

# STATE OF COLORADO

Bill Ritter, Jr., Governor  
James B. Martin, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.      Laboratory Services Division  
Denver, Colorado 80246-1530      8100 Lowry Blvd.  
Phone (303) 692-2000      Denver, Colorado 80230-6928  
TDD Line (303) 691-7700      (303) 692-3090  
Located in Glendale, Colorado

<http://www.cdphe.state.co.us>



Colorado Department  
of Public Health  
and Environment

## NOTICE OF PUBLIC RULEMAKING HEARING BEFORE THE COLORADO WATER QUALITY CONTROL COMMISSION

### SUBJECT:

For consideration of the adoption of site-specific revisions to water quality standards for Bear Creek Reservoir in the Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin, Regulation #38 (5 CCR 1002-38) and revisions to the Bear Creek Watershed Control Regulation, Regulation #74 (5 CCR 1002-74).

The revisions to Regulation #38 proposed by the Water Quality Control Division, along with a proposed Statement of Basis, Specific Statutory Authority, and Purpose, are attached to this notice as Exhibit 1. Revisions to Regulation #74 proposed by the Water Quality Control Division, along with a proposed Statement of Basis, Specific Statutory Authority, and Purpose, are attached to this notice as Exhibit 2. Proposed new language is shown with double-underlining and proposed deletions are shown with ~~strikeouts~~. Any alternative proposals related to the revisions proposed in Exhibits 1 and 2, and developed in response to those proposed revisions, will also be considered.

### HEARING SCHEDULE:

DATE:            Monday, May 11, 2009  
TIME:            10:00 a.m.  
PLACE:          Florence Sabin Conference Room  
                  Department of Public Health and Environment  
                  4300 Cherry Creek Drive South  
                  Denver, Colorado 80246

### PUBLIC PARTICIPATION ENCOURAGED:

The Commission encourages all interested persons to provide their opinions or recommendations regarding the matters to be addressed in this rulemaking hearing, either orally at the hearing or in writing prior to or at the hearing. Although oral testimony from those with party status (see below) and other interested persons will be received at the hearing, the time available for such oral testimony may be limited. Written submissions prior to the hearing are encouraged, so that they can be distributed to the Commission for review prior to the hearing. Oral testimony at the hearing should primarily summarize written

material previously submitted. The hearing will emphasize Commission questioning of parties and other interested persons about their written prehearing submittals. Introduction of written material at the hearing by those with party status or mailing list status (see below) generally will not be permitted. The Commission requests that all interested persons submit to the Commission any available information that may be relevant in considering the noticed proposals.

#### PARTY STATUS/MAILING LIST STATUS:

Participation as a "party" to this hearing or acquisition of "mailing list status," will require compliance with section 21.3(D) of the Procedural Rules, Regulation #21 (5 CCR 1002-21). Mailing list status will allow receipt of all party documents (except individual exhibits more than five pages in length).

It is not necessary to acquire party status or mailing list status in order to testify or comment. **For each request for party status or mailing list status, please provide the organization's name, a contact person, mailing address, phone number, fax number and email address if available.** Written party status or mailing list status requests are due in the Commission Office on or before:

DATE: Tuesday, March 3, 2009  
TIME: 5:00 p.m.

A single copy of the party status or mailing list status request may be transmitted as an email attachment to [cdphe.wqcc@state.co.us](mailto:cdphe.wqcc@state.co.us), submitted by fax to 303-691-7702, mailed or otherwise conveyed so as to be received in the Commission Office no later than this deadline. PLEASE NOTE that, as indicated below, parties will have the option of distributing materials to other parties electronically, except in instances where a party has requested receiving hard copies of documents. Therefore, **anyone requesting party or mailing list status that wishes to receive hard copies of documents instead of emailed copies should so indicate in the party status/ mailing list status request so that this information can be included on the list distributed by the Commission Office.**

#### PREHEARING STATEMENTS:

**PLEASE NOTE** that for this hearing two separate deadlines for prehearing statements are established: (1) An original and 13 copies of **Proponent's Prehearing Statements from the Water Quality Control Division, as proponents of the revisions proposed in Exhibits 1 and 2 attached to this notice**, including written testimony and exhibits providing the basis for the proposals, must be received in the Commission Office no later than **March 10, 2009**; and (2) an original and 13 copies of a **Responsive Prehearing Statement**, including any exhibits, written testimony, and alternative proposals of **anyone seeking party status and intending to respond to the proponent's proposals** must be received in the Commission Office no later than **March 31, 2009**.

For each deadline, the required number of hard copies of documents must be received in the Commission office by the specified deadline. These requirements are not satisfied by electronic transmission of a facsimile copy or copies. However, **parties are also strongly encouraged to email a copy of their written documents to the Commission Office**, so that materials received can be posted on the Commission's web site. (Please email to [cdphe.wqcc@state.co.us](mailto:cdphe.wqcc@state.co.us).) In addition, copies of these documents must be mailed or hand-

delivered by the specified dates to all persons requesting party status or mailing list status, and to the Attorney General's Office representatives for the Commission and the Division, in accordance with a list provided by the Commission Office following the party status/ mailing list status deadline. **Alternatively, parties may email documents to those with party status or mailing list status by the specified dates**, except to those that the list distributed by the Commission Office identifies as requesting hard copies.

Also **note** that the Commission has prepared a document entitled **Information for Parties to Water Quality Control Commission Rulemaking Hearings**. A copy of this document will be mailed or emailed to all persons requesting party status or mailing list status. It is also posted on the Commission's web site at <http://www.cdphe.state.co.us/op/wqcc/PublicParticipation/HBappC.pdf>. Following the suggestions set forth in this document will enhance the effectiveness of parties' input for this proceeding. **Please note the request that all parties submit two-sided copies of all hearing documents on three-hole punch paper.**

#### MAILING LIST STATUS COMMENTS:

Those requesting mailing list status shall provide written testimony, if any testimony is to be offered for the hearing, by the above deadline for responsive prehearing statements – i.e., **March 31, 2009**. Copies shall be submitted and distributed in the same manner as noted above for prehearing statements.

#### PREHEARING CONFERENCE:

DATE: Tuesday, April 7, 2009  
TIME: 1:00 p.m.  
PLACE: Snow Room, Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, Colorado

**Attendance at the prehearing conference is mandatory for all persons requesting party status.** An opportunity may be available to participate in this prehearing conference by telephone. Persons wishing to participate by telephone should notify the Commission Office as early as possible.

#### REBUTTAL STATEMENTS:

**Written rebuttal statements responding to the prehearing statements due on March 31, 2009 may be submitted by anyone seeking party status or mailing list status.** Any such rebuttal statements must be received in the Commission Office by **April 29, 2009**. An original and 13 copies of written rebuttal statements must be received in the Commission Office by this deadline, and submission of an emailed copy as noted above is strongly encouraged. In addition, copies of these documents must be mailed or hand-delivered by that date to all those requesting party status or mailing list status, and to the Attorney General's Office representatives for the Commission and Division. **Alternatively, parties may email documents to those with party status or mailing list status by this deadline**, except to those that the list distributed by the Commission Office identifies as requesting hard copies. No other written materials will be accepted following this deadline except for good cause shown.

SPECIFIC STATUTORY AUTHORITY:

The provisions of sections 25-8-202(1)(b),(c) and (2); 25-8-204; 25-8-205; and 25-8-402 C.R.S. provide the specific statutory authority for consideration of the regulatory amendments proposed by this notice. Should the Commission adopt the regulatory language as proposed in this notice or alternative amendments, it will also adopt, in compliance with section 24-4-103(4) C.R.S., an appropriate Statement of Basis, Specific Statutory Authority, and Purpose.

NOTIFICATION OF POTENTIAL MATERIAL INJURY TO WATER RIGHTS:

In accordance with section 25-8-104(2)(d), C.R.S., any person who believes that the actions proposed in this notice have the potential to cause material injury to his or her water rights is requested to so indicate in the party status request submitted. In order for this potential to be considered fully by the Commission and the other agencies listed in the statute, persons must fully explain the basis for their claim in their prehearing statement which is due in the Commission Office on the date specified above. This explanation should identify and describe the water right(s), and explain how and to what degree the material injury will be incurred.

Dated this 22<sup>nd</sup> day of January at Denver, Colorado.

WATER QUALITY CONTROL COMMISSION



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Paul D. Frohardt, Administrator

# EXHIBIT 1 WATER QUALITY CONTROL DIVISION

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

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### 38.6 TABLES

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### STREAM CLASSIFICATIONS and WATER QUALITY STANDARDS

REGION: 3 BASIN: BEAR CREEK	DESIG	CLASSIFICATIONS	NUMERIC STANDARDS						TEMPORARY MODIFICATIONS AND QUALIFIERS
			PHYSICAL and BIOLOGICAL	INORGANIC mg/l		METALS ug/l			
Stream Segment Description									
1c. Bear Creek Reservoir, and Soda Lakes.		Aq Life Cold 1 Recreation 1a Water Supply Agriculture	D.O.=6.0 mg/l D.O.(sp)=7.0 mg/l pH=6.5-9.0 F.Coli=200/100ml E.Coli=126/100ml	NH <sub>3</sub> (ac/ch)=TVS Cl <sub>2</sub> (ac)=0.019 Cl <sub>2</sub> (ch)=0.011 CN=0.005	S=0.002 B=0.75 NO <sub>2</sub> =0.05 NO <sub>3</sub> =10 Cl=250 SO <sub>4</sub> =WS	As(ac)=50(Trec) Cd(ac)=TVS(tr) Cd(ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ac/ch)=TVS Mn(ch)=WS(dis) Hg(ch)=0.01(Tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac)=TVS Ag(ch)=TVS(tr) Zn(ac/ch)=TVS	<p><u>*See narrative phosphorus standard below. For Bear Creek Reservoir, mean chlorophyll = 10 ug/L and mean total phosphorus = 32 ug/L measured through collection of samples that are representative of the mixed layer during summer months (July, August, September) and with an exceedance frequency of once in five years.</u></p> <p><u>Temporary modification for Bear Creek Reservoir:</u> <u>Chlorophyll and total phosphorus equal to existing conditions (Type iii). Expiration date of 12/31/2014.</u></p>

\*Narrative Phosphorus Standard for Segment 1c of Bear Creek—Concentrations of total phosphorus in Bear Creek Reservoir shall be limited to the extent necessary to prevent stimulation of algal growth to protect beneficial uses. Sufficient dissolved oxygen shall be present in the upper half of the reservoir hypolimnion layer to provide for the survival and growth of cold water aquatic life species. Attainment of this standard shall, at a minimum, require shifting the reservoir trophic state from a eutrophic and hypertrophic condition to a eutrophic and mesotrophic condition.

# WATER QUALITY CONTROL DIVISION PROPOSED

## **38.73 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: MAY 11, 2009 RULEMAKING; FINAL ACTION AUGUST 10, 2009; EFFECTIVE JANUARY 1, 2010**

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

### **BASIS AND PURPOSE**

The Commission revised the site-specific narrative nutrient criteria to include numeric standards for chlorophyll and total phosphorus for Bear Creek Reservoir (Bear Creek segment 1c, in part) and revised the Bear Creek Reservoir Control Regulation (Regulation No 74) to be consistent with these revised standards.

Current Review: The Commission directed the Division to undertake a technical review of the scientific basis for the Bear Creek Reservoir narrative nutrient standard for the following reasons:

- A. There are no numeric goals for assessing water quality conditions related to excessive algal growth.
- B. There is no firm basis for determining what control is consistent with the water quality goals.
- C. The allowable load is not specified, making it impossible to determine the appropriateness of allocations.
- D. There is an implied acceptance of aeration as a permanent basis for treating the symptoms of algal productivity that is higher than the target specified in the narrative standard.

The technical review showed:

- A. Current Condition: Water quality has been monitored in Bear Creek Reservoir since 1987. The reservoir is more productive than allowed by the existing narrative standard, which specifies a target trophic condition between mesotrophic and eutrophic. A more productive condition has been sustained despite significant reductions in phosphorus load. The present level of productivity would cause depletion of hypolimnetic oxygen (also contrary to the narrative standard) if aerators were not operated to destratify the reservoir.
- B. Characterizing Chlorophyll: Chlorophyll concentrations declined after phosphorus loads were reduced. Since 1995, typical summer average chlorophyll is about 24 ug/L, but there are large differences among years. The differences appear to be associated with hydraulic residence time such that the highest average chlorophyll concentrations tend to be the years of longest residence time (lowest inflow).
- C. Role of Internal Phosphorus Load: External phosphorus loads were reduced significantly in the early 1990s largely through efforts made by domestic dischargers to control effluent phosphorus concentrations. As a result, phosphorus concentrations at the beginning of summer are relatively low. However, through the process of internal release, phosphorus concentrations increase steadily through the summer months. The net effect of internal release is more conspicuous in low-flow years, because high inflows provide more dilution. Over the long term, internal release

should diminish because the external load has been reduced, but it could take 10-15 years until internal release becomes negligible.

- D. Characterizing Phosphorus: Phosphorus concentrations declined sharply after controls were imposed in the early 1990s. Since 1995, typical summertime concentrations of phosphorus have been about 44 ug/L, but there are large differences among years. Differences are associated with hydraulic residence time as mentioned previously for chlorophyll. It is appropriate to set a numeric standard for phosphorus because of its importance in characterizing trophic condition, and because it is the direct link to the control regulation.
- E. Defining a Chlorophyll-Phosphorus Linkage: The simple ratio of chlorophyll to phosphorus defines the site-specific, net responsiveness of the resident algal community to the availability of phosphorus. It is a “net” value because it reflects the balance of growth (nutrients, light, temperature) and loss (grazing, washout, settling) processes. For the purpose of linking chlorophyll and phosphorus standards, which are summer average concentrations, the response ratio also must be a seasonal value derived from Bear Creek Reservoir. The phosphorus standard is calculated by dividing the chlorophyll standard (10 ug/L) by the seasonal response ratio (0.317). The proposed standard for total phosphorus is 32 ug/L ( $=10/0.317$ ).
- F. Allowable Frequency of Exceedance: There is no general precedent for setting an allowable frequency of exceedance for nutrient criteria, which are assessed once a year on the basis of a seasonal average, but the Division believes that one exceedance in five years is an appropriate frequency for allowable exceedances.

Revised Water Quality Standards for Bear Creek Reservoir: With the benefit of the lengthy historical record now available, the Commission believes it is appropriate to set numeric chlorophyll and phosphorus standards. The Commission adopted a chlorophyll standard of 10 ug/L and a phosphorus standard of 32 ug/L. Both standards are considered attainable when the internal release of phosphorus becomes negligible, which is expected to occur in less than 20 years. Each standard has an allowable exceedance frequency of once in five years.

Because the phosphorus and chlorophyll standards are defined as seasonal averages, some additional guidance is required concerning timing and location of samples to be used in calculating the average. Samples are to be collected at a site in deep water near the dam and should be representative of conditions in the mixed layer. Past monitoring has resulted in 5 or 6 samples during the summer months (July, August, and September); it is anticipated that the same level of effort will be applied in the future. For assessment, the average (arithmetic mean) is calculated for the summer samples in each year.

At the same time that this change was adopted in Regulation No. 38, the Commission adopted changes in the Control Regulation for Bear Creek Reservoir (Regulation No. 74) that are consistent with the revised standard.

Adoption of a Temporary Modification for Chlorophyll and Phosphorus Standards in Bear Creek Reservoir: The underlying standards are not being attained in most years due to the seasonal augmentation of phosphorus concentrations from internal sources. Until internal loading becomes negligible, the Commission will apply a temporary modification of “existing conditions.” The expected benefits of reduced external load have not been realized in Bear Creek Reservoir due to the protracted effect of internal loading. Consequently, there is uncertainty regarding the appropriate linkage between chlorophyll and phosphorus, and thus uncertainty in the magnitude of the phosphorus standard.

**EXHIBIT 2**  
**WATER QUALITY CONTROL DIVISION**

**DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

**Water Quality Control Commission**

**5 CCR 1002-74**

**BEAR CREEK WATERSHED CONTROL REGULATION**

**74.0 BEAR CREEK WATERSHED CONTROL REGULATION**

**74.1 AUTHORITY**

The Water Quality Control Commission is authorized by sections 25-8-202(1)(c) and 25-8-205, C.R.S. to promulgate control regulations which describe prohibitions, standards, concentrations, and effluent limitations on the extent of specifically identified pollutants that any person may discharge into any specified class of state waters.

**74.2 DEFINITIONS**

1. "Association" means the Bear Creek Watershed Association formed by intergovernmental agreement and by-laws, and consisting of general purpose governments, Title 32 Districts outside incorporated areas, and permitted industry, corporations, proprietorships, and agencies or other appropriate entities within the Bear Creek Watershed.
2. "Bear Creek Watershed" includes Bear Creek and all tributaries, Turkey Creek and all tributaries, and Bear Creek Reservoir in Jefferson County. The Bear Creek Watershed extends into Clear Creek and Park Counties, Colorado. The watershed area is delineated in Figure 1 attached to this regulation.
3. "Best Management Practices (BMPs)" means best methods, measures, prohibitions or practices, schedule of activities, operation and maintenance procedures, and other management practices to prevent or reduce the introduction of pollutants into state waters. Best Management Practices include, but are not limited to, structural and nonstructural controls or policies. Such practices can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters.
4. "Commission" means the Colorado Water Quality Control Commission created by section 25-8-201 of the Colorado Water Quality Control Act.
5. "Districts" means all special districts in the Bear Creek Watershed who provide water and/or wastewater service, and operate a treatment facility.
6. "Division" means the Water Quality Control Division of the Colorado Department of Public Health and Environment, with specific powers and duties defined in the Colorado Water Quality Control Act.

7. "Effluent Limitation" means any restriction or prohibition established pursuant to this regulation, the Water Quality Control Act, or the federal Clean Water Act on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into state waters, including but not limited to standards of performance for new sources, toxic effluent standards, and schedules of compliance.
8. "Individual Sewage Disposal or Onsite System" means an absorption system or a system or facility for treating, neutralizing, stabilizing, or disposing of sewage which is not a part of or connected to a wastewater treatment works, with a designed treatment capacity of less than 2,000 gallons per day. For purposes of this regulation, onsite systems in the Bear Creek Watershed are classified as nonpoint sources.
9. "Land Application" is any discharge applied to the land for land disposal or land treatment and does not include a discharge to surface waters even if such waters are subsequently diverted and applied to the land.
10. "Land disposal" is any discharge of pollutant containing waters being applied to land for which no further treatment is intended.
11. "Land treatment" is any discharge of pollutant containing waters being applied to land for the purpose of treatment.
12. "Management Plan" means the Bear Creek Watershed Association Management Plan developed by the Association, local governments, citizens, state agencies, federal agencies, and the Denver Regional Council of Governments in a cooperative effort to assess and improve water quality in Bear Creek Watershed.
13. "Nonpoint Source" means for the purpose of this regulation diffuse sources of pollution that are not regulated as a point source and normally are associated with impacts from agriculture, silviculture, urban runoff, construction activities, inactive or abandoned mines, and individual sewage disposal systems.
14. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged. "Point Source" includes conveyances of regulated stormwater. "Point Source" does not include irrigation return flows.
15. "Reserve Pool" consists of wasteload allocation total phosphorus pounds available to wastewater treatment facilities that may be awarded by the Division to those facilities in Bear Creek Watershed pursuant to section 74.3.
16. "Stormwater" means stormwater runoff, snowmelt runoff, and surface runoff and drainage.
17. "TMAL" means Total Maximum Annual Load for Bear Creek Reservoir and consists of an Allowable Load and the associated Wasteload Allocation and Load Allocation.
- ~~17~~18. "Trading Program" means the program managed by the Association and Division for phosphorus trading in the Bear Creek Watershed.
- ~~18~~19. "Wasteload Allocation" means the portion of receiving water's assimilative capacity that is allocated to a specific point source(s) of pollution.

1920. "Wastewater Treatment Facility" means a system or facility for treating, neutralizing, stabilizing, or disposing of domestic wastewater, which system or facility has a designed capacity to receive more than two thousand gallons per day of domestic wastewater. The term "Wastewater Treatment Facility" also includes appurtenances to such system or facility, such as outfall sewers and pumping stations, and equipment related to such appurtenances.

### **74.3 WASTELOAD ALLOCATION AND EFFLUENT LIMITATIONS FOR WASTEWATER TREATMENT FACILITIES TOTAL MAXIMUM ANNUAL LOAD FOR TOTAL PHOSPHORUS LOAD ALLOCATIONS AND EFFLUENT LIMITATIONS**

#### **1. TOTAL MAXIMUM ANNUAL LOAD (TMAL) FOR TOTAL PHOSPHORUS**

(a) A total maximum annual load (TMAL) for phosphorus of 3876 lbs/y under a median inflow of 28,891 AF/y has been identified to attain the water quality standards for 10 µg/L chlorophyll a and 32 µg/L total phosphorus, as described in Regulation #38.

(i) Allocations of that load will be developed to complete revisions to the TMAL.

(ii) Activities necessary to reduce the actual phosphorus loads to an amount no greater than the TMAL shall be implemented.

(iii) The activities to develop allocations of the allowable load are identified below. The Association shall implement these activities, as allowed by applicable funding levels, for review by the Division and Commission at the next triennial review. Results from the Association's implementation of this control regulation and the load allocation development tasks listed below may suggest redefining and reprioritizing activities. The Association shall submit any such proposed revisions with proposed priorities for review and approval by the Division, annually, in their annual report to the Commission due May 15 of each year. The activities shall include, but are not limited to the following items:

(A) Determine allocation of loads;

(B) Revise wasteload allocations, as appropriate; and

(C) Update definitions and regulation language to support TMAL revisions.

(iv) Attainment of the TMAL may require progressive development of point source and nonpoint controls.

(v) The following provisions of this control regulation along with the waste load allocations remain in effect until revisions have been adopted to complete the TMAL.

1. The total wasteload allocation for all wastewater treatment facilities in the Bear Creek Watershed is 5,255 pounds per year. Each individual discharger in the Bear Creek Watershed shall be limited to an annual wasteload of total phosphorus which shall not be exceeded, except as provided for through trading provisions in paragraphs 3, 6, 7 and 8 of this section, as shown in the following table:

<u>Wastewater Treatment Facility</u>	<u>Pounds per year</u>
Evergreen Metropolitan District	1,500
West Jefferson County Metro District	1,500
Genesee Water and Sanitation District	1,015
Town of Morrison	600
Kittredge Sanitation and Water District	240
Forest Hills Metropolitan District	80
Jefferson County Schools – Conifer High School	110
Conifer Center Sanitation Association	40
West/Brandt Foundation – Singing River Ranch	30
Aspen Park Metropolitan District	40 <sup>+</sup>
Conifer Metropolitan District	40 <sup>+</sup>
The Fort	18 <sup>1,2</sup>
Brook Forest Inn	5
Bear Creek Development Corp. – Tiny Town	5
Jefferson County Schools – Mount Evans Outdoor Lab School	20
Davidson Lodge	5
Geneva Glen Camp	5
Reserve Pool	2
<u>Total Wastewater Treatment Facility Phosphorus Wasteload (lbs. per year)</u>	<u>5,255</u>

<sup>+</sup> This wasteload allocation requires treatment to 0.5 mg/l total phosphorus.

<sup>2</sup> The Fort is in the Town of Morrison wastewater service area.

2. TOTAL WASTEWATER TREATMENT FACILITIES WASTELOAD ALLOCATIONS AND EFFLUENT LIMITATIONS

(a) The total phosphorus wasteload allocation (WLA) for all wastewater treatment facilities in the Bear Creek Watershed is 5,255 pounds per year. Each individual Wastewater Treatment Facility discharger in the Bear Creek Watershed shall be limited to an annual wasteload of total phosphorus which shall not be exceeded, except as provided for through trading provisions in paragraphs C, F, G and H of this section, as shown in the following table:

<u>Wastewater Treatment Facility</u>	<u>Pounds per year</u>
<u>Evergreen Metropolitan District</u>	<u>1,500</u>
<u>West Jefferson County Metro District</u>	<u>1,500</u>
<u>Genesee Water and Sanitation District</u>	<u>1,015</u>
<u>Town of Morrison</u>	<u>600</u>
<u>Kittredge Sanitation and Water District</u>	<u>240</u>

<u>Forest Hills Metropolitan District</u>	<u>80</u>
<u>Jefferson County Schools - Conifer High School</u>	<u>110</u>
<u>Conifer Center Sanitation Association</u>	<u>40</u>
<u>West/Brandt Foundation - Singing River Ranch</u>	<u>30</u>
<u>Aspen Park Metropolitan District</u>	<u>40</u> <sup>1</sup>
<u>Conifer Metropolitan District</u>	<u>40</u> <sup>1</sup>
<u>The Fort</u>	<u>18</u> <sup>1,2</sup>
<u>Brook Forest Inn</u>	<u>5</u>
<u>Bear Creek Development Corp. - Tiny Town</u>	<u>5</u>
<u>Jefferson County Schools – Mount Evans Outdoor Lab School</u>	<u>20</u>
<u>Davidson Lodge</u>	<u>5</u>
<u>Geneva Glen Camp</u>	<u>5</u>
<u>Reserve Pool</u>	<u>2</u>
<hr/>	
<u>Total Wastewater Treatment Facility Phosphorus Wasteload (lbs. per year)</u>	<u>5,255</u>

<sup>1</sup> This wasteload allocation requires treatment to 0.5 mg/l total phosphorus.

<sup>2</sup> The Fort is in the Town of Morrison wastewater service area.

~~2. Wastewater treatment facilities in the Bear Creek Watershed shall not exceed a total phosphorus effluent concentration of 1.0 mg/l as a 30-day average except as provided in paragraph 3 of this section. All wastewater treatment facilities in the watershed are required to meet the 1.0 mg/l total phosphorus concentration effluent limitation.~~

~~3. The Division is authorized to allow wastewater treatment facilities to discharge a total phosphorus concentration of greater than 1.0 mg/l if an agreement is made for equal phosphorus reduction at an alternative facility. The equivalent annual mass load from one wastewater treatment facility shall be calculated using a 1.0 mg/l total phosphorus concentration at the average daily wastewater flow for the most recent 12 months. The agreement for alternative treatment must be executed by the owners of the facilities, updated annually, summarized in the Association annual report and submitted to the Division to reflect changes in average wastewater flows and performance in treatment of phosphorus. The wastewater treatment facility which agrees to provide the equivalent phosphorus poundage reduction must demonstrate that it is achieving a total phosphorus effluent concentration of less than 1.0 mg/l for a period of time sufficient to remove the equivalent phosphorus load by which the other wastewater treatment facility is exceeding its wasteload allocation. The equivalent reduction provisions shall be incorporated as permit conditions in both discharge permits.~~

4. ~~A reserve pool of total phosphorus shall be maintained for use by wastewater treatment facilities in the Bear Creek Watershed. Where phosphorus credits are created, consistent with section 74.3.6, such credits may be allocated to the reserve pool, subject to recommendation of the Association, and review and approval by the Division. Facilities with a phosphorus allocation in section 74.3.1 of this regulation may donate pounds to the reserve pool, subject to recommendation by the Association, and review and approval by the Division. Phosphorus credit pounds and donated pounds added to the reserve pool shall be summarized in the Association annual report. Any facility that proposes to use all or a portion of the reserve pool allocation must comply with the 1.0 mg/l total phosphorus effluent concentration. Exemptions provided for in paragraph 3 of this section do not apply to the reserve pool. The Division shall review all requests for use of reserve pool phosphorus and shall approve or deny such use as part of the site application process. For industrial facilities, approval or denial of the use of reserve pool phosphorus shall be made by the Division through the discharge permit application and issuance process.~~
5. ~~The Division shall require all site approvals and discharge permits issued in the Bear Creek Watershed for all new or expanded wastewater treatment facilities be based on a maximum total phosphorus effluent concentration of 1.0 mg/l with an assigned wasteload allocation consistent with section 74.3.1.~~
6. ~~Wastewater treatment facility dischargers shall apply to the Association for phosphorus trade credits which would allow corresponding increases to a discharger's total phosphorus wasteload allocation. Phosphorus trade credits shall be based upon reductions of existing sources of phosphorus from nonpoint sources generated in the watershed prior to January 1, 2005. The amount of wastewater treatment facility trade credit shall be based upon one pound of credit for two pounds of nonpoint source reduction. The Association shall review applications and make recommendations to the Division regarding allocations of phosphorus trade credits to dischargers. The Division shall consider the Association's recommendations in making determinations regarding phosphorus trade credit allocations, and shall incorporate credits into the relevant discharge permits.~~
7. ~~Wastewater treatment facility dischargers shall apply to the Association for permanent or temporary transfers of all or part of the discharger's total phosphorus allocation to another wastewater discharger. Both dischargers must jointly apply to the Association for such transfers and shall include an agreement executed by the owners of the facilities specifying changes in average wastewater flows and performance in treatment of total phosphorus. The Association shall review transfer proposals and make recommendations to the Division. The Division shall consider the Association's recommendations in making such transfers, and shall incorporate its determinations into the relevant discharge permits, if these transfers are not otherwise accounted for by the Division.~~
8. ~~If new wastewater treatment facilities are proposed in the Bear Creek Watershed, the appropriate entities shall apply to the Association for a phosphorus allocation. Phosphorus allocation pounds for such new wastewater dischargers shall be derived from: (1) withdrawals from the reserve/emergency pool pursuant to section 74.3.4; (2) nonpoint source to wastewater treatment facility trades pursuant to section 74.3.6; (3) point source to point source transfers pursuant to section 74.3.7; or (4) phosphorus concentration reductions through alternative treatment pursuant to section 74.3.3. New dischargers desiring allocations shall specify the number of desired total phosphorus pounds and how the pounds will be derived, consistent with section 74.3.5. The Association shall review the application and make recommendations to the Division on new phosphorus allocations. The Division shall make a determination on allocations for new facilities and incorporate in site approval and a discharge permit.~~

(b) Wastewater treatment facilities in the Bear Creek Watershed shall not exceed a total phosphorus effluent concentration of 1.0 mg/l as a 30 day average except as provided in

paragraph C of this section. All wastewater treatment facilities in the watershed are required to meet the 1.0 mg/l total phosphorus concentration effluent limitation.

- (c) The Division is authorized to allow wastewater treatment facilities to discharge a total phosphorus concentration of greater than 1.0 mg/l if an agreement is made for equal phosphorus reduction at an alternative facility. The equivalent annual mass load from one wastewater treatment facility shall be calculated using a 1.0 mg/l total phosphorus concentration at the average daily wastewater flow for the most recent 12 months. The agreement for alternative treatment must be executed by the owners of the facilities, updated annually, summarized in the Association annual report and submitted to the Division to reflect changes in average wastewater flows and performance in treatment of phosphorus. The wastewater treatment facility which agrees to provide the equivalent phosphorus poundage reduction must demonstrate that it is achieving a total phosphorus effluent concentration of less than 1.0 mg/l for a period of time sufficient to remove the equivalent phosphorus load by which the other wastewater treatment facility is exceeding its wasteload allocation. The equivalent reduction provisions shall be incorporated as permit conditions in both discharge permits.
- (d) A reserve pool of total phosphorus shall be maintained for use by wastewater treatment facilities in the Bear Creek Watershed. Where phosphorus credits are created, consistent with section 74.3.2.F, such credits may be allocated to the reserve pool, subject to recommendation of the Association, and review and approval by the Division. Facilities with a phosphorus allocation in section 74.3.2.A of this regulation may donate pounds to the reserve pool, subject to recommendation by the Association, and review and approval by the Division. Phosphorus credit pounds and donated pounds added to the reserve pool shall be summarized in the Association annual report. Any facility that proposes to use all or a portion of the reserve pool allocation must comply with the 1.0 mg/l total phosphorus effluent concentration. Exemptions provided for in paragraph C of this section do not apply to the reserve pool. The Division shall review all requests for use of reserve pool phosphorus and shall approve or deny such use as part of the site application process. For industrial facilities, approval or denial of the use of reserve pool phosphorus shall be made by the Division through the discharge permit application and issuance process.
- (e) The Division shall require all site approvals and discharge permits issued in the Bear Creek Watershed for all new or expanded domestic wastewater treatment facilities be based on a maximum total phosphorus effluent concentration of 1.0 mg/l with an assigned wasteload allocation consistent with section 74.32.A.
- (f) Wastewater treatment facility dischargers shall apply to the Association for phosphorus trade credits which would allow corresponding increases to a discharger's total phosphorus wasteload allocation. Phosphorus trade credits shall be based upon reductions of existing sources of phosphorus from nonpoint sources generated in the watershed prior to January 1, 2005. The amount of wastewater treatment facility trade credit shall be based upon one pound of credit for two pounds of nonpoint source reduction. The Association shall review applications and make recommendations to the Division regarding allocations of phosphorus trade credits to dischargers. The Division shall consider the Association's recommendations in making determinations regarding phosphorus trade credit allocations, and shall incorporate credits into the relevant discharge permits.
- (g) Wastewater treatment facility dischargers shall apply to the Association for permanent or temporary transfers of all or part of the discharger's total phosphorus allocation to another wastewater discharger. Both dischargers must jointly apply to the Association for such transfers and shall include an agreement executed by the owners of the facilities

specifying changes in average wastewater flows and performance in treatment of total phosphorus. The Association shall review transfer proposals and make recommendations to the Division. The Division shall consider the Association's recommendations in making such transfers, and shall incorporate its determinations into the relevant discharge permits, if these transfers are not otherwise accounted for by the Division.

(h) If new wastewater treatment facilities are proposed in the Bear Creek Watershed, the appropriate entities shall apply to the Association for a phosphorus allocation. Phosphorus allocation pounds for such new wastewater dischargers shall be derived from: (1) withdrawals from the reserve/emergency pool pursuant to section 74.3.2.D; (2) nonpoint source to wastewater treatment facility trades pursuant to section 74.3.2.F; (3) point source to point source transfers pursuant to section 74.3.2.G; or (4) phosphorus concentration reductions through alternative treatment pursuant to section 74.3.2.C. New dischargers desiring allocations shall specify the number of desired total phosphorus pounds and how the pounds will be derived, consistent with section 74.3.2.E. The Association shall review the application and make recommendations to the Division on new phosphorus allocations. The Division shall make a determination on allocations for new facilities and incorporate in site approval and a discharge permit.

#### **74.4 DETERMINATIONS OF WASTELOAD**

For municipal, domestic and industrial dischargers, the monthly and annual wasteloads shall be determined as follows:

1. For each direct discharge and for each discharge to land disposal and land treatment, monthly phosphorus loads (pounds) contributed shall be determined based upon the following formula:

Monthly Phosphorus Load (Pounds) = Monthly volume discharged (million gallons) x average of all individual concentration values for that month (mg/l) x 8.34

- ~~(1a)~~ For dischargers utilizing land treatment, the monthly volume shall be calculated by the following formula:

Monthly Volume Discharged (Million Gallons)(MG) = Volume in all lysimeters (gallons) x Area of land application site (square feet) / Total Area of all lysimeters (square feet) (1,000,000 gal/mg)

- ~~(2b)~~ For all dischargers using land disposal and for direct dischargers, the monthly volume shall be the sum of all total volumes of effluent measured at each outfall.

2. The annual phosphorus wasteload shall be the sum of the 12 monthly phosphorus loads calculated for that calendar year for all discharge points, ~~and land treatment and land disposal sites~~ and shall not exceed the wasteload allocations, set forth in section ~~74.3.4~~74.3.2.A.

3. Phosphorus concentrations for each direct discharge, ~~and land treatment and land disposal site~~ will be calculated by the following formula:

Phosphorus Concentration (mg/l) = the sum of the total phosphorus concentrations of all samples (mg/l) for the month / the number of samples collected.

4. For land treatment discharges a flow-weighted phosphorus concentration shall be determined by using the formula in 3 above and the following formula:

Flow-Weighted Phosphorus Concentration (mg/l) = sum of the products of phosphorus concentrations and monthly volumes for each lysimeter / the sum of all monthly volumes for all lysimeters.

Monthly Average Phosphorus Concentration = the sum of all concentration values for a lysimeter for the month / the number of concentration values for that lysimeter.

## **74.5 CONTROL OF NONPOINT SOURCES**

Jefferson County, Clear Creek County, Park County, municipalities, and districts in the Bear Creek Watershed shall implement best management practices for control of erosion and sediments. The Commission shall review the performance in implementation of existing erosion and sediment control programs by the counties, municipalities, and districts at each triennial review of this regulation. The Association will identify nonpoint source management practices and programs in the management plan and annual report.

The Association may include in the management plan and annual reports a listing of those non-urban areas where existing or planned development relies on individual sewage disposal or onsite systems as mapped by Jefferson County, Clear Creek County, or Park County. The Association may recommend that counties develop a septic management plan. Septic management plans should be designed to protect watershed surface and groundwater quality and will not target individual onsite systems.

## **74.6 MONITORING**

1. Jefferson County, Clear Creek County, Park County, municipalities, districts, and other agencies responsible for point and nonpoint sources in the Bear Creek Watershed shall conduct water quality monitoring in the watershed, in accordance with the monitoring procedures described in an annually reviewed quality assurance project plan approved by the Division. The Association shall ensure that water quality monitoring is conducted on Turkey Creek, Bear Creek, and in Bear Creek Reservoir to measure the phosphorus loadings reaching the reservoir and other factors which affect the watershed water quality, as well as the attainment of beneficial uses for the reservoir and watershed.
2. The Commission and Division shall receive annually, due May 15, from the Association an annual report covering the status of water quality in the watershed for the previous calendar year. The report shall include information on the wastewater treatment facilities loading and compliance with permit limitations, the nonpoint source loading and appropriate best management practices, and in-stream and in-lake data analyses indicating whether the water quality goals and standards for the watershed are being met. Information about water quality projects planned or implemented in the watershed shall also be included in the annual report. The Division shall receive annually an electronic data transfer of all water quality data collected by the Association. Data shall be submitted consistent with Division guidance, and transfer protocols will be detailed in the quality assurance project plan.
3. All permits issued by the Division for wastewater treatment facility discharges shall be consistent with sections 74.3 and 74.4. Effluent total phosphorus shall be monitored by the permittee at least once per month but more often than monthly if specified by the Division. Phosphorus concentrations shall be reported as a 30 day average and discharge monitoring reports shall be filed with the Division monthly. The Division may establish ambient monitoring requirements in discharge permits for dischargers in the Bear Creek Watershed for use in the annual assessment

of water quality in the watershed, consistent with the provisions and intent of this control regulation and the water quality narrative standard for Bear Creek Reservoir.

**74.7 SEVERABILITY**

The provisions of this regulation are severable, and if any provisions or the application of the provisions to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this regulation shall not be affected thereby.

**74.8 - 74.9 RESERVED**

# **WATER QUALITY CONTROL DIVISION PROPOSED**

## **74.15 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; MAY 2009 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 adopted revisions for this regulation which include a Total Maximum Annual Load (TMAL) for total phosphorus, the Allowable Load of total phosphorus for the TMAL, new definitions, and appropriate formatting changes to the regulation. The Commission also adopted additional language for clarification in section 74.4. The TMAL is designed to be consistent with revisions to the site-specific nutrient criteria (numeric total phosphorus and chlorophyll a standards) for Bear Creek Reservoir as described in Regulation #38. A TMAL consists of an Allowable Load and Allocations of that Allowable Load. Although an Allowable Load was developed, the total phosphorus allocations have not been determined. Therefore, the Commission included a list of tasks (Section 74.3.1.A.3) to be completed to support development of revised allocations of the newly adopted Allowable Load in this Control Regulation. Because revised allocations are yet to be determined, the Commission retained the existing point source (wasteload) allocations in section 74.3.2.A. Attainment of the TMAL and the corresponding Allowable Load may require additional development of point source and nonpoint source controls.

Based on information presented by the Division during the July 2007 triennial review hearing, the Commission scheduled a rule-making hearing to consider revisions to the control regulation and to related water quality standards in Regulation #38. Specifically, the Division identified the following items for the Commission to consider:

1. Numeric targets for phosphorus and chlorophyll as the basis to determine attainment of the narrative standard in Regulation #38.
2. The linkage between chlorophyll and phosphorus for Bear Creek Reservoir.
3. An allowable phosphorus load consistent with the numeric target for total phosphorus in the reservoir.
4. Development of a TMAL formula to reflect the current water budget for Bear Creek Reservoir and phosphorus sources to support development of allocations for point sources and nonpoint sources.
5. Review of sources controls and treatment of symptoms.

The Commission directed the Division to conduct a Technical Review of the scientific basis for the Bear Creek Reservoir narrative nutrient standard and the associated Control Regulation. The scope of the Technical Review was limited to the in-lake total phosphorus concentration, a chlorophyll goal, the allowable load to attain these, and the linkages between these. The scope of the Technical Review did not include an examination of the allocation of the total phosphorus load. As part of this Technical Review, the Division provided reports and made monthly presentations to the Bear Creek Watershed Association Technical Review Committee from November 2007 through November 2008. The reports and presentations provided the basis for the proposal the Commission heard in this rule-making hearing.

The Technical Review showed:

1. Allowable Load: Identifying an Allowable Load is central to development of a TMAL. The Division developed methods to estimate the allowable load. The Allowable Load is the product of the input concentration and the median inflow. The inflow concentration is calculated from the phosphorus standard (32 µg/L) and the typical phosphorus retention (36%): 49 µg/L.
2. Hydrologic Scenario: Development of a TMAL requires identification of a single flow scenario with the associated Allowable Load. There was no obvious worst-case scenario for flow, making the median inflow a logical choice. Because the TMAL is developed for a single flow condition, it is fully expected that observed loads may be higher or lower.
3. Linking Load to Concentration: About 36% of the phosphorus load is retained in the reservoir, meaning that the expected concentration in the lake is about 64% of the flow-weighted average input concentration of phosphorus.

Based on the results of the Technical Review, the Commission adopted revised site-specific standards for total phosphorus and chlorophyll for Bear Creek Reservoir in relevant sections of Regulation #38. The Commission adopted a chlorophyll standard of 10 µg/L and a phosphorus standard of 32 µg/L. Both standards are considered attainable when the internal release of phosphorus becomes negligible, which is expected to occur in less than 20 years. Each standard has an allowable exceedance frequency of once in five years.

To be consistent with the revised standards in Regulation #38, the Commission adopted changes in this Control Regulation for Bear Creek Reservoir (Regulation #74). The Commission adopted an Allowable Load of total phosphorus of 3876 lbs/y under a median inflow of 28,891 AF/y. This Allowable Load reflects the linkage between watershed total phosphorus load and the in-lake total phosphorus concentration.

The Commission directed the Division and the Association to complete the TMAL by developing nonpoint source (load) and point source (wasteload) allocations related to the Allowable Load for submittal during the next control regulation triennial review. The Commission acknowledged that progress toward development of the allocations will be contingent on the availability of suitable funding to support completion of the tasks identified in section 74.3.1.B. The Commission also recognized that control regulation definitions and language may need to be revised to support future updates to the TMAL.

The underlying standards are not being attained in most years due to the seasonal augmentation of phosphorus concentrations from internal sources. Until internal loading becomes negligible, the Commission will apply a temporary modification of "existing conditions." The expected benefits of reduced external load have not been realized in Bear Creek Reservoir due to the protracted effect of internal loading. Consequently, there is uncertainty regarding the appropriate linkage between chlorophyll and phosphorus, and thus uncertainty in the magnitude of the phosphorus standard.