Creek Segment 4b, which lies inside the COU, to Segment 5.

Based on conditions that have changed from those originally limiting the recreational use in an existing Use Attainability Analysis, the following segment was converted to from Recreation Class 2 to Recreation Class P with a 205/100 ml *E. coli* standard:

Big Dry Creek Segment 4b

Because there has not been a reasonable level of inquiry about existing recreational uses and no recreational use attainability analysis has been completed, the following segment was converted from Recreation 1a to Recreation Class U with a 126/100 ml *E.coli* standard:

Upper South Platte Segment 5c

The following segment was converted from a Recreation Class 1a to Recreation Class U (with the same numeric criterion) since there is no public access allowed at Ralston Reservoir and there is no information that primary contact is an existing use.

Clear Creek Segment 17b

Newly created segments had the same Recreation use classification as the segment they were split from, unless there was insufficient evidence to support keeping that classification or evidence to show that the use classification was inappropriate. The newly created segments for which the Recreation use classification was changed are now classified Recreation Class U with a 126/100 ml *E. coli* standard:

Upper South Platte Segment 5d
Clear Creek Segments 23 and 24
Lower South Platte Segment 4
Republican River Segment 8

D. <u>Addition of Water Supply Use Classification and Standards</u>

Based on review of information regarding the location of public water supplies, Water Supply use classifications and standards were added to the following segment:

Cache La Poudre Segment 13a

The Water Supply use classification and standards were added presumptively to the following new lake segments:

Upper South Platte Segments 19 (only those lakes incorporated from Segment 7), 21, and 22
Cherry Creek Segment 5
Boulder Creek Segment 16
St Vrain Segments 11 and 13
Middle South Platte Segment 7
Big Thompson Segments 17 and 19
Lower South Platte Segments 4 and 5
Republican Segment 8

E. Agriculture Standards

A review of the standards associated with the Agriculture use classification showed that many segments were missing a nitrate standard protective of the use. A nitrate standard, NO_3=100, was added to the following segments classified for Agriculture use:

Upper South Platte River Segments 5a, 7, 11a, 11b, 16a, 16c, 16d, 16e, 16f, 16g, 16h, 17a, 17b, and 17c
Cherry Creek Segment 4
Boulder Creek Segments 7a and 7b
St. Vrain Creek Segments 3 and 6
Middle South Platte River Segments 3a, 3b, and 5a
Big Thompson River Segments 4b, 4c, 5, 6, 9, and 10
Cache La Poudre River Segments 11, 12, 13b, and 16
Lower South Platte River Segments 2b and 3
Republican River Segment 4

F. Changes to Antidegradation Designation

As part of the 2005 Basic Standards hearing, the Commission revised the criteria for antidegradation designations.

Maintaining UP Protection: The twelve-parameter test was applied where possible to determine if use-protection remains warranted for segments classified for warm-water aquatic life class 2; however, that showing can be overcome if there is adequate data showing that the water is effluent-dominated. The Commission maintained the Use Protected designation for the following segments based on a showing that the segments are effluent dominated:

Upper South Platte River Segment 15
Middle South Platte River Segment 1a

Decoupling Aquatic Life Cold 2 and UP: The Commission eliminated the direct linkage between cold-water aquatic life class 2 and the use-protected designation and in the absence of data showing that the water quality is not high quality, the cold 2 segments revert to reviewable. All cold-water aquatic life class 2 segments that are use-protected were reviewed to determine if that designation is still warranted. The following segments are now reviewable:

Upper South Platte River Segments 5c and 7
Bear Creek Segments 1b and 5
Clear Creek Segments 12, and 17b
Boulder Creek Segment 6
Big Thompson River Segments 3 and 4a
Cache La Poudre River Segments 7, 8 and 10

Decoupling Aquatic Life Warm 2 and UP The Commission decided that the presence of a warm-water aquatic life class 2 would still be a presumptive basis for applying a use-protected designation; however, that presumption can be overcome if there is data showing that the water is of high quality. All warm water aquatic life class 2 segments were reviewed to determine if the use protected designation is still warranted. The following segment(s) are now reviewable:

Upper South Platte River Segments 16a and 16h
Cherry Creek Segments 1 and 3
Bear Creek Segment 4a
Boulder Creek Segment 7b
St. Vrain Creek Segment 5

Middle South Platte River Segments 1b, and 5a
Big Thompson River Segments 4b, 4c, 5, and 9
Cache La Poudre River Segments 11, 12, and 13b
Lower South Platte River Segment 1
Republican River Segment 5

Removing UP from Aquatic Life Warm 1: The twelve-parameter test was applied where possible to determine if use-protection remains warranted for segments classified for warm-water aquatic life class 1. The following segments are now reviewable:

Upper South Platte River Segments 10a and 17a
Bear Creek Segment 2
Clear Creek Segment 15
Boulder Creek Segments 5 and 10
St. Vrain Creek Segment 3
Republican River Segment 1

Removing UP from Aquatic Life Cold 1: The twelve-parameter test was applied where possible to determine if use-protection remains warranted for segments classified for cold-water aquatic life class 1. The following segment is now reviewable:

Clear Creek Segment 5

G. Ambient Quality-Based Standards

There are 18 segments in the Basin that have ambient standards. Ambient standards are adopted where natural or irreversible man-induced conditions result in exceedances of table value standards. The Commission reviewed the information that is the basis for these standards as well as any new information that would indicate whether they are still appropriate, need to be modified, or should be dropped. The Commission *did not* adopt any changes to the following ambient quality-based standards.

Upper South Platte River Segment 2b: Zn(ch) = 220 µg/L
Upper South Platte River Segment 2c: Zn(ch) = 280 µg/L
Upper South Platte River Segment 5a (all metals Trec unless otherwise noted): Cd(ch)=2 µg/L, CrVI(ch)=25 µg/L, Cu(ch)=18 µg/L (dis), Fe(ch) = 1200 µg/L, Pb(ch)=4, Mn(ch)=530 µg/L(dis), Hg(ch)=0.05 µg/L, Ni(ch)=50 µg/L, Ag(ch)=1 µg/L
Upper South Platte River Segment 14: Mn(ch) = 190 µg/L (dis)
Upper South Platte River Segment 15: Mn(ch) = 400 µg/L (dis)
Clear Creek Segment 7: all metals
Clear Creek Segment 9b: Zn(ch) = 200 µg/L
Clear Creek Segment 11: Cu(ch) = 17 µg/L
Clear Creek Segment 13b: Fe(ch) = 5400 µg/L (Trec), Cu(ch) = 64 µg/L
Big Dry Creek Segment 1: Se(ch) = 7.4 µg/L (April 1 to October 31); Se(ch) = 15 µg/L and Se(ac) = 19.1 µg/L (November 1 to March 31)
Big Dry Creek Segments 2, 3, 4a, 4b, and 5: Plutonium, Americium, Tritium, and Uranium (see Table 2 of Regulation 38 for individual numbers), Be(ch) = 4 µg/L
Middle South Platte River Segment 5b: D.O.(ch) = 4.7 mg/l (qualifier)

The Commission *did* adopt changes to the following ambient quality based standards:

Clear Creek Segment 14a: Mn(ch) = 500 µg/L, modified to 244 µg/L
Clear Creek Segment 14b: Mn(ch) = 500 µg/L, modified to 244 µg/L

H. Water Effects Ratios (WERs)

The Commission reviewed the basis for pre-existing WER-based site-specific copper and zinc standards.

Copper: Current information indicates that the WER may not be the most appropriate method to use to set site-specific standards for copper. However, EPA's guidance for implementing the Biotic Ligand Model to set site-specific copper standards is not yet fully developed. The Commission replaced the standards based upon WERs with temporary modifications (set at the WER values) for the following segments. These type iii temporary modifications will expire 12/31/2014.

Upper South Platte River Segments 10a, 14, 15, 16a, 16g
Clear Creek Segments 14a, 14b, and 15

Zinc: The zinc WER was adopted in 1994. The Commission reviewed the summary report from the 1994 study. Although much has changed in the watershed, the Commission concludes that the zinc WER is still protective of the use for the following segments:

Clear Creek Segments 14a, 14b, and 15

I. Aquatic Life Metals Standards

New Table Value Standards: As part of the Basic Standards hearing of 2005, new zinc and cadmium table values were adopted. The acute and chronic zinc and cadmium equations in 38.6(3) were modified to conform to Regulation No. 31.

Chromium III Standards: A review of chromium III standards showed that the standard associated with the Water Supply use classification was not protective of aquatic life where the average hardness was less than 61 mg/l. A chromium standard, CrIII(ch)=TVS was added to following segments with an Aquatic Life use classification and average hardness values less than 61 mg/l.

Upper South Platte River Segments 2a, 3, 4, 5b, and 9
Bear Creek Segments 1a, 1b, 3, and 7
Clear Creek Segments 1, 3a, 3b, 6, 9a, 10, and 17b
Boulder Creek Segments 1, 2, and 3
St. Vrain Creek Segments 1 and 2
Big Thompson River Segments 1 and 2
Cache La Poudre River Segments 1, 2, and 6

J. Arsenic Standards

For arsenic, each use (except recreation) has a different arsenic ("As") value, including Fish Ingestion (FI) and Water Plus Fish (W+F). In different combinations of uses, different values become the most limiting. In order to eliminate the confusion, the Commission added the operative value to the individual segments. The following matrix displays the most limiting arsenic criteria.

Most Limiting Arsenic Criteria Depending on the Possible Combinations of Uses and Qualifiers	
If the Use Classifications were:	**These Arsenic Standards were Applied (dissolved unless otherwise noted)**
Class 1 aquatic life, water supply	As(ac) = 340, As(ch) = 0.02(Trec)
Class 2 aquatic life (water + fish standards), water supply	As(ac) = 340, As(ch) = 0.02(Trec)
Class 2 aquatic life (no fish ingestion standards), water supply	As(ac) = 340, As(ch) = 0.02 - 10(Trec)
Class 1 aquatic life	As(ac) = 340, As(ch) = 7.6(Trec)
Class 2 aquatic life (fish ingestion standards)	As(ac) = 340, As(ch) = 7.6(Trec)
Class 2 aquatic life (no fish ingestion standards), agriculture	As(ac) = 340, As(ch) = 100(Trec)
Agriculture only	As(ch) = 100(Trec)
Water supply only	As(ch) = 0.02 - 10(Trec)

K. Uranium Standards

At the 2005 Basic Standards rulemaking hearing, the Commission changed the drinking water supply table value for uranium from 40 pCi/L to 30 µg/L.

L. Water +Fish and Fish Ingestion Standards

The reference to "Water+Fish *Organics*" was corrected to "Water+Fish *Standards*" and the reference to "Fish Ingestion *Organics*" was corrected to "Fish Ingestion *Standards*" to incorporate the appropriate standards from both the organics table and the metal parameter table in Regulation #31.

For the following segments, the Fish Ingestion Standards were removed

Upper South Platte Segment 16c: Fish Ingestions standards were applied to this segment in 2000, based on evidence that fishing was occurring in urban and rural lakes and ponds (see 38.57.J). In this hearing the lakes and reservoirs were moved to Segment 22 and accordingly, the Fish Ingestions standards were removed from Segment 16c and placed on Segment 22.

Middle South Platte Segment 1a: Fish Ingestions standards were applied to this waterbody before it was divided into 1a and 1b at the confluence with St. Vrain Creek, based on evidence that fish were being taken or had the potential to be taken for human consumption and that fishing takes place on a recurring basis. It was later divided, recognizing the substantial flow is contributed by St. Vrain Creek. Aquatic life sampling data for the upper portion (Segment 1a) presented by the Metro District provided evidence that the fish assemblage in Segment 1a is dominated by small, native minnow species that do not reach a catchable size. In addition, the Metro Districts' routine biweekly sampling has not found evidence that fishing occurs on a recurring basis in Segment 1a. Accordingly, the Commission removed the Fish Ingestion qualifier from Segment 1a. The Commission made no change to the Fish Ingestion standards on Segment 1b.

M. Temporary Modifications

All temporary modifications were re-examined to determine whether to delete or extend them, either as existing or with modifications of the numeric standards. Because of the June 2005 changes to Regulation #31, temporary modifications were not automatically extended if non-attainment persisted.

Ammonia: The following segments have type i temporary modifications for chronic ammonia that were amended to clarify the chronic standard's value as either 0.06 or 0.10 mg/l, rather than just "TVS old." As specified in 61.8(2)(c)(iii) (the Permit Rules, Regulation #61), where a temporary modification has been adopted, limits in permits are to be set based on the temporary modification and the provision strictly limiting the loading from the facility does not apply. These temporary modifications will be subject to review and rulemaking for the two years before their scheduled expiration in order to track progress towards the full attainment of water body standards and uses.

Segments amended to read NH_3(ch)=0.06 mg/L:
Upper South Platte River Segments 10a, 11b, 14, 16c, and 16g
Clear Creek Segment 15
Boulder Creek Segments 7b, 9, and 10
St. Vrain Creek Segment 3
Cache La Poudre River Segments 13a and 22
Lower South Platte River Segment 2b

Segments amended to read NH_3(ch)=0.10 mg/L:
Upper South Platte River Segments 15 and 16a
Cherry Creek Segments 3 and 4
Bear Creek Segment 4a
Big Dry Creek Segments 1 and 3

St. Vrain Creek Segment 6
Middle South Platte River Segments 1a and 3a
Big Thompson River Segments 5, 6, 9, and 10
Cache La Poudre River Segments 11, 12, and 13b
Lower South Platte River Segment 1

Other Ammonia temporary modifications: Upper South Platte Segment 5c has a type iii temporary modification for ammonia. The expiration date has been extended from 12/31/2010 to 12/31/2011. Mountain Water and Sanitation District (MWSD) has been making progress toward resolving uncertainty regarding the appropriate underlying standard. During the course of the extended temporary modification, MWSD will investigate what ammonia standards are feasible based upon economic considerations and EPA may release an updated ammonia guidance containing new information pertinent to the determination of an appropriate underlying standard.

"Current Condition": The Commission adopted temporary modification for the following segments and pollutants with the notation of "current condition" rather than a numeric value. The Commission's intent of using this notation is to preserve the status quo during the term of the temporary modification. Discharges to those segments shall continue to be authorized to discharge the subject pollutant at their current permitted concentration and flow levels. Although the permitted levels authorize the discharges to increase pollutant loading over past levels, the Commission expects that actual discharge levels will be variable and that existing water quality may be marginally changed, since discharge flow levels may increase and concentration levels will likely continue similar to actual levels to date in order for the discharger to assure that the effluent limitations continue to be met. The Commission does not intend that temporary modifications set at "current condition" apply to new or expanded facilities. With respect to existing facilities, the Commission intends that for facilities discharging into segments having a temporary modification, implementation of the underlying standard into permits is to take place as soon as feasible after the standard becomes effective in accordance with established requirements of the Basic Standards and Methodologies for Surface Water. The progress on resolving the uncertainty will be reviewed in the annual Temporary Modification hearing in December of the two years preceding the expiration.

Upper South Platte Segment 14, selenium: Public Service Company of Colorado proposed a type iii temporary modification for selenium on Upper South Platte Segment 14. There is significant uncertainty concerning the long-term underlying selenium standard. Time is needed to (1) determine the source of the upstream selenium, which exceeds the underlying selenium standard of 4.6 µg/L; (2) wait for EPA's new selenium criteria and implementation guidance; (3) determine a standard that will protect the aquatic life use in Segment 14; and (4) evaluate selenium treatment options. The temporary modification will expire on December 31, 2013.

Upper South Platte Segments 14, 15 and 16g, temperature: The Commission adopted type iii temporary modifications of the temperature standard for these segments. The temporary modifications will expire on 12/31/2014. During the term of the temporary modification, the Commission expects that the domestic wastewater facilities will, in cooperation with other dischargers and the Division, explore options for developing new underlying site-specific temperature standards including refined numeric site-specific standards, ambient–based site-specific standard and narrative site-specific standards although permit implementation strategies are not yet fully developed for all of these. In addition, although not currently available, a facility–specific variance approach may be permissible by the end of the temporary modification period. This option, the framework of which still needs to be developed, may be an appropriate solution for the following facilities and other discharges to address temperature-related issues within their respective segments:

Upper So Platte Segment 14: Littleton/Englewood Wastewater Treatment Facility
Upper So Platte Segment 15: Metro Wastewater Reclamation District
Upper So Platte Segment 16g: Centennial Water and Sanitation District

Clear Creek Segment 13b, temperature: The Commission adopted a type iii temporary modification of the temperature standard for Segment 13b. The temporary modification will expire on 12/31/2014. During the term of the temporary modification CERCLA and Black Hawk / Central City Sanitation District will characterize the fish species that are expected to be present and will gather data to more accurately characterize the temperature of the discharge and the temperature of Clear Creek.

Clear Creek Segments 14a, 14b, and 15, temperature: The Commission adopted a type iii temporary modification of the temperature standard for Segments 14a, 14b and 15. The temporary modification will expire on 12/31/2014. During the term of the temporary modification and as part of the study dealing with the appropriate Aquatic Life classification, MillerCoors will perform additional fish sampling, flow, and temperature analysis with the objective of resolving the uncertainty associated with the appropriate use classification and temperature standards. MillerCoors will also further address issues associated with attainability of the temperature standards.

Boulder Creek Segment 9, copper: The Commission extended the type iii temporary modification of the copper standard for Boulder Creek Segment 9. The City of Boulder is still in the process of evaluating the Biotic Ligand Model (BLM) for possible development of a site-specific copper standard and also evaluating a copper translator to apply to the current wastewater treatment facility copper effluent limit. Additional time is needed to conduct further sampling and to wait for EPA's guidance on use of the BLM to develop site-specific criteria.

Middle South Platte Segment 4, pH : The Division proposed a type iii temporary modification of the pH standard for Barr Lake and Milton Reservoir (Middle South Platte Segment 4) because investigations suggest that the standards may not be attainable through achievable controls of nutrient inputs. However, the Commission has not determined at this time that the underlying standards are not attainable and reserves this determination until future hearings. Water quality investigations conducted as part of the TMDL development work indicate non-attainment of the pH standard. Regardless, the TMDL will be written to the underlying pH standard. The opportunity to consider a temporary modification in this hearing arose before the TMDL modeling has been completed, and the feasibility of controls have been fully assessed. The Commission finds that there is enough uncertainty regarding the standard to warrant a type iii temporary modification in addition to evidence that point source dischargers would likely have compliance problems with probable effluent limits. This temporary modification will assure that individual wasteload allocations in the TMDL will not be implemented before the uncertainty regarding the underlying standard is resolved (see 31.14(15)(b)(i)). The temporary modification is set at expire on 12/31/2014. During the term of the temporary modification, the TMDL will be completed and focus will then shift to assessing the feasibility of necessary nutrient controls.

Big Thompson Segment 2, Wapiti Meadows D.O., E. coli, NH3, NO3, B, Cd, Cu, Pb, Hg, Ni, Se, Ag, Zn: The Commission extended the temporary modification for these constituents until 12/31/2014. During the interim, Upper Thompson Sanitation District, in consultation with the Division, EPA and CDOW, will prepare a Plan of Action to continue sampling of water into and out of the Wapiti Meadows, characterize the functions of the wetland, explore regulatory and treatment alternatives, and develop a proposal for the appropriate classification and standards for the wetland.

Other Temporary Modifications, numeric

Temporary modifications (type iii) for selenium and copper were adopted where there were both exceedances of the current standard and dischargers on the segment. The temporary modifications will expire on 12/31/2014 which should cover the time it takes for EPA to promulgate new criteria (for selenium) and finish implementation guidance (for selenium and copper). These temporary modifications will be reviewed in 2012 and 2013.

Boulder Creek Segment 8: Se(ch) = 12.2 µg/l (dis)
St. Vrain Segment 2b: Cu(ch) = 6.0 µg/l (dis)
Middle South Platte Segment 1a: Se(ch) = 6.9 µg/l (dis)
Big Thompson Segment 2: Cu(ch) = 2.5 µg/l (dis)
Big Thompson Segment 5: Se(ch) = 5.7 µg/l (dis)
Big Thompson Segment 9: Se(ch) = 13.1 µg/l (dis)
Cache La Poudre Segment 11: Se(ch) = 5.4 µg/l (dis)
Cache La Poudre Segment 12: Se (ch) = 7.1 µg/l (dis)
Cache La Poudre Segment 13b: Se(ch) = 13.0 µg/l (dis)
Lower South Platte Segment 1: Se(ch) = 12.3 µg/l (dis)

Copper WERs: The Commission replaced the standards based upon Copper WERs with temporary modifications (set at the WER values) for the following segments. These type iii temporary modifications will expire 12/31/2014. (See section H, above)

Upper South Platte River Segments 10a, 14, 15, 16a, 16g
Clear Creek Segment 14a, 14b, and 15

The following temporary modifications (expire 12/31/2014) were revised based upon resegmentation:

Clear Creek Segment 2a: Zn(ch) = 353 µg/l (dis) (type i)
Clear Creek Segment 2c: Cu(ch) = 11.4 µg/l (dis) (type iii)

The new temporary modifications (expire 12/31/2014) were set to ambient quality-based numeric values for the following segments:

Clear Creek Segment 2a: Zn(ac) = 586 µg/l (dis)(type i) , Cd(ch) = 1.54 µg/l (dis)(type iii)
Clear Creek Segment 11: Cd(ch) = 1.42 µg/l (dis) (type iii)

The following temporary modifications were deleted:

Clear Creek Segment 2a (formerly part of 2): Cu(ch) = 7.4 µg/l (dis)
Clear Creek Segment 11: Zn(ch) = 325 µg/l (dis)

The following segments had temporary modifications that were deleted from the tables since, as part of the Commission action in December 2008, they were to be allowed to expire:

Cache la Poudre River Segments 11, 12: copper

N. Temperature

As part of the Basic Standards hearing of 2007, new table values were adopted for temperature. Temperature standards were applied to individual segments based upon the distribution of fish species, as provided by the CDOW, temperature data, and other available evidence.

The following segments are cold stream tier one (CS-I):

Upper South Platte River Segments 1a, (summer season adjusted to April – Oct)
Upper South Platte River Segments 1b, 2a, 2b, 2c, 3, 4, 5a, 5b, 8, and 9
Bear Creek Segments 1a, 3, 6b, and 7
Clear Creek Segments 1, 2a, 2b, 2c, 3a, 3b, 4, 5, 6, 7(also CL), 8, 9a, 9b, 10, 11, 13a, 13b, and 19
Boulder Creek Segments 1, 2a, 3, and 4a
St. Vrain Creek Segments 1, 2a, 4a, and 4b

Big Thompson River Segment 1
Cache La Poudre River Segments 1, 2a, 6, and 13c
Laramie River Segments 1 and 2a

The following segments are cold stream tier two (CS-II):

Upper South Platte River Segments 5c, 5d, 6a, 7, and 13
Bear Creek Segments 1b, 1e, 5, and 6a
Clear Creek Segments 12 and 17b
Boulder Creek Segments 2b, 4b, and 6
St. Vrain Creek Segments 2b and 4c
Big Thompson River Segments 2, 3, 4a, 7, and 8
Cache La Poudre River Segments 2b, 7, 8, 9, and 10
Laramie River Segment 2b
Republican River Segment 3

The following segments are warm stream tier one (WS-I):

Upper South Platte River Segments 10a, 11b, 12, and 15
Upper South Platte River Segments 14 (summer season adjusted to Feb 14-Nov)
Bear Creek Segment 4a
Big Dry Creek Segments 1, 4a, and 6
St. Vrain Creek Segments 3 and 5
Middle South Platte River Segments 3a and 5a
Big Thompson River Segments 4b, 4c, 5 and 6
Cache La Poudre River Segments 11, 12, and 13a
Republican River Segments 1, 4, 5, and 6

The following segments are warm stream tier two (WS-II):

Upper South Platte River Segments 11a, 16a, 16c, 16g, and 16h
Cherry Creek Segments 1, 3, and 4
Bear Creek Segment 2
Clear Creek Segments 14a, 14b, 15, 16a, 16b, 18a, and 18b
Big Dry Creek Segments 4b and 5 (also WL)
Boulder Creek Segments 4c, 4d, 5, 7a, 7b, 8, 9, 10, and 11
St. Vrain Creek Segment 6
Middle South Platte River Segments 1a, 1b, and 5c
Big Thompson River Segments 9 and 10
Cache La Poudre River Segment 13b
Lower South Platte River Segments 1, 2a, and 2b

The following segments are warm stream tier four (WS-IV):

Upper South Platte River Segments 16d, 16e, and 16f
Middle South Platte River Segments 3b, 5b, and 6
Republican River Segment 7

The following segments are cold lakes (CL):

Upper South Platte River Segments 18, 19 (also CLL), and 20
Bear Creek Segments 8, 9, 10, and 12
Clear Creek Segments 7 (also CS-I), 20, 21, 22, and 25
Boulder Creek Segments 13, 14 (also CLL), and 15 (also CLL)
St. Vrain Creek Segments 8, 9 (also CLL), and 10

Big Thompson River Segments 15, 16 (also CLL), and 18
Cache La Poudre River Segments 15, 17, 18 (also CLL), 19, and 20 (also CLL)
Laramie River Segments 3 and 4

The following segments are cold lakes larger than 100 acres surface area (CLL):

Upper South Platte River Segments 6b and 19 (also CL)
Bear Creek Segments 1c and 1d
Clear Creek Segments 17a and 23
Boulder Creek Segments 14 (also CL) and 15 (also CL)
St. Vrain Creek Segment 9 (also CL)
Big Thompson River Segments 11 and 16 (also CL)
Cache La Poudre River Segments 14, 18 (also CL), and 20 (also CL)

The following segments are warm lakes (WL):

Upper South Platte River Segments 16b, 17a, 17b, 17c, 21, 22,and 23
Cherry Creek Segments 2, 5, and 6
Bear Creek Segment 11
Clear Creek Segment 24
Big Dry Creek Segments 2, 3, 5 (also WS-II) and 7
Boulder Creek Segments 16 and 17
St. Vrain Creek Segments 7, 11, 12, and 13
Middle South Platte River Segments 4 and 7
Big Thompson River Segments 12, 13, 14, 17, and 19
Cache La Poudre River Segments 16, 21, and 22
Lower South Platte River Segments 3, 4, and 5
Republican River Segments 2 and 8

Ambient-based summer temperature standards were adopted for several large lakes and reservoirs (collectively referred to as lakes). The table value WAT standard is not attainable in many large lakes (>100 acres in surface area) including many lakes with apparently healthy fish populations. Summertime temperature for large lakes and reservoirs (collectively referred to as lakes) is very well correlated to the lake's elevation. Since the thermal properties are natural or man-induced irreversible (in the case of reservoirs) the Commission adopted ambient temperature standards for large lakes wherever data were available to characterize a WAT. For lakes, the WAT is assumed to be equivalent to the average temperature of the mixed layer.

Upper So. Platte Segment 6b	Chatfield Res.	April-December T(WAT)= 23.5ºC
Upper So. Platte Segment 19	Antero Res	April-December T(WAT)= 19.6ºC
	Spinney Mt. Res.	April-December T(WAT)= 20.2ºC
	Eleven Mile Res.	April-December T(WAT)= 19.8ºC
	Cheesman Res.	April-December T(WAT)= 21.9ºC
	Strontia Spr. Res.	April-December T(WAT)= 22.6ºC
	Platte Canyon Res.	March-Dec T(WAT)= 25.0ºC
Bear Creek Segment 1c	Bear Cr Res.	April-December T(WAT)= 23.3ºC
Boulder Creek Segment 15	Gross Res.	April-December T(WAT)= 19.4ºC
Big Thompson Segment 11	Carter Lake	April-December T(WAT)= 22.7ºC
Cache La Poudre Segment 14	Horsetooth Res.	April-December T(WAT)= 22.8ºC

Cache La Poudre Segment 20	Seaman Res.	April-December T(WAT)= 22.5ºC
Lower So. Platte Segment 3	Jackson Res.	April-December T(WAT)= 28.1ºC
	No. Sterling Res.	April-December T(WAT)= 26.1ºC
	Jumbo Res.	April-December T(WAT)= 27.0ºC

O. Big Dry Creek Segment 2, Standley Lake, Numeric Nutrient Criteria:

The Commission adopted a new numeric standard for chlorophyll for Standley Lake and modified the existing narrative trophic status standard by removing a sentence about implementation.

Background: In 1988, the Commission began consideration of nutrient standards for Standley Lake when the Cities of Westminster and Thornton proposed numeric standards. The Commission did not adopt the criteria and asked the stakeholders to work together to gather data upon which to base permanent water quality standards to protect Standley Lake as a water supply. In 1993, the parties returned to the Commission with proposals for narrative standards and a control regulation for point and nonpoint sources of nutrient in the Standley Lake Drainage. At the conclusion of the February 1994 hearing, the Commission adopted an alternative to the original proposal that states: "The trophic status of Standley Lake shall be maintained as mesotrophic as measured by a combination of common indicator parameters such as total phosphorus, chlorophyll *a,* secchi depth, and dissolved oxygen. Implementation of this narrative standard shall only be by Best Management Practices and controls implemented on a voluntary basis." (Reg. 38)

Over the 16 years since adoption, federal and State drinking water regulations have become more stringent. Of particular concern to the Public Water Systems that rely on Standley Lake is compliance with regulations for potentially carcinogenic disinfection byproducts. Higher concentrations of algae can lead to higher levels of disinfection byproduct precursors as well as trigger taste and odor compounds that are not readily treated or controlled with conventional water treatment. Despite evolution in the nature of concerns, there has been no advancement in finding agreement on a quantitative definition of "mesotrophic" (although there is general agreement that the lake has been mesotrophic during this time period). These concerns led the Cities of Westminster, Northglenn, and Thornton, (the "Standley Lake Cities"), to request adoption of a site specific numeric standard for chlorophyll a for Standley Lake set at a level to characterize the status quo, or current condition.

Revised Water Quality Standards for Standley Lake: The Cities have monitored water quality in Standley Lake for many years. The last 14 years of chlorophyll data and seven years of total phosphorus data have been placed in the record. Those years represent periods suitable for defining current condition.

With the benefit of the lengthy historical record now available, the Commission believes it is appropriate to set a chlorophyll standard consistent with the conditions that have been maintained. The Commission adopted a chlorophyll standard of 4 µg/L to preserve the current conditions and protect uses. This standard is to be attained in four of five years.

The chlorophyll standard is defined as a 9-month average (the average of the nine monthly averages of samples taken from March through November); winter samples are excluded because they cannot be collected safely in all years. Samples are to be collected in a manner consistent with the historical record (photic zone at site 10). It is anticipated that the level of sampling effort applied in the future will be the same as that applied in the past (i.e., at least one sample in each of the nine months). For assessment, the average (arithmetic mean) is calculated each year.

The Water Quality Control Division proposed that a numeric phosphorus standard also be adopted for Standley Lake, but the Commission has declined to adopt such a standard at this time. The chlorophyll standard is adopted principally to address the public health concern raised by the Standley Lake Cities. A chlorophyll standard based on current conditions is intended to control the contribution of algae to the formation of disinfection byproduct precursors. This chlorophyll standard is not intended as a substitute

for the current narrative standard regarding the overall trophic status of the reservoir, and therefore the Commission has decided as a matter of policy to retain the narrative standard at this time, with a slight modification. The Commission deleted the sentence regarding implementation of the narrative standard as unnecessary. The Commission encourages the Standley Lake Cities to work with the Division and other interested parties to explore the development of numeric nutrient standards for Standley Lake in the future.

Development of Assessment Thresholds: Consistent with methodology developed for Chatfield Reservoir, a distinction is made between the standard and an assessment threshold. The assessment threshold is designed to address the concern about the risk of incorrectly counting an exceedance when a high summer value is the result of natural variability, but does not indicate a substantive change in current conditions. The approach is justified by the special nature of the parameter (chlorophyll is not toxic) and the site-specific nature of the concern about false exceedances. Another reason for establishing an assessment threshold that is different than the standard is that the site-specific standard is derived from historical data, which creates the expectation that a number of exceedances will occur. Natural variability, especially for chlorophyll, is sufficient to produce much more uncertainty in the assessed value than in the standard, which was derived from the set of all 9-month averages. An assessment threshold was developed by calculating the standard error of each 9-month average from which the 90th percentile value of the average was determined. A regression of the 90th percentile value (upper confidence limit) on the average provides an equation that can be used to specify the upper confidence limit (90%) for any particular concentration (e.g., the standard). Using a standard of 4.0 µg/L, the assessment threshold was determined to be 4.4 µg/L. This value was added in section 38.6(4) with a reference in the standards table "qualifier" column."

P. Other Site-Specific Revisions:

Upper South Platte River Segment 5c: The trout-specific standards for chronic silver and acute cadmium were deleted.

Upper South Platte River Segment 15, Mercury: Existing site-specific standards for mercury are removed in absence of recent data to support maintaining them. Standard is changed to Hg(ch)=0.01(Tot).

Upper South Platte River Segment 15 and Middle South Platte Segment 1a, Dissolved Oxygen Assessment Criteria: The Commission added assessment criteria to clarify the assessment of dissolved oxygen standards for these segments. In 1996, the Commission adopted Statement of Basis and Purpose language indicating that for the purpose of determining the attainment of the site-specific dissolved oxygen standards for these segments, dissolved oxygen measurements in man-made pools are not to be used. This provision was added to section 38.6(4)(c).

Clear Creek Segments 2a, 2c, 3a, 3b, and 11: Site-specific recalculated acute and chronic zinc standards were adopted for these segments. The recalculated equations were developed to be protective of the community which is expected to occur in the riverine portions of the Upper Clear Creek Watershed.

Colorado Trout Unlimited proposed that segment 2a be further divided into two segments, with the boundary at Georgetown Reservoir, with ambient quality-based standards that are sometimes more restrictive than the recalculation-based standards adopted for the new lower segment. The Commission declines to adopt this proposal. As noted above, the recalculation-based standards adopted for this segment are appropriate to protect the aquatic life use. The Commission acknowledges that the water quality improves in the lower portion of Segment 2a (the mainstem from Georgetown to the West Fork). The Commission supports efforts to maintain and improve the water quality in this portion of the stream but does not believe that the adoption of standards based on ambient quality that is better than that determined necessary to protect the aquatic life use is the appropriate means to do so. This segment is reviewable and antidegradation provisions will apply to any future proposals for a new or increased discharge of pollutants to this segment. Improvements to existing quality will be dependent principally on the extent of future CERCLA clean-ups in this basin.

Big Dry Creek Segment 1: The Commission added assessment locations to section 38.6(4) to record the assessment strategy for the seasonal ambient quality based site-specific standards for selenium applicable to Big Dry Creek Segment 1 that were adopted in December 2007 and recorded in the Statement of Basis at that time. Attainment of the standard is to be assessed with data based on three specific instream monitoring locations (bdc1.5, bdc2.0 and bdc4.0) upstream of the three municipal wastewater treatment plant discharges.

Boulder Creek Segment 8: To reflect the Agriculture use classification and absence of a Water Supply use classification, NO_3=10 was changed to NO_3=100.

Cache La Poudre Segment 13a: To reflect the addition of the Water Supply use classification, CrIII(ac/ch)=TVS was changed to CrIII(ch)=TVS and NO_3=10, Cl=250, SO_4=WS, CrIII(ac)=50(Trec), Fe(ch)=WS(dis), and Mn(ch)=WS(dis) were added.

Lower South Platte Segment 2b, Resegmentation of Beaver Creek: Based on the results of a Use Attainability Analysis prepared by the Metro Wastewater Reclamation District, the Commission determined that it is appropriate to move the portion of Beaver Creek beginning at its source to the Fort Morgan Canal from Lower South Platte segment 2b to Lower South Platte Segment 2a. Segment 2a has standards necessary to protect the following uses: Aquatic Life Warm 2 (with numeric standards only to protect rudimentary aquatic life), Recreation N (Not primary contact recreation), and Agriculture. Evidence presented showed that this is a naturally ephemeral reach of Beaver Creek, consistent with the other tributaries included in Lower South Platte Segment 2a.

Q. Other changes

The Commission corrected several typographical and spelling errors, and clarified segment descriptions. The abbreviation for chlorine was changed from Cl2 to Cl_2, and the (ac) and (ch) designations were removed from the inorganic standards where that designation was not appropriately applied.

The Commission made the following segment-specific typographical corrections:

Upper South Platte Segment 5a: added B=0.75, which is present for all other comparable segments.

Upper South Platte Segment 7: added CrIII(ch)=TVS to complete the standard for aquatic life.

Upper South Platte Segment 16b: changed the following standards, which were inconsistent with the aquatic life classification of this segment: changed standards for D.O.=5.0 mg/L and NO_2=0.5; added Cd(ac)=TVS and Ag(ch)=TVS to replace existing salmonid equation; removed D.O.(sp)=7.0 mg/L.

Clear Creek Segment 7: The segment description was modified to specify the inclusion of Lower Urad Reservoir.

Clear Creek Segment 9a: replaced “to” with “of” in the segment description. Added “20” to expiration date of “2014.”

Clear Creek Segment 13b: replaced “(trec)” with “(ch)” in temporary modification for iron and added “(Trec)” at the end for consistent nomenclature.

Clear Creek Basin footnotes: deleted “* REFER TO STATEMENT OF BASIS AND PURPOSE” because it did not appear to have a reference.

Big Dry Segments 4a and 4b: changed Hg(ac)=0.01(Tot) to Hg(ch) = 0.01(Tot).

Middle South Platte Segment 1b: deleted the temporary modification for ammonia in order to reflect changes that were made as a part of the December 10, 2007 temporary modifications Rulemaking Hearing.

The Commission clarified segment descriptions through the following changes:

Upper South Platte Segment 17a: change "City Park Lake" to "City Park Lakes" because it should encompass all lakes in the park.

Clear Creek Segment 3a: Added "Segments" to the description preceding 3b and 19 for clarification.

Clear Creek Segment 11: Added "a point just above" to clarify the segment description.

Clear Creek Segment 13a: Revised description to include North Clear Creek from its source to Chase Gulch, all of Four Mile Gulch, Chase Gulch itself, and Eureka Gulch. The terminal points on this new segment approximately coincide with the lowest actual and potential water supply intakes located on each of these streams.

Clear Creek Segment 13b: Added "a point just below the confluence with Chase Gulch" to clarify the origin of the segment in relation to Segment 13a.

Clear Creek Segment 14b: Added "a point just below" to the segment description in order to clarify that the segment originates at a point just below Youngfield Street.

Clear Creek Segment 16a: replaced "outlet" with "inlet" for clarity because Maple Grove Reservoir is no longer part of the segment.

Boulder Creek Segment 6: Revised "highway" to read "Highway".

Boulder Creek Segment 7a: Revised "highway" to read "Highway".

St. Vrain Creek Segment 5: Revised "highway" to read "Highway".

St. Vrain Creek Segment 6: Added Segment "4c" to clarify the segment exceptions.

Middle South Platte River Segment 3a: Deleted Segment "4" from the list of exceptions because lakes and reservoirs were removed from this segment.

Big Thompson River Segment 1: This segment description was clarified to include the mainstem of Big Thompson River from its source to the boundary of Rocky Mountain National Park. The Commission clarified this description because the previous description excluded the mainstem of the Big Thompson River while including only streams and wetlands tributary to the Big Thompson River within the boundaries of Rocky Mountain National Park.

Big Thompson River Segment 10: Added "confluence with the" to clarify the segment description.

Cache La Poudre River Segment 13a: Deleted Segments "14", "15" and "16" and added Segments "6", "7", "8" and "13c" to clarify the segment exceptions. Modified the segment description to include tributaries and wetlands to the Cache La Poudre from the Monroe Gravity Canal/North Poudre Supply canal diversion to a point immediately above the confluence with the North Fork of the Cache La Poudre River.

Cache La Poudre River Segment 13b: Revised "la" to read "La".

Lower South Platte River Segment 2a: Deleted Segment "3" from the list of exceptions because lakes and reservoirs were removed from this segment.

R. Other Revisions Considered

Several site-specific revisions proposed by parties to the hearing were considered by the Commission and not adopted, including those summarized below:

Upper South Platte Segment 6a

The Chatfield Watershed Authority proposed that this segment should be divided into two segments, split at the point of the Roxborough Water and Sanitation District/Dominion Metropolitan District wastewater discharge. A temporary modification for temperature would have been applied to the lower segment. The Commission declined to adopt the requested resegmentation or temporary modification. The Commission believes that the potential impact described by the Authority is speculative at this time. The design capacity of the currently permitted wastewater discharge is small enough that dilution precludes the need for a temperature effluent limitation, and the Roxborough facility has connected its effluent to the Littleton/Englewood facility so that it no longer discharges at this point, The timing and volume of a future Dominion discharge at this location is currently speculative.

Upper South Platte Segment 10a

Plum Creek Wastewater Authority proposed that a separate segment be created for West Plum Creek. The Commission determined that the evidence does not support different temperature standards for West Plum Creek, based on expected aquatic life species. Because the two segments would have the same standards, there is no reason to resegment the existing segment 10a into two segments.

Upper South Platte Segment 15

The Metro Wastewater Reclamation District originally proposed that a temporary modification for mercury be adopted for this segment. After discussions with the Division, Metro withdrew its request. However, Public Service Company of Colorado continued to support the proposal. The Commission declines to adopt the requested temporary modification. The Commission determined that this proposed temporary modification is not necessary, since the evidence submitted does not demonstrate that Metro will have a compliance problem in meeting an effluent limitation based on the mercury standard and that a compliance problem for Xcel has not been demonstrated at this time.

Cherry Creek Segment 5

Reuter-Hess Reservoir, which is currently under construction, is located within the new Cherry Creek segment 5 created by this rulemaking. Parker Water and Sanitation District proposed that no water quality classifications or standards be adopted at this time for Reuter-Hess Reservoir. The Commission rejects this proposal, which means that the classifications and standards adopted for Cherry Creek segment 5 will apply to Reuter-Hess. The water quality classifications and table value standards adopted for segment 5 are appropriate for the protection of water quality in lakes and reservoirs in the absence of information indicating that other classifications or standards are appropriate. The Commission notes that because Reuter-Hess Reservoir is not yet filled there is currently no site-specific water quality data for the reservoir. Revisions to the adopted classifications and standards can be considered in future triennial reviews if warranted based on data.

Cache la Poudre Segment 10

The Northern Colorado Water Conservancy District proposed that site-specific, ambient quality-based temperature standards be adopted for Cache la Poudre segment 10. The Commission has determined that adoption of site-specific standards for this segment is not appropriate at this time, since there has not

yet been an adequate study to determine whether such standards are appropriate, and whether any site-specific standards would warrant resegmentation. The Commission encourages Northern Water to work with the Division and other interested parties to further examine the appropriate temperature standards for these waters prior to the next triennial review.

PARTIES TO THE RULEMAKING

1. Parker Water and Sanitation District
2. Mountain Water and Sanitation District
3. Plum Creek Wastewater Authority
4. Chatfield Watershed Authority
5. Centennial Water and Sanitation District
6. Littleton/Englewood Wastewater Treatment Plant
7. Bear Creek Watershed Association
8. Metro Wastewater Reclamation District
9. Public Service Company of Colorado
10 Upper Clear Creek Watershed Association
11. Standley Lake Cities (Cities of Westminster, Northglenn, and Thornton)
12. City of Boulder
13. Upper Thompson Sanitation District/Bureau of Reclamation
14. Colorado Division of Wildlife
15. Colorado Trout Unlimited
16. Farmers Reservoir and Irrigation Company
17. Clear Creek Watershed Foundation
18. City of Arvada
19. City and County of Denver
20. Denver Water
21. City of Black Hawk and the Black Hawk / Central City Sanitation District
22. Department of Energy, Office of Legacy Management
23. City of Golden
24. East Cherry Creek Valley Water and Sanitation District
25. Barr Lake and Milton Reservoir Watershed Association
26. Northern Colorado Water Conservancy District
27. Hazardous Materials and Waste Management Division / U.S. EPA Superfund Remediation Programs
28. City and County of Broomfield
29. City of Fort Collins
30. MillerCoors, LLC
31. Climax Molybdenum Company
32. Waste Management of Colorado, Inc.
33. South Platte Coalition for Urban River Evaluation (SP CURE)
34. U. S. Environmental Protection Agency (EPA), Region 8
35. City of Greeley
36. City of Aurora
37. North Front Range Water Quality Planning Association
38. Clear Creek County
39. Suncor Energy (U.S.A.), Inc.
40. City of Littleton
41. Town of Empire
42. Town of Silver Plume

38.75 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 2009 RULEMAKING REGARDING TEMPORARY MODIFICATIONS; FINAL ACTION FEBRUARY 8, 2010; EFFECTIVE DATE JUNE 30, 2010

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of temporary modifications to determine whether the temporary modification should be modified, eliminated or extended.

Ammonia: Temporary modifications of ammonia standards on 31 segments were reviewed.

Deleted: Ammonia temporary modifications were deleted on the following segments because in most cases permits had recently been reissued for dischargers on the segments. Compliance schedules in the permits are adequate to address any necessary treatment plant upgrade issues. In other cases, no permits now discharge to this segment.

Upper South Platte segments 14, 16c, and 16g
Cherry Creek segment 3
Bear Creek segment 4a
Clear Creek segment 15
Big Thompson River segments 6 and 10
Cache la Poudre River segments 11 and 13b

Modified: The Commission extended the expiration date of the ammonia temporary modification on Middle South Platte segment 1a to 12/31/2014. This segment is immediately downstream of Upper South Platte segment 15. The ammonia temporary modification for segment 15 was set to expire on December 31, 2014 in recognition of wastewater treatment plant upgrades at the Hite Facility that are planned and will not be fully operational until that time. The influence of the Hite Facility's discharge extends into Middle South Platte segment 1a.

No action: The Commission took no action on the ammonia temporary modifications on the following segments. These will expire 12/31/2011 and will be reviewed again in the December 2010 Temporary Modification hearing.

Upper South Platte segments 5c, 10a, 11b, and 16a
Cherry Creek segment 4
Big Dry Creek segments 1 and 3
Boulder Creek segments 7b, 9, and 10
St Vrain Creek segments 3 and 6
Middle South Platte River segment 3a
Big Thompson River segments 5, and 9
Cache la Poudre River segments 12, 13a, and 22
Lower South Platte segments 1 and 2b

Other Parameters: The following temporary modifications were also reviewed and the expiration dates extended to 12/31/2015, to coincide with the next basin review. This should cover the time it takes for EPA to promulgate new criteria and finish implementation guidance. These temporary modifications will be reviewed in 2013 and 2014.

St Vrain Creek segment 6	selenium
Big Thompson River segment 4b	selenium

PARTIES TO THE RULEMAKING

1. City of Grand Junction
2. City of Colorado Springs and Colorado Springs Utilities
3. Tri-Lakes, Upper Monument, Security and Fountain Wastewater Treatment Facilities
4. Paint Brush Hills Metropolitan District
5. Pueblo West Metropolitan District
6. City of La Junta
7. Seneca Coal Company
8. Tri-State Generation and Transmission Association
9. Plum Creek Wastewater Authority
10. Centennial Water and Sanitation District
11. City and County of Broomfield
12. City of Fort Collins
13. Metro Wastewater Reclamation District
14. City of Black Hawk and the Black Hawk/Central City Sanitation District
15. Colorado Division of Wildlife
16. U.S. Environmental Protection Agency

38.76 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE APRIL 12, 2010 RULEMAKING REGARDING MARCY GULCH; FINAL ACTION APRIL 12, 2010; EFFECTIVE DATE JUNE 30, 2010

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

Pursuant to Regulation 31.7(3)(a)(iii), the Commission may grant a temporary modification where there is significant uncertainty regarding the appropriate long-term underlying standard. The Commission found that significant uncertainty exists as to the selenium standard necessary to protect the aquatic life use. This uncertainty is expected to be resolved when EPA revises its 304(a) criteria and issues implementation guidance for selenium. The Commission also found that ambient selenium levels in Marcy Gulch exceed the existing underlying standard and that time is needed to determine whether this is the result of natural or irreversible human-induced conditions. In view of the uncertainty and its anticipated resolution, the Commission adopted a temporary modification of current conditions (Type iii) with an expiration date of 12/31/15 for segment 16g of the Upper South Platte River.

38.77 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE JULY 2010 RULEMAKING REGARDING TEMPORARY MODIFICATIONS; EFFECTIVE DATE NOVEMBER 30, 2010

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

The Commission has decided to delay the basin-wide review of water quality classifications and standards for this basin until June 2015, to accommodate an issue-specific rulemaking for nutrient criteria in June 2011. Consistent with that decision, the expiration dates of the temporary modifications on the following segments that are currently scheduled to expire on 12/31/2014 are extended to 12/31/2015. These will be reviewed again in a Temporary Modification hearing prior to the June 2015 basin-wide hearing.

Upper South Platte	10a (Cu only), 14(Cu & T only), 15(Cu & T only), 16a(Se & Cu), 16g
Bear Creek	1c
Clear Creek	2a, 2c, 9a, 11, 13b, 14a, 14b, 15
Boulder Creek	8, 9(Cu only)
St. Vrain	2b
Middle South Platte	Se only:1a, 4
Big Thompson	2, 5(Se only), 9(Se only)
Cache La Poudre	Se only:11, 12, 13b
Lower South Platte	Se only: 1.

The Commission would like to emphasize that its intent and expectation is that the issues that necessitated adoption of these temporary modification should be resolved as soon as possible and in a manner that takes full advantage of the opportunities provided by the December 2013 review of temporary modifications. The Commission recognizes that it is important to resolve uncertainty regarding the underlying standards so that temporary modifications can be eliminated and any needed pollution controls can be put in place in a timely manner.

PARTIES TO THE RULEMAKING HEARING

1. Town of Avon
2. City of Black Hawk and Black Hawk/Central City Sanitation District
3. Northern Colorado Water Conservancy District and the Municipal Subdistrict, Northern Colorado Water Conservancy District
4. City of La Junta
5. XTO Energy, Inc.
6. City of Pueblo
7. City of Colorado Springs and Colorado Springs Utilities
8. U.S. Environmental Protection Agency

38.78 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 2010 RULEMAKING REGARDING TEMPORARY MODIFICATIONS; FINAL ACTION JANUARY 10, 2011; EFFECTIVE DATE JUNE 30, 2011

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of temporary modifications to determine whether the temporary modification should be modified, eliminated or extended.

Temporary modifications of ammonia standards on 20 segments were reviewed.

Deleted: Ammonia temporary modifications were deleted on the following segments because permits had recently been reissued for dischargers on the segments. In these cases, compliance schedules in the permits are adequate to address any necessary treatment plant upgrade issues

Big Dry Creek segments 1 and 3

No action: The Commission took no action on the ammonia temporary modifications on the following segments. These temporary modifications will be allowed to expire on 12/31/2011.

Upper So Platte segments 5c, 10a, 11b, and 16a
Cherry Creek segment 4
Boulder Creek segment 7b, 9, and 10
St Vrain segment 3, and 6
Middle So Platte segment 3a
Big Thompson segment 5 and 9
Cache la Poudre segment 12, 13a, and 22
Lower So Platte segment 1 and 2b.

PARTIES TO THE RULEMAKING HEARING

1. Paint Brush Hills Metropolitan District
2. Tri-State Generation and Transmission Association
3. Seneca Coal Company
4. Mountain Water and Sanitation District
5. City of Grand Junction
6. Colorado Division of Wildlife
7. City of Boulder
8. U. S. Environmental Protection Agency
9. City of Colorado Springs and Colorado Springs Utilities

38.79 FINDINGS IN SUPPORT OF ADOPTION OF EMERGENCY REVISIONS TO REGULATION NO. 38, CLASSIFICATIONS AND NUMERIC STANDARDS FOR SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN REPUBLICAN RIVER BASIN, SMOKY HILL RIVER BASIN (5 CCR 1002-38)

Pursuant to sections 25-8-208, 25-8-402(5), and 24-4-103(6), C.R.S., the Commission adopted a revision to Regulation No. 38, Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin Republican River Basin, Smoky Hill River Basin on December 13, 2011.

The Colorado Department of Transportation ("CDOT"), the Regional Transportation district ("RTD") and the City and County of Denver ("Denver"), requested an emergency adoption of a revision to the water-plus- fish arsenic standard for Segment 14 of the Upper South Platte River Basin in order to facilitate the issuance of Colorado Discharge Permit System (CDPS) permits to segment 14 with chronic arsenic effluent limitations that are achievable with current and reasonable treatment capabilities.

In August of 2005 the Commission adopted revisions to the Basic Standards and Methodologies for Surface Waters (Regulation #31) to add a water-plus-fish table value standard of for chronic arsenic of 0.02 micrograms per liter (µg/L). Water- plus- fish standards are numeric human health-based water quality standards that are calculated protective values that take into account the combined exposure from the pollutant in drinking water and the pollutant accumulated in fish flesh. This criterion was generally adopted for water bodies with drinking water and aquatic life class 1 use designations in the basin hearings between 2006 and 2009.

The proposal on December 13, 2011 was to revise the water- plus- fish water quality standard for arsenic on Segment 14 from 0.02 micrograms per liter (µg/L) to a range of 0.02 –7.6 µg/L. The Division proposed the revision to the chronic arsenic standard for Segment 14 based on circumstances where entities that have been assigned chronic arsenic effluent limitations in a CDPS permit at or near the 0.02 µg/L cannot achieve their chronic arsenic effluent limitations with treatment that may be beyond the current reasonable limit of technology. The Division examined the basis for the water- plus- fish standard and provided the Commission a policy option for an alternate water plus fish table value standard for chronic arsenic that it believed would be protective of human health for Segment 14 (7.6 is below the Safe Drinking Water Act protective level of 10 µg/L). Testimony was presented that as a practical matter, 3.0 µg/L is the lowest level that is technologically achievable. Testimony was also presented that there is uncertainty regarding the arsenic level necessary to protect the water plus fish use and regarding the

extent to which the arsenic levels are reversible (i.e., whether the levels in the ground water and the river are natural or human-induced irreversible).

As a matter of policy, the Commission has decided that since the technologically achievable arsenic level is less stringent than the calculated W+F criterion, the W+F criterion for segment 14 will be a hybrid, based on a range of 0.02-3.0 µg/L. The first number in the range shall be the strictly health-based value, based on the Commission's established methodology for human health-based standards that protect against the combined exposure of drinking water and eating fish. The second number in the range is the technologically achievable value of 3.0 µg/L. The Commission adopted this revision in the form of a temporary modification in recognition of the uncertainty regarding use-protective values and achievability. The temporary modification has an expiration date of December 12, 2012.

Control requirements, such as discharge permits 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 during the effective period for this temporary modification.

The Commission found that the revision was necessary since achieving arsenic discharge permit limitations that result from the current arsenic standard appears to be technologically unachievable. CDOT, RTD, and the City and County of Denver (CCD) have expended significant public funds for multiple projects administered by these entities in attempting to comply with the limits.

Therefore, the Commission has determined that emergency adoption of the temporary modification of the chronic arsenic standard for Segment 14 is appropriate under these specific circumstances. The Commission finds that these amount to exigent circumstances which warrant emergency adoption of these revisions to the relevant water quality standards pursuant to section 25-8-208. The Commission further finds that these emergency revisions are imperatively necessary to preserve public health and welfare and that compliance with the procedural requirements of section 24-4-103, C.R.S., resulting in further delay, would be contrary to the public interest.

These revisions shall be effective December 13, 2011 and shall remain in effect until the effective date of permanent regulations or one year, whichever comes first. The Commission intends to reconsider this issue in its August 2012 rulemaking proceedings. The Division shall develop a proposal that the Commission will consider for notice in April 2012.

38.80 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE JUNE 13, 2011 RULEMAKING REGARDING TEMPORARY MODIFICATIONS; EFFECTIVE DATE JANUARY 1, 2012

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

The Commission's decision to delay consideration of nutrient criteria until March 2012, resulted in cancelation of the December 2011 review of temporary modifications. Accordingly, the Commission considered the expiration dates of temporary modifications expiring on or before December 31, 2012 in a written comment rulemaking. The following temporary modifications were deleted because they will have expired as of the effective date of this revision:

Upper So Platte segments 5c, 10a, 11b, and 16a (NH_3)
Cherry Creek segment 4 (NH_3)
Boulder Creek segments 7b, 9, and 10 (NH_3)
St Vrain Creek segments 3 and 6 (NH_3)

Middle So Platte segment 3a (NH_3)
Big Thompson River segments 5 and 9 (NH_3)
Cache la Poudre River segment 12, 13a, and 22 (NH_3)
Lower So Platte River segments 1 and 2b (NH_3)

Big Dry Creek segment 5: The Commission deleted Table 3 because the temporary modifications expired on January 1, 2010. The temporary modification for nitrate and nitrite had been applied to the Walnut Creek portion of segment 5. The temporary modifications for benzene, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethene, tetrachloroethylene, and trichloroethylene were applied to all of segment 5. All other organic and radiologic parameters are covered by the Basic Standards.

The Commission also modified the standards table to remove reference to Table 3 and to remove the words "Goal qualifier for all use classifications, expires 12/31/09".

38.81 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE AUGUST 13, 2012 RULEMAKING; EFFECTIVE DATE DECEMBER 31, 2012

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

The Commission adopted on a permanent basis the revisions to Regulation # 38, Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin Republican River Basin, Smoky Hill River Basin, which had been adopted on an emergency basis on December 13, 2011, and extended the expiration date of the temporary modification. The Commission is readopting the rationale for that temporary modification at this time, while anticipating a future review of arsenic criteria and standards in an April 2013 rulemaking

Prior to the December 2011 emergency rulemaking, the Colorado Department of Transportation ("CDOT"), the Regional Transportation district ("RTD") and the City and County of Denver ("Denver"), requested an emergency adoption of a revision to the water-plus-fish (W+F) arsenic standard for Segment 14 of the Upper South Platte River Basin in order to facilitate the issuance of Colorado Discharge Permit System (CDPS) permits to segment 14 with chronic arsenic effluent limitations that are achievable with current and reasonable treatment capabilities.

In August of 2005 the Commission adopted revisions to the Basic Standards and Methodologies for Surface Waters (Regulation #31) to add a W+F table value standard of for chronic arsenic of 0.02 micrograms per liter (µg/L). W+F standards are numeric human health-based water quality standards that are calculated protective values that take into account the combined exposure from the pollutant in drinking water and the pollutant accumulated in fish flesh. This criterion was generally adopted for water bodies with drinking water and aquatic life class 1 use designations in the basin hearings between 2006 and 2009.

The proposal on December 13, 2011 was to revise the W+F water quality standard for arsenic on Segment 14 from 0.02 micrograms per liter (µg/L) to a range of 0.02 –7.6 µg/L. The Division proposed the revision to the chronic arsenic standard for Segment 14 based on circumstances where entities that have been assigned chronic arsenic effluent limitations in a CDPS permit at or near the 0.02 µg/L cannot achieve their chronic arsenic effluent limitations with treatment that may be beyond the current reasonable limit of technology. The Division examined the basis for the W+F standard and provided the Commission a policy option for an alternate W+F table value standard for chronic arsenic that it believed would be protective of human health for Segment 14 (7.6 is below the Safe Drinking Water Act protective level of 10 µg/L). Testimony was presented that as a practical matter, 3.0 µg/L is the lowest level that is technologically achievable. Testimony was also presented that there is uncertainty regarding the arsenic

level necessary to protect the W+F use and regarding the extent to which the arsenic levels are reversible (i.e., whether the levels in the ground water and the river are natural or human-induced irreversible).

As a matter of policy, the Commission decided that since the technologically achievable arsenic level is less stringent than the calculated W+F criterion, the W+F criterion for segment 14 will be a hybrid, based on a range of 0.02-3.0 µg/L. The first number in the range shall be the strictly health-based value, based on the Commission's established methodology for human health-based standards that protect against the combined exposure of drinking water and eating fish. The second number in the range is the technologically achievable value of 3.0 µg/L. The Commission adopted this revision in the form of a temporary modification in recognition of the uncertainty regarding use-protective values and achievability. In the emergency action, the temporary modification was adopted with an expiration date of December 12, 2012. In this rulemaking, the Commission is extending the expiration date to October 31, 2013. The Commission anticipates that there will be a rulemaking hearing in April 2013 to address the substantive issues regarding arsenic criteria in Regulation #31 and arsenic standards in all basins. The extended expiration date is intended to provide time for that additional review.

Control requirements, such as discharge permits 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 during the effective period for this temporary modification.

The Commission found that the revision was necessary since achieving arsenic discharge permit limitations that result from the current arsenic standard appears to be technologically unachievable. CDOT, RTD, and the City and County of Denver (CCD) have expended significant public funds for multiple projects administered by these entities in attempting to comply with the limits.

38.82 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE: OCTOBER 9, 2012 RULEMAKING FOR BOULDER CREEK SEGMENT 9; EFFECTIVE MARCH 1, 2013

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 the following statement of basis and purpose pursuant to C.R.S 24-4-103(4).

BASIS AND PURPOSE

The Commission adopted a temporary modification for arsenic set at "current condition" for Boulder Creek Segment 9, pursuant to Regulation 31.7(3)(a)(i)&(ii)(A), (B), and (C). This temporary modification is set to expire on 6/30/2017.

Monitoring data indicate that ambient concentrations of arsenic in Segment 9 exceed "water + fish" table value standards and there is significant uncertainty as to the source and cause (i.e., naturally occurring or irreversible human-induced) of elevated arsenic concentrations in the stream. There is also uncertainty regarding the water quality standard necessary to protect current and future uses. Finally, there is uncertainty regarding the timing of implementing attainable source controls or treatment. The City of Boulder, which is authorized to discharge into Segment 9 under a CDPS permit, demonstrated that it has a predicted water quality effluent limit compliance problem.

The temporary modification is set at "current condition." The Commission intends that, when implementing this temporary modification in a CDPS permit and interpreting the term "current condition," the Division will assess the current effluent quality, recognizing that it changes over time due to variability in treatment plant removal efficiency and influent loading from natural sources in the raw drinking water sources, industrial, commercial, and residential sources. Maintaining the current condition will include maintaining total loading from commercial and industrial contributors at the levels existing on the date of adoption of the temporary modification.

The Commission found that there was substantial uncertainty about the arsenic standard necessary to protect the uses, and the extent to which existing arsenic concentrations are the result of natural or irreversible human-induced conditions. Therefore, this temporary modification falls within both type A and B under Regulation #31, section 31.7(3)(a)(ii). The Commission adopted this temporary modification to allow time for the City of Boulder to continue a comprehensive monitoring program to identify the sources of arsenic in the City of Boulder raw drinking water sources and Segment 9, and to determine the extent these sources represent naturally occurring or irreversible human-induced conditions. The adopted temporary modification also will allow time to evaluate a recalculated arsenic standard for possible future adoption as a site-specific standard for Segment 9.

PARTIES TO THE RULEMAKING HEARING

1. City of Boulder
2. Environmental Protection Agency
3. Littleton/Englewood Wastewater Treatment Plant

38.83 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 10, 2012 RULEMAKING; FINAL ACTION JANUARY 14, 2013 EFFECTIVE DATE JUNE 30, 2013

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of temporary modifications scheduled to expire before December 31, 2014, to determine whether the temporary modification should be modified, eliminated or extended.

Temporary modifications standards on two segments were reviewed. The Basic Standards Statement of Basis for the 2010 hearing records the Commission's intent regarding temporary modifications. (see 31.48 at I.A)

> Since temporary modifications have no impact on other aspects of Colorado's water quality management program such as the 303(d) list, the Non-point Source Program or the Total Maximum Daily Load (TMDL) Program, it is fitting that temporary modifications only be used where there are permitted discharges that would face unreasonable consequences in the absence of a temporary modification (e.g., a permit compliance schedule to meet a standard that is significantly uncertain).

No action: The Commission took no action on the temporary modifications on the following segments which are receiving waters for permitted discharges. These temporary modifications will be reviewed again at the annual temporary modification hearing in December 2013.

> Upper South Platte segment 15, Ammonia, expiration date 12/31/2014
> Middle South Platte segment 1a, Ammonia, expiration date 12/31/2014.

PARTIES TO THE RULEMAKING HEARING

1. City of Pueblo
2. Seneca Coal Company
3. Tri-State Generation and Transmission Association
4. Eagle River Water and Sanitation District
5. Board of County Commissioners for the County of Gunnison, Colorado

6. Colorado Parks and Wildlife
7. High Country Citizens' Alliance
8. Bill Thiebaut, DA for 10th Judicial District and the Office of the DA for the 10th Judicial District
9. City of Colorado Springs
10. Town of Crested Butte
11. Upper Gunnison River Water Conservancy District
12. U.S. Energy Corp.
13. Gunnison County Stockgrowers Association, Inc.
14. Environmental Protection Agency
15. Cherokee Metropolitan District
16. Fountain Sanitation District
17. Lower Fountain Metropolitan Sewage Disposal District
18. Monument Sanitation District
19. Palmer Lake Sanitation District
20. Town of Monument
21. Academy Water and Sanitation District
22. Tri-Lakes Wastewater Treatment Facility
23. Town of Palmer Lake
24. Woodmoor Water and Sanitation District No. 1
25. Upper Monument Creek Regional Wastewater Treatment Facility

38.84 FINDINGS IN SUPPORT OF ADOPTION OF EMERGENCY REVISIONS TO REGULATION #38, CLASSIFICATIONS AND NUMERIC STANDARDS FOR SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN REPUBLICAN RIVER BASIN, SMOKY HILL RIVER BASIN (5 CCR 1002-38)

Pursuant to sections 25-8-208, 25-8-402(5), and 24-4-103(6), C.R.S., the Commission adopted a revision to Regulation #38, Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin Republican River Basin, Smoky Hill River Basin on May 13, 2013.

The United States Fish and Wildlife Service, Rocky Mountain Arsenal National Wildlife Refuge ("Refuge") proposed to split Upper South Plate segment 22, and create a new segment, Upper South Platte River segment 22b, that encompasses the lakes and reservoirs on the Refuge property. These lakes are known as Lake Mary, Lake Ladora, Upper Derby Lake, and Lower Derby Lake. The new segment will retain the Aquatic Life Warm 2, Recreation E, and Agriculture uses and standards, but the Water Supply use classification will be removed. The Refuge provided evidence to the Commission that there is no water supply use from the lakes and that a water supply use is precluded by the 1989 Federal Facilities Agreement for the Arsenal. In addition, consumption of fish from these leakes is precluded by this same Agreement and by 50 C.F.R. § 32.25.

In 1998, as a matter of public interest, the United States entered into an agreement to trade its water rights delivered by the Highline Canal in exchange for Denver Water reclaimed water to be delivered by September 2011. This line would deliver much of the water needed by the Refuge. In the interim, Highline water was supposed to continue. This agreement was amended to substitute potable water for Highline water, which allowed for the Highline Canal to be abandoned within the Refuge. This temporary agreement expires on September 30, 2013. Due to drought conditions, it is in the public interest to maximize the conservation of potable water supplies in the Denver Metropolitan area. The preferred alternate for the Refuge is reclaimed water delivered by Denver Water. For all intents and purposes, the reclaimed water is available for delivery right now via a pipeline that was completed in 2012. This emergency rulemaking will expedite the process for the U.S. EPA to issue an NPDES permit for the discharge of the reclaimed water to the lakes within the Refuge where it can be used for irrigation. In addition, the inability of the Refuge to utilize the reclaimed water line is negatively impacting Denver Water's ability to implement its reclaimed water system in northeast Denver.

The factors that necessitated an emergency rulemaking are: 1) due to drought conditions, it is in the public interest to maximize conservation of potable water supplies in the Denver Metropolitan area; 2) a

substantial economic investment of public funds has been made in the construction of a reclaimed water pipeline to the Refuge; 3) the current contract between Denver Water and the Refuge to provide potable water to maintain the lake levels and support the prairie restoration efforts expires in September 2013 and groundwater pumping will not be sufficient for this purpose; and 4) failure to utilize the reclaimed pipeline to deliver water to the Refuge adversely affects other users of that pipeline. The Commission therefore finds that these circumstances warrant an emergency rule as necessary for the preservation of the public welfare and that compliance with notice requirements would be contrary to the public interest.

These revisions shall be effective May 13, 2013 and shall remain in effect until the effective date of permanent regulations, or one year, whichever comes first.

38.85 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE APRIL 8, 2013 RULEMAKING; FINAL ACTION MAY 13, 2013 EFFECTIVE DATE SEPTEMBER 30, 2013

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

In August of 2005, the Commission adopted revisions to the Basic Standards and Methodologies for Surface Waters (Regulation #31) to add a Water + Fish (W+F) table value standard for chronic arsenic of 0.02 micrograms per liter (µg/L). W+F standards are numeric human health-based water quality standards that are calculated protective values that take into account the combined exposure from the pollutant in drinking water and the pollutant accumulated in fish flesh. This criterion automatically went into effect for Aquatic Life Class 1 waters which also have a Domestic Water Supply use, when the changes to the Basic Standards became effective. It was also adopted on a segment by segment basis for Aquatic Life class 2 waters with Domestic Water Supply where the Commission determined there are fish of a catchable size of species that are normally consumed. Because of the complicated nature of the arsenic standards, specific values were added to the basin tables in the basin hearings between 2006 and 2009.

In this hearing, the Commission adopted temporary modifications for W+F chronic arsenic where a permitted discharger with a water quality–based effluent limit compliance problem exists. The adopted temporary modification is listed in the regulation tables as “As(ch)=hybrid”. An explanation of the temporary modification and its expected implementation into control requirements, such as Colorado Discharge Permit System (CDPS) effluent limitations, is described in 38.6(2)(d). The temporary modification was established by the Commission to allow for a temporarily less stringent application of the chronic arsenic standard in control requirements for both existing discharges and new or increased discharges.

For discharges existing on or before 6/1/2013, the temporary modification adopted for W+F chronic arsenic is “current condition”, expiring on 12/31/2021. The Commission intends that, when implementing the temporary modification of “current condition” in a CDPS permit, the Division will assess the current effluent quality, recognizing that it changes over time due to variability in treatment facility removal efficiency and influent loading from natural or anthropogenic sources, and due to changes in the influent flow and concentration over time. Maintaining the current condition will include maintaining permitted total arsenic loading to a treatment facility from arsenic contributors at the levels existing on the effective date of the temporary modification, while expressly allowing for variability in such loading due to changes in effluent quality as described above and due to changes in the influent flow and concentration over time within the permitted design flow of that facility. The Commission understands that the Division's past practice implementing this requirement in permits has been through reporting regarding the arsenic loading to the facility, and not through numeric effluent limitations. The Commission intends that the Division will continue this practice. For facilities that lack enough representative data to quantify arsenic loading, the permittee may satisfy reporting requirements through narrative descriptions of potential sources of arsenic. No permit action shall be approved that allows an increase in permitted total arsenic

loading to a treatment facility. The expiration date of the temporary modification was set at 12/31/21 to allow for CDPS permits that are issued prior to the effective date of anticipated changes to the chronic arsenic standard in the 2016 Basic Standards Rulemaking to not have the temporary modification expire within the term of a permit. The Commission adopted this temporary modification to allow time for the Division, dischargers and stakeholders to continue a workgroup process to resolve the uncertainty regarding the appropriateness of the W+F chronic arsenic standard of 0.02 µg/L with respect to a technologically feasible level of treatment.

For new or increased discharges that commence on or after 6/1/2013, the temporary modification adopted is As(ch) = 0.02–3.0 µg/L (Trec), expiring on 12/31/2021. The Commission decided that since the technologically achievable arsenic level is less stringent than the calculated W+F criterion, the temporary modification for new or increased discharges will be a range of 0.02-3.0 µg/L. The first number in the range is the health-based value, based on the Commission's established methodology for human health-based standards that protect against the combined exposure of drinking water and eating fish. The second number in the range is the Commission's initial determination of a technologically achievable value for arsenic, set at 3.0 µg/L. Control requirements, such as discharge permits 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 during the effective period for this temporary modification. The expiration date of the temporary modification was set at 12/31/21 to allow for CDPS permits that are issued prior to the effective date of anticipated changes to the chronic arsenic standard in the 2016 Basic Standards Rulemaking to not have the temporary modification expire within the term of a permit. The Commission adopted this temporary modification to allow time for the Division, dischargers and stakeholders to continue a workgroup process to resolve the uncertainty regarding the appropriateness of the W+F chronic arsenic standard of 0.02 µg/L with respect to a technologically feasible level of treatment.

The technologically feasible level of 3.0 µg/L for arsenic is based upon testimony heard by the Commission at the December 13, 2011 Emergency Revisions to Regulation #38. At the December 13, 2011 hearing, the Commission determined, as a practical manner, that 3.0 µg/L is the lowest level that is technologically achievable for common types of water treatment facilities. At the April 8, 2013 Rulemaking, the Commission heard testimony that concurred with the finding from December 13, 2011 that an initial reasonable lower limit of treatment technology for arsenic is 3.0 µg/L, pending further investigation by the Division, dischargers and stakeholders. The Division intends to address the uncertainty of the W+F chronic arsenic standard with respect to a technologically feasible level of treatment through a continued workgroup process, and propose a revised W+F chronic arsenic standards as part of the 2016 Basic Standards Rulemaking Hearing

Temporary modifications were adopted on the following segments. The segments identified have the previously adopted W+F chronic arsenic standard of 0.02 µg/L and an identified CDPS permit or permits that discharge immediately to or directly above the identified segment.

Upper South Platte River 1a
Upper South Platte River 2a
Upper South Platte River 2b
Upper South Platte River 3
Upper South Platte River 4
Upper South Platte River 5b
Upper South Platte River 6a
Upper South Platte River 8
Upper South Platte River 10a
Upper South Platte River 12
Upper South Platte River 13
Upper South Platte River 14
Bear Creek 1a
Bear Creek 1c
Bear Creek 1e

Bear Creek 2
Bear Creek 3
Bear Creek 6a
Clear Creek 1
Clear Creek 2a
Clear Creek 2c
Clear Creek 3a
Clear Creek 10
Clear Creek 11
Clear Creek 13a
Clear Creek 15
Clear Creek 17b
Clear Creek 21
Clear Creek 24
Boulder Creek 1
Boulder Creek 2a
Boulder Creek 2b
Boulder Creek 4a
Boulder Creek 5
Boulder Creek 9
Boulder Creek 10
Boulder Creek 14
St. Vrain Creek 1
St. Vrain Creek 2a
St. Vrain Creek 4b
St. Vrain Creek 4c
St. Vrain Creek 9
Middle South Platte River 1b
Big Thompson River 2
Big Thompson River 7
Big Thompson River 8
Big Thompson River 12
Cache La Poudre River 1
Cache La Poudre River 2a
Cache La Poudre River 2b
Cache La Poudre River 6
Cache La Poudre River 8
Cache La Poudre River 9
Cache La Poudre River 10
Laramie River 1
Laramie River 2a
Laramie River 2b
Republican River 3

PARTIES TO THE RULEMAKING HEARING

1. Colorado Mining Association
2. Union Gold, Inc.
3. Colorado Department of Transportation
4. City of Colorado Springs and Colorado Springs Utilities
5. Town of Crested Butte
6. Mountain Coal Company
7. Centennial Water and Sanitation District
8. MillerCoors, LLC
9. Plum Creek Wastewater Authority
10. Tri-State Generation & Transmission Association

11. Climax Molybdenum Company
12. Littleton/Englewood Wastewater Treatment Plant
13. Eagle River Water and Sanitation District
14. City of Boulder
15. City and County of Denver
16. Parker Water and Sanitation District
17. U.S. Energy Corp.
18. U.S. Environmental Protection Agency
19. City of Greeley

38.87 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE MARCH 11, 2014 RULEMAKING; EFFECTIVE DATE APRIL 30, 2014

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

The Commission adopted on a permanent basis the revisions to Regulation # 38, Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin Republican River Basin, Smoky Hill River Basin, which had been adopted on an emergency basis on May 13, 2013.

In that rulemaking, the United States Fish and Wildlife Service, Rocky Mountain Arsenal National Wildlife Refuge ("Refuge") proposed to split Upper South Platte segment 22, and create a new segment, Upper South Platte River segment 22b, that encompasses the lakes and reservoirs on the Refuge property. These lakes are known as Lake Mary, Lake Ladora, Upper Derby Lake, and Lower Derby Lake. The new segment will retain the Aquatic Life Warm 2, Recreation E, and Agriculture uses and standards, but the Water Supply use classification will be removed.

In this proceeding, the Commission removed the DO spawning and aluminum standards that were added during the previous action and replaced the chronic arsenic standard of 150 ug/L with 100 ug/L, consistent with the agriculture use.

The Refuge provided evidence to the Commission that there is no water supply use from the lakes and that a water supply use is precluded by the 1989 Federal Facilities Agreement for the Arsenal. In addition, consumption of fish from these lakes is precluded by this same Agreement and by 50 C.F.R. § 32.25.

PARTIES TO THE RULEMAKING HEARING

1. U.S. Fish and Wildlife Service, Rocky Mountain Arsenal National Wildlife Refuge
2. Denver Water

38.86 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE: APRIL 8, 2013 RULEMAKING FOR SAND CREEK, UPPER SOUTH PLATTE SEGMENT 16a; FINAL ACTION MAY 13, 2013; EFFECTIVE SEPTEMBER 30, 2013

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 the following statement of basis and purpose pursuant to C.R.S 24-4-103(4).

BASIS AND PURPOSE

The Commission considered the selenium and mercury standards for Sand Creek, segment 16a of the Upper South Platte Basin. Based on evidence presented in this hearing, the Commission divided the

segment and adopted site-specific ambient-based selenium standards and a temporary modification of the mercury standard as follows.

Selenium and Resegmentation:

As determined in an earlier hearing (December 2008), the Toll Gate Creek system, a tributary to Sand Creek, has elevated levels of selenium caused by natural or irreversible human-induced sources. Ambient-based selenium standards were adopted for Toll Gate and its tributaries in that hearing. In this hearing, evidence was presented that the effects of Toll Gate Creek's contribution change the water quality characteristics of Sand Creek below its confluence with Toll Gate Creek, to the extent that the selenium levels exceed the relevant table value criteria. In this hearing, the Commission split the mainstem of Sand Creek into two segments, retaining the segment number (16a) and the table value selenium criteria above the confluence with Toll Gate Creek.

The Commission created a new segment, segment 16i, and adopted ambient quality-based site-specific standards for selenium applicable to the portion of Sand Creek below Toll Gate Creek. The ambient quality-based standards are based on the 85th percentile (chronic) and the 95th percentile (acute) of the selenium data collected at two specific instream monitoring locations: Sand Creek at the Peoria Street crossing (which has a station identifier of SWA) and Sand Creek just upstream of the Union Pacific Railroad crossing (which has a station identifier of SW1); each is upstream of a wastewater outfall. The most recent five years of data were used since there has been a persistent and significant increase in the concentration of selenium since 2008. Two assessment locations are appropriate since the selenium concentrations consistently decline along Sand Creek, probably due to influx of lower concentration groundwater, however the mechanism has not been identified. It is the Commission's intent to maintain this natural or human-induced irreversible pattern of water quality, and not to inadvertently create assimilative capacity.

The Commission added assessment locations to section 38.6(4)(f) to record the assessment strategy for ambient quality-based site-specific standards for selenium applicable to Sand Creek segment 16i. It is the Commission's intent that attainment of the standard is to be assessed separately with data from two specific monitoring locations (SWA and SW1). Further, it is the intent of the Commission that selenium effluent limits for any permitted discharge be calculated to assure attainment of the criteria only at the assessment location (SWA or SW1) closest to the discharge, even if the closest assessment location is upstream.

Mercury:

The Commission adopted a temporary modification of the mercury standard for the new segment 16i (the mainstem of Sand Creek from Toll Gate Creek to the confluence with the South Platte River). There have been several instances of total mercury concentrations in Sand Creek below Suncor's outfall exceeding the water quality standard. In addition, Suncor presented evidence that it will have a compliance problem with the water quality-based effluent limit based on the existing standard.

Mercury is a bioaccumulative pollutant and fish tissue is the endpoint of concern. The rate of bioaccumulation is variable, so there is uncertainty regarding the total mercury water column standard necessary to maintain fish tissue concentrations below the human health criteria of 0.3 mg/kg.

Suncor agreed to undertake a study to resolve the uncertainty, with the following conditions, to ensure that the fish tissue data collected is representative of the potential human health exposure to mercury:

- Fish tissue will be sampled multiple times per year, during variable flow conditions and seasons.

- Appropriate sampling methods will be used for capturing the larger fish individuals.

- The largest individuals caught will be sampled for each species at site SW2-1.
- Fish tissue samples will be collected as skinless filets, where possible.
- Suncor will submit an annual progress report with fish tissue data to the Division every year beginning in December 2013.
- Suncor will continue to collect monthly water quality samples and analyze them for total mercury at SW2-1 using the low-level detection method.
- Suncor will work with the Division and EPA to calculate the bioaccumulation factor for Sand Creek and to develop a site-specific standard.

The Temporary Modification is set to expire on 6/30/2017. This anticipates that Suncor will report progress to the Commission in the December 2015 annual Temporary Modification hearing, and that the uncertainty will be resolved during the December 2016 annual hearing. The Commission is adopting the mercury temporary modification for the newly created Segment 16i with the notation of "current condition" rather than a numeric value. It is the Commission's intent that this will preserve the status quo during the term of the temporary modification. The Commission does not intend that this temporary modification will apply to new facilities or in Preliminary Effluent Limitations.

PARTIES TO THE RULEMAKING HEARING

1. Suncor Energy (U.S.A.)
2. City of Aurora
3. Colorado Division of Parks and Wildlife
4. U.S. Environmental Protection Agency
5. Colorado Stone, Sand & Gravel Association

38.88 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 9, 2013 RULEMAKING; FINAL ACTION MARCH 11, 2014; EFFECTIVE DATE JUNE 30, 2014

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of Temporary Modifications scheduled to expire before December 31, 2015, to determine whether the Temporary Modification should be modified, eliminated or extended. Temporary Modifications standards on twenty-six segments were reviewed.

Allow to expire, delete: The Commission took no action on the Temporary Modification of the selenium standard on Upper South Platte segment 14. This Temporary Modification was deleted from the table because it expires 12/31/2013.

No action, will be reviewed again : The Commission took no action on the temporary modifications on the following segments. These temporary modifications will be reviewed again at the annual temporary modification hearing in December 2014.

- Site-specific compliance with ammonia criteria: Temporary Modifications of the ammonia standards for Upper South Platte segment 15 and Middle South Platte segment 1a were granted to allow time for compliance with revised ammonia standards. Metro Wastewater Reclamation

District presented evidence that they are on schedule to make water quality improvements and that the Temporary Modification will no longer be needed after December 2014.

- Biotic ligand model-based copper Temporary Modifications: Individual SP CURE members and other interested regulated entities presented evidence that progress is being made to develop a biotic ligand model-based site specific standards. They are on schedule to make water quality standards proposals for consideration by the Commission in the basin-wide hearing in June 2015.

  Upper South Platte segments 14, 15, 16g and 16i
  Clear Creek segments 14a, 14b and 15
  Boulder Creek segment 9

- Other Temporary Modifications: The following Temporary Modifications were reviewed and the Commission took no action. They will be reviewed again at the annual temporary modification hearing in December 2014, and again at the the basin-wide hearing in June 2015. .

  Upper South Platte segment 14 temperature
  Upper South Platte segment 15 temperature
  Upper South Platte segment 16g temperature
  Bear Creek segment 1c chlorophyll a and phosphorus
  Clear Creek segment 2a cadmium and zinc
  Clear Creek segment 2c copper
  Clear Creek segment 9a copper
  Clear Creek segment 11 cadmium
  Clear Creek segment 13b cadmium and temperature
  Clear Creek segment 14a temperature
  Clear Creek segment 14b temperature
  Clear Creek segment 15 temperature
  Boulder Creek segment 8 selenium
  St Vrain Creek segment 2b copper
  St Vrain Creek segment 6 selenium
  Middle South Platte segment 1a selenium
  Middle South Platte segment 4 pH
  Big Thompson River segment 2 (Wapiti Meadows) DO, E coli, ammonia, nitrate boron, cadmium, copper, lead, mercury, nickel, selenium, silver and zinc
  Big Thompson River segment 4b selenium
  Big Thompson River segment 5 selenium
  Big Thompson River segment 9 selenium
  Cache La Poudre River segment 11 selenium
  Cache La Poudre River segment 13b selenium
  Lower South Platte segment 1 selenium

Site Specific Selenium Standards: The Commission considered site-specific ambient-based selenium standards for Upper South Platte Segment 16g (Marcy Gulch) and similar nearby tributaries to South Platte River Segment 14. Evidence submitted by Centennial Water & Sanitation District showed that selenium loading to Segment 16g results from natural sources and is not exacerbated by point source discharges or reversible anthropogenic factors. Marcy Gulch and nearby tributaries cross areas of selenium-bearing shale and groundwater that comes into contact with the shale increases in selenium concentration, which in turn contributes selenium when the groundwater enters the streams.

- Marcy Gulch (segment 16g): Although the Centennial sewer system does not have a large amount of inflow and infiltration, some groundwater with high selenium concentrations enters the system from residential areas within the Marcy Gulch drainage. This inflow increases the Centennial WWTP effluent selenium concentration at times to concentrations that exceed the table value standards. Centennial was not able to identify any industrial sources of selenium.

Treatment at the Centennial WWTP results in incidental removal of selenium, and therefore further reductions in inflow and infiltration to control effluent selenium concentration would result in a loss of incidental treatment and a net increase in selenium loading to Marcy Gulch and the South Platte River. The Commission concluded that the contribution of selenium from groundwater to Marcy Gulch and to the Centennial WWTP is a natural or irreversible human-induced condition. Therefore, for Segment 16g, the Commission adopted site-specific ambient-based chronic and acute dissolved selenium standards. The chronic (13 µg/L) and acute (21 µg/L) standards are based on the 85th and 95th percentiles, respectively, of samples taken the same day from sites located upstream and downstream of the Centennial WWTP. In order to preserve the wide spatial and temporal variability of selenium concentrations in the segment and to protect against deterioration, the Commission defined assessment methods at Reg. 38.6(4)(g) in order to ensure that future assessment is consistent with the methods used to derive the standards. The Commission removed the temporary modification for selenium of "current conditions" that had previously been in place for Segment 16g.

- Nearby tributaries Lee Gulch, Little's Creek Big Dry Creek and Little Dry Creek, (segment 16j): The Commission also re-segmented Upper South Platte Segment 16c (All tributaries to the South Platte River from Chatfield Reservoir to Big Dry Creek), to facilitate the adoption of site-specific ambient-based selenium standards for several tributaries to the South Platte River near Marcy Gulch. The evidence submitted by Centennial, the City of Littleton and the City of Englewood demonstrated that each of the tributaries have natural or irreversible human-induced elevated selenium concentrations, that result from regional geology similar to that found in Marcy Gulch and in the Toll Gate Creek drainages. None of the tributaries have point source discharges contributing to selenium concentrations. Urbanization of the area is an irreversible condition that could contribute to an increase in groundwater coming into contact with selenium-bearing shale. The Commission created new Upper South Platte Segment 16j with site-specific ambient-based selenium standards as follows: Lee Gulch Se(ac/ch)=(TVS/10), Little's Creek, Se(ac/ch)= (TVS/6), Big Dry Creek Se(ac/ch)=(26/23), and Little Dry Creek Se(ac/ch)=(TVS/11). The selenium standards for Segment 16j were calculated using data from locations near the confluence of each tributary with the South Platte River. The Commission specified assessment locations at Reg. 38.6(4)(h) in order to ensure that future assessment is consistent with the methods used to derive the standards. Other than the selenium standards, Segment 16j inherits the use classifications, antidegradation designation, and water quality standards from Segment 16c because the evidence was limited to selenium standards.

Clear Creek segment 13b (North Fork of Clear Creek): The Commission considered the temporary modification for Clear Creek segment 13b. Black Hawk/Central City Sanitation District and the City of Black Hawk ("BH/CCSD") proposed extending the temporary modification for cadmium in Clear Creek Segment 13b. Evidence submitted by BH/CC shows that the metals concentrations in Clear Creek are the result of a combination of natural and human-induced conditions which are currently the focus of Superfund cleanup work. Additional cleanup is planned as part of OU4, including the construction of a new mine wastewater treatment plant to treat discharges from the National Tunnel, Gregory Gulch and Gregory Incline. Additional cleanup is also planned for the Quartz Hill mine tailings pile, including re-grading and capping. These efforts are not expected to be completed until 2015 at the earliest, and are expected to result in significant water quality improvements within Clear Creek, segment 13b. The degree of improvement is still uncertain and will not be known until after the treatment measures are implemented and the improvements are quantified.

The BH/CCSD has a predicted water quality-based effluent limit compliance problem for cadmium, however they do not have a predicted compliance problem for the other metals. Therefore, the Commission deleted the temporary modifications for manganese, zinc and iron. In addition, the Commission extended the expiration date of the temporary modification for dissolved cadmium on Clear Creek Segment 13b to December 31, 2018, to allow time for the treatment measures to be implemented and the improvements to be quantified. The temporary modifications will be reviewed in the 2016 and

2017 annual temporary modification review hearing. A 2018 expiration date will allow for a 2016 review of the status of the temporary modification prior to the BH/CCSD permit renewal in 2017, and may lead to an extension of the temporary modification if that is determined appropriate based on information available at the 2016 review.

PARTIES TO THE RULEMAKING HEARING

1. Rio Grande Silver, Inc.
2. Black Hawk/Central City Sanitation District and City of Black Hawk
3. Centennial Water & Sanitation District, City of Littleton, City of Englewood
4. Colorado Parks and Wildlife
5. Homestake Mining Company of California
6. Metro Wastewater Reclamation District
7. South Platte Coalition for Urban River Evaluation (SP CURE)
8. City of Boulder
9. Seneca Coal
10. Tri-State Generation and Transmission Association
11. City of Fort Collins
12. MillerCoors, LLC
13. Environmental Protection Agency
14. Barr Lake and Milton Reservoir Watershed Association
15. Plum Creek Water Reclamation Authority

38.89 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 8, 2014 RULEMAKING; FINAL ACTION JANUARY 12, 2015; EFFECTIVE DATE JUNE 30, 2015

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of temporary modifications scheduled to expire before December 31, 2016, to determine whether the temporary modification should be modified, eliminated or extended.

No action: The Commission took no action on the temporary modifications on the following segments. Unless otherwise noted, these temporary modifications will expire 12/31/2015. The basin-wide review hearing is scheduled for June 2015 and it is anticipated that any remaining issues will be resolved in that hearing process.

Upper South Platte River segment 10a, copper
Upper South Platte River segment 14, copper, temperature
Upper South Platte River segment 15, ammonia, copper, temperature
Upper South Platte River segment 16g, copper, temperature
Upper South Platte River segment 16i, copper

Bear Creek Basin segment 1c, chlorophyll, total phosporus

Clear Creek Basin segment 2a, zinc , copper (expiration date of 7/01/2015)
Clear Creek Basin segment 2c, copper (expiration date of 7/01/2015)
Clear Creek Basin segment 9a, copper (expiration date of 7/01/2015)
Clear Creek Basin segment 11, copper (expiration date of 7/01/2015)
Clear Creek Basin segment 14a, copper, temperature

Clear Creek Basin segment 14b, copper, temperature
Clear Creek Basin segment 15, copper, temperature

Boulder Creek Basin segment 8, selenium (expiration date of 7/01/2015)
Boulder Creek Basin segment 9, Copper (expiration date of 7/01/2015)

St.Vrain Creek Basin segment 2b, copper
St.Vrain Creek Basin segment 6, selenium

Middle South Platte Basin segment 1a, selenium, ammonia
Middle South Platte Basin segment 4, Barr Lake and Milton Reservoirs, pH

Big Thompson River Basin segment 2, DO, E.coli, ammonia, nitrate, boron, cadmium, copper lead, mercury, nickel, selenium, silver, and zinc
Big Thompson River Basin segment 4b, selenium
Big Thompson River Basin segment 5, selenium
Big Thompson Basin River segment 9, selenium

Cache La Poudre River segment 11, selenium
Cache La Poudre River segment 12, selenium
Cache La Poudre River segment 13b, seleinum

Lower South Platte River Basin segment 1, selenium

Extension of Temporary Modification: Site-specific copper standards for Upper South Platte segment 10a based on the Biotic Ligand Model were proposed by Plum Creek Water Reclamation Authority (PCWRA). During the course of the hearing process and discussion with the Division, EPA and other parties, PCWRA modified its proposal. The Commission adopted PCWRA's modified proposal to extend the temporary modification to 12/31/2018 and change the statement of the temporary modification to "current condition". The Commission expects that PCWRA will participate in discussions in 2015 with the WQCD and other stakeholders about the FMB application of the BLM.

The Commission extended until July 1, 2020, the temporary modifications for Clear Creek Segment 2a zinc and for Segment 2c copper. The Commission found that: these segments are not currently meeting the respective standards; the Georgetown Wastewater Treatment Facility anticipates problems meeting the zinc standard; the Central Clear Creek Sanitation District Wastewater Treatment Facility anticipates problems meeting the copper standard, and; there are additional ongoing and future remedial activities for metals that could significantly contribute to achieving either or both of these standards. The extent of remedial activities by EPA and CDPHE under CERCLA and by other stakeholders is a key consideration in resolving the uncertainty as to appropriate water quality standards. The extension until July 1, 2020 is intended to allow review of these temporary modifications after the next (2019) CERCLA Five-Year Review is completed.

New Temporary Modification: The Commission adopted a new temporary modification of the ammonia standard in a portion of Upper South Platte segment 3, below the Florisant Water and Sanitation District wastewater treatment facility. Evidence was presented that the discharger has a compliance problem and there is significant uncertainty regarding whether there are feasible treatment options. This temporary modification will expire on December 31, 2017 and will be reviewed in the December 2015 annual review.

New Site-Specific Standards: The Commission adopted site-specific copper standards based on an investigation of the copper bioavailability of Segment 2 below the Upper Thompson Sanitation District's wastewater treatment plant outfall location that employed the Biotic Ligand Model (BLM) and the Fixed Monitoring Benchmark (FMB) methodologies. The original proposal introduced by UTSD was withdrawn and replaced with a compromise proposal offered by the Division. The compromise addressed some of

the Division's technical concerns while UTSD avoided the added cost of preparing for another hearing and greatly reduced uncertainty about facility planning.

Based on a review of actual water chemistry and comparison of BLM results at several stations, the Commission elected to base its decision on analysis of data from Station M50, which is immediately downstream of the WWTP discharge. Stations further downstream showed less sensitivity to copper (higher FMB values), so basing the standard on Station M50 protects the downstream uses.

The data record at Station M50 included 115 sampling events from 2004 through 2014. Copper data did not meet the distributional assumption (lognormal) implicit in the BLM, but some additional processing ("trimming") yielded defensible values.

The BLM/FMB analysis resulted in acute and chronic water quality criteria for copper of 11µg/L and 7.5 µg/L, respectively, for the portion of segment 2 below the wastewater treatment plant. The Commission anticipates that these standards will be reviewed as a part of the basin hearing in June 2015, and the values may be modified based on additional technical guidance for analysis and interpretation of data supporting use of the BLM.

PARTIES TO THE RULEMAKING HEARING

1. Pioneer Natural Resources USA, Inc. and XTO Energy, Inc.
2. U.S. Energy Corp.
3. Plum Creek Water Reclamation Authority
4, Upper Clear Creek Watershed Association
5. Upper Thompson Sanitation District
6. Colorado Parks and Wildlife
7. U.S. Environmental Protection Agency
8. High Country Conservation Advocates
9. Metro Wastewater Reclamation District
10. Climax Molybdenum Company
11. Rio Grande Silver, Inc.
12. City of Pueblo
13. Tri-State Generation and Transmission, Inc.
14. Centennial Water and Sanitation District
15. Xcel Energy
16. MillerCoors
17. Seneca Coal Company
18. Peabody-Sage Creek Mining, LLC
19. City of Boulder

38.90 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JUNE 9, 2015 RULEMAKING; FINAL ACTION AUGUST, 2014; EFFECTIVE DATE DECEMBER 31, 2015

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. Waterbody Segmentation

Some renumbering and/or creation of new segments was made to facilitate appropriate organization of waterbodies in this regulation. Renumbering and/or creation of new segments was made based on information that showed: a) the original reason for segmentation no longer applied; b) differences in

water quality; and/or c) certain segments could be merged into one segment because they had similar water quality and uses. The following changes were made:

Upper South Platte River segments 11b and 12: Description of segment 12 expanded to include a portion of Bear Creek formerly in segment 11b to allow for Class 1 protection of Bear Creek.

Upper South Platte River segments 16c and 16k: Lakewood Gulch was removed from segment 16c and moved to new segment 16k to allow for Class 1 protection of Lakewood Gulch.

Cherry Creek segments 4a and 4b: This segment was split into segments 4a and 4b to allow for adoption of ambient based, site specific standards for selenium on segment 4b.

Clear Creek segments 7a and 7b: Segment 7 was split into segments 7a and 7b to separate lakes and streams.

Clear Creek segments 12a and 12b: This segment was split into segments 12a and 12b to allow for Class 1 protection of segment 12b.

Boulder Creek segments 1 and 4a: Description of segment 1 was expanded to include the tributaries and wetlands within the James Peak Wilderness Area which had been in segment 4a.

Boulder Creek segments 13 and 15: Description of lakes segment 13 was expanded to include the lakes within the James Peak Wilderness Area which had been in segment 15.

Boulder Creek segment 15: Gross Reservoir was removed from segment 15 and moved to new segment 18 to allow for Class 1 protection of Gross Reservoir.

Cache la Poudre River segments 10a and 10b: Segment 10 was split at the Larimer County Ditch to allow for Class 1 protection of the portion upstream of the Larimer County Ditch, which is now in new segment 10a. The remaining portion downstream of the Larimer County Ditch was moved to new segment 10b and remained Class 2.

Republican River segments 1, 2 and 8: Segment 2 was deleted and the lakes and reservoirs in this segment were moved to a new segment 9 at the end of the subbasin. This change was reflected in segment 8, which referenced segment 2 and now references segment 9. Bonny Reservoir was removed from the segment 1 description, as recent evidence indicates that the reservoir no longer holds water and is now managed as a state wildlife area.

Segment descriptions were also edited to improve clarity, correct typographical errors, and correct spelling errors. These changes are listed in Section S:

B. Revised Aquatic Life Use Classifications and Standards

Some segments were assigned an Aquatic Life use classification, but were missing one standard to protect that use. The Commission adopted the missing standards for the following segments:

Upper South Platte River segment: 2c (Cd ac)
Clear Creek segments: 11 (Cd trout), 17a and 17b (Ag ch trout)
Boulder Creek segments: 4d (Fe) and 5 (Fe)
Big Thompson River segment: 18 (DO)

The Commission reviewed information regarding the existing aquatic communities. Class 2 segments with high MMI scores or a wide variety of fish species were upgraded from Class 2 to Class 1.

The following segments were upgraded from Cold 2 to Cold 1:

Big Thompson River segment: 4a
Boulder Creek segment: 18 (Gross Reservoir)
Cache la Poudre River segments: 7 and 10a

The following segments were upgraded from Warm 2 to Warm 1:

Big Thompson River segment: 4b
Cache la Poudre River segments: 11 and 12
Republican River segment: 5

The Commission reviewed all Class 2 segments that have fish that are "of a catchable size and which are normally consumed and where there is evidence that fishing takes places on a recurring basis." Water + fish or fish ingestion standards were applied to the following segments:

Warm Class 2:

Upper South Platte River segment: 16i
Cherry Creek segment: 6
Clear Creek segment: 14b
Boulder Creek segment: 17
St. Vrain Creek segment: 12
Middle South Platte River segments: 1a, 1b, 3a and 4
Big Thompson River segments: 13 and 17
Lower South Platte River segment: 1

C. Recreation Classifications and Standards

The Commission reviewed information regarding the current Recreation use classifications and evidence pertaining to actual or potential primary contact recreation. In addition, newly created segments were given the same Recreation use classification as the segment from which they were split, unless there was insufficient evidence to support keeping that classification, or evidence to show that the existing use classification was inappropriate.

Based upon evidence that portions of these segments are publicly accessible and/or accessible to families who live in the area or visitors to public recreation lands in these segments, it was determined that there is the potential for primary contact recreation, including water play by children. The following segments with year-round or seasonal Recreation N standards were upgraded to Recreation P:

Lower South Platte River segment: 2a
Republican River segment: 6

Based upon evidence that portions of these segments are publicly accessible and located in a developed area where there is easy access for children, it was determined that primary contact recreation is expected to occur. The following segments with year-round or seasonal Recreation N standards were upgraded to Recreation E:

Clear Creek segments: 16b, 17a and 18b

The following segments with year-round or seasonal Recreation U standards were upgraded to Recreation P:

Lower South Platte River segment: 4

D. Water Supply Use Classification and Standards

The Commission added a Water Supply use classification and standards where the evidence demonstrated a reasonable potential for a hydrological connection between surface water and alluvial wells used for drinking water. The Water Supply use classification and standards were added to the following segments:

Upper South Platte River segments: 7, 11a, and 16j
Cherry Creek segments: 4a and 4b
Clear Creek segment: 5
Boulder Creek segments: 7a and 7b
Middle South Platte River segments: 3a and 5a
Big Thompson River segments: 4b and 9
Lower South Platte River segments: 2a and 3

A review of the segments with an existing Water Supply use classification showed that some segments were missing one or more standards to protect that use. The full suite of Water Supply standards was added to the following segments:

Cherry Creek segment: 5
St. Vrain Creek segment: 5
Big Thompson River segments: 17 and 19
Cache la Poudre segment: 21
Lower South Platte River segments: 4 and 5
Republican River segment: 8

Three segments have one or more numeric standards for water supply, but do not have the Water Supply use classification. The Division searched for alluvial wells on these segments and determined that there is not an existing Water Supply use. Therefore, the Water Supply standards were removed from the following segments:

Clear Creek segment: 13b
Boulder Creek segment: 8
St. Vrain Creek segment: 6

E. Agriculture Use Classification and Standards

A review of the segments with an existing Agriculture use classification showed that some segments were missing one or more standards to protect that use. The full suite of Agriculture standards were added to the following segments:

Clear Creek segments: 13b, 16b, 22 and 25
Big Dry Creek segments: 1 and 3

Molybdenum: In 2010, the Commission adopted a new standard for molybdenum to protect cattle from the effects of molybdenosis. The table value adopted at that time was 300 µg/l, but included an assumption of 48 mg/day of copper supplementation to ameliorate the effects of molybdenosis. State and local experts on cattle nutrition indicated that copper supplementation in the region is common, but is not universal. Therefore, the copper supplementation assumption was removed from the equation, which then yielded a standard of 160 µg/l. That standard was applied in recent basin reviews.

In this hearing, the Commission adopted a standard of 150 µg/L, based on an improved understanding of the dietary- and water-intake rates for various life-stages of cattle. This standard is protective of all life-stages of cattle (including lactating cows and growing heifers, steers and bulls) at all times of year.

The Agriculture table value assumes that the safe copper:molybdenum ratio is 4:1. Food and water intake is based on growing heifers, steers, and bulls consuming 6.7 kg/day of dry matter and 56.8 liters of water per day. Total copper and molybdenum intakes are calculated from the following equations:

> Cu intake mg/day = [([Cu] forage, mg/kg) x (forage intake, kg/day)] + [([Cu] water, mg/l) x (water intake, L/day)] + (Cu supplementation, mg/day)
>
> Mo intake mg/day = [([Mo] forage, mg/kg) x (forage intake, kg/day)] + [([Mo] water, mg/l) x (water intake, L/day)] + (Mo supplementation, mg/day)

The assumed values for these equations are as follows:

> [Cu] forage = 7 mg/kg, [Mo] forage = 0.5 mg/kg, forage intake = 6.7 kg/day, [Cu] water = 0.008 mg/L, [Mo] water = 0.375 mg/L, water intake = 56.8 L/day, Cu supplementation = 0 mg/day, Mo supplementation = 0 mg/day.

A molybdenum standard of 150 µg/l was adopted for all segments in Regulation 38 that have an Agriculture use classification, and where livestock or irrigated forage are present or expected to be present. The following segments do not have an Agriculture or a Water Supply use classification. No molybdenum standard was applied to these segments:

> Clear Creek segments: 7a, 7b and 8

The following segments (or portions of segments) have an Agriculture use classification and a Water Supply use, but livestock or irrigated forage are not expected to be present. A molybdenum standard of 210 µg/l was applied to these segments:

> Upper South Platte River segment: 22a (McLellan Reservoir)
> Clear Creek segments: 4 and 5

Grazing of cattle has recently occurred near Segment 5 (West Clear Creek) on the Buckland property (Guanella Ranch) just west of Empire, CO. However, only limited access exists for cattle to reach West Clear Creek, and discussions between Climax and the property owners have resulted in an agreement to eliminate access and fence cattle out of the creek prior to any future grazing. Because of this agreement, no livestock use of the Segment 5 is expected to occur in the future.

The following segments have an Agriculture use classification and no Water Supply use, but livestock or irrigated forage are not expected to be present. No molybdenum standard was applied to these segments:

> Upper South Platte River segment: 16g
> Clear Creek segment: 25

F. Changes to Antidegradation Designation

The Commission reviewed all Warm 2 segments designated Use Protected to determine if the Use Protected designation was still warranted. Based upon available water quality data that meet the criteria of 31.8(2)b, the Use Protected designation was removed from the following segment:

> Cache la Poudre River segment: 13a

The Commission reviewed all Warm 1 segments designated Use Protected to determine if the Use Protected designation was still warranted. Based upon available water quality data that meet the criteria of 31.8(2)b, the Use Protected designation was removed from the following segment:

Boulder Creek segment: 7a

The Commission reviewed all Reviewable segments to determine if this Antidegradation designation was still warranted. Based upon available water quality data that fails to meet the criteria of 31.8(2)b, the Reviewable designation was removed and replaced with Use Protection in the following segment:

St. Vrain Creek segment: 4a

The following segments with Outstanding Waters designations were expanded to include the James Peak Wilderness Area:

Boulder Creek segments: 1 and 13

G. Ambient Standards

Ambient standards are adopted where natural or irreversible man-induced conditions result in exceedances of table value standards. The Commission reviewed the information that is the basis for these standards, as well as any new information that would indicate whether they are still appropriate, need to be modified, or should be removed.

New ambient-based standards were adopted for the following segments:

Cherry Creek segment 4b: Cottonwood Water and Sanitation District (CWSD) presented evidence in the form of a use attainability analysis (UAA) that the natural and irreversible human-induced ambient selenium concentrations in specific portions of Cottonwood Creek, upper Lone Tree Creek and middle Windmill Creek exceed the relevant table value standard. The UAA established that the highest attainable use in these reaches includes a low rate of fish deformity due to the naturally elevated levels of selenium. The Commission created a new Cherry Creek Segment 4b, defined as “Cottonwood Creek, including all tributaries and wetlands, from the source to Cherry Creek Reservoir” to facilitate the adoption of site-specific ambient-based selenium standards for specific portions of this small watershed, which are adequate to protect the classified, attainable use.

The Commission specified assessment locations at 38.6(4)(i) to ensure that the sites with water quality currently equal to or better than table value standards are protected. Multiple assessment locations are appropriate because the selenium concentrations decline abruptly and attain TVS standards in the lower reaches of Lone Tree, Cottonwood and Windmill Creeks. These assessment locations act as demarcation of the only portions where the elevated selenium levels are allowable. Where selenium levels are currently naturally elevated, concentrations are significantly higher during the winter months (October through February) and therefore seasonal standards were adopted to recognize the natural seasonal variation of selenium concentrations. While data to characterize summer selenium concentrations were limited on Windmill Creek, seasonal ambient standards were adopted based on evidence of a consistent seasonal selenium pattern observed in adjacent drainages.

It is the Commission’s intent that the current natural in-channel processes (e.g., wetlands, infiltration) that remove the selenium are protected, with the intent that lower Cottonwood, Windmill, and Lone Tree Creeks (as defined in the assessment locations) continue to remain in attainment of TVS. The Commission notes that these natural processes that reduce selenium are currently maintained at very low flows. When implementing these standards, the Division shall assure that downstream uses and standards are protected. Evidence within the UAA was limited to selenium and therefore use classifications, anti-degradation designation, and water quality standards from parent segment 4 were applied to new segment 4b.

Although the Commission determined that adoption of the ambient-based selenium standard proposed by CWSD and the Division is appropriate, the Commission believes, without intending to establish or limit permit conditions, that follow-up biological monitoring is warranted to inform future review of the selenium

standards. The Commission would expect the collection of additional baseline ("before") fish tissue selenium data in the Cottonwood Creek watershed below CWSD's intended point of discharge, and in Cherry Creek Reservoir. In addition, after the R.O. plant is re-started, the Commission would expect CWSD to collect fish tissue data to support a "before and after" evaluation of downstream effects in the tributaries and reservoir. The sampling should focus on the time of year when sensitive species and species that are high selenium-accumulators are expected to be gravid. This data will be used to evaluate whether the ambient-based standard is protective of the use. The Commission expects CWSD to develop a study plan in agreement with WQCD, CPW, EPA, CCBWQA and other interested parties.

Clear Creek segment 5: The Commission adopted water supply manganese standards representative of existing quality as of January 1, 2000 with assessment locations provided at 38.6(4)(j). The aquatic life manganese standards still apply throughout the segment.

H. Numeric Standards Changes

Changes were made to the following metals criteria to implement revisions adopted by the Commission in the 2010 Basic Standards rulemaking hearing.

Aluminum: Chronic aluminum standards adopted in 2010 are pH-dependent. When the pH is greater than 7.0, the new chronic aluminum standard uses a hardness-based equation. When pH is less than 7.0, the old chronic criterion of 87 µg/l or the new hardness-based equation applies, whichever is more stringent. The new acute aluminum criterion is a hardness-based equation that applies at all pH values. The hardness for both the chronic and acute aluminum hardness-based equations is capped at 220 mg $CaCO_3$/l, rather than the typical cap of 400 mg $CaCO_3$/l. The acute and chronic aluminum equations in 38.6(3) were modified to conform to Regulation No. 31.

Ammonia: Footnote 4 was replaced. The equations for the "NH_3=TVS" were deleted and replaced by language that explains the early life stage presence/absence assumptions.

Molybdenum: In 2010, the Commission adopted a new molybdenum standard of 210 µg/L to protect the Water Supply use.

Uranium: The Commission revised the uranium standard in 2010. The new standard is a hyphenated standard with two values (16.8 – 30 µg/L). The first value, which was added in 2010, is a strictly human health-based standard. The second value, which was the old standard, is EPA's maximum contaminant level (MCL), which is higher because it takes into account treatability and detection limits. A new section 38.5(3)(c)(i) was added to explain the hyphenated standard. Subsection 38.5(3)(d) was deleted because it was redundant with 38.5(3)(c).

Zinc: The Commission adopted revisions to the zinc equation in 2010. The new chronic zinc equation is slightly more stringent at hardness values less than 157 mg $CaCO_3$/l. The new acute zinc equation is slightly less stringent at all hardness values. The zinc(sculpin) equation was not adopted in Regulation No. 38 because sculpin are not expected in the South Platte River basin. The acute and chronic zinc equations in 38.6(3) were modified to conform to Regulation No. 31.

I. Numeric Standards: Biotic Ligand-Based Site-Specific Copper Standards

In the present hearing, the Commission adopted site-specific copper standards based on the Fixed Monitoring Benchmark (FMB) application of the Biotic Ligand Model (BLM). The Commission recognized that implementation guidance is still evolving, but was persuaded that the FMB will now yield criterion-based values that better reflect the toxicity of copper than is possible with the hardness-based TVS or WER-based values. However, there are some important considerations for the acquisition of input data and for the interpretation of output values that warrant attention in future proposals.

The Commission envisions applying the BLM primarily downstream of dischargers where concerns about effluent copper may legitimately be offset to some degree by ligands in the effluent that affect the toxicity of copper. Because the potential "benefit" of these ligands is very much dependent on the mix of effluent with the receiving stream, it is important for the model inputs to provide adequate representation of seasonal and hydrologic variability. Similarly, because water quality conditions change downstream, especially where there are significant hydrologic features (e.g., tributaries and other discharges), it is important to have multiple sites to represent spatial variability and assure downstream protection of uses.

To facilitate future review of the standards adopted in this hearing, the Commission expects proponents to commit to a "longevity plan" with continued monitoring and analysis of BLM parameters culminating in a review at the next basin hearing.

In this hearing, FMB-based copper standards were proposed for four segments in which standards previously had been WER-based:

Upper South Platte River segments 14, 15, and 16g
Middle South Platte River segment 01a.

In addition, the Commission revisited a proposal for Big Thompson segment 2 that received tentative approval at the temporary modifications hearing in December, 2014.

Upper South Platte Segment 15 and Middle South Platte Segment 1a, Below Metro

The Metro Wastewater Reclamation District (Metro) has provided a data set and accompanying analysis that the Commission has determined can be used as a model for future proposals. The multi-year data collection effort included biweekly sampling of all parameters required for the BLM at nine sites, providing complete spatial coverage of the two segments of interest (US15 and MS01a). Comparison of the FMB values across the sites facilitates the selection of one value that is protective in each segment. Addition of confidence intervals shows that the most protective values in each segment are not significantly different; hence, one value can be applied to both segments.

The application of confidence intervals enables future review of the standards adopted in this hearing. The Commission recognizes that the water quality conditions prevailing today may be changed in the future if water management practices or wastewater treatment processes or flows change in the future. Insofar as the FMB is sensitive to parameters like pH or dissolved organic carbon that could change in the future, it is important to review the new standards regularly. Confidence intervals provide a basis for meaningful comparison of new and old determinations of the FMB at the same location.

Metro has agreed to continue all necessary data collection and evaluation activities to support review of the BLM-derived copper standards at the next Regulation No. 38 hearing.

Upper South Platte Segments 14 and 16g, Below Centennial W&SD

Centennial W&SD also applied the BLM to develop a proposal for copper standards. Although the spatial coverage of sites in the initial proposal was very limited, the Division added BLM results from six additional sites in rebuttal. The expanded spatial coverage provided a mutually acceptable proposal for Segment 14 and assured the Commission that the standard would be protective of the affected portion of that segment. The Commission will review these FMB-based standards in the next Basin Review Hearing, using data collected over the next five years, to ensure that FMB-based standards capture any changes in water quality. Centennial has agreed to continue all necessary data collection and evaluation activities to support review of the BLM-derived copper standards at the next Regulation No. 38 hearing

Big Thompson Segment 2, Below Upper Thompson Sanitation District

The modeling that was done to support the Commission's action in December 2014 was reviewed in light of the experience gained from work in this hearing with the BLM and FMB. The Commission found that the decisions made in the earlier hearing were consistent with the current work and supported by data and analysis.

Cherry Creek Segment 1, Below Parker Water and Sanitation District

Parker Water and Sanitation District (Parker) presented effluent data indicating that they have a predicted compliance problem with permit limits based on the copper hardness equation on Cherry Creek segment 1. Parker has initiated sampling for parameters required to use the BLM to derive a site-specific standard for copper. Robust derivation of site specific copper standards using the BLM requires temporal coverage of at least 2 years of monthly sampling at sites representative of the segment under consideration. As of this hearing, Parker did not have sufficient temporal coverage to use the model. Additionally, information presented in Parker's prehearing statements highlighted recent and future plant process changes which may influence the representativeness of recent sampling. Parker has agreed to continue sampling for 24 months following the last planned operational changes so a more representative dataset can be utilized to derive a site-specific standard for copper with confidence. Given the uncertainty about the appropriate underlying standard, and the predicted compliance problem, the Commission approved a temporary modification for copper set to "current conditions" with an expiration date of 12/31/2020.

J. Numeric Standards: Site-Specific Mercury Standard

The Commission adopted a site-specific total mercury standard of 0.026 µg/L as a chronic, 30-day average standard with a 1-in-3 year exceedance frequency on a portion of Upper South Platte Segment 16i, from Brighton Boulevard to the confluence with the South Platte River. The table value standard of 0.01 µg/L remains the standard for this segment upstream of Brighton Boulevard.

Suncor collected total mercury fish tissue data and unfiltered water samples for total mercury and methylmercury analysis from two sites on Sand Creek between Brighton Boulevard and the Burlington Ditch. Suncor targeted the highest trophic level species in Sand Creek for mercury sampling and collected skinless filets from the largest individuals of each species to analyze for wet-weight total mercury.

Fish tissue bioaccumulation factors (BAFs) were calculated, in part, following EPA's 2010 *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion.* The calculations also follow recommendations from a 2013 study (Riva-Murray et al.) conducted by the U.S. Geological Survey (USGS) and the U.S. EPA National Exposure Research Laboratory to optimize stream water mercury sampling for the purpose of developing mercury fish tissue BAFs. The site-specific standard was derived using the following equations:

Site-specific BAF (L/kg) = [arithmetic mean mercury fish tissue concentration in mg/kg wet weight] / [85th percentile methylmercury water concentration in mg/L]

Methylmercury water quality criterion (µg/L) = 10^{-9} x [0.3 mg/kg fish tissue] /[site-specific BAF (L/kg)]

Total mercury water quality criterion (µg/L) = methylmercury criterion * median ratio of total Hg:MeHg

A site-specific BAF was calculated for each species. The methylmercury water quality criterion was calculated using only the species with the highest BAF (*Lepomis cyanellus*, green sunfish) rather than a weighted average of all larger species. While the green sunfish are less than five inches in length and unlikely to be consumed, this ensures that the site-specific standard will prevent average fish tissue concentrations from exceeding 0.3 mg/kg for all species. The median ratio of total mercury to methylmercury was calculated in order to translate the protective methylmercury water column value to a total mercury water column standard. Although methylmercury is the form of mercury that

bioaccumulates, the standard is based upon total mercury, because mercury can change forms in the environment.

Existing quality for this chronic standard is defined as the 85th percentile for permitting and assessment purposes. Attainment of the standard shall be assessed by comparing the weighted 85th percentile total mercury concentration from both assessment locations at 38.6(4)(f) to the site-specific criterion.

Fish tissue concentrations in the South Platte River are expected to be protected despite the increase in the site-specific standard on Sand Creek. This is due to the low concentrations of mercury previously found in fish flesh in the South Platte River during a time when the mercury concentrations from Sand Creek were much higher. When the relatively small volume of water in Sand Creek and higher mercury concentrations are combined with the greater volume of water in the South Platte River and low ambient water column concentrations, the change in concentration downstream of the confluence is negligible. Based on permitted low flow conditions, the projected mercury concentrations in the South Platte River would attain the existing 0.01 µg/L standard even when mercury concentrations in Sand Creek were as high as 0.053 µg/L (approximately two times the adopted standard in segment 16i).

K. Temporary Modifications

All existing Temporary Modifications were examined to determine if they should be allowed to expire or if they should be extended, either unchanged or with changes to the numeric limits. Temporary modification of copper standards for Cherry Creek segment 1 is discussed above (section I). Temporary modification temperature standards are discussed below in section M.

The Commission deleted or allowed to expire on 12/31/2015 certain temporary modifications on the following segments:

Upper South Platte River segments: 14, 15, 16g and 16i
Clear Creek segments: 9a, 11, 14a, 14b and 15
Boulder Creek segment: 9
St. Vrain Creek segments: 2b and 6
Middle South Platte River segments: 1a and 4
Big Thompson River segments: 2 and 5
Cache la Poudre River segments: 11 and 12
Lower South Platte River segment: 1

The Commission revised or extended Temporary Modification on the following segments:

Bear Creek segment: 1c
Clear Creek segment: 2c, 13b
Boulder Creek segment: 8
Big Thompson River segments: 4b and 9
Cache la Poudre River segment: 13b

To remain consistent with the Commission's decisions regarding arsenic in section 38.85, all existing temporary modifications for arsenic of "As(ch)=hybrid" (expiration date of 12/31/21) were retained. An arsenic temporary modification was added to the following segments, which had an existing or newly added chronic arsenic standard 0.02 µg/L and a permitted discharger with a water quality–based effluent limit compliance problem:

Upper South Platte River segments: 2c and 22a
Bear Creek segments: 1b, 4a, 5, 6b and 11
Clear Creek segment: 5, 9a, 11 and 14b
Boulder Creek segments: 3, 4b and 7a
St. Vrain Creek segments: 2b and 7

Middle South Platte River segments: 1a, 3a and 4
Big Thompson River segments: 3, 4a and 4b
Cache la Poudre River segment: 10b
Lower South Platte River segment: 1

The Commission adopted Temporary Modifications on the following segments:

Upper South Platte River segments: 10a, 14 and 15
Cherry Creek segment: 1
Clear Creek segments: 2c, 7a, 7b and 11
Boulder Creek segment: 9

Upper South Platte segment 10a: The Commission adopted a temporary modification for manganese in segment 10a of the Upper South Platte River. PCWRA presented information that shows a demonstrated water quality based effluent compliance problem. The Commission reviewed the temporary modification implementation plan submitted by PCWRA. Based on that plan, along with the compliance problem and uncertainty regarding the standard, the Commission adopted a "Current Conditions" temporary modification to the manganese standard in Upper South Platte segment 10a with an expiration date of 6/30/2019.

Upper South Platte segment 14: The Commission adopted a temporary modification for chloride in segment 14 of the Upper South Platte River. Centennial presented information that shows a predicted water quality based effluent limit compliance problem. The Commission reviewed the temporary modification implementation plan submitted by Centennial. Based on that plan, along with the compliance problem and uncertainty regarding the standard the Commission adopted a "Current Conditions" temporary modification to the chloride standard in Upper South Platte segment 14 with an expiration date of 12/31/2020.

Upper South Platte segment 15: The Commission adopted a temporary modification for chloride and sulfate in Segment 15 of the Upper South Platte River. Public Service Company presented information that shows a predicted water quality based effluent limit compliance problem. The Commission reviewed the temporary modification implementation plan submitted by Public Service Company. Based on that plan, along with the compliance problems and uncertainty regarding the standards the Commission adopted a "Current Conditions" temporary modification to the chloride and sulfate standards in Upper South Platte segment 15 with an expiration date of 12/31/2020.

Clear Creek segment 2c: The Commission adopted a new temporary modification for cadmium and revised the temporary modification for copper both with an expiration date of 7/01/2020. Evidence submitted by the CCCSD identifies that it would continue to have a permit compliance problem if ambient quality was implemented in its discharge permit. During the effective period of this temporary modification, copper and cadmium limits for existing dischargers to Segment 2c will be authorized to continue based on past facility performance (existing effluent quality) unless a more stringent limitation is reasonably achievable without requiring significant investment in facility infrastructure, consistent with Regulation 31.14(16).

Big Thompson segment 9: Little Thompson River, Big Thompson Segment 9: The Division's noticed proposal for this segment originally included a "current conditions" temporary modification as a result of the basin wide practice of extending selenium temporary modifications on segments that continue to indicate impairment. The Town of Milliken presented evidence of a compliance problem with the permit limits based on the underlying selenium table value standard as well as evidence that elevated selenium levels originate from naturally occurring, selenium rich shale and also proposed the same changes. In order to ensure that the current condition in segment 9 is protected over the duration of the temporary modification, the Division changed its proposal to reflect existing quality in the form of a numeric temporary modification. Ambient selenium conditions at a long term monitoring site above the outfall indicate the 85th percentile of selenium concentrations equal 12.3 µg/l. Therefore, the Commission extended the expiration date of the temporary modification to 12/31/2020 and changed the numeric value

in the temporary modification for selenium from 13.1 µg/l to 12.3 µg/l to reflect the addition of more recent data. It is the Commission's intent that no assimilative capacity is created through this action.

The Town of Milliken has volunteered to complete a phased plan to evaluate potential selenium impacts to fish populations within the segment. Milliken will develop a detailed sampling and analysis plan for the first phase in coordination with a qualified consultant and CPW by 7/15/2015. Sampling will commence as soon as technically practicable in 2015 and will first focus on fish tissue selenium analysis of ovaries/eggs of larger female fish, and muscle or whole body analysis for other fish. Milliken's commitment to follow-up phases is contingent on Milliken's continued intent to utilize their existing surface water discharge permit. If necessary, and after coordination between CDPHE, Milliken, and CPW, a second phase of the study will be to evaluate larval fish deformity rates and/or selenium bioaccumulation through the foodchain. Results of this analysis will be presented at a future Temporary Modifications Rulemaking Hearing in 2018 or 2019 or before. If the results demonstrate that uses are protected, an ambient-based site-specific standard may be appropriate.

L. Temperature Standards

The Commission adopted new criteria for temperature in 2007. In June 2009, segment-specific temperature standards were adopted by the Commission for all segments with an Aquatic Life use classification in the South Platte River basin.

In June 2010, revisions of the temperature criteria in Regulation No. 31 resulted in changes to warm stream temperature tiers. The expected range of the razorback sucker is also habitat for the more thermally sensitive white sucker. Because the temperature tier applied to a segment is based on the most thermally sensitive species, the razorback sucker tier had never been applied. Therefore, the Commission deleted the razorback sucker tier (warm stream tier III), and included the razorback sucker in warm stream tier II. In implementation of these changes, the Commission changed all warm stream tier IV segments to warm stream tier III to conform with the 2010 revisions, which affected the following segments:

Upper South Platte River segments: 16d, 16e and 16f
Middle South Platte River segments: 3b, 5b and 6
Republican River segment: 7

In 2010, the Commission also reformatted the temperature criteria in 31.16 Table I and updated the values based on new data included in the Colorado Temperature Database. Several corrections were made to the temperature criteria. Both the Arctic grayling and golden shiner were moved from stream tiers to the cold and warm lake tiers, respectively, because both species are found only in lakes. Additionally, a typographical error in the chronic temperature criterion for cold stream tier II and large lakes and reservoirs was corrected.

Changes were made to bring Regulation No. 38 into conformity with all of the 2010 revisions to the Basic Standards for temperature, including updating the temperature tables at 38.6(3).

Based upon new information on the species expected to occur, the Commission changed the temperature standard from CS-II to CS-I for the following segments:

Clear Creek segment: 12b

<u>Ambient temperature standards for lakes</u>

In the 2009 triennial review, the WAT standard was found to be unattainable for a number of cold large lakes and reservoirs with apparently healthy cold-water fish populations. Because summertime temperature in the mixed layer for large lakes and reservoirs is very well correlated to the waterbody's elevation, the Commission adopted ambient temperature standards for large lakes wherever data were

available to characterize a WAT and the thermal characteristics of the lakes and reservoirs were determined to be the result of natural or irreversible man-induced conditions.

However, the 2010 revisions to the dissolved oxygen criteria in Regulation No. 31 altered how lakes and reservoirs are assessed for temperature and dissolved oxygen. The Commission decided that dissolved oxygen may be less than the applicable standard in the lower portion of a lake or reservoir except where Regulation No. 31 footnote 5(c)(iii) applies or a site-specific standard has been adopted.

Footnote 5(c)(iii) states:

> When a lake or reservoir is stratified, the mixed layer may exceed the criteria in Table 1 provided that an adequate refuge exists in water below the mixed layer. Adequate refuge depends on concurrent attainment of applicable dissolved oxygen standards. If the refuge is not adequate because of dissolved oxygen levels, the lake or reservoir may be included on the 303(d) List as "impaired" for dissolved oxygen, rather than for temperature.

Therefore, the ambient standards adopted by the Commission in 2009, which were based solely on the WAT and did not account for the concept of refuge, may no longer be appropriate or protective of the aquatic life use. To ensure that adequate refuge is defined in a way that protects the Aquatic Life use, the Commission adopted Footnote D which was applied to the temperature standard for deep stratified lakes. Footnote D states "Assessment of adequate refuge shall rely on the Cold Large Lake table value temperature criterion and applicable dissolved oxygen standard rather than the site-specific temperature standard", and was applied to following lake segments:

Upper South Platte River segment: 19 (Eleven Mile Reservoir)
Boulder Creek segment: 18 (Gross Reservoir)
Big Thompson River segment: 11 (Carter Lake)
Cache la Poudre River segment: 14 (Horsetooth Reservoir)

M. Temperature Temporary Modifications

At the basin hearing in 2009 and in subsequent hearings, concerns have been registered about the implementation of temperature standards. In particular, major POTWs discharging to streams with an Aquatic Life Warm classification have expressed reservations about the technical basis for winter standards and concerns about compliance prospects.

These concerns have occupied much of the Commission's time at this hearing and are likely to do so again at the Basic Standards hearing next year. Although the issues cannot be resolved completely today, the Commission has taken two actions that will provide some guidance for future actions. The first is to adopt temporary modifications in a way that acknowledges compliance problems common to most dischargers to warm streams, and the second is to comment on what has been learned about resolving temperature problems.

Temporary modifications have been adopted for all segments with an Aquatic Life Warm classification where a discharger has shown a compliance problem. The temporary modifications are restricted for most segments, to the winter season (December-February). The exception is for Cache la Poudre segment 12, where the Commission decided, for reasons explained below, that it was appropriate to adopt a temporary modification for the full year rather than just the winter months. Year-round temporary modifications were also adopted for Upper South Platte segment 15 and Clear Creek segments 11, 14a, 14b, and 15, where work is underway on discharger specific variance proposals. Most of these temporary modifications will be in effect through 12/31/2020, which is synchronized with the next South Platte basin hearing.

The Commission is aware that not all parties are satisfied with temporary modifications at this time. In particular, Littleton/Englewood put considerable effort into development of a site-specific proposal that

was not adopted. Consequently, it may be helpful for the Commission to comment again on possible approaches to resolving temperature issues.

At the last South Platte basin hearing in 2009 (see 38.74(M)), temporary modifications and site-specific standards were adopted in some of the same segments that were considered at the present hearing. Specifically with respect to Upper South Platte segments 14, 15, and 16g, the Commission stated its expectation that "domestic wastewater facilities will, in cooperation with other dischargers and the Division, explore options for developing new underlying site-specific temperature standards including refined numeric site-specific standards, ambient–based site-specific standard and narrative site-specific standards although permit implementation strategies are not yet fully developed for all of these." In addition, the Commission commented on a "facility-specific variance approach … [that] may be an appropriate solution…." It is apparent now that the facilities in question have worked largely independently and have relied on different approaches.

In the years following adoption of temperature criteria, interested parties have amassed temperature data from many segments in the South Platte basin. The extensive records of spatial and temporal temperature patterns have done much to inform the Commission about the influence of POTW discharges on stream temperature. In warm streams, a large discharge can increase stream temperature as much as 10 degrees C in the winter, but may cause relatively little change in the summer. This potential compliance problem occurs primarily in the winter months.

The options for addressing temperature issues remain essentially the same now as they were in 2009, except that the "facility-specific variance" (now the DSV) is officially available. What has changed is that there is now a more complete appreciation of the level of difficulty for developing a successful proposal. Development of a site-specific standard (criterion or ambient; numeric or narrative) is a challenging undertaking that is hampered by the paucity of scientific information regarding wintertime thermal requirements of warm water fish communities. The challenge is compounded by having to determine which species are expected to occur in the fish community. These are not new difficulties and they will continue to confront future efforts.

The record in this hearing included expressions of concerns about the implementation of temperature standards, the feasibility of meeting temperature standards, and the scientific basis for the warm-water winter temperature standards. These concerns involve multiple aspects of the State's clean water program, including standards, permitting, and engineering. The Commission supports the use of Division resources across multiple units to address uncertainties about the temperature standards and their implementation.

From the Commission's perspective, it is important to see a showing that a proposed change to a temperature standard will protect the use. The bar for demonstrating protectiveness of temperature standards was set high in previous hearings and documents, and it has not changed. In adopting changes to temperature regulations in 2007 (see 31.45), the Commission broadened provisions protecting spawning to "ensure that the thermal requirements for successful migration, spawning, egg incubation, fry rearing and other reproductive functions are met". The Commission specifically linked winter criteria to protection of reproductive functions.

While the Commission understands that the absence of formal guidance may make the development of a standard more difficult, it does not absolve the proponent of the responsibility to show that the proposed standard will meet the intent of the regulation. Proposals submitted to date have encountered stiff challenges from the Division, EPA and CPW largely on the question of protectiveness. The alternative to developing a new use-based standard, which was suggested as early as 2007, would be to seek a variance (DSV). A DSV, perhaps sector-based, would provide the foundation for reasonable incremental progress to reduce winter heat load to streams without imposing an unachievable compliance schedule.

1. Warm Stream Temporary Modifications:

Littleton/Englewood (L/E), South Platte segment 14: L/E has proposed relaxing the temperature standards in December and February in Segment 14. The proposal is based largely on field studies and relies on this evidence to show that one of the temperature-sensitive species – the Johnny darter – is not suffering adverse effects from increased winter temperatures downstream of the outfall. The proposal failed because there was no showing that the proposed standards would be protective, specifically, L/E has not demonstrated that the proposed standards would protect all life stages including reproduction and early life stages. Field studies are generally insufficient because the effects of confounding factors are not addressed adequately. Site-specific criteria are generally based on controlled studies in the laboratory.

Instead, the Commission accepts the Division's proposal that a temporary modification is appropriate at this time. It affords L/E, and other parties with similar issues, the opportunity to work together to find a path forward either in the Basic Standards hearing proceedings or through the collective work that is now proceeding on the feasibility of treatment (cooling) options.

PCWRA, Centennial, Boulder, Ft Collins, multiple segments: Plum Creek Water Reclamation Authority (Upper South Platte segment 10a) Centennial (Upper South Platte segments 16g and 14), Boulder (Boulder Creek segment 9, and Fort Collins (Cache La Poudre segment 11) all proposed solutions for winter temperature effluent limit compliance problems. The Commission agrees that there are concerns about compliance with temperature limits that are common to several parties to this hearing. In Warm streams, dischargers are likely to experience compliance problems in the winter (Dec-Feb). Winter is also the season in which thermal requirements are poorly known for species expected to occur in Warm streams. The combination of compliance problems and uncertainty about the underlying standards is a necessary condition for a temporary modification.

It is the Commission's hope that workgroup efforts prior to the Basic Standards hearing will help resolve uncertainty about the winter temperature standards. However, even if a better technical basis emerges from that hearing, there is no guarantee that it will resolve all of the compliance problems expected by many of the dischargers. Consequently, the Commission encourages all parties to consider what progress can be made regarding the scope of an alternatives analysis that might support a DSV.

Greeley, Cache la Poudre segment 12: The standards in this segment affect several dischargers, two of which participated in the present hearing. Consequently, the Commission lacks a complete picture of temperature patterns and potential problems. The City of Greeley, which discharges near the downstream end of Segment 12, predicts compliance problems in the summer, but not in the winter. The compliance problems may be associated in part with times when ambient temperatures exceed the standard.

Temperature data on the record are not adequate to determine if ambient temperatures are elevated throughout Segment 12 or only at the downstream end. The City of Fort Collins submitted data for a site at the downstream end of adjacent Segment 11, which does not show the same attainment problem. There is uncertainty about the underlying standard in Segment 12, and resolution of that uncertainty likely will affect other dischargers (e.g., Windsor and Carestream). Resolution, if it results in an ambient standard for all or part of Segment 12, may also reduce the likelihood of compliance problems for Greeley.

Greeley has adequate justification for a temporary modification in the summer, but has no compliance problem in the winter. Regarding the potential for compliance problems in the winter, the Commission believes that the evidence from other segments, including Cache La Poudre Segment 11, is sufficiently compelling to justify a temporary modification for the winter months. Permit limits for the discharger at the downstream end of Segment 11 (Ft Collins Drake) may be affected by proximity to Segment 12. In addition, the Windsor and Carestream facilities would seem likely to have winter compliance problems, although the evidence is not currently on the record.

Metro, Upper South Platte segment 15: In this hearing the Commission extended the expiration date for the temperature temporary modification on Upper South Platte segment 15. The temporary modification, set at current conditions, will expire on 12/31/2020. The Metro District will continue to refine a temperature discharger-specific variance proposal for the Robert W. Hite Treatment Facility with input from the Division, Colorado Parks and Wildlife, U.S. EPA Region 8, and South Adams County Water and Sanitation District for future consideration by the Commission.

MillerCoors, Clear Creek segments 11, 14a, 14b, 15: The Commission extended the "current conditions" temporary modifications for temperature until June 30, 2019 for Segments 14a, 14b and 15 and adopted a new temporary modification for temperature on Segment 11 from a point immediately downstream of the 6th Avenue Bridge to the Farmers Highline Canal diversion, also with a June 30, 2019 expiration date. MillerCoors has shown that there is uncertainty about whether a discharger-specific variance may be appropriate and will complete an alternatives analysis with input from the Division, U.S. EPA Region 8 and other interested stakeholders to address the uncertainty.

2. Cold Stream Temporary Modifications:

Black Hawk Central City, Clear Creek segment 13b: The Commission extended the expiration date for the temperature temporary modification for Segment 13b. The temporary modification, set at current condition, will now expire on December 31, 2020. BHCCSD and Black Hawk provided temperature data demonstrating a predicted compliance issue year-round. In addition, there remains uncertainty regarding the appropriate temperature standard for Segment 13b; while aquatic life is currently limited by poor water quality and habitat, water quality conditions are expected to improve. The EPA and Colorado Hazardous Materials Waste Management Division plan to construct a water treatment plant in the upper portion of Segment 13b that will remove metals from the Gregory Incline, Gregory Gulch ground water, and the National Tunnel; extension of the temporary modification will allow time for BHCCSD and Black Hawk to evaluate the effects of improved water quality on aquatic life in Segment 13b following water treatment plant construction and determine the appropriate temperature standards for Segment 13b.

BHCCSD and Black Hawk submitted an outline of a plan to collect additional temperature data from existing sites and other sites in Segment 13b to better characterize the longitudinal temperature variability of the stream. During the summer of 2015, BHCCSD and Black Hawk will also conduct side by side temperature measurements in the stream to verify the accuracy of temperature measurements that have been collected to-date. BHCCSD and Black Hawk also plan to review water quality data collected by UCCWA. BHCCSD and Black Hawk will continue to collect benthic macroinvertebrate data and will coordinate with CPW to collect additional fish population data to better characterize the species and life stages expected to be present in Segment 13b. Additionally, BHCCSD and Black Hawk initiated a discussion with UCCWA at its May 2015 meeting regarding riparian restoration potential within Segment 13b, and will continue the dialogue during the period of the temporary modification. An UCCWA agenda item will be scheduled for the fall of 2015. BHCCSD and Black Hawk will also evaluate whether a discharger specific variance would be consistent with 31.7(4). The Commission expects that BHCCSD and Black Hawk will work with the Division and CPW to develop the detailed plan within the next year. At the December 2018 temporary modification review hearing, the Commission will consider extending the duration of the temporary modification if more time is needed to evaluate the recovery of the aquatic life community and determine the appropriate temperature standards, or if other delays occur, particularly related to construction of the water treatment plant

Climax, Clear Creek segments 7a and 7b: The Commission adopted a new temporary modification of the temperature standard for these segments of "current conditions" for the months of October, November, April, and May. The Commission recognizes that there is uncertainty about the appropriate temperature standard because of recent channel improvements done by Climax Molybdenum Company in Woods Creek between Upper Urad Reservoir and

Lower Urad Reservoir in 2012-2015. It is uncertain whether and how the channel improvements will affect in-stream temperatures or whether sensitive life stages of cold water fish will be expected to be present in the short reach of restored surface channel downstream of the Henderson water treatment facility outfall on Woods Creek.

The Commission adopted the temporary modifications with an expiration date of June 30, 2023. Climax will delay site-specific studies in Woods Creek, to allow Climax to complete construction and establish operational practices for water management and control of the new channels, and evaluate conditions in the channels including possible establishment of aquatic life in the channels. Conditions may change once the new channel stabilizes; therefore, an extended temporary modification duration is appropriate. The Commission will review progress on the study plan at the 2019 Issues Formulation Hearing for the South Platte Basin.

N. Nutrients

In March 2012, the Commission adopted interim nutrient values in the Basic Standards (Regulation No. 31) and created a new statewide control regulation (Regulation No. 85) to address nutrients in Colorado. Regulation 31.17 includes interim nutrient values for total phosphorus, total nitrogen, and chlorophyll *a* for both lakes and reservoirs, and rivers and streams. Due to the phased implementation approach adopted with these criteria (31.17(e)), the Commission adopted only total phosphorus and chlorophyll *a* standards at this time. Nitrogen standards were not considered as part of this rulemaking hearing, but will be considered in the next triennial review, currently scheduled for June 2020.

Total phosphorus and chlorophyll *a* standards were adopted for waters upstream of all permitted domestic wastewater treatment facilities discharging prior to May 31, 2012 or with preliminary effluent limits requested prior to May 31, 2012, and any non-domestic facilities subject to Regulation No. 85 effluent limits and discharging prior to May 31, 2012. A new section (4) was added at 38.5 describing implementation of the interim nutrient values into the tables at 38.6, and includes a table which lists these facilities and the segment to which they discharge.

For segments located entirely above these facilities, nutrient standards apply to the entire segment.

For segments with portions downstream of these facilities, *nutrient standards only apply above these facilities*. A footnote “C” was added to the total phosphorus and chlorophyll *a* standards in these segments. The footnote references the table of qualified facilities at 38.5(4).

For segments located entirely below these facilities, nutrient standards do not apply.

For rivers and streams segments, total phosphorus standards were adopted for segments with an aquatic life use. Chlorophyll *a* standards were adopted for segments with either an E or P recreation use classification.

For lakes and reservoirs segments, a Footnote B was added to total phosphorus and chlorophyll standards adopted for lakes in the tables at 38.6, as these standards only apply to lakes larger than 25 acres.

31.17(e)(iii) also allows the Commission to adopt numeric nutrient standards for Direct Use Water Supply (DUWS) lakes and reservoirs. No proposals were made to adopt standards based on this provision in this rulemaking (see section O).

31.17(e)(iii) also allows the Commission to adopt numeric nutrient standards for circumstances where the provisions of Regulation No. 85 are not adequate to protect waters from existing or potential nutrient pollution. No proposals were made to adopt standards based on this provision in this rulemaking.

Chlorophyll *a* standards were adopted for the following segments:

Upper South Platte River segments: 1a, 1b, 2a, 2c, 3, 4, 5a, 5b, 7, 8, 9, 10a, 11a, 11b, 12, 13, 16c, 16d, 16f, 16h, 16i, 16j, 16k,18 and 19
Cherry Creek segments: 1, 4a, 4b and 5
Bear Creek segments: 1a, 3, 5, 6a, 7, 8 and 9
Clear Creek segments: 1, 2a, 2b, 2c, 3a, 3b, 4, 5, 6, 9a, 9b, 10, 13a, 13b, 16a, 16b, 17a, 17b, 18a, 18b, 19, 20, 21, 22 and 24
Boulder Creek segments: 1, 2a, 2b, 3, 4a, 4b, 4c, 4d, 6, 7a, 8, 13, 14, 15 and 18
St. Vrain Creek segments: 1, 2a, 2b, 4a, 4b, 4c, 5 and 10
Middle South Platte River segments: 3a and 3b
Big Thompson River segments: 1, 2, 6, 7, 8, 9 and 10
Cache la Poudre River segments: 1, 2a, 2b, 6, 8, 9, 13a, 13b, 13c, 16, 18, 19, 20 and 21
Laramie River segments: 2a, 3 and 4
Lower South Platte River segments: 2a, 2b, 3, 4 and 5
Republican River segments: 3, 4, 5, 6 and 9

Total Phosphorus standards were adopted for the following segments:

Upper South Platte River segments: 1a, 1b, 2a, 2c, 3, 4, 5a, 5b, 7, 8, 9, 10a, 11a, 11b, 12, 13, 16c, 16d, 16f, 16h, 16i, 16j, 16k, 18 and 19
Cherry Creek segments: 1, 4a, 4b and 5
Bear Creek segments: 1a, 3, 5, 6a, 7, 8, and 9
Clear Creek segments: 1, 2a, 2b, 2c, 3a, 3b, 4, 5, 6, 7a, 9a, 9b, 10, 12, 13a, 13b, 16a, 16b, 17a, 7b, 18a, 18b, 19, 20, 21, 22, 23, 24 and 25
Boulder Creek segments: 1, 2a, 2b, 3, 4a, 4b, 4c, 4d, 6, 7a, 8, 13, 14, 15 and 18
St. Vrain Creek segments: 1, 2a, 2b, 4a, 4b, 4c, 5 and 10
Middle South Platte River segments: 3a, 3b, 5a, 5c and 6
Big Thompson River segments: 1, 2, 6, 7, 8, 9 and 10
Cache la Poudre River segments: 1, 2a, 2b, 6, 8, 9, 13a, 13b, 13c, 16, 18, 19, 20 and 21
Laramie River segments: 2a, 3 and 4
Lower South Platte River segments: 2a, 2b, 3, 4 and 5
Republican River segments: 3, 4, 5, 6, 7 and 9

Big Dry Creek Segment 1: Total phosphorus and chlorophyll-a standards do not apply to the mainstem of Big Dry Creek downstream of Standley Lake, because Standley Lake is filled by ditches that withdraw water downstream of multiple permitted domestic wastewater treatment facilities.

1. Site-Specific Total Phosphorus Standards

The Commission continues to support a phased implementation approach to adoption of nutrient criteria. However, it is also clear from evidence on the record that some segments merit special consideration. The Cherry Creek Basin Water Quality Authority (CCBWQA) submitted data in its responsive statement showing that background phosphorus levels exceed TVS. The Division concurs with this finding, which also has been documented in previous hearings related to Watershed Control Regulation No. 72. A background concentration has been established to support estimation of phosphorus loads to Cherry Creek Reservoir, but it is not yet known if that concentration should be applied uniformly as a stream standard throughout the basin.

A similar situation, albeit with less supporting evidence, has been identified by the Bear Creek Watershed Association (BCWA) in Bear Creek Segment 7. In this case, the evidence suggests that fen wetlands have background phosphorus levels that exceed TVS even though streams in the same segment do not have elevated phosphorus levels. It is not yet known what background level would be appropriate or if it varies among the fens.

The Commission applauds the efforts of CCBWQA and BCWA to obtain, and make available for this hearing, data that improve our understanding of existing conditions within each basin. Site-specific standards are needed for all, or part, of the segments for which phosphorus standards have been proposed, but there is uncertainty about the habitat type or the geographic scope of applicability for site-specific standards (or conversely for the TVS). Resolving the uncertainty will require additional sampling to obtain representative data. A temporary modification cannot be used to provide the additional time because adoption of the phosphorus standard, as proposed in this hearing, would not result in a compliance problem for a discharger. However, delaying the effective date by five years would give CCBWQA, BCWA, and/or any other interested party or parties time to collect additional data and propose site-specific phosphorus standards as appropriate.

Total Phosphorus standards were given a delayed effective date of 12/31/2020 in the following segments:

Cherry Creek Segments 1, 4a and 4b
Bear Creek Segment 7 (wetland fens)

2. Bear Creek Reservoir Total Phosphorus and Chlorophyll *a* Standards

The site-specific standards for chlorophyll *a* and total phosphorus have been revised in response to US EPA's disapproval of the Commission's 2009 action. The purpose for the revised standards remains consistent with the Commission's original goal of shifting the trophic condition to the mesotrophic-eutrophic boundary. The numeric values for chlorophyll and phosphorus have changed because the data set has been expanded by several years and an improved methodology has been applied. As before, the standards were developed using only data from Bear Creek Reservoir. Each standard is defined for average summer concentrations and has an allowable exceedance frequency of once in five years.

A. Chlorophyll Standard: The Commission revised the chlorophyll standard to 12.2 µg/L. If summer average chlorophyll concentrations in the reservoir exceed 12.2 µg/L more than once in five years, it would be firm evidence that the trophic condition goal of the pre-existing narrative (mesotrophic-eutrophic boundary) was not being met. The exceedance threshold of 12.2 µg/L was derived with a "translator" developed with data from Bear Creek Reservoir. The translator connects the concentration at the allowable exceedance frequency (once in five years) to the typical concentration at the mesotrophic-eutrophic boundary (8 µg/L).

B. Phosphorus Standard: The Commission revised the phosphorus standard to 22.2 µg/L. The standard is calculated in two steps based on the methodology used to develop statewide nutrient criteria for the 2012 Nutrient hearing. The first step involves the creation of a statistical "linkage" between phosphorus and chlorophyll based on summer average concentrations measured in Bear Creek Reservoir. The linkage is used to define the phosphorus concentration corresponding to the mesotrophic-eutrophic boundary in this reservoir; that concentration is 16 µg/L. The second step involves a translator for phosphorus that performs the same function described for the chlorophyll translator described above. The concentration at the exceedance threshold is 22.2 µg/L.

C. Assessment: The phosphorus and chlorophyll standards are defined as seasonal averages. Samples are to be collected at a site in deep water near the dam and should be representative of conditions in the mixed layer. Past monitoring has resulted in 5 or 6 samples during the summer months (July, August, and September); it is anticipated that the same level of effort will be applied in the future. For assessment, the average (arithmetic mean) is calculated for the summer samples in each year.

D. Independent Applicability: The chlorophyll and phosphorus standards are considered independently applicable. That is, impairment can be determined with either parameter

without confirmation by the other parameter. Although the parameters are linked biologically – algae require phosphorus to grow – the linkage is "noisy" in a statistical sense because phosphorus cannot compel algae to grow (i.e., other limiting factors complicate the relationship). Independent applicability establishes a more sensitive basis for assessing departures from the target trophic condition since regulation of phosphorus cannot be used to guarantee attainment of the chlorophyll standard. Independent applicability is a practical way to adapt regulation to a complex natural relationship where neither constituent is toxic (at least not at the target levels).

E. Adoption of a Temporary Modification for Chlorophyll and Phosphorus: The underlying standards are not attained presently due to the seasonal augmentation of phosphorus concentrations from internal sources. A temporary modification set at "current conditions" to expire 12/31/2020, is adopted in order to recognize the uncertainty regarding how soon the internal load will be reduced. The Division, in conjunction with the Bear Creek Watershed Association, is working on studies to determine what management strategies might be feasible for reducing or controlling internal phosphorus release. Progress on resolving uncertainty will be reviewed in the annual temporary modification hearings in December 2018 and 2019.

O. Direct Use Water Supply Sub-classification

Also in the March 2012 rulemaking hearing, the Commission adopted a sub-classification of the Domestic Water Supply Use called "Direct Use Water Supply Lakes and Reservoirs Sub-classification" (Regulation 31, at 31.13(1)(d)(i)). This sub-classification is for Water Supply lakes and reservoirs where there is a plant intake location in the lake or reservoir or a man-made conveyance from the lake or reservoir that is used regularly to provide raw water directly to a water treatment plant that treats and disinfects raw water. The Commission has begun to apply this sub-classification and anticipates that it will take several basin reviews to evaluate all the reservoirs in the basin. The Commission adopted the DUWS sub-classification on the following reservoirs and added "DUWS" to the classification column in the standards tables. The public water systems are listed along with the reservoirs and segments.

Upper South Platte River segment 16b: Aurora Reservoir (City of Aurora)

Upper South Platte River segment 19: Strontia Springs Reservoir (Denver Water Board)

Upper South Platte River segment 21: Aurora Rampart Reservoir (City of Aurora)

Upper South Platte River segment 22a: McLellan Reservoir (Centennial W&SD), Quincy Reservoir (City of Aurora)

Bear Creek segment 1d: Evergreen Lake (Evergreen Metro District)

Clear Creek segment 17a: Arvada Reservoir (City of Arvada)

Clear Creek segment 23: Ralston Reservoir (Denver Water Board, City of Arvada, North Table Mtn W&S)

Clear Creek segment 24: Maple Grove Reservoir (Cons Mutual/Maple Grove)

Big Dry Creek segment 2: Standley Lake (City of Northglenn, City of Thornton, City of Westminster)

Boulder Creek segment 14: Lakewood Reservoir (City of Boulder)

Boulder Creek segment 15: Kossler Lake (City of Boulder)

Boulder Creek segment 17: Baseline Reservoir (City of Lafayette), Marshall Lake (City of Louisville), Thomas Reservoir (Town of Erie) and Waneka Reservoir (City of Lafayette)

St. Vrain Creek segment 7: Boulder Reservoir (City of Boulder) Spurgeon (Lefthand WD,Niwot)and Left Hand Valley Reservoir (Lefthand WD,Niwot)

St. Vrain Creek segment 10: Joder Reservoir (Lefthand WD,Niwot)

St. Vrain Creek segment 13: Burch Lake (City of Longmont)

Big Thompson River segment 11: Carter Lake (City of Louisville)

Big Thompson River segment 12: Boyd and Loveland Lakes (City of Greeley)

Big Thompson River segment 13: Berthoud (Town of Berthoud) and Johnstown Reservoir (Town of Johnstown)

Big Thompson River segment 14: Lonetree Reservoir (Town of Johnstown)

Big Thompson River segment 16: St. Mary's Lake (Prospect Mtn)

Cache la Poudre River segment 14: Horsetooth Reservoir (City of Ft. Collins, Soldier Canyon FP, Spring Canyon W&SD, City of Greeley, Platte River Power Authority)

Cache la Poudre River segment 21: North Poudre Reservoir No. 3 (Town of Wellington)

31.17(e)(iii) also allows the Commission to adopt numeric nutrient standards for Direct Use Water Supply ("DUWS") lakes and reservoirs. No standards were adopted based on this provision in this rulemaking.

P. Chromium III Standards

A review of the chromium III standards showed that uses were not always adequately protected by the standards currently in the tables. For example, the acute Aquatic Life standard is not protective of Water Supply at any hardness, so the Water Supply standard of CrIII(ac)=50(Trec) was added to all segments with a Water Supply use. Additionally, the chronic standard to protect the Aquatic Life use classification may not be protective of the Agriculture use in some high-hardness situations. Therefore, a chromium III standard of CrIII(ch)=100(Trec) was added to segments with Aquatic Life and Agriculture use classifications, but no Water Supply use. At hardness less than 145 mg/L, the Agriculture standard is not protective of the Aquatic Life use, so the chronic chromium III Aquatic Life standard should be included/retained in all segments with an Aquatic Life use.

Uses	Acute	Chronic
Water supply (with or without Agriculture)	CrIII(ac) = 50(Trec)	CrIII(ch) = TVS
No water supply (with Agriculture)	CrIII(ac) = TVS	CrIII(ch) = TVS and CrIII(ch) = 100(Trec)
Aquatic Life Only (without Water Supply or Agriculture)	CrIII(ac) = TVS	CrIII(ch) = TVS

The Commission updated chronic chromium III standards to be consistent with the matrix for the following segments:

Upper South Platte River segments: 1a, 1b, 2b, 2c, 5c, 5d, 6a, 6b, 7, 8, 10a, 11a, 11b, 12, 13, 14, 15, 16a, 16b, 16c, 16d, 16e, 16f, 16g, 16h, 16i, 16j, 17a, 17b, 17c, 18, 19, 20, 21, 22a, 22b and 23

Cherry Creek segments: 1, 2, 3, 4a, 4b, 5 and 6

Bear Creek segments: 1c, 2, 4a, 5, 6a, 6b, 10, 11 and 12

Clear Creek segments: 2a, 2b, 2c, 4, 5, 9b, 11, 12, 13b, 14a, 14b, 15, 16a, 16b, 17a, 18a, 18b, 19, 21, 22, 23, 24 and 25

Big Dry Creek segments: 1, 2, 3, 4a, 4b, 5, 6 and 7

Boulder Creek segments: 4a, 4b, 4c, 4d, 5, 6, 7a, 7b, 8, 9, 10, 11, 13, 14, 15, 16 and 17

St. Vrain Creek segments: 3, 4a, 4b, 4c, 6, 7, 8, 9, 10, 11 and 13

Big Thompson River segments: 3, 4a, 4b, 4c, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19

Middle South Platte River segment: 3a, 3b, 5a, 5b, 5c and 7

Cache la Poudre River segments: 7, 8, 9, 10a, 10b, 11, 12, 13b, 13c, 14, 15, 16, 17, 18, 19, 20, 21 and 22

Laramie River segments: 1, 2a, 2b, 3 and 4

Lower South Platte River segments: 2a, 2b, 3, 4 and 5

Republican River segments: 1, 3, 4, 5, 8 and 9

Q. Other Standards for the Protection of Agriculture and Water Supply Uses

Similar to the issue identified in Section P above, there were additional segments where one or more uses are not adequately protected by current standards. For instance, depending on hardness, the Aquatic Life standards for cadmium, lead, and nickel were not protective of the Water Supply use. The Division reviewed all segments in Regulation No. 38 to determine if the current standards applied to each segment are fully protective of the assigned uses, and revised or added standards where appropriate.

A cadmium Water Supply standard was added to the following segments because the acute Aquatic Life standard is not protective when the hardness was greater than 200 mg/L in non-trout streams and 345 mg/L in trout streams. A lead Water Supply standard was added to the following segments because the acute Aquatic Life standard is not protective when hardness is greater than 79 mg/L. A nickel Water Supply standard was added to the following segments because the chronic Aquatic Life standard is not protective when hardness is greater than 216 mg/L. Cadmium, lead, and nickel Water Supply standards were added to the following segments:

Upper South Platte River segments: 1a, 1b, 2a, 2b, 2c, 3, 4, 5b, 5c, 5d, 6a, 6b, 7, 8, 9, 10a, 11a, 12, 13, 14, 15, 16b, 16i, 16j, 18, 19, 20, 21 and 22a
Cherry Creek segments: 1, 2, 3, 4a, 4b and 5
Bear Creek segments: 1a, 1b, 1c, 1d, 1e, 2, 3, 4a, 5, 6a, 6b, 7, 8, 9, 10, 11 and 12
Clear Creek segments: 1, 2a, 2b, 2c, 3a, 3b, 4, 5, 6, 9a, 9b, 10, 11, 12, 13a, 14a, 14b, 15, 16a, 17a, 17b, 18a, 18b, 19, 20, 21, 23 and 24
Big Dry Creek segments: 2, 4a, 4b, 5, 6 and 7
Boulder Creek segments: 1, 2a, 2b, 3, 4a, 4b, 4c, 4d, 5, 6, 9, 10, 11, 13, 14, 15, 16 and 17

St. Vrain Creek segments: 1, 2a, 2b, 4a, 4b, 4c, 5, 7, 8, 9, 10, 11, 12 and 13
Middle South Platte River segments: 1a, 1b, 4 and 7
Big Thompson River segments: 1, 2, 3, 4a, 4b, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18 and 19
Cache la Poudre River segments: 1, 2a, 2b, 6, 7, 8, 9, 10a, 10b, 13a, 13c, 14, 15, 17, 18, 19, 20 and 21
Laramie River segments: 1, 2a, 2b, 3 and 4
Lower South Platte River: 1, 2a, 3, 4 and 5
Republican River: 1, 3, 5, 8 and 9

R. Other Site-Specific Revisions

Marston Forebay: Section 25-8-101(19), C.R.S., and Rule 31.5(38) of Regulation 38 defines "State Waters" as excluding "all water withdrawn for use until use and treatment have been completed." The Commission finds and determines for the following reasons that water contained within Marston Forebay meets this exclusion. Marston is an off-channel forebay, fed through Denver Water's Conduit 20, which diverts water from the South Platte River, and Conduit 15, which diverts water from Bear Creek. Water withdrawn from these two man-made conveyances is held in Marston until treated at the adjacent Marston Water Treatment Plant and used within Denver Water's potable water distribution system. Marston Forebay is located on a topographical rise and therefore has no surface water influence, other than precipitation. In addition, there is no infiltration of groundwater into the Forebay, and the amount of infiltration from the Forebay to groundwater is de minimis and inconsistent. The Forebay is surrounded by four dams and a dike, and four operational toe-drain systems that capture and manage seepage from the Forebay. There is also no managed fishery at Marston Forebay, and public access to the Forebay is restricted. The Commission created a new section 38.7 "Commission's Determinations Regarding State Waters" an listed Marston Forebay in this new section. In addition, a qualifier pointing at 38.7 was added to Upper South Platte segment23.

Clear Creek segments 7a and 7b: The Commission adopted Table Value Standards for Woods Creek and Lower Urad Reservoir for the protection of aquatic life. The Commission recognizes that there is uncertainty about the appropriate metals standards because of recent channel improvements done by Climax Molybdenum Company in Woods Creek between Upper Urad Reservoir and Lower Urad Reservoir in 2012 to 2015. It is uncertain whether and how the channel improvements will affect metals or whether sensitive life stages of cold water fish will be expected to be present in the short reach of restored surface channel downstream of the Henderson water treatment facility on Woods Creek. The Commission adopted temporary modifications for cadmium, copper, iron, lead, mercury, nickel, silver and zinc with an expiration date of 6/30/2023. (The temperature temporary modification is discussed above in section M.)

The Commission adopted the temporary modifications with an expiration date of June 30, 2023. Climax will delay site-specific studies in Woods Creek, to allow Climax to complete construction and establish operational practices for water management and control of the new channels, and evaluate conditions in the channels including possible establishment of aquatic life in the channels. Conditions may change once the new channel stabilizes; therefore, an extended temporary modification duration is appropriate. The Commission will review progress on the study plan at the 2019 Issues Formulation Hearing for the South Platte Basin.

Clear Creek segments 14a, 14b, and 15: An expiration date of 12/31/2020 was added to all segments with a site-specific standard based upon water effect ratios. These standards are derived by measuring the toxicity of a pollutant to test organisms in laboratory water compared with the receiving water, including effluent. Changes in water chemistry, such as hardness, alkalinity and the concentrations of other toxics can all impact the toxicity of a specific pollutant, such as zinc. If there are significant changes in the chemistry of the receiving water or the effluent, then the water effect ratio analysis must be repeated and the site-specific standard updated to reflect current conditions. Since the water effect ratio studies for these segments were completed in the 1990s, the Commission applied an expiration date to require re-evaluation of these standards at the next triennial review.

Big Dry Creek segment 1, assessment locations: A site-specific standard for selenium for Big Dry Creek Segment 1 was adopted in 2007. In this hearing, the Commission replaced the assessment location bdc4.0 with bdc4.5 to provide safer access for field staff collecting samples. Bdc4.5 is located approximately one-half mile downstream of bdc4.0. Bdc4.5 represents instream conditions upstream of the City of Northglenn's discharge, which was the original purpose of sampling location bdc4.0. Attainment of the selenium standard will be assessed based on data collected at bdc1.5, bdc2.0 and bdc4.5. Data collected at the former site bdc4.0 may continue to be used for assessment. A typographical correction was also made for sampling location bdc2.0.

S. Typographical and Other Errors

The following edits were made to improve clarity and correct typographical errors:

- For Upper South Platte segments 9 and 20, "a.k.a. Waucondah Reservoir" was added to clarify the location of the waterbody.
- For Upper South Platte segment 10a, the second "Temporary Modification" was deleted and the expiration date was moved to a new line for clarity and consistency
- For Upper South Platte segment 12, a space was added to "Class1".
- For Upper South Platte segment 16a, the selenium standards were split over two lines (i.e., Se(ac)=TVS and Se(ch)=TVS). The Division combined these (i.e., Se(ac/ch)=TVS) to be consistent with formatting elsewhere. Similarly, for Clear Creek Segment 2b, the Division combined the Zn(ac)=TVS and Zn(ch)=TVS into Zn(ac/ch)=TVS. For Clear Creek Segment 16a, the Division combined the Cd(ac)=TVS and Cd(ch)=TVS into Cd(ac/ch)=TVS.
- For Upper South Platte segments 16h, 16i, and 16j, the Division standardized the formatting of the site-specific selenium standards to be consistent among segments.
- For Upper South Platte segment 21, the Division corrected the chronic arsenic standard, which was missing a digit (i.e., "0.02-0(Trec)" was replaced with "0.02-**1**0(Trec)").
- For Upper South Platte segment 22b and St. Vrain Creek Segment 6, the Division corrected the chronic arsenic standard by adding "(Trec)", consistent with formatting elsewhere.
- For Bear Creek segments 1c, 1d, 1e, 2, and 3, the "equals" sign was missing from the chronic iron standard for water supply. The Division corrected this typo.
- For Bear Creek segment 1c, the temporary modifications were reformatted for consistency.
- For Bear Creek segment 9, specific naming of Summit Lake was included to increase clarity.
- For Bear Creek segment 11, there was an extra space in the segment description. The Division corrected this typo.
- For Clear Creek segments 4, 5, 6, 7a, 8, the stream name was corrected as "West" Fork Clear Creek.
- For Clear Creek segment 9a, the typo "the" was removed.
- For Clear Creek segments 12 and 23, the Division corrected a formatting issue in the metals column.
- For Clear Creek segment 13a, punctuation was corrected.

- For Clear Creek segment 13b, the extra space after the word “Gulch” was deleted.
- For Clear Creek segment 21, the extra comma after the word “CO” was deleted.
- For Clear Creek segment 21 and 22, the word “baseline” was capitalized for consistency.
- For Clear Creek segment 24, the space within the word “Segments” was deleted.
- For Clear Creek segment 25, the description was revised to provide a more detailed location description.
- For Big Dry Creek segment 4b, the extra period at the end of the description was deleted.
- For Big Dry Creek segment 5, the typo “a” was removed and “for segment 5” was added to complete the note.
- For Boulder Creek segment 1, the segment description was expanded to include James Peak Wilderness Area and “s” was added to “Area”.
- For Boulder Creek segment 2b, the typo “the” was removed.
- For Boulder Creek segment 4a, the segment description was amended to exclude listings in segment 1 for clarity.
- For Boulder Creek segment 13, the segment description was expanded to include James Peak Wilderness Area and “s” was added to “Area”.
- For Boulder Creek segment 14, Lakewood Reservoir was added to the segment description for identification of DUWS.
- For Boulder Creek segment 15, Gross Reservoir was removed from this segment and moved to new segment 18. The description of segment 15 was amended to exclude listings in segment 13 and 18 for clarity.
- For St. Vrain Creek segment 7, Spurgeon Reservoir was added to the segment description for identification of DUWS. Additionally, the “and” between Coot Lake and Left Hand was deleted.
- For Middle South Platte segment 5b, the spelling of “Boxelder” was changed to Box Elder to be consistent with maps.
- For Middle South Platte segment 6, the Division added (ch) to all of the Metals standards to be consistent with formatting elsewhere.
- For Middle South Platte segment 6, the description was clarified by replacing “Lost Creek from Interstate 76 south…” with “Lost Creek from the source to Interstate 76….”
- For Big Thompson segment 16, St. Mary’s Lake was added to the segment description for identification of DUWS.
- For Cache le Poudre segments 2a and 10a, the spelling “Monroe” was changed to “Munroe”, the word “Headgate” was added, and the description was clarified by replacing “/North Poudre Supply canal diversion” with “(also known as the North Poudre Supply Canal diversion)”.
- For Lower South Platte segment 4, both the nitrate and nitrite standards were duplicated in the Inorganic column of the tables. The Division deleted the least restrictive nitrate/nitrite set.

- For Republican River segment 5, the Division deleted an extra “the” from the segment description.

PARTIES TO THE RULEMAKING HEARING

1. Big Dry Creek Watershed Association
2. City of Black Hawk and Black Hawk/Central City Sanitation District
3. City of Boulder
4. Centennial Water and Sanitation District
5. Central Clear Creek Sanitation District
6. Climax Molybdenum Company
7. Cottonwood Water and Sanitation District
8. Denver Water
9. City of Fort Collins
10. Front Range Energy
11. City of Greeley
12. Littleton/Englewood Wastewater Treatment Plant
13. Metro Wastewater Reclamation Fistrict
14. MillerCoors
15. Town of Milliken
16. Parker Water and Sanitation District
17. Plum Creek Water Reclamation Authority
18. Public Service Company of Colorado
19. Suncor Energy (U.S.A.) Inc
20. City of Northglenn
21. Colorado Parks and Wildlife
22. City of Westminster
23. Bear Creek Watershed Association
24. Upper Clear Creek Watershed Association
25. City of Golden
26. U.S. Environmental Protection Agency
27. South Adams County Water and Sanitation District
28. Colorado Trout Unlimited
29. City and County of Broomfield
30. City and County of Denver
31. Chatfield Watershed Authority
32. Town of Castle Rock
33. Douglas County Public Works
34. Cherry Creek Basin Water Quality Authority

38.91 STATEMENT OF BASIS AND PURPOSE REGARDING THE ADOPTION OF NON-SUBSTANTIVE CHANGES TO THE CLASSIFICATION AND NUMEIRC STANDARDS FOR SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN, REPUBLICAN RIVER BASIN, SMOKY HILL RIVER BASIN, JANUARY 11, 2016 RULEMAKING; EFFECTIVE DATE MARCH 1, 2016

The provisions of C.R.S. 25-8-202(1)(i) and 25-8-401(2) 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

The Commission, in a public rulemaking hearing adopted extensive changes to the format of this regulation. The Commission does not intend to change any existing designations, use classifications or standards, or the implementation of any standards as the results of changing the format.

This rulemaking was in response to longstanding issues with managing the information contained in the standards tables. The changes made in this hearing reflect a change from storing the information in word processing documents to storing the information in a relational database. This change in platform will provide better consistency, facilitate error checking as well as a more readable format for the standards tables. Storing the information in a database allows it to be used more efficiently by other programs in the Division.

While it was the Commission's intent not to change the substantive meaning of the regulations in this rulemaking, in cases where there was ambiguity the revised regulation reflects the Commission's interpretation of the previous format based on Regulation #31 (the Basic Standards and Methodologies for Surface Water) and the experience of the Commission and its staff.

Overall format changes: The new format displays parameters by name, rather than by period table element abbreviations. The section formerly titled "Temporary Modifications and Qualifiers" does not appear in the new format. Instead, there is a separate section for qualifiers, and an "Other" section. Temporary modifications, variances and other footnotes are displayed in the "Other" section. Many items that were formerly in the "Temporary Modifications and Qualifiers" column will be displayed in the "Other" column and will have a different appearance or modified wording, although the information is substantively the same. Each footnote in the "Other" section is preceded by a heading that indicates where the footnote applies:

- Footnotes regarding a use classification will begin with the heading "Classification…"
- Footnotes regarding the antidegradation designation begin with the heading "Designation…"
- Footnotes that relate to a particular standard begin with the name of the parameter, for example "Selenium(chronic)= …"

Also, since there is more room for information within each segment, footnotes "B" and "C" were replaced with the full text in each segment where these footnotes were applied. Footnote "A" was maintained because the text is too long to be displayed in the "Other" section for each segment where it applies. Footnote "D" was changed to footnote "B" and was maintained because the text is too long to be displayed in the "Other" section.

Constraints of the new format: Some adjustments were made to the way that data is displayed in order to be compatible with the functions of the Standards Database. Database organization requires that information which relates to multiple standards must be attached to each individual parameter. For example, a segment with a temporary modification listed for "all parameters" in the old format will have a temporary modification listed for each individual parameter in the new format. There are also spacing constraints in the new format, which require some information to be moved either to the "other" box on the new format, or moved out of the segment entirely and into another location in the regulation.

Clarification of changes: The shift to a database organizational structure required consistency in the way each data element is addressed. To insure that data is stored and displayed correctly, the following changes were made.

- The "type" of temporary modification is no longer displayed in the segment tables, since they have no regulatory effect and have been inconsistently displayed.
- In the old format, waters that had a reviewable antidegradation designation were identified by the absence of either "UP" or "OW" in the designation column. These segments now display the word "reviewable" under the designation heading. There needed to be a value in the designation column for every segment.

- Dissolved standards are not specifically noted as dissolved in the new format. All metals standards are dissolved unless noted with a “T” or a “t”. For example, a manganese standard in the old format of “WS(dis”) is displayed as “WS” in the new format.

- A new footnote 7 was added to clarify that although E. coli is listed in the “chronic” column, the standard is a two-month geometric mean rather than a 30-day average. The language of footnote 7 was taken from Regulation 31, Table 1, footnote 7.

- A new footnote 8 was added to indicate that all phosphorus standards are based upon the concentration of total phosphorus. In the old format, individual phosphorus standards were noted as “total” in some basins and not others.

- A new footnote 9 was added to clarify that although pH is listed in the “acute” column, the standard is not applied as a 1-day average. The language of footnote 7 was taken from Regulation 31, Table 1, footnote 3.

- Physical and Biological Parameters: Some parameters are not specifically identified in the old format segment tables as acute or chronic. The new format requires that each parameter is placed in either the acute or chronic column. Specifically, these parameters and the basis for being identified as acute or chronic are as follows:

    - pH (acute) – Regulation #31, Table 1, footnote 3

    - E. Coli (chronic) – Regulation #31, Table 1, footnote 7

    - D.O. (chronic) – Regulation #31, Table 1, footnote 1

    - cyanide (acute) – Regulation #31, Table 2

    - sulfide (chronic) - Regulation #31, Table 2

    - nitrate (acute) - Regulation #31, Table 2

    - nitrite (chronic) – not specified in Regulation #31. Nitrite has been implemented as a 30-day average standard in permits and assessments.

    - chloride (chronic) Regulation #31, Table 2

    - boron (chronic) - Regulation #31, Table 2

    - sulfate (chronic) Regulation #31, Table 2

- In the old format, uranium standards for Big Dry Creek were shown in the attached table, but not listed with each segment. The new format includes the uranium standards for Big Dry Creek Segments 2-7. These were added because the new format displays every parameter. If uranium standards are not listed in the segment table, then it appears to communicate that there is not a uranium standard. There is still a footnote to refer to the table for the other site-specific radionuclide standards.

- Some site-specific standards had too much information to be contained in the new table, so it was moved to 38.6(4) (Upper South Platte Segments 16h, 16i, 16j and Cherry Creek Segment 4b).

38.92 <u>STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 14, 2015 RULEMAKING; FINAL ACTION JANUARY 11, 2016; EFFECTIVE DATE JUNE 30, 2016</u>

38.92STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE DECEMBER 14, 2015 RULEMAKING; FINAL ACTION JANUARY 11, 2016; EFFECTIVE DATE JUNE 30, 2016

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

Pursuant to the requirements in the Basic Standards (at 31.7(3)), the Commission reviewed the status of temporary modifications scheduled to expire before December 31, 2017 to determine whether the temporary modification should be modified, eliminated or extended. Temporary modification of standards on one segment was reviewed.

Upper South Platte segment 3: Temporary modification of ammonia. The Town of Florisant is making progress toward resolution of uncertainty regarding the underlying chronic cadmium, copper and zinc standards. The Commission made no change to the expiration date of 6/30/2017 because the original time allotment was deemed adequate.

PARTIES TO THE RULEMAKING HEARING

1. City of Delta
2. Resurrection Mining Company
3. U.S. Energy Corp.
4. City of Pueblo
5. Peabody Sage Creek Mining and Seneca Coal Company
6. Climax Molybdenum Company
7. Rio Grande Silver
8. City of Colorado Springs and Colorado Springs Utilities
9. Tri-State Generation and Transmission Association, Inc.
10. High Country Conservation Advocates
11. U.S. Environmental Protection Agency
12. Colorado Parks and Wildlife
13. Town of Crested Butte and Coal Creek Watershed Coalition
14. Public Service Company of Colorado