COLORADO DEPARTMENT OF HEALTH
WATER QUALITY CONTROL COMMISSION

REGULATION NO. 38

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

	ADOPTED:	April 6, 1981
	EFFECTIVE:	May 16, 1981
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	AMENDED:	December 6, 1982
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SEPARATELY AMENDED AGAIN:		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

ADMIN RECORD

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:	December 7, 1992
EFFECTIVE:	January 30, 1993
AMENDED:	February 1, 1993
EFFECTIVE:	March 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:	January 13, 1997
EFFECTIVE:	March 3, 1997
AMENDED:	April 14, 1997
EFFECTIVE:	May 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
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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

38.0 CLASSIFICATIONS AND NUMERIC STANDARDS 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, 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) All waters of the South Platte River Basin are subject to the following standard for temperature. (Discharges regulated by permits, which are within the permit limitations, shall not be subject to enforcement proceedings under this standard). Temperature shall maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes and shall have no increase in temperature of a magnitude, rate, and duration deemed deleterious to the resident aquatic life. Generally, a maximum 3^0 C increase over a minimum of a four-hour period, lasting 12 hours maximum, is deemed acceptable for discharges fluctuating in volume or temperature. When temperature increases cannot be maintained within this range using Best Management Practices (BMP), Best Available Technology Economically achievable (BATEA), and Best Practical Waste Treatment Technology (BPWTT) control measures, the Commission may determine by a rulemaking hearing in accordance with the requirements of the applicable statutes and the basic regulations, whether or not a change in classification is warranted.

(2) ORGANICS

See Basic Standards and Methodologies for Surface Water, 31.11 for a listing of organic standards. 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 Tables 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 40 pCi/l or naturally-occurring concentrations (as determined by the State of Colorado), whichever is greater.

(d) In no case shall uranium levels in waters assigned a water supply classification be increased by a cause attributable to municipal, industrial, or agricultural discharges so as to exceed 40 pCi/l where naturally-occurring concentration are less than 40 pCi/l.

38.6 TABLES

(1) Introduction

The numeric standards for various parameters in the attached tables 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:

The following abbreviations are used in the attached tables:

Ac	=	acute (1-day)
Ag	=	Silver
Al	=	Aluminum
As	=	Arsenic
B	=	Boron
Ba	=	Barium
Be	=	Beryllium

Cd	=	Cadmium
Ch	=	chronic (30-day)
Cl	=	Chloride
Cl_2	=	residual chlorine
CN	=	free cyanide
CrIII	=	trivalent chromium
CrVI	=	hexavalent chromium
Cu	=	Copper
dis	=	Dissolved
D.O.	=	Dissolved oxygen
E. coli	=	Eschericia coli
F	=	Fluoride
F.Coli	=	fecal coliforms
Fe	=	Iron
Hg	=	Mercury

mg/l	=	milligrams per liter
ml	=	Milliliters
Mn	=	Manganese
NH_3	=	un-ionized ammonia as N(nitrogen)
Ni	=	Nickel
NO_2	=	nitrite as N (nitrogen)
NO_3	=	nitrate as N (nitrogen)
OW	=	outstanding waters
P	=	Phosphorus
Pb	=	Lead
S	=	sulfide as undissociated H_2S (hydrogen sulfide)
Sb	=	Antimony
Se	=	Selenium
SO_4	=	Sulfate

sp	=	Spawning
Tl	=	Thallium
Tr	=	Trout
Trec	=	total recoverable
TVS	=	table value standard
U	=	Uranium
ug/l	=	micrograms per liter
UP	=	use-protected
Zn	=	Zinc

In addition, the following abbreviations are used:

Fe(ch)	=	WS(dis)
Mn(ch)	=	WS(dis)
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);

1. existing quality as of January 1, 2000; or

2. Iron = 300 (g/l (dissolved)
   Manganese = 50 (g/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.

(3) Table Value Standards

In certain instances in the attached tables, 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 ug/l unless noted)

PARAMETER[1]	TABLE VALUE STANDARDS [2][3]
Ammonia	Cold Water Acute = 0.43/FT/FPH/2[4] in mg/l Warm Water Acute = 0.62/FT/FPH/2[4] in mg/l
Cadmium	Acute=1.13677-[(ln hardness)* (0.04184)]*$e^{(1.128[\ln(hardness)]-3.6867)}$ Acute(Trout)=1.13677-[(ln hardness)*(0.04184)]* $e^{(1.128[\ln(hardness)]-3.828)}$ Chronic=1.10167-[(ln hardness)* (0.04184)]* $e^{(0.7852[\ln(hardness)]-2.715)}$
Chromium III	Acute= $e^{(0.819[\ln(hardness)]+2.5736)}$ Chronic=$e^{(0.819[\ln(hardness)]+0.5340)}$
Chromium VI	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= $e^{(0.846[\ln(hardness)]+0.0584}$
	Chronic= $e^{(0.846[\ln(hardness)]+0.0581)}$

Selenium	Acute = 18.4 Chronic = 4.6
Silver	Acute= $\frac{1}{2}e^{(1.72[\ln(hardness)]-6.52)}$ Chronic= $e^{(1.72[\ln(hardness)]-9.06)}$ (Trout) = $e^{(1.72[\ln(hardness)]-10.51)}$
Uranium	Acute= $e^{(1.1021[\ln(hardness)]+2.7088)}$ Chronic= $e^{(1.1021[\ln(hardness)]+2.2382)}$

TABLE VALUE STANDARDS
(Concentrations in ug/l unless noted)

PARAMETER[1]	TABLE VALUE STANDARDS [2][3]
Zinc	Acute= $e^{(0.8473[\ln(hardness)]+0.8618)}$ Chronic= $e^{(0.8473[\ln(hardness)]+0.8669)}$

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. 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) $FT = 10^{.03\,(20-TCAP)}$;
TCAP less than or equal to T less than or equal to 30

$FT = 10^{.03(20-T)}$;
0 less or equal to T less than or equal to TCAP

TCAP = 20° C cold water aquatic life species present

TCAP = 25° C cold water aquatic life species absent

FPH = 1; 8 less than pH less than or equal to 9

$FPH = 1 + 10^{(7.4-pH)}$; 6.5 less than or equal to pH less than 1.25 or equal to 8

FPH means the acute pH adjustment factor; defined by the above formulas.

FT Means the acute temperature adjustment factor, defined by the above formulas.

T means temperature measured in degrees celsius.

TCAP means temperature CAP; the maximum temperature which affects the toxicity of ammonia to salmonid and non-salmonid fish groups.

NOTE: If the calculated acute value is less than the calculated chronic value, then the calculated chronic value shall be used as the acute standard.

(1) Metals for aquatic life use are stated as dissolved unless otherwise specified.

Where the hardness-based equations in Table III are applied as "table value" water quality standards for individual water segments, those equations define the applicable numerical standards. As an aid to persons using this regulation, Table IV provides illustrative examples of approximate metals values associated with a range of hardness levels. This table is provided for informational purposes only.

(2) Metals for agricultural and domestic uses are stated as total recoverable unless otherwise specified.

(3) Hardness values to be used in equations are in mg/l as calcium carbonate and shall be no greater than 400 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.

(4) Both acute and chronic numbers adopted as stream standards are levels not to be exceeded more than once every three years on the average.

(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 50ug/l total chromium in those waters classified for domestic water use.

(6) FRV means Final Residue Value and should be expressed as "Total" because many forms of mercury are readily converted to toxic forms under natural conditions. The FRV value of 0.01 ug/liter is the maximum allowed concentration of total mercury in the water that will present bioconcentration or bioaccumulation of methylmercury in edible fish tissue at the U.S. Food and Drug Administration's (FDA) action level of 1 ppm. The FDA action level is intended to protect the average consumer of commercial fish; it is not stratified for sensitive populations who may regularly eat fish.

A 1990 health risk assessment conducted by the Colorado Department of Public Health and Environment indicates that when sensitive subpopulations are considered, methylmercury levels, in sport-caught fish as much as one-fifth lower (0.2 ppm) than the FDA level may pose a health risk.

In waters supporting populations of fish or shellfish with a potential for human consumption, the Commission can adopt the FRV as the stream standard to be applied as a 30-day average. Alternatively, the Commission can adopt site-specific ambient based standards for mercury in accordance with section 31.7(1)(b)(ii) and (iii). When this option is selected by a proponent for a particular segment, information must be presented that (1) ambient water concentrations of total mercury are detectable and exceed the FRV, (2) that there are detectable levels of mercury in the proponent's discharge and that are contributing to the ambient levels and (3) that concentrations of methylmercury in the fish exposed to these ambient levels do not exceed the maximum levels suggested in the CDH Health Advisory for sensitive populations of humans. Alternatively or in addition the proponent may submit information showing that human

consumption of fish from the particular segment is not occurring at a level which poses a risk to the general population and/or sensitive populations.

(7) Applicable to all Class 1 aquatic life segments which also have a water supply classification or Class 2 aquatic life segments which also have a water supply classification designated by the Commission after rulemaking hearing. These Class 2 segments will generally be those where fish of a catchable size and which are normally consumed are present, and where there is evidence that fishing takes place on a recurring basis. The Commission may also consider additional evidence that may be relevant to a determination whether the conditions applicable to a particular segment are similar enough to the assumptions underlying the water plus fish ingestion criteria to warrant the adoption of water plus fish ingestion standards for the segment in question.

(8) The use of 0.1 micron pore size filtration for determining dissolved iron is allowed as an option in assessing compliance with the drinking water standard.

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

(10) Applicable to the following segments which do not have a water supply classification: all Class 1 aquatic life segments or Class 2 aquatic life segments designated by the Commission after rulemaking hearing. These class 2 segments will generally be those where fish of a catchable size and which are normally consumed are present, and where there is evidence that fishing takes place on a recurring basis. The Commission may also consider additional evidence that may be relevant to a determination whether the conditions applicable to a particular segment are similar enough to the assumptions underlying the fish ingestion criteria to warrant the adoption of fish ingestion standards for the segment in question.

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 STATEMENT OF BASIS AND PURPOSE

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 (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 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 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 NH_3 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 NH_3 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.

FISCAL STATEMENT

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 A_1 or B_1 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 A_2 or B_2 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

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
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

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
JEFFERSON (cont.)			
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

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
WELD (cont.)			
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

APPENDIX
BASIS AND PURPOSE
38.13 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.

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.

APPENDIX
BASIS AND PURPOSE
FOR
38.15 "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:

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.

CHATFIELD RESERVOIR:

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 NO_2-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 th 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:

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 (NH_3 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:

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 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 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 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. Page 22, Segment 12

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 <u>but are not limited to</u> 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. Existing High Quality 1 or 2 Segments; New Classifications and Standards

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. New Use-Protected Designations; No Change in Numeric Standards

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.

Clear Creek segments 5 and 7

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 (AEPA@) 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. Extension of the Goal Qualifier and Temporary Modifications Applicable to Segment 5.

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 <u>STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; MARCH 1, 1993 HEARING:</u>

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.

South Mosquito Creek, Segments 2b and 2c

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.

<u>BASIS AND PURPOSE</u>

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. Segments 4a and 4b

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 <u>except</u> 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. Segment 5

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

3.8.52 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 μg/l phosphorus standard and adopted a seasonal mean chlorophyll a standard of 15 μg/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 μg/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 μg/l phosphorus standard and adopted a seasonal mean chlorophyll a standard of 15 μg/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 μg/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 μg/l total phosphorus standard was applied as a mean concentration during the growing season of July through September. In addition, a target of 15 μg/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 μg/l was identified as protective of the aquatic life uses, while a narrower range of 10 to 15 μg/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 μg/l total phosphorus standard. In addition, several seasonal mean chlorophyll a values have exceeded the 15 μg/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 μg/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 μg/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 μg/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 μg/l would result in a chlorophyll a level at or below 15 μg/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 μg/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 μg/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 SO_4 = 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. <u>Recreation Classifications and Standards</u>

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: NO_3, NO_2, 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; NH_3 (ch)
Middle South Platte River segment 5a; NH_3 (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; NO_2 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; NO_3, NO_2
Big Thompson segment 4c; F. Coli, E. Coli

G. Addition of Water Supply Use Classification and Standards

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. Clear Creek Segment 5

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, $e^{0.8404(\ln(hard))+1.8810}$, and a new chronic equation, $e^{0.8404(\ln(hard))+1.5127}$, 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. Big Dry Creek Segment 1

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