

# STATE OF COLORADO

Bill Owens, Governor  
Douglas H. Benevento, Acting Executive Director

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

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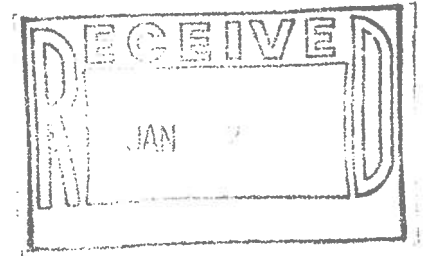
December 30, 2002



Colorado Department  
of Public Health  
and Environment

Robert E. Williams, Director of P.W.  
City of Boulder  
P.O. Box 791  
Boulder, CO 80306

**RE: Issued Permit**  
**Permit Number: CO-0024147**  
**Boulder County**



Dear Mr. Williams:

Enclosed please find a copy of the **permit** that was issued under the Colorado Water Quality Control Act. Your discharge permit requires that specific actions be performed at designated times. You are legally obligated to comply with all terms and conditions of your permit. It is especially important to note the "**EFFECTIVE DATE OF PERMIT**", not the "**DATE SIGNED**", located in the lower right hand corner of page 1, of your permit. It is illegal to discharge per the conditions of this permit until that date.

Please read the permit and if you have any questions contact me at (303) 692-3599.

Sincerely,

Darlene Casey, Program Assistant  
Water Quality Protection Section  
WATER QUALITY CONTROL DIVISION

Enclosure

xc: Bruce Kent, Permit Team, Environmental Protection Agency (8P2W-P)  
Regional Council of Government  
Local County Health Department  
Cary Pilon, D.E., Technical Services Unit, WQCD  
Permit File  
Permit Fees

/dc

issued

**COLORADO DISCHARGE PERMIT SYSTEM (CDPS)**

**SUMMARY OF RATIONALE**

**CITY OF BOULDER**

**CDPS PERMIT NUMBER CO-0024147, BOULDER COUNTY**

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- I. TYPE OF PERMIT *Third Renewal*
- II. FACILITY INFORMATION
- A. Facility Type: *Domestic- Major Municipal, Mechanical Plant*
- B. Facility Classification: *Class A per Section 100.9.2 of the Regulations for Certification of Water Treatment Plant and Wastewater Treatment Plant Operators.*
- C. Fee Category: *Category 21, Subcategory 8*  
Category Flow Range: *10,000,000 up to 49,999,999 gallons per day*  
Annual Fee: *\$14,130*
- D. Legal Contact: *Robert E. Williams, Director of Public Works for Utilities*  
*City of Boulder*  
*P.O. Box 791*  
*Boulder, CO 80306*  
*303-441-3200*
- E. Facility Contact: *Floyd D. Bebler*  
*City of Boulder*  
*4049 75<sup>th</sup> Street*  
*Boulder, CO 80301*  
*303-413-7340*
- F. Facility Location: *SW ¼, Section 13, T1N, R70W, 6<sup>th</sup> P.M., at 4049 75<sup>th</sup> Street, Boulder, CO*
- G. Discharge Point: *001A, following disinfection, to Boulder Creek.*

**ISSUED: December 30, 2002 EFFECTIVE: February 1, 2003 EXPIRATION: January 31, 2008**

### III. FACILITIES EVALUATION

#### A. Infiltration/Inflow (I/I)

Boulder has experienced wastewater flows in excess of 120 gallons per capita day. In part, these flows are attributable to a high ratio of employees to residents in the service area.

In 1996 and 1997 Boulder contracted to have studies of I/I performed. As a result of these studies, Boulder began a capital improvements program for interceptors and collector sewer rehabilitation. This rehabilitation is scheduled for completion in 2003.

#### B. Lift Stations

Table IV-1 summarizes the information available on the lift stations in the service area.

**Table IV-1 - Lift Station Summary**

<b>Station Name/#</b>	<b>Firm Pump Capacity (gpm)</b>	<b>Existing Average/Peak Flows (gpd)</b>	<b>% Capacity (based on peak flow)</b>
Diagonal Highway	1,950	1.4	49.9

#### C. Facility Modifications and Resulting Changes in Capacity

The facility consists of preliminary treatment (bar screening and grit removal), primary clarification, trickling filters, solid contact aeration, secondary clarification, nitrifying trickling filter, and disinfection (chlorination and dechlorination). The permittee has not performed any construction at this facility that would change the hydraulic capacity of 20.5 MGD or the organic capacity of 29,065 lbs. BOD<sub>5</sub>/day, which were specified in the rationale for the previous permit and that document should be referred to for this information. These capacities will continue in this permit. The effluent flow is measured by a continuous flow recorder and totalizer.

During the term of the permit the discharge point will be relocated approximately 400 yards down stream. No change in permit limits or discharge name will be made due to this relocation.

#### D. Sludge Treatment and Disposal

Sludge is treated by a two-stage anaerobic digestion system. This digestion produces Class B biosolids. Biosolids are centrifuged to approximately 10 percent solids.

The majority of Boulder's biosolids are utilized as Class B biosolids on dryland wheat, sunflowers, and corn in Adams County. Remaining biosolids are transported to A-1 Organics where they are treated to produce Class A biosolids.

### IV. PERFORMANCE HISTORY

#### A. Monitoring Data

1. Table IV-1, on the following page, summarizes the effluent data reported on the monthly Discharge Monitoring Reports (DMR's) for the City of Boulder facility from June 2000 through May 2002.

**Table IV-1 - Self-Monitoring Results**

Parameter	Samples or Reporting Periods	Reported Concentrations			Previous Permit Limit	No. of Limit Excursions
		Average	Minimum	Maximum		
Influent Flow, MGD	24	16.23	14.3	20.1	20.5*	NA
Effluent Flow, MGD	24	16.26	14.5	20.1	20.5	0
Influent BOD <sub>5</sub> , mg/l	24	189.92	147	232	NA	NA
Influent BOD <sub>5</sub> , lbs/day	24	25,534	21,744	28,314	29,065 *	NA
Effluent CBOD <sub>5</sub> , mg/l	24	5.58	5	7	25	0
CBOD <sub>5</sub> Removal, %	24	96.58	96	98	85	0
Influent TSS, mg/l	24	209.88	178	270	NA	NA
Effluent TSS, mg/l	24	7.21	5	13	30	0
TSS Removal, %	24	96.5	94	97	85	0
Fecal Coliform, #/100 ml	24	81.58	24	170	246	0
Total Residual Chlorine, mg/l	24	0	<0.004	<0.004	0.004	1
Oil & Grease, mg/l	24	1.26	0	9.6	10	0
pH, s.u.	48	7.05	6.5	7.6	6.5 – 9.0	0
Ammonia, Total, mg/l as N	24	6.24	3.1	11.9	29.5 – 55.9	0
WAD Cyanide, mg/l	24	0	0	0.03	0.03	0
Arsenic, TR, ug/l (max)	24	1.03	0	9	NA	NA
Selenium, TR, ug/l (max)	24	2.26	0	13.2	NA	NA
Chromium, Hex, Diss, ug/l (max)	24	0	0	0	NA	NA
Zinc, PD, ug/l (max)	24	41	18	78.1	218	0
Silver, PD, ug/l	24	0.1	0	0.4	1.2	0
Copper, PD, ug/l	24	11.53	7	21.7	25.6	0
Cadmium, PD, ug/l	24	0	0	0	2.35	0
Iron, PD, ug/l (max)	24	203.58	88	892	NA	NA
Lead, PD, ug/l	24	0.28	0	2.8	12.2	0
Manganese, PD, ug/l	24	31.55	24.7	40.7	61.5	0
Nickel, PD, ug/l (max)	24	4.23	0	16.7	NA	NA
Mercury, Total as Hg, ug/l	24	0.01	0	0.28	0.012	1
<b>WET, acute</b>						
Ceriodaphnia	8	Pass	Pass	Pass	Pass	0
Fathead Minnows	8	Pass	Pass	Fail	Pass	3

\* - This is a facility capacity and not a permit limit.  
 < = less than

2. State sampling results for the City of Boulder treatment plant are summarized in Table IV-2 for the previous 24 month period.

**Table V-2 - Summary of State Sampling Results**

Date	Flow MGD	Temp F	pH su	DO mg/l	TRC mg/l	Oil & Grease mg/l	Fec Col #/100 ml	CBOD mg/l	TSS mg/l	NH <sub>3</sub> -N mg/l
6/21/2000	21.25	68	7.03	6.7	0.02	10.0 (visual)	22	3	<10	6.0

< - "less than"  
 \* these values exceed permit limits

**B. Compliance With Terms and Conditions of Previous Permit**

The data shown in Table IV-1, indicates that the City of Boulder facility has maintained compliance with the previous permit with the exception of one violation of the daily maximum chlorine concentration, and one violation of the mercury limit.

**V. TERMS AND CONDITIONS OF PERMIT**

**A. Determination of Effluent Limitations**

1. Effluent Limitations - The limits on the following page will apply and are discussed in Sections V-A.2 and V-A.3.

**Table V-1 - Effluent Limits**

<b>Parameter</b>	<b>Limit</b>	<b>Rationale</b>
Flow, MGD	20.5 <sup>a</sup>	Design Capacity
CBOD <sub>5</sub> , mg/l	25/40 <sup>b</sup>	State Effluent Regulations
TSS, mg/l	30/45 <sup>b</sup>	State Effluent Regulations
E. Coliform, no/100 ml	150/300 <sup>e</sup>	Water Quality Standards
Total Residual Chlorine, mg/l	0.004/0.020 <sup>f</sup>	Previous Limit/Water Quality Standards
pH, s.u.	6.5-9.0 <sup>d</sup>	Water Quality Standards
Oil and Grease, mg/l	10 <sup>c</sup>	State Effluent Regulations
Total Ammonia (as N), mg/l		
January through March	16.9 <sup>a</sup>	Interim Limit
April through May	13.5 <sup>a</sup>	Interim Limit
June	10.9 <sup>a</sup>	Interim Limit
July	11.2 <sup>a</sup>	Interim Limit
August through October	13.5 <sup>a</sup>	Interim Limit
November through December	16.9 <sup>a</sup>	Interim Limit
Cyanide, Weak Acid Dissociable, ug/l	30.0 <sup>a</sup>	Water Quality Standards/Antidegradation
Arsenic, Total, ug/l	8.3/Report/Report <sup>j</sup>	Antidegradation/Water Quality Standards
Cadmium, PD, ug/l	Report <sup>f</sup>	Previous Limit/Water Quality Standards
Chromium, Hex, Dissolved, ug/l	Report <sup>f</sup>	Previous Limit/Water Quality Standards
<del>Chromium, Tri, TR, ug/l</del>	<del>Report<sup>c</sup></del>	<del>Water Quality Standards</del>
Copper, PD, ug/l		
Through December 31, 2005	25.6/35.2 <sup>f</sup>	Interim Limit
Beginning January 1, 2006	18/26 <sup>f</sup>	Water Quality Standards
Iron, Dissolved, ug/l		
Through December 31, 2005	Report <sup>a</sup>	Water Quality Standards
Beginning January 1, 2006	349 <sup>a</sup>	Water Quality Standards
Iron, TR, ug/l	Report <sup>a</sup>	Water Quality Standards
Lead, PD, ug/l	6.0 <sup>a</sup>	Water Quality Standards
Manganese, Dissolved, ug/l	55/Report <sup>f</sup>	Water Quality Standards
Mercury, Total, ug/l	0.012 <sup>a</sup>	Water Quality Standards
Nickel, PD, ug/l	18/Report <sup>g</sup>	Antidegradation/Water Quality Standards
Selenium, Total, ug/l		
Through December 31, 2005	Report <sup>f</sup>	Water Quality Standards
Beginning January 1, 2006	5.6/19 <sup>f</sup>	Water Quality Standards
Silver, PD, ug/l	1.11/Report <sup>f</sup>	Water Quality Standards
Zinc, PD, ug/l	Report <sup>f</sup>	Water Quality Standards
WET, Chronic Lethality	Statistical Difference or IC25 > IWC = 81.9 % <sup>c</sup>	State Permit Regulations

<sup>a</sup> 30-day average  
<sup>b</sup> 30-day average/7-day average  
<sup>c</sup> Daily Maximum  
<sup>d</sup> Minimum-Maximum  
<sup>e</sup> 30-day geometric mean/7-day geometric mean  
<sup>f</sup> 30-day average/daily maximum

<sup>g</sup> 2-Year/30-day average  
<sup>h</sup> 2-Year/30-day average/7-day average  
<sup>i</sup> 2-Year/30-day geometric mean/7-day geometric mean  
<sup>j</sup> 2-Year/30-day average/daily maximum  
 PD - Potentially Dissolved  
 TR - Total Recoverable

2. Discussion of Effluent Limitations

- a. BOD<sub>5</sub>, TSS, D.O., and Oil and Grease - BOD<sub>5</sub>, TSS, and Oil and Grease limits are taken from State Effluent Regulations. No violations of the dissolved oxygen standard are expected due to this discharge.
- b. pH - This parameter is limited by Water Quality Standards.
- c. Pollutants Limited by Water Quality Standards - FABL Environmental Regulatory Specialists, Inc has performed an assessment of potential water quality standards based assimilative capacity and made a preliminary determination of the assimilative capacity for the upgraded facility with a discharge capacity of 20.5 MGD, Outfall 001A. This assessment can be found in Appendix A of the rationale. The Permits Unit evaluated the assimilative capacity and determined whether there is a reasonable potential for the facility discharge to cause or contribute to an exceedance of a stream standard. If there is a reasonable potential for the discharge to contribute to an exceedance, limits are included in the permit.

Because there is no increase in permitted capacity, limits set equal to those in the previous permit are synonymous with loads equal to those in the previous permit.

The calculated water quality based acute effluent limit for total residual chlorine in Appendix A will be included in the permit. To assure that this discharge will not degrade the instream water quality the chronic total residual chlorine limit from the previous permit will be included in this permit.

An *E. coli* limit equal to the effluent limit in Appendix A for fecal coliform bacteria X the ratio of the *e. coli* standard to the fecal coliform standard will be included in the permit as the chronic fecal coliform limit. This limit is lower than the previous permit limit, and so will assure that there is no instream degradation. The 30-day geometric mean limit will be set at the level calculated, and the 7-day geometric mean limit will be set equal to twice the 30-day limit.

Because an ammonia Total Maximum Daily Load (TMDL) evaluation is currently being developed for the Boulder Creek, Coal Creek, Saint Vrain Creek basin area, no evaluation of ammonia limits is included in this rationale. Prior to the EPA approval of the TMDL, permit limits equal to those included in the previous permit will be included in the permit.

For cyanide, the standard for the receiving stream is based upon "free" cyanide concentrations. However, there is no analytical procedure for measuring the concentration of free cyanide in a complex effluent. Therefore, ASTM (American Society for Testing and Materials) analytical procedure D2036-91, Method C, will be used to measure weak acid dissociable cyanide in the effluent. This analytical procedure will detect free cyanide plus those forms of complex cyanide that are most readily converted to free cyanide.

The detection limit of 0.030 mg/l for this method was included in the previous permit as a cyanide limit. A limit for weak acid dissociable cyanide will be specified, and will be set equal to the detection limit. Provided weak acid dissociable cyanide concentrations are less than the method detection limit of 0.030 mg/l, it will be assumed that the 0.005 mg/l free cyanide standard is being adequately protected. Because this was the limit included in the previous permit, this limit will assure that this discharge will not cause a degradation of the instream quality.

For metals with dissolved standards, corresponding effluent limits are based upon the potentially dissolved method of analysis, except for hexavalent chromium, which must be analyzed for using the dissolved method. For standards based upon the total and total recoverable methods of analysis, the limits are based upon the same method as the standard, except for arsenic and selenium. For these two metals, the total recoverable analyses must be performed using a graphite furnace. This method may produce erroneous results and may not be available to the permittee. Therefore, the total method of analysis will be specified instead of the total recoverable method.

The limits listed in Appendix A were evaluated for inclusion in the permit. The likelihood of metals concentrations being found in the effluent at levels approaching the calculated limit and the measured concentrations listed in section V.A. were factors considered in this evaluation.

Comparison of self-monitoring data to the assimilative capacities listed in Appendix A indicated that the Boulder discharge does not present a reasonable potential to cause or contribute to an exceedance of the instream standards for arsenic, cadmium, hex chromium, nickel, or zinc. Antidegradation limits are included as a two year running average for arsenic, and nickel. Quarterly monitoring is included in the permit for these parameters.

This discharge also does not present a reasonable potential to cause or contribute to an exceedance of the instream acute standards for lead, manganese, and silver. However self-monitoring data indicates that effluent concentrations of these parameters have exceeded one-third of the chronic assimilative capacities. For this reason, limits equal to the chronic assimilative capacities will be included in the permit and routine monthly monitoring will be required for these parameters.

Because no effluent data is available for trivalent chromium and total recoverable iron concentrations, quarterly effluent monitoring will be required so that reasonable potential to cause or contribute to an exceedance of the instream acute standard can be determined.

Because self-monitoring data indicates that the facility has not consistently met the new metals limits for copper, dissolved iron, and selenium, these limits will become effective January 1, 2006 to allow the permittee make adjustments to their pretreatment limits and upgrade of industrial dischargers pretreatment facilities, if needed, so that these effluent limits can be met. The existing copper limits will remain in effect until that date. Monthly routine monitoring requirements will be included for these parameters.

Because this facility has experienced an exceedance of the mercury limit, the mercury limit listed in Appendix A is incorporated into the permit. A new mercury monitoring test method, Method 1631, has been approved by EPA. Quarterly mercury monitoring utilizing Method 1631, will be required for the term of the permit.

- d. Economic Reasonableness Evaluation - The Water Quality Control Commission, during their proceedings to adopt the Classification and Numeric Standards for the South Platte River Basin, considered the economic reasonableness of imposing the classification and standards listed in section V.A. of this rationale. Since this is not a new discharger and no new information has been presented regarding the classifications and standards, the water quality standard-based effluent limitations of this permit are determined to be reasonably related to the economic, environmental, public health and energy impacts to the public and affected persons in accordance with Section 61.11 of the Colorado Discharge Permit System Regulations. If the permittee disagrees with this finding, pursuant to 61.11(b)(ii), the permittee should submit all pertinent information to the Division during the public notice period.

**B. Monitoring**

1. Influent and Effluent Monitoring - Influent and effluent monitoring will be required as shown in Tables V-3 and V-4. Refer to the permit for locations of monitoring points.

**Table V-3 - Influent Monitoring Requirements - Outfall 300I**

Parameter	Measurement Frequency	Sample Type
Influent Flow, MGD	Continuous	Recorder *
Influent BOD <sub>5</sub> , mg/l (lb/day)	Daily	Composite
Influent Total Suspended Solids, mg/l	Daily	Composite

\* Report both influent and effluent flow, even if only one flow measuring device is installed. See footnote h/ on page 3 of the permit.



**Table V-4 - Effluent Monitoring Requirements - Outfall 001A**

Parameter	Measurement Frequency	Sample Type
Effluent Flow, MGD *	Continuous	Instantaneous/Recorder
Effluent BOD <sub>5</sub> , mg/l	Daily	Composite
Effluent Total Suspended Solids, mg/l	Daily	Composite
Effluent E. Coli., no./100 ml	Daily	Grab
Effluent Total Residual Chlorine, mg/l		
DPD Method	4X/Day	Grab
Amperometric Titration Method	Daily	Grab
Effluent pH, s.u.	Daily	Grab
Effluent Oil & Grease, mg/l	Daily	Visual **
Effluent Total Ammonia as N, mg/l	Daily	Composite
Cyanide, Weak Acid Dissociable, ug/l	Quarterly	Grab
Arsenic, Total, ug/l	Quarterly	Composite
Cadmium, PD, ug/l	Quarterly	Composite
Chromium, Tri, TR, ug/	Quarterly	Composite
Chromium, Hex, Dissolved, ug/l	Quarterly	Grab
Copper, PD, ug/l	Monthly	Composite
Iron, Dissolved, ug/l	Monthly	Composite
Iron, TR, ug/l	Quarterly	Composite
Lead, PD, ug/l	Monthly	Composite
Manganese, Dissolved, ug/l	Monthly	Composite
Mercury, Total, ug/l	Quarterly	Composite
Nickel, PD, ug/l	Quarterly	Composite
Selenium, Total, ug/l	Monthly	Composite
Silver, PD, ug/l	Monthly	Composite
Zinc, PD, ug/l	Quarterly	Composite
Whole Effluent Toxicity, Chronic	Quarterly	3 Composites/Test

\* Report both influent and effluent flow, even if only one flow measuring device is installed. See footnote h/ on page 3 of the permit.

\*\* If a visible sheen is noted, a grab sample shall be collected and analyzed for oil and grease. The results are to be reported on the DMR under parameter 03582.

**2. Biosolids Monitoring**

a. **Biosolids Monitoring and Reporting:** Municipalities which practice or contract any methods of biosolids disposal, including beneficial use, landfilling, or any combination of disposal methods, are required to determine and report the annual rate of biosolids produced. Annual biosolids production and a description of biosolids disposal practices are to be included in the annual report. Please see Part I, Section D.3 of the permit for more information. Additional requirements apply if land disposal for beneficial use is practiced. (See Part I.A.9. and I.B.3. of the permit for specific requirements).

b. **Land Application of Biosolids for Beneficial Use**

The discharge of solid waste to land for disposal is regulated by the Colorado Solid Wastes Disposal Sites and Facilities Act (30-20, Part 1 C.R.S. 1973) Biosolids Regulations, Regulation Number 64, Section 30-20-102(6) of the Act provides an exemption from the Certificate of Designation requirement for biosolids which are used in a beneficial manner and where the disposal of such biosolids is designated as meeting all applicable regulations of the Department, including the Biosolids Regulations.

The City of Boulder WWTP is a "Treatment Works Treating Domestic Sewage" (TWTDS) as that term is defined in the Biosolids Regulations, '64.9. As such, the requirements of the Biosolids Regulations are applicable to biosolids produced at this WWTP and which are land applied for beneficial use. The requirements imposed in this permit will be consistent with the Biosolids Regulations. See Parts I.A.8 and I.B.3. of the permit for specific requirements.

There are pathogen reduction and vector attraction reduction alternatives, in addition to those identified in Part I.A.8.b) and c) of the permit which may be allowed per the Colorado Biosolids Regulations, '64.12.B and C. If the permittee intends to use one of these alternatives, the Division and EPA must be informed at least 30 days prior to its use. This change may be made without additional public notice.

Requirements of the Biosolids Regulations are in addition to the monitoring requirements noted above.

3. Pretreatment Program - The permittee has been delegated primary responsibility for enforcing against discharges prohibited by 40 CFR 403.5, and applying and enforcing any National Pretreatment Standards established by the Environmental Protection Agency in accordance with Section 307(b) and (c) of the Act.

As part of the pretreatment program, the permittee is responsible for an annual report describing their pretreatment activities over the previous calendar year. As part of the annual report, the permittee is responsible for influent and effluent sampling of metals and cyanide.

4. Whole Effluent Toxicity (WET) Testing - Biomonitoring

- a. Purpose of WET Testing: The Water Quality Control Division has established the use of WET testing as a method for identifying and controlling toxic discharges from wastewater treatment facilities. WET testing is being utilized as a means to ensure that there are no discharges of pollutants "in amounts, concentrations or combinations which are harmful to the beneficial uses or toxic to aquatic life" as required by Section 31.11 (1) of the Basic Standards and Methodologies for Surface Waters.
- b. Instream Waste Concentration (IWC): Where monitoring or limitations for WET are deemed appropriate by the Division, chronic instream dilution as represented by the chronic IWC is critical in determining whether acute or chronic conditions shall apply. According to the Colorado Water Quality Control Division Biomonitoring Guidance Document, dated July 1, 1993, for those discharges where the chronic IWC is greater than (>) 9.1% and the receiving stream has a Class 1 Aquatic Life use or Class 2 Aquatic Life use with all of the appropriate aquatic life numeric standards, chronic conditions apply. Where the chronic IWC is less than or equal to (≤) 9.1, or the stream is not classified as described above, acute conditions apply. The chronic IWC is determined using the following equation:

$$IWC = [Facility\ Flow\ (FF) / (Stream\ Chronic\ Low\ Flow\ (annual) + FF)] \times 100\%$$

The flows and corresponding IWC for the appropriate discharge point are:

Discharge Point	Chronic Low Flow, 30E3, (cfs)	Facility Design Flow, (cfs)	IWC, (%)
001	7.0	31.7	81.9

The IWC for this permit is 81.9%, which represents a wastewater concentration of 81.9% effluent to 18.1% receiving stream.

- c. **Chronic WET Limitations:** It is Division's practice to require include WET limits in permits for all major domestic facilities. Due to the large number of taps in all major facilities service areas, the likelihood that one or more dischargers to the collection system contributes toxic substances in toxic amounts is significant, for this reason the Division believes there is reasonable potential for the discharge to interfere with attainment of applicable water quality classifications or standards. The results of the testing are to be reported on Division approved forms. The permittee will be required to conduct two types of statistical derivations on the data, one looking for any statistically significant difference in toxicity between the control and the effluent concentrations and the second identifying the  $IC_{25}$ , should one exist. Both sets of calculations will look at the full range of toxicity (lethality, growth and reproduction). If a level of chronic toxicity occurs, such that there is a statistically significant difference in the lethality (at the 95% confidence level) between the control and any effluent concentration less than or equal to the Instream Waste Concentration (IWC) and if the lethality  $IC_{25} < \text{the IWC}$ , the permittee will be required to follow the automatic compliance schedule identified in Part I.B of the permit, if the observed toxicity is due to organism lethality. Once the chronic lethality limitation becomes effective, only exceedance of the limitation specified in Part I.A.2. will trigger the requirement for conducting the automatic compliance schedule identified in Part I.B. of the permit. Prior to and after the limitation becomes effective, if the toxicity is due to differences in the growth of the fathead minnows or the reproduction of the Ceriodaphnia, no immediate action on the part of the permittee will be required. However, this incident, along with other WET data, will be evaluated by the Division and may form the basis for reopening the permit and including additional WET limits or other requirements.

Following the completion of at least ten WET testing events, on request of the permittee, the Division will reconsider the reasonable potential for the discharge to interfere with attainment of applicable water quality classifications or standards through instream toxicity. Request for consideration of removal of the WET test limit should include an evaluation of effluent WET test data that has been prepared in accordance with the EPA 'Technical Support Document For Water Quality-based Toxics Control'.

- c. **WET Test Method Modifications:** The permittee has requested and will be allowed to make the following modifications to the WET test procedures:
- 1) Use of testing in a CO<sub>2</sub> atmosphere for control of pH creep;
- d. **General Information:** The permittee should read the WET testing sections of Part I.A. and I.B. of the permit carefully. The permit outlines the test requirements and the required follow-up actions the permittee must take to resolve a toxicity incident. The permittee should read, along with the documents listed in Part I.B of the permit, the Colorado Water Quality Control Division Bio-monitoring Guidance Document, dated July 1, 1993. This document outlines the criteria used by the Division in such areas as granting relief from WET testing, modifying test methods and changing test species. The permittee should be aware that some of the conditions outlined above may be subject to change if the facility experiences a change in discharge, as outlined in Part I.D.4.e) of the permit. Such changes shall be reported to the Division immediately.

### C. Reporting

1. **Signatory Requirements** - Signatory requirements for reports and submittals are discussed in Part I, Section D.1 of the permit.
2. **Discharge Monitoring Report** - The permittee must submit a Discharge Monitoring Report (DMR) monthly to the Division. This report will contain the test results for parameters shown in Tables VI-3 & VI-4 and Part I, Section B of the permit. The DMR form shall be completed and submitted in accordance with Part I, Section D.2 of the permit.
3. **Annual Biosolids Report** - The permittee will be required to submit an annual Biosolids Report that includes the results of all biosolids monitoring performed for the year and information on management practices, land application sites, site restrictions and certifications. The Annual Biosolids Report is due by February 19th of the following year. Refer to Part I, Section D.3 of the permit.
4. **Special Reports** - Special reports are required in the event of a spill, bypass, or other noncompliance. Please refer to Part I, Section D.4 of the permit for reporting requirements.

D. Compliance Schedules

- a. Nitrite Study - In order to determine if this discharge has a reasonable potential to cause or contribute to and exceedance of the stream standard for nitrite, a compliance schedule requiring the permittee to study nitrite concentrations in the effluent and instream to determine if this discharge has the potential to cause an exceedance of the stream standard for nitrite.

Code	Event	Permit Citation	Due Date
50199	Submit plan for study of effluent and instream nitrite concentrations.	Part I.A.7.	6/30/03
00199	Submit study progress report.	Part I.A.7.	6/30/04
21599	Submit study of effluent and instream nitrite concentrations.	Part I.A.7.	6/30/05

E. Reopener, Permit Renewal and Fee Information

1. The permit may be modified, suspended, or revoked in whole or in part during its term for reasons outlined in Part II, Section B.8 of the permit.
2. Requirements for permit renewal are discussed in Part II, Section B.9 of the permit.
3. Permit fee requirements are outlined in Part II, Section B.11 of the permit. An annual fee must be paid to the Water Quality Control Division to maintain the status of your permit.

V. REFERENCES

- A. Colorado Department of Public Health and Environment, Water Quality Control Division Files.
- B. "Design Criteria for Wastewater Treatment Works", Colorado Water Quality Control Commission, December 1994.
- C. "Basic Standards and Methodologies for Surface Water", Regulation No. 31, Colorado Water Quality Control Commission, effective March 2, 1999.
- D. "Classification and Numeric Standards South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin", Regulation No. 38, Colorado Water Quality Control Commission, effective June 30, 1999.
- E. "Colorado Discharge Permit System Regulations", Regulation No. 61, Colorado Water Quality Control Commission, effective April 30, 1999.
- F. "Regulations for Effluent Limitations", Regulation No. 62, Colorado Water Quality Control Commission, effective December 30, 1998.
- G. "Pretreatment Regulations", Regulation No. 63, Colorado Water Quality Control Commission, effective March 2, 1999.
- H. "Biosolids Regulation", Regulation No. 64, Colorado Water Quality Control Commission, effective March 1, 2000.
- I. "Colorado Total Maximum Daily Load and Wasteload Allocation Guidance", Colorado Department of Public Health and Environment, Water Quality Control Division, effective November 1991.

Lynn Kimble  
 November 19, 2006

VIII. PUBLIC NOTICE COMMENTS

VIII. PUBLIC NOTICE COMMENTS

*During Public Notice comments were received from Boulder and EPA.*

*EPA commented that, 'The TMDL for ammonia on Boulder Creek segment COSPB009 is scheduled to become final during the term of the renewal permit and the permit needs to reflect compliance with the TMDL wasteload allocations (WLAs) for ammonia if the WLAs are more stringent than the proposed effluent limits.'*

*Because the current Boulder WWTP is not capable of meeting the ammonia limits for the facility which are listed in the draft TMDL, a requirement has been added to the Special Notifications section of Part I, D., requiring the permittee to request that the permit be opened and 1) an amendment be incorporated requiring the facility be upgraded to meet the final TMDL limits, and 2) the final TMDL limits be incorporated into the permit with an effective date prior to the expiration of the permit.*

*Boulder requested that a provision be included in the permit allowing WET testing be done with a CO<sub>2</sub> atmosphere for the control of pH drift.*

*This provision has been included in the rational.*

*Typographical errors identified during Public Notice were also corrected.*

*Lynn Kimble  
December 27, 2002*

**APPENDIX A  
WATER QUALITY ASSESSMENT  
BOULDER CREEK  
CITY OF BOULDER WWTF**

**Table A-1  
Assessment Summary**

Name of Facility	City of Boulder WWTF
CDPS Number	CO-0024147
WBID - Stream Segment	South Platte River Basin, Boulder Creek Sub-basin, Stream Segment 09: Mainstem of Boulder Creek from a point immediately above the confluence of South Boulder Creek to the confluence with Coal Creek. COSPBO09
Classifications	Warm Water Aquatic Life Class 1 Class 1a Recreation Agriculture Water Supply
Designation	Undesignated

## I. Introduction

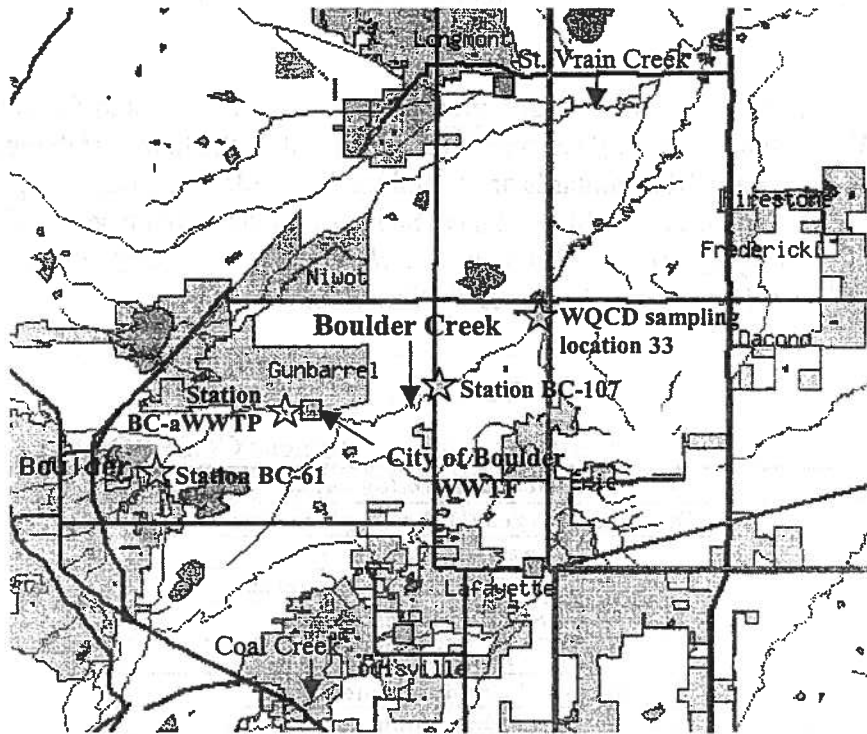
The water quality assessment (WQA) of Boulder Creek near the City of Boulder Wastewater Treatment Facility (WWTF) was developed for the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD). The WQA was prepared to facilitate issuance of the Colorado Discharge Permit System (CDPS) permit for the City of Boulder WWTF, CDPS Permit No. CO-0024147, and is intended to determine the assimilative capacities available to the City of Boulder WWTF and to perform an antidegradation review for pollutants found to be of concern.

Figure A-1 on the following page contains a map of the study area evaluated as part of this WQA.

The City of Boulder WWTF discharges to Boulder Creek northeast of the city of Boulder. The stream segment to which the facility discharges, stream segment COSPBO09, is currently listed on the Colorado 303(d) list of water quality impacted streams for ammonia. Thus, the City of Boulder WWTF is being included in the ammonia modeling that is being conducted as part of the Total Maximum Daily Load (TMDL) development for Boulder Creek stream segment COSPBO09.

The ratio of the low flow of Boulder Creek to the City of Boulder WWTF design flow is 0.22:1. Thus, due to the small available dilution, analyses indicate that assimilative capacities are extremely limited.

**Figure A-1  
Study Area**



**LEGEND**

- |                   |                 |
|-------------------|-----------------|
| — State           | ▨ Military Area |
| — County          | ▨ National Park |
| ▨ Lake/Pond/Ocean | ▨ Other Park    |
| — Expressway      | ▨ City          |
| — Highway         | — County        |
| — Connector       |                 |
| ▨ Stream          |                 |

Scale 1:214461  
 0 2 4 6 8 mi  
 0 2 4 6 8 10 km  
 \*average—true scale depends on monitor resolution

**Source: US Census Bureau Tiger Mapping Service**

Information used in this assessment includes data gathered from the City of Boulder WWTF, the Department of the Interior, the WQCD, the U.S. Environmental Protection Agency (EPA), the U. S. Geological Survey (USGS), and communications with the local water commissioner. The data used in the assessment consist of the best information available at the time of preparation of this WQA package.

**II. Water Quality**

The City of Boulder WWTF discharges to the Water Body Identification (WBID) stream segment COSPBO09, which means the South Platte River Basin, Boulder Creek Sub-basin, Stream Segment 09. This segment is composed of the “Mainstem of Boulder Creek from a point immediately above

the confluence of South Boulder Creek to the confluence with Coal Creek.” Stream segment COSPBO09 is classified for Warm Water Aquatic Life Class 1, Class 1a Recreation, Agriculture, and Water Supply.

Numeric standards are developed on a basin-specific basis and are adopted for particular stream segments by the Water Quality Control Commission. To simplify the listing of the segment-specific standards, many of the aquatic life standards are contained in a table at the beginning of each chapter of the regulations. The standards in Table A-2 have been assigned to stream segment COSPBO09 in accordance with the *Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin.*

<b>Table A-2</b>	
<b>In-stream Standards for Stream Segment COSPBO09</b>	
<i>Physical and Biological</i>	
Dissolved Oxygen (DO) = 5 mg/l, minimum	
pH = 6.5 - 9 su	
Fecal Coliform = 200 colonies/100 ml	
E. Coli = 126 colonies/100 ml	
<i>Inorganic</i>	
Un-ionized ammonia acute = TVS	
Un-ionized ammonia chronic = 0.06 mg/l	
Chlorine acute = 0.019 mg/l	
Chlorine chronic = 0.011 mg/l	
Free Cyanide acute = 0.005 mg/l	
Sulfide chronic = 0.002 mg/l	
Boron chronic = 0.75 mg/l	
Nitrite = 0.5 mg/l	
Nitrate = 10 mg/l	
Chloride = 250 mg/l	
Sulfate = the greater of 250 mg/l or existing quality as of January 2000	
<i>Metal</i>	
Total Recoverable Arsenic acute = 50 ug/l	
Dissolved Cadmium acute and chronic = TVS	
Total Recoverable Trivalent Chromium acute = 50 ug/l	
Dissolved Hexavalent Chromium acute and chronic = TVS	
Dissolved Copper acute and chronic = TVS	
Dissolved Iron chronic = the greater of 300 ug/l or existing quality as of January 2000	
Total Recoverable Iron chronic = 1000 ug/l	
Dissolved Lead acute and chronic = TVS	
Dissolved Manganese acute = TVS	
Dissolved Manganese chronic = the greater of 50 ug/l or existing quality as of January 2000	
Total Mercury chronic = 0.01 ug/l	
Dissolved Nickel acute and chronic = TVS	
Dissolved Selenium acute and chronic = TVS	
Dissolved Silver acute and chronic = TVS	
Dissolved Zinc acute and chronic = TVS	



Standards for metals are generally shown in the regulations as Table Value Standards (TVS), and these often must be derived from equations that depend on the receiving stream hardness or species of fish present. The Classification and Numeric Standards documents for each basin include a specification for appropriate hardness values to be used. Specifically, the regulations state that:

The hardness values used in calculating the appropriate metal standard should be based on the lower 95% 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.

Because proximate in-stream data was not available below the Boulder discharge, Boulder arranged to have an 'Estimation of Hardness Relevant to NPDES Permitting in Boulder Creek Downstream of the Boulder WWTP Outfall', prepared by William M. Lewis, Jr., and James F. Saunders, III. This evaluation produced an estimation of the downstream hardness concentration through a mass balance of upstream and effluent hardness data. Although this approach is not the preferred method of in-stream hardness evaluation, the resulting downstream hardness concentration of 184 mg/l is lower and so more protective, than the 194 mg/l hardness that was utilized in the previous renewal of this permit. The hardness concentration of 184 mg/l and the formulas contained in the TVS were used to calculate the in-stream water quality standards for metals with the results shown in Table A-3. Additional hardness data will be reviewed to establish in-stream hardness for future permitting of this facility.

Note that the TVS equations published in the January 30, 2002 version of Regulation 38 contained several typographical errors. Because a revision will soon be accomplished, the corrected equations, versus the equations as published, are reflected in this analysis.

### **Ambient Water Quality**

The WQCD evaluates ambient water quality based on a variety of statistical methods as prescribed in Section 31.8(2)(a)(i) and 31.8(2)(b)(i)(B) of the *Colorado Department of Public Health and Environment Water Quality Control Commission Regulation No. 31*. Ambient water quality is evaluated in this WQA for use in determining assimilative capacities and in completing antidegradation reviews for potential pollutants of concern.

To conduct an assessment of the ambient water quality upstream of the City of Boulder WWTF, data were gathered from several locations in Boulder Creek. The City of Boulder sampling location BC-aWWTP (Boulder Creek Upstream of the WWTP), located in Boulder Creek immediately upstream of the City of Boulder WWTF provided ambient water quality data for fecal coliform, temperature, pH, dissolved oxygen, total phosphorous, and total suspended solids. For most parameters, these data were available for a period of record October 1997 through August 2002. However, for the parameter of total ammonia, the available period of record was October 1995 through December 1999, and for the parameter of fecal coliform, the available period of record was June 2000 through August 2002.

<b>Table A-3</b>			
<b>TVS-Based Metals Water Quality Standards For CO-0024147</b>			
Based on the Table Value Standards Contained in the Colorado Department of Public Health and Environment Water Quality Control Commission <i>Regulation 38</i>			
Calculated Using the Following Value for Hardness as CaCO <sub>3</sub> :			184 mg/l
<i>Parameter</i>	<i>In-Stream Water Quality Standard</i>		<i>Formula Used</i>
Cadmium, Dissolved	Acute	8.3 ug/l	$[1.13667-0.04184\ln(\text{hardness})][e^{(1.128(\ln(\text{hardness}))-3.6867)}]$
	Chronic	3.5 ug/l	$[1.10167-0.04184\ln(\text{hardness})][e^{(0.7852(\ln(\text{hardness}))-2.715)}]$
Hexavalent Chromium, Dissolved	Acute	16 ug/l	Numeric standards provided, formula not applicable
	Chronic	11 ug/l	Numeric standards provided, formula not applicable
Copper, Dissolved	Acute	24 ug/l	$e^{(0.9422(\ln(\text{hardness}))-1.7408)}$
	Chronic	15 ug/l	$e^{(0.8545(\ln(\text{hardness}))-1.7428)}$
Lead, Dissolved	Acute	125 ug/l	$[1.46203-0.145712\ln(\text{hardness})][e^{(1.273(\ln(\text{hardness}))-1.46)}]$
	Chronic	4.9 ug/l	$[1.46203-0.145712\ln(\text{hardness})][e^{(1.273(\ln(\text{hardness}))-4.705)}]$
Manganese	Acute	3658 ug/l	$e^{(0.3331(\ln(\text{hardness}))+6.4676)}$
Nickel, Dissolved	Acute	784 ug/l	$e^{(0.846(\ln(\text{hardness}))+2.253)}$
	Chronic	87 ug/l	$e^{(0.846(\ln(\text{hardness}))+0.0554)}$
Selenium, Dissolved	Acute	18 ug/l	Numeric standards provided, formula not applicable
	Chronic	4.6 ug/l	Numeric standards provided, formula not applicable
Silver, Dissolved	Acute	5.8 ug/l	$\frac{1}{2} e^{(1.72(\ln(\text{hardness}))-6.52)}$
	Chronic	0.91 ug/l	$e^{(1.72(\ln(\text{hardness}))-9.06)}$
Zinc, Dissolved	Acute	196 ug/l	$e^{(0.8473(\ln(\text{hardness}))+0.8618)}$
	Chronic	198 ug/l	$e^{(0.8473(\ln(\text{hardness}))+0.8699)}$

The City of Boulder sampling location BC-61 (Boulder Creek upstream of 61<sup>st</sup> Street), located in Boulder Creek approximately three miles upstream from the facility provided ambient water quality data for most metals and chloride. Data were available from this location for a period of record from May 1997 through May 2002. As previously noted, hardness was based on data available from the City of Boulder sampling location BC-107 (Boulder Creek Upstream of 107<sup>th</sup> Street/Highway 287 Bridge) located in Boulder Creek approximately five miles downstream of City of Boulder WWTF.

Supplemental data for the parameters of total recoverable iron, total mercury, and sulfate were available from WQCD sampling location 33 (Boulder Creek at the Boulder/Weld County Road), located in Boulder Creek approximately eight miles downstream of the City of Boulder WWTF. Data were available for a period of record from February 1996 through May 2001 at this location. Note that although data from WQCD sampling location 33 are based on samples collected at downstream locations, absent any upstream data for these three parameters, these data are considered

a conservative representation of upstream ambient water quality. A summary of the upstream data from this source is presented in Table A-4.

Parameter	Number of Samples	15th Percentile	50th Percentile	85th Percentile	Mean	Chronic Stream Standard	Notes
Temp (°C)	66	1.0	10	18	9.9	20	
DO (mg/l)	62	8.0	9.8	13	10	5	
pH (su)	66	7.3	7.9	8.3	18	6.5-9	
Fecal Coliform (#/100 ml)	26	1.0	45	178	26	200	1
Hardness (mg/l CaCO3)	34	105	153	170	145	NA	2
As, Tot (ug/l)	50	0	0	0	0.55	NA	3,4
Cd, Dis (ug/l)	59	0	0	0	0.069	3.5	3,4
Cr, Tot (ug/l)	58	0	0	0	0.41	NA	3,4
Cr, Dis (ug/l)	58	0	0	0	0	NA	3,4
Cu, Dis (ug/l)	59	0	0	0	0.22	15	3,4
Fe, Dis (ug/l)	59	24	50	75	55	300	3,4
Fe, Trec (ug/l)	49	140	390	898	601	1000	4,5
Pb, Dis (ug/l)	59	0	0	0	0	4.9	3,4
Mn, Dis (ug/l)	59	6.4	12	25	15	50	3,4
Hg, Tot (ug/l)	24	0	0	0	0	0.010	4,5
Ni, Dis (ug/l)	59	0	0	0	0.092	87	3,4
Se, Dis (ug/l)	50	0	0	0	0	4.6	3,4
Ag, Dis (ug/l)	50	0	0	0	0.10	0.91	3,4
Zn, Dis (ug/l)	59	0	3.0	7.3	4.0	198	3,4
Chloride (mg/l)	58	7.0	16	24	16	250	3
Sulfate (mg/l)	50	63	87	107	82	250	5
P, Tot (mg/l)	66	0.058	0.16	0.41	0.29	NA	4
Nitrate+Nitrite (mg/l)	49	0.91	2.9	4.1	2.7	NA	4
TKN (mg/l)	35	0	1.5	2.0	1.3	NA	4
NH <sub>3</sub> , Tot (mg/l)	34	0	0	0.067	0.025	NA	6
TSS (mg/l)	89	2.0	5.0	18	9.1	NA	

Note 1: The calculated mean is the geometric mean. Note that for summarization purposes, the value of one was used where there was no detectable amount because the geometric mean of zero cannot be calculated.

Note 2: Data were taken from City of Boulder sampling location BC-107 (Boulder Creek upstream of 107th Street {Highway 287} Bridge), located approximately 5 miles downstream from the City of Boulder WWTF.

Note 3: Data were taken from City of Boulder sampling location BC-61 (Boulder Creek upstream of 61st Street), located approximately 3 miles upstream from the City of Boulder WWTF.

Note 4: When sample results were below detection levels, the value of zero was used in accordance with the CO WQCD's standard approach for summarization and averaging purposes.

Note 5: Data were taken from WQCD sampling location 33 (Boulder Creek at Boulder/Weld County Road), located approximately 8 miles downstream from the City of Boulder WWTF.

Note 6: For this parameter, an erroneous analytical value of -0.011 was deleted from the raw data evaluated.

### III. Water Quantity

The Colorado Regulations specify the use of low flow conditions when establishing water quality based effluent limitations, specifically the acute and chronic low flows. The acute low flow, referred to as 1E3, represents the one-day low flow recurring in a three-year interval. The chronic low flow, 30E3, represents the 30-day average low flow recurring in a three-year interval.

#### Low Flow Analysis

The low flows available to the City of Boulder WWTF were determined by the WQCD in a recently developed draft TMDL analysis for the Boulder Creek basin. In order to be consistent with the TMDL, the annual low flows as determined in the draft TMDL analysis are also used as part of this assessment. These low flows are set forth below:

- Annual chronic low flow = 7.0 cfs
- Annual acute low flow = 2.2 cfs.

### IV. Technical Analysis

In-stream background data and low flows evaluated in Sections II and III are ultimately used to determine the assimilative capacity of Boulder Creek near the City of Boulder WWTF for potential pollutants of concern. For all parameters except ammonia, it is the WQCD's approach to conduct a technical analysis of stream assimilation capacity using the lowest of the monthly low flows (referred to as the annual low flow) as calculated in the low flow analysis. For ammonia, it is the standard procedure of the WQCD to determine assimilative capacities for each month using the monthly low flows calculated in the low flow analysis, as the regulations allow the use of seasonal flows when establishing assimilative capacities.

The WQCD's standard analysis consists of steady-state, mass-balance calculations for most pollutants and modeling for pollutants such as ammonia. The mass-balance equation is used by the WQCD to calculate the maximum allowable concentration of pollutants in the effluent, and accounts for the upstream concentration of a pollutant at the existing quality, critical low flow (minimal dilution), effluent flow and the water quality standard. The mass-balance equation is expressed as:

$$M_2 = \frac{M_3 Q_3 - M_1 Q_1}{Q_2}$$

where:

$Q_1$  = Upstream low flow (1E3 or 30E3)

$Q_2$  = Average daily effluent flow (design capacity)

$Q_3$  = Downstream flow ( $Q_1 + Q_2$ )

$M_1$  = In-stream background pollutant concentrations at the existing quality

$M_2$  = Calculated maximum allowable effluent pollutant concentration

$M_3$  = Maximum allowable in-stream pollutant concentration (water quality standards)

The upstream background pollutant concentrations used in the mass-balance equation will vary based on the regulatory definition of existing ambient water quality. For most pollutants, existing quality is determined to be the 85<sup>th</sup> percentile. For metals in the total recoverable form, existing quality is

determined to be the 50<sup>th</sup> percentile. For pathogens such as fecal coliform, existing quality is determined to be the geometric mean.

For non-conservative parameters and ammonia, the mass-balance equation is not as applicable and thus other approaches are considered where appropriate. Note that conservative pollutants are pollutants that are modeled as if mass is conserved and there is no degradation, whereas non-conservative pollutants degrade and sometimes are created within a receiving stream depending on stream conditions. A more detailed discussion of the technical analysis for these parameters is provided in the pages that follow.

### **Pollutants Evaluated**

It is the standard procedure of the WQCD to evaluate domestic wastewater treatment facilities for the following pollutants:

- Ammonia
- Fecal Coliform
- Chlorine.

Additionally, it is WQCD's standard procedure to evaluate all metals and cyanide for which there are stream standards when conducting analyses for major domestic wastewater treatment facilities.

During assessment of this facility, nearby facilities, and receiving stream water quality, no additional parameters were identified as potential pollutants of concern.

**City of Boulder WWTF:** The City of Boulder WWTF is located at 40.048611 Latitude and -105.186111 Longitude in Boulder County. The current design capacity of the facility is 20.5 MGD (32 cfs). Wastewater treatment is accomplished using a mechanical wastewater treatment. The technical analyses that follow include assessments of the assimilative capacity based on this design capacity.

### **Nearby Sources**

An assessment of nearby facilities based on EPA's Permit Compliance System (PCS) database found 58 dischargers in the Boulder County area. More than one-half of the facilities were discharging to another watershed. Several facilities conducted construction-related operations (e.g., sand and gravel) and thus had no potential pollutants of concern in common with City of Boulder WWTF. Other facilities were located more than twenty miles from the City of Boulder WWTF and thus were not considered. The nearest dischargers were:

- Christopher and Heidi Mueller, dba The Red Lion Inn (CO0027260), which discharges to Boulder Creek approximately nine miles upstream of the City of Boulder WWTF, and shares fecal coliform and total residual chlorine as potential pollutants of concern with the City of Boulder WWTF.
- 5005 Properties, dba San Lazaro Mobile Home Park (CO0020184), which discharges to Boulder Creek approximately three miles upstream of the City of Boulder WWTF, and shares fecal coliform and total residual chlorine as potential pollutants of concern with the City of Boulder WWTF.

- The Alexander Dawson School (COX045021), which discharges to Boulder Creek approximately five miles downstream of the City of Boulder WWTF, and shares fecal coliform and total residual chlorine as potential pollutants of concern with the City of Boulder WWTF.

Because the ambient water quality background concentrations used in the mass-balance equation account for potential pollutants of concern contributed by upstream sources, it was not necessary to model the two upstream facilities together with the City of Boulder WWTF when determining the available assimilative capacities in Boulder Creek. Due to the distance traveled and the small contributions by this facility, modeling the Alexander Dawson School in conjunction with City of Boulder WWTF was not necessary.

Based on available information, there is no indication that non-point sources were a significant source of potential pollutants of concern. Thus, non-point sources were not considered in this assessment.

**Chlorine:** The mass-balance equation was used to determine the assimilative capacity for chlorine. There are no point sources discharging total residual chlorine within one mile of the City of Boulder WWTF. Because chlorine is rapidly oxidized, in-stream levels of residual chlorine are detected only for a short distance below a source. Ambient chlorine was therefore assumed to be zero.

Using the mass-balance equation provided in the beginning of Section IV, the acute and chronic low flows set out in Section III, the chlorine background concentration of zero as discussed above, and the in-stream standards for chlorine shown in Section II, assimilative capacities for chlorine were calculated. The data used and the resulting calculations of the allowable discharge concentration,  $M_2$ , are set forth below.

<i>Parameter</i>	$Q_1$ (cfs)	$Q_2$ (cfs)	$Q_3$ (cfs)	$M_1$ (mg/l)	$M_3$ (mg/l)	$M_2$ (mg/l)
Acute Chlorine	2.2	32	34.2	0	0.019	<b>0.020</b>
Chronic Chlorine	7.0	32	39.0	0	0.011	<b>0.013</b>

**Fecal Coliform:** Although the San Lazaro Mobile Home Park discharges within close proximity (approximately three miles upstream) of the City of Boulder WWTF, an attempt to model the two facilities together demonstrated that the small design flow of the San Lazaro Mobile Home Park had no influence whatsoever on the fecal coliform assimilative capacity available to the City of Boulder WWTF. Thus, fecal coliform assimilative capacities were evaluated separately.

It is the standard approach of the WQCD to perform a mass-balance check to determine if fecal coliform standards are exceeded. WQCD procedure specifies that checks are conducted using only the chronic low flow as set out in Section III. Using the mass-balance equation provided in the beginning of Section IV, the background concentration contained in Section II, and the in-stream standards for fecal coliform shown in Section II, checks for fecal coliform were conducted. The data used and the resulting calculations of the allowable discharge concentration,  $M_2$ , are set forth below.



<i>Parameter</i>	$Q_1$ (cfs)	$Q_2$ (cfs)	$Q_3$ (cfs)	$M_1$ (#/100 ml)	$M_3$ (#/100 ml)	$M_2$ (#/100 ml)
Fecal Coliform	7.0	32	39	26	200	238

**Metals and Cyanide:** Metals and cyanides may be present at large domestic WWTFs that accept discharges from industrial contributors. It is the standard approach of the WQCD to determine the available assimilative capacities for cyanide and those metals for which ambient water quality standards are available.

Using the mass-balance equation provided in the beginning of Section IV, the low flows provided in Section III, the background concentrations contained in Section II, and the in-stream standards for metals shown in Section II, assimilative capacities were calculated. The data used and the resulting calculations of the allowable discharge concentrations,  $M_2$ , are set forth in Table A-5 for chronic assimilative capacities and in Table A-6 for acute assimilative capacities.

<i>Parameter</i>	$Q_1$ (cfs)	$Q_2$ (cfs)	$Q_3$ (cfs)	$M_1$	$M_3$	$M_2$	<i>Notes</i>
Cd, Dis (ug/l)	7.0	32	39	0	3.5	4.3	
Cr <sup>+6</sup> , Dis (ug/l)	7.0	32	39	0	11	13	1
Cu, Dis (ug/l)	7.0	32	39	0	15	18	
Fe, Dis (ug/l)	7.0	32	39	75	300	349	
Fe, Trec (ug/l)	7.0	32	39	390	1000	1,133	
Pb, Dis (ug/l)	7.0	32	39	0	4.9	6.0	
Mn, Dis (ug/l)	7.0	32	39	25	50	55	
Hg, Tot (ug/l)	7.0	32	39	0	0.010	0.012	
Ni, Dis (ug/l)	7.0	32	39	0	87	106	
Se, Dis (ug/l)	7.0	32	39	0	4.6	5.6	
Ag, Dis (ug/l)	7.0	32	39	0	0.91	1.1	
Zn, Dis (ug/l)	7.0	32	39	7.3	198	240	

Note 1: No ambient background data were available in the form of dissolved Cr+6. Dissolved Cr data (representing a combination of the Cr+3 and Cr+6 valences), however, were available from sampling conducted by the facility and were used as the background concentration for dissolved Cr+6.

<i>Parameter</i>	$Q_1$ (cfs)	$Q_2$ (cfs)	$Q_3$ (cfs)	$M_1$	$M_3$	$M_2$	<i>Notes</i>
As, Trec (ug/l)	2.2	32	34.2	0	50	53	1
Cd, Dis (ug/l)	2.2	32	34.2	0	8.3	8.9	
Cr <sup>+3</sup> , Trec (ug/l)	2.2	32	34.2	0	50	53	2
Cr <sup>+6</sup> , Dis (ug/l)	2.2	32	34.2	0	16	17	3
Cu, Dis (ug/l)	2.2	32	34.2	0	24	26	
CN, Free (ug/l)	2.2	32	34.2	0	5.0	5.3	4
Pb, Dis (ug/l)	2.2	32	34.2	0	125	134	
Mn, Dis (ug/l)	2.2	32	34.2	25	3658	3,908	
Ni, Dis (ug/l)	2.2	32	34.2	0	784	838	
Se, Dis (ug/l)	2.2	32	34.2	0	18	19	
Ag, Dis (ug/l)	2.2	32	34.2	0	5.8	6.2	
Zn, Dis (ug/l)	2.2	32	34.2	7.3	196	209	
Note 1: No ambient background data were available in the form of total recoverable As. Total As data, however, were available and were used as the background concentration.							
Note 2: No ambient background data were available in the form of total recoverable Cr+3. Total Cr data (representing a combination of the Cr+3 and Cr+6 valences), however, were available from sampling conducted by the facility and were used as the background concentration for total recoverable Cr+3.							
Note 3: See Note 1 in Table A-5.							
Note 4: No current data were available for free CN and no historical data were found at upstream or downstream sampling locations. However, the findings of comparable studies suggest that pollutants consistently found at less than detection levels in-stream are deleted as pollutants of concern for a water body and are no longer analyzed when in-stream sampling is performed. Thus, it has been assumed that free CN has been eliminated as a pollutant of concern in the receiving stream.							

**Ammonia:** Ammonia is present in the aqueous environment in both ionized and un-ionized forms. It is the un-ionized form which is toxic and which is addressed by water quality standards. The proportion of total ammonia present in un-ionized form in the receiving stream is a function of the combined upstream and effluent ammonia concentrations, and pH and temperature measurements.

Currently, stream segment COSPBO09 is listed on the WQCD's 303(d) list for ammonia. Dischargers to stream segment COSPBO09 are being included in the ammonia modeling that is being conducted as part of the Total Maximum Daily Load (TMDL) development for Boulder Creek.

Because an ammonia TMDL is currently being developed and WLAs for the City of Boulder WWTF will be included as part of the TMDL, ammonia assimilative capacities were not developed as part of this analysis. Instead, prior to the TMDL being approved, the WQCD may elect to establish permit limits based on the previous permit. The previous permit limits for total ammonia are as follows:

- November through March = 16.9 mg/l
- April, May, and August through October = 13.5 mg/l
- June = 10.9 mg/l
- July = 11.2 mg/l.



## V. Antidegradation Review

As set out in *The Basic Standards and Methodologies of Surface Water*, Section 31.8(2)(b), an antidegradation analysis is required except in cases where the receiving water is designated as "Use Protected." Note that "Use Protected" waters are waters "that the Commission has determined do not warrant the special protection provided by the outstanding waters designation or the antidegradation review process" as set out in Section 31.8(2)(b). The antidegradation section of the regulation became effective in December 2000, and therefore antidegradation considerations are applicable to this WQA development.

According to the *Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin*, stream segment COSPBO09 is Undesignated. Thus, an antidegradation review is required for this segment if new or increased impacts are found to occur.

It should be noted that an antidegradation review will not be conducted for the parameter of ammonia for this facility, because in-stream ambient water quality has been found to exceed the Water Quality Standards throughout the Boulder Creek Basin and therefore an antidegradation review does not apply. The aforementioned TMDL will establish wasteload allocations (WLAs) for facilities discharging to the Boulder Creek Basin, and these WLAs will be translated into permit limits applicable to these facilities.

Consistent with current WQCD procedures, the baseline water quality (BWQ) concentrations for potential pollutants of concern should be established so that it can be used as part of antidegradation reviews. BWQ is defined by the WQCD as the condition of the water quality as of September 30, 2000. Furthermore, the WQCD specifies that BWQ will include the influence of the discharger if it was in place on September 30, 2000. Accordingly, BWQ concentrations are calculated based on the following equation:

$$BWQ = \frac{M_{eff} Q_{eff} + M_{u/s} Q_{u/s}}{Q_{eff} + Q_{u/s}}$$

where:

- $BWQ$  = Baseline water quality
- $Q_{u/s}$  = Upstream chronic low flow (30E3)
- $M_{u/s}$  = Upstream background pollutant concentration at the existing quality
- $Q_{eff}$  = 2-year average flow
- $M_{eff}$  = 2-year average effluent pollutant concentration

The antidegradation requirements outlined in *The Basic Standards and Methodologies for Surface Water* specify that chronic numeric standards be used; however, where there is only an acute standard, the acute standard and low flow should be used. Chronic standards were available for all pollutants except total recoverable arsenic and total recoverable trivalent chromium. Thus, the chronic low flows summarized in Section III of this WQA were used for  $Q_{u/s}$  for all parameters except these two when establishing BWQ concentrations; for total recoverable arsenic and total

recoverable trivalent chromium, the acute low flows were used for the  $Q_{u/s}$  when establishing the BWQ.

Currently, it is the WQCD's approach to evaluate five years of ambient water quality data, if available, for the five years prior to September 30, 2000, when establishing the  $M_{u/s}$ . The period of record for the ambient water quality data evaluated as part of the antidegradation review differ from the ambient water quality data previously set forth in Section II. Data used for the antidegradation review were gathered at the same location as the other data, but most parameters were evaluated for a period of record from October 1995 through September 2000. However, for the parameter of total ammonia, the available period of record was limited to data from October 1995 through December 1999, and for the parameter of fecal coliform, the available period of record was limited to data from June 2000 through September 2000. These data are summarized in Table A-8.

<i>Parameter</i>	<i>Number of Samples</i>	<i>15th Percentile</i>	<i>50th Percentile</i>	<i>85th Percentile</i>	<i>Mean</i>	<i>Chronic Stream Standard</i>	<i>Notes</i>
Fecal Coliform (#/100 ml)	4	80	95	127	100	200	
As, Trec (ug/l)	33	0	0	0	0.71	NA	
Cd, Dis (ug/l)	42	0	0	0	0.098	3.5	
Cr <sup>+3</sup> , Trec (ug/l)	41	0	0	0	0.51	NA	1
Cr <sup>+6</sup> , Dis (ug/l)	41	0	0	0	0	11	2
Cu, Dis (ug/l)	42	0	0	0	0.31	15	
Fe, Dis (ug/l)	42	26	50	77	58	300	
Fe, Trec (ug/l)	47	139	390	821	595	1000	3
Pb, Dis (ug/l)	42	0	0	0	0	4.9	
Mn, Dis (ug/l)	42	6.0	11	17	13	50	
Hg, Tot (ug/l)	22	0	0	0	0	0.010	3
Ni, Dis (ug/l)	42	0	0	0	0.048	87	
Se, Dis (ug/l)	33	0	0	0	0	4.6	
Ag, Dis (ug/l)	33	0	0	0	0.11	0.91	
Zn, Dis (ug/l)	42	0	3.0	7.9	4.2	198	
Note 1: As previously noted, no ambient background data were available in the form of total recoverable Cr+3. However, total Cr data were available from sampling conducted by the facility and were used as the background concentration for total recoverable Cr+3.							
Note 2: As previously noted, no current or historical ambient data were available in the dissolved Cr+6 form. However, dissolved Cr data were available from sampling conducted by the facility and were therefore used as the background concentration for dissolved Cr+6.							
Note 3: As previously noted, these data were taken from WQCD sampling location 33 (Boulder Creek at Boulder/Weld County Road), located approximately 8 miles downstream from the City of Boulder WWTF.							

Monthly average effluent concentrations were available from PCS for fecal coliform, total residual chlorine, metals and cyanide. PCS data for fecal coliform, total residual chlorine, metals and cyanide for a period of record from October 1998 through September 2000 were obtained and averaged for

total residual chlorine and metals, and the geometric mean was determined for fecal coliform. These concentrations were then used as the  $M_{eff}$  for the respective month.

Note that for metals and cyanide, data included analytical results for total recoverable arsenic, potentially dissolved cadmium, potentially dissolved copper, dissolved hexavalent chromium, potentially dissolved iron, potentially dissolved lead, potentially dissolved manganese, total mercury, potentially dissolved nickel, total recoverable selenium, potentially dissolved silver, potentially dissolved zinc, and an unspecified form of cyanide. With the exception of total recoverable trivalent chromium and total recoverable selenium, data for metals in the form found were used as comparable to the pollutants evaluated in the antidegradation analysis. For total recoverable trivalent chromium, no data were found and thus a value of zero was assumed for the  $M_{eff}$ . In the absence of data for dissolved selenium, the long-term average concentration for total recoverable selenium which was found to equal 0.38 ug/l was assumed for the  $M_{eff}$ .

However, for total recoverable iron, it was not appropriate to assume an effluent concentration equal to zero. Absent effluent data for iron in the total recoverable form, the WQCD procedures are to forgo calculations of BWQ concentrations until such time as comparable data are available. For this reason, the BWQ concentration for total recoverable iron is not included in the evaluation that follows.

Pursuant to the approach discussed above, the equation for BWQ, and the available data, the BWQ concentrations for potential pollutants of concern are set forth in Table A-9.

In cases where the BWQ concentration exceeds the water quality standard, the calculated BWQ concentration must then be set equal to the water quality standard. This occurred for none of the constituents.

New or increased impacts on the receiving stream are expected as a result of this permit issuance because the calculated assimilative capacities for total recoverable arsenic, dissolved cadmium, total recoverable trivalent chromium, dissolved hexavalent chromium, dissolved nickel, and total residual chlorine are greater than the current permit limits for these parameters. For dissolved zinc, the acute assimilative capacity is more restrictive than the chronic assimilative capacity and therefore, based on the more restrictive acute assimilative capacity, the assimilative capacities are not greater than the current permit limits. Thus, no impact is expected for zinc. For the remaining parameters where an impact is expected, the antidegradation review procedure must continue to determine if the impacts are significant.

Impacts are deemed to be significant if the calculated assimilative capacity exceeds the calculated antidegradation-based average concentration (ADBAC). The ADBAC limit is a two-year rolling average limit, which means that while an ADBAC limit will remain the same throughout the life of a permit, the permittee will determine compliance each month with the ADBAC limit by averaging the two years of data preceding the month for which compliance is being determined.

<i>Pollutant</i>	<i>M<sub>eff</sub></i>	<i>Q<sub>eff</sub> (cfs)</i>	<i>M<sub>us</sub></i>	<i>Q<sub>us</sub> (cfs)</i>	<i>BWQ</i>	<i>WQS</i>
Fecal Coliform (#/100 ml)	62	25	100	7.0	70	200
As, Trec (ug/l)	0.41	25	0	2.2	0.38	50
Cd, Dis (ug/l)	0.092	25	0	7.0	0.072	3.5
Cr <sup>+3</sup> , Trec (ug/l)	0	25	0	2.2	0	50
Cr <sup>+6</sup> , Dis (ug/l)	0	25	0	7.0	0	11
Cu, Dis (ug/l)	10	25	0	7.0	7.8	15
CN, Free (ug/l)	0	25	0	2.2	0	5.0
Fe, Dis (ug/l)	146	25	77	7.0	131	300
Pb, Dis (ug/l)	0.042	25	0	7.0	0.033	4.9
Mn, Dis (ug/l)	32	25	17	7.0	29	50
Hg, Tot (ug/l)	0	25	0	7.0	0	0.010
Ni, Dis (ug/l)	2.3	25	0	7.0	1.8	87
Se, Dis (ug/l)	0.38	25	0	7.0	0.30	4.6
Ag, Dis (ug/l)	0.17	25	0	7.0	0.13	0.91
Zn, Dis (ug/l)	29	25	7.9	7.0	24	198
TRC (mg/l)	0	25	0	7.0	0	0.011

ADBACs are calculated using the significant concentration threshold (SCT), which is the additional amount of pollutant above BWQ that would not cause significant degradation. Section 31.8 (3)(c) specifies that the discharge of pollutants should not be considered to result in significant degradation of the reviewable waters if one of the following summarized conditions is met:

- For bioaccumulative toxic pollutants such as mercury, the new or increased loading from the source under review is less than 10 percent of the existing total load to that portion of the segment impacted
- For all other pollutants
  - the flow rate is greater than 100:1 dilution at low flow; or
  - the new effluent load is less than 15 percent of the remaining assimilative capacity; or
  - only a temporary change in water quality will result.

The SCT for most pollutants equals the BWQ concentration plus 15 percent of the remaining assimilative capacity, and is calculated by the following equation:

$$SCT = 0.15 \times (WQS - BWQ) + BWQ$$

ADBACs are then determined by re-calculating the mass-balance equation using the SCT in place of the water quality standard, as in the following equation:

$$ADBAC = \frac{SCT \times Q_3 - M_1 \times Q}{Q_2}$$

where:

- $Q_1$  = Upstream low flow (1E3 or 30E3)
- $Q_2$  = Average daily effluent flow (design capacity)
- $Q_3$  = Downstream flow ( $Q_1 + Q_2$ )
- $M_1$  = Ambient existing water quality concentration (From Section II)
- $SCT$  = Significant concentration threshold

The SCTs and ADBACs for potential pollutants of concern were calculated and are set forth in Table A-10. Note that SCTs and ADBACs were not determined for fecal coliform, dissolved copper, total recoverable iron, dissolved iron, free cyanide, dissolved lead, dissolved manganese, total mercury, dissolved selenium, dissolved silver, and dissolved zinc and because impacts were not determined as previously discussed.

<b>Pollutant</b>	<b>SCT</b>	<b><math>M_1</math></b>	<b><math>Q_1</math> (cfs)</b>	<b><math>Q_2</math> (cfs)</b>	<b><math>Q_3</math> (cfs)</b>	<b>ADBAC</b>
As, Trec (ug/l)	7.8	0	2.2	32	34.2	8.3
Cd, Dis (ug/l)	0.59	0	7.0	32	39	0.72
Cr <sup>+3</sup> , Trec (ug/l)	7.5	0	2.2	32	34.2	8.0
Cr <sup>+6</sup> , Dis (ug/l)	1.7	0	7.0	32	39	2.1
Ni, Dis (ug/l)	15	0	7.0	32	39	18
TRC (mg/l)	0.0017	0	7.0	32	39	0.0021

In lieu of being subject to the ADBACs, facilities have the option of retaining their permit limits based on their current permitted load. By agreeing to retain their permit limits based on their current permitted load, new or increased impacts will not occur and thus ADBACs will not be required to be considered in CDPS permits. For those pollutants for which permit limits have not yet been established, an implicit load allocation is determined and an implicit permit limit is established. Permit limits were available for dissolved cadmium and total residual chlorine. An implicit limit was determined for total recoverable arsenic, dissolved hexavalent chromium, total recoverable trivalent chromium, and dissolved nickel based on the WQCD's standard approach that specifies that implicit limits be developed based on the maximum of the facility's effluent concentrations.

The permit limits and implicit permit limits based on the current permitted load that the City of Boulder WWTF must meet to avoid being subject to the antidegradation review process are set forth in Table A-11.

**Table A-11**  
**Permit Limits Based on the Current Permitted Load**

<i>Parameter</i>	<i>Monthly Average</i>	<i>Weekly Maximum</i>	<i>Daily Maximum</i>	<i>Instantaneous Maximum</i>	<i>Minimum</i>	<i>Note</i>
As, Trec (ug/l)	9.0	NA	NA	NA	NA	
Cd, Dis (ug/l)	2.4	NA	NA	NA	NA	
Cr+3, Trec (ug/l)	0	NA	0	NA	NA	
Cr+6, Dis (ug/l)	0	NA	NA	NA	NA	
Ni, Dis (ug/l)	17	NA	NA	NA	NA	
TRC (mg/l)	0.0040	NA	0.0060	0.0060	NA	

If the facility chooses to retain their permit limits based on their current permitted load, ADBACs will not be applied. Additionally, the facility may complete an alternatives analysis, which would also result in ADBACs not being applied. These options are further discussed in the rationale.

## VI. References

*Colorado Total Maximum Daily Load and Wasteload Allocation Guidance*, CDPHE, WQCD, November 1991.

*Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin, Regulation No. 38*, CDPHE, WQCC, Effective January 30, 2002.

*The Basic Standards and Methodologies for Surface Water, Regulation 31*, CDPHE, Effective October 30, 2001.

*CDPS Summary of Rationale General Permit for Domestic Wastewater Treatment Facilities that Discharge to Receiving Waters with a Chronic Low Flow: Design Flow Ratio of 100:1 or Greater, CDPS Permit COG-584000, Statewide*, CDPHE, September 14, 1994.

*Antidegradation Significance Determination for New or Increased Water Quality Impacts, Procedural Guidance*, WQCD, December 2001.

November 18, 2002

Ms Lynn Kimble  
Permits Unit  
Water Quality Control Division  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, Colorado 80222-1530

Dear Lynn:

The purpose of this letter is to relay comments and suggest changes to the permit. I plan to highlight these items in the permit and rationale but decided to e-mail this initial listing to speed up the process.

**Permit:**

Page 5, section 5. Effluent Limitations

This draft only lists one effluent outfall whereas Boulder will begin using the new outfall being constructed as part of the agreement with Lafayette as soon as it is constructed. We would like the second outfall listed in the permit so it does not have to be reopened when we switch to the new outfall this spring. The old outfall will be abandoned and plugged.

As per our 11/14 conversation the limits for iron, arsenic, and nickel were going to change. At that time, only iron had been recalculated (Fe pd = 349 ug/l, Fe trec = 1133 ug/l). I am assuming that the recalculated limits will be in the rationale and permit prior to Friday's publication.

Page 7, Section 7. Compliance Schedule

Compliance schedule language was e-mailed to you this morning. Thank you for considering our requests.

Page 17, Section B. 1. and 2. Monitoring Requirements

Both influent and effluent BOD and TSS monitoring frequencies are listed as monthly rather than daily, which was the frequency listed in the last permit. Was this intentionally decreased to monthly based on historical data showing no problems with compliance?

Page 18. B. 3. Biosolids Parameters

The first two items are both listed as "a." rather than a. and b.

Page 30. C. 2. Influent and Effluent Sampling Points

Our current influent sampling point is upstream of the preliminary treatment (bar screens and aerated grit chambers) to avoid return flows from the gravity sludge thickener and occasional returns from the centrifuge operation. If we move the sampling point

downstream according to this section the influent loading will be higher than what is coming into the plant due to "double counting" the return flows. Can we stay with the existing influent sampling location just upstream of the preliminary treatment processes?

Page 30. C. 4. b.

I noticed that biosolids data and monitoring records were required to be kept through the life of the permit whereas the liquid stream monitoring records in this section require only three years. Not a deal for Boulder because records are kept well beyond five years but an interesting difference.

**Rationale:**

Page 2. D. Legal Contact

Unless the Legal Contact needs to be the City Manager, Boulder prefers listing Ned

Williams: Robert E. Williams  
Director of Public Works for Utilities  
City of Boulder  
P.O. Box 791  
Boulder, CO 80306  
303-441-3200

Page 2. E. Facility Contact

The zip code is incomplete: 80301

Page 2. G. Discharge Point

The existing discharge point will be abandoned after the new one is constructed. Please list both as mentioned in the permit comments.

I will get any additional comments to you as soon as possible.

Sincerely,

Floyd D. Bebler  
Coordinator of Wastewater Treatment



**AUTHORIZATION TO DISCHARGE UNDER THE  
COLORADO DISCHARGE PERMIT SYSTEM**

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended), for both discharges to surface and ground waters, and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), for discharges to surface waters only, the

**City of Boulder 75th Street Wastewater Treatment Plant**

is authorized to discharge from the City's wastewater treatment plant

located in the SW ¼, Section 13, T1N, R70W, 6th P.M., at 4049 75th Street, Boulder, CO,

to Boulder Creek,

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Part I, and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

The applicant may demand an adjudicatory hearing within thirty (30) days of the issuance of the final permit determination, per Regulation for the State Discharge Permit System, 61.7(1). Should the applicant choose to contest any of the effluent limitations, monitoring requirements or other conditions contained herein, the applicant must comply with Section 24-4-104 CRS 1973 and the Regulations for the State Discharge Permit System. Failure to contest any such effluent limitation, monitoring requirement, or other condition, constitutes consent to the condition by the applicant.

This permit and the authorization to discharge shall expire at midnight, **January 31, 2008**

Issued and Signed this 30<sup>th</sup> day of **December, 2002**

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

*Susan Robnetta*  
for

Mark T. Pifher, Director  
Water Quality Control Division

**DATE SIGNED: DECEMBER 30, 2002**

**EFFECTIVE DATE OF PERMIT: FEBRUARY 1, 2003**

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PART I

A. TERMS AND CONDITIONS

1. Service Area

The service area for this treatment facility is delineated in Figure 1. All wastewater flows contributed in this service area may be accepted by the **City of Boulder 75th Street Wastewater Treatment Plant** for treatment at the authority's wastewater treatment plant provided that such acceptance does not exceed the throughput or design capacity of the treatment works or constitute a substantial impact to the functioning of the treatment works, quality of the receiving waters, human health, or the environment.

In addition, the permittee shall enter into and maintain service agreements with any municipalities that discharge into the wastewater treatment facility. The service agreements shall contain all provisions necessary to protect the financial, physical, and operational integrity of the complete wastewater treatment works.

2. Design Capacity

The design capacity of this domestic wastewater treatment works is **20.5 million gallons per day (MGD)** for hydraulic flow (30-day average) and **29,065 lbs. BOD<sub>5</sub> per day** for organic loading (30-day average).

3. Expansion Requirements

Pursuant to Colorado Law, C.R.S. 25-8-501 (5 d & e), the permittee is required to initiate engineering and financial planning for expansion of the domestic wastewater treatment works whenever throughput and treatment reaches eighty (80) percent of design capacity. Whenever throughput and treatment reaches ninety-five (95) percent of the design capacity, the permittee shall commence construction of the necessary treatment expansion.

In the case of a domestic wastewater treatment works, which treats wastewater from users under the permittee's jurisdiction, where construction is not commenced in accordance with the above paragraph, the permittee shall cease issuance of building permits within the service area until construction has commenced. If the permittee's domestic wastewater treatment works serves other municipalities or connector districts, the permittee shall have made provisions by contract or otherwise, for the municipalities within the service area to cease issuance of building permits within such service area until construction has commenced. Building permits may continue to be issued for any construction which would not have the effect of increasing the input of sewage to the wastewater treatment works that is the subject of this permit.

If, during the previous calendar year, the monthly organic loading (lbs. BOD<sub>5</sub>/day) to the facility in the maximum month exceeded either 80% or 95% of the organic capacity identified in Part I.A.2. of this permit, the permittee shall submit a report by March 31 the following year that includes:

- a. A schedule for planning for a facility expansion if 80% of the organic capacity was exceeded; or
- b. A schedule for construction of a facility expansion if 95% of the organic capacity was exceeded; or
- c. An analysis that indicates that the exceedance of the applicable percentage of the organic capacity (80% or 95%) was an anomaly and is not expected to occur during the current calendar year.

If 80% or 95% of the hydraulic capacity identified in Part I.A.2 of this permit was exceeded during the month of maximum flow, then the permittee is not required to provide the information required in paragraphs a) through c), above, unless violation(s) of effluent limits can be directly related to the magnitude of the hydraulic loading during any such months.

If the permittee has reason to believe that the peak flow in any major interceptor or lift station is expected to cause an overflow from the interceptor or lift station during the current calendar year, the permittee shall submit a report within 30 days of such finding that includes a schedule of actions to be taken immediately that will prevent any overflow to state waters.

4. Facilities Operation

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee as necessary to achieve compliance with the conditions of this permit. This provision requires the operation of back-up or auxiliary facilities or similar systems when installed by the permittee only when necessary to achieve compliance with the conditions of the permit. Any sludge produced at the wastewater treatment facility shall be disposed of in accordance with State and Federal guidelines and regulations.

5. Effluent Limitations

During the period beginning no later than the effective date of the permit and lasting through **January 31, 2008**, the permittee is authorized to discharge from outfall serial number(s): 001A, following the chlorine contact basin and prior to mixing with the receiving stream.

In accordance with the Water Quality Control Commission Regulations for Effluent Limitations, Section 62.4, and the Colorado Discharge Permit System Regulations, Section 61.8(2), the permitted discharge shall comply with the following limitations.

<u>Effluent Parameter</u>	<u>Discharge Limitations</u>			
	<u>30-Day Average</u>	<u>7-Day Average</u>	<u>Daily Maximum</u>	<u>2-Year Average p/</u>
Flow, MGD	20.5 <u>a/</u>	N/A	Report <u>e/</u>	N/A
5-day Carbonaceous Biochemical Oxygen Demand (CBOD <sub>5</sub> ), mg/l	25 <u>a/</u>	40 <u>b/</u>	N/A	N/A
Total Suspended Solids (TSS), mg/l	30 <u>a/</u>	45 <u>b/</u>	N/A	N/A
E. Coliform Bacteria, Number/100 ml	150 <u>c/</u>	300 <u>c/</u>		N/A
Total Residual Chlorine, mg/l	0.004 <u>a/</u>	N/A	0.020 <u>d/</u>	N/A
pH, s.u. (minimum-maximum)	N/A	N/A	(6.5-9.0) <u>d/</u>	N/A
Oil and Grease, mg/l	N/A	N/A	10 <u>d/</u>	N/A
Total Ammonia as N, mg/l				
January through March	16.9 <u>a/</u>	N/A	Report <u>e/</u>	N/A
April through May	13.5 <u>a/</u>	N/A	Report <u>e/</u>	N/A
June	10.9 <u>a/</u>	N/A	Report <u>e/</u>	N/A
July	11.2 <u>a/</u>	N/A	Report <u>e/</u>	N/A
August through October	13.5 <u>a/</u>	N/A	Report <u>e/</u>	N/A
November through December	16.9 <u>a/</u>	N/A	Report <u>e/</u>	N/A
Cyanide, Weak Acid Dissociable, ug/l	30 <u>a/</u>	N/A	Report <u>e/</u>	N/A
Arsenic, Total, ug/l	Report <u>a/</u>	N/A	Report <u>e/</u>	8.3
Cadmium, PD, ug/l	Report <u>a/</u>	N/A	Report <u>e/</u>	N/A
Chromium, Hex, Dissolved, ug/l	Report <u>a/</u>	N/A	Report <u>e/</u>	N/A
Chromium, Tri, TR, ug/l	N/A	N/A	Report <u>e/</u>	N/A
Copper, PD, ug/l				
Through December 31, 2005	25.6 <u>a/</u>	N/A	35.2	N/A
Beginning January 1, 2006	18 <u>a/</u>	N/A	26	N/A
Iron, Dissolved, ug/l				
Through December 31, 2005	Report <u>a/</u>	N/A	N/A	N/A
Beginning January 1, 2006	349 <u>a/</u>	N/A	N/A	N/A
Iron, TR, ug/l	Report <u>a/</u>	N/A	N/A	N/A
Lead, PD, ug/l	6.0 <u>a/</u>	N/A	N/A	N/A
Manganese, Dissolved, ug/l	55 <u>a/</u>	N/A	Report <u>e/</u>	N/A

<u>Effluent Parameter</u>	<u>Discharge Limitations</u>			
	<u>30-Day</u> <u>Average</u>	<u>7-Day</u> <u>Average</u>	<u>Daily</u> <u>Maximum</u>	<u>2-Year</u> <u>Average p/</u>
Mercury, Total, ug/l	0.012 a/	N/A	Report e/	N/A
Nickel, PD, ug/l	Report a/	N/A	N/A	18
Selenium, Total, ug/l				
Through December 31, 2005	Report a/	N/A	Report e/	N/A
Beginning January 1, 2006	5.6 a/	N/A	19 e/	N/A
Silver, PD, ug/l	1.11 a/	N/A	Report e/	N/A
Zinc, PD, ug/l	Report a/	N/A	Report e/	N/A
Whole Effluent Toxicity, Chronic	N/A	N/A	See Part I.A.4.	N/A

6. Percentage Removal Requirements (CBOD5 and TSS Limitations)

In addition to the concentration limitations on CBOD5 and Total Suspended Solids (TSS) indicated above, the arithmetic mean of the BOD5 and TSS concentrations for effluent samples collected during the calendar month shall demonstrate a minimum of eighty-five percent (85%) removal of BOD5 and TSS, as measured by dividing the respective difference between the mean influent and effluent concentrations for the calendar month by the respective mean influent concentration for the calendar month, and multiplying the quotient by 100.

7. Compliance Schedule

a. Nitrite

On or before June 30, 2003, the permittee shall submit a plan for the study of instream and effluent nitrite concentrations for Division approval.

On or before June 30, 2004, the permittee shall submit a progress report on the nitrite study.

On or before June 30, 2005, the permittee shall submit a final report on the nitrite study.

Progress reports must be submitted for tasks identified in the above schedule. Refer to PART I, Section D, Reporting Requirements, for specific information.

8. Industrial Pretreatment Program - Contributing Industries and Pretreatment Requirements

- a. The Permittee shall operate an industrial pretreatment program in accordance with the following permit requirements developed pursuant to Section 402(b)(8) of the Clean Water Act, the General Pretreatment Regulations (40 CFR Part 403), Section 25-8-501 and 25-8-508 of the Colorado Water Quality Control Act, the Colorado Pretreatment Regulations (5 CCR 1002-63) and the approved pretreatment program submitted by the Permittee. The pretreatment program was approved on January 18, 1983 and has subsequently incorporated substantial modifications as approved by the Approval Authority. The approved pretreatment program, and any approved modifications thereto, is hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:
- i. Industrial user information shall be updated at a minimum of once per year or at that frequency necessary to ensure that all Industrial Users are properly permitted and/or controlled. The records shall be maintained and updated as necessary;
  - ii. The Permittee shall sample and inspect each Significant Industrial User (SIU) at least once per calendar year (40 CFR Section 403.8(f)(2)(v)). This is in addition to any industrial self-monitoring activities;
  - iii. The Permittee shall evaluate, at least every two years, whether each SIU needs a spill or slug control plan or needs to update such a plan. Where needed, the Permittee shall require the SIU to prepare or update, and then implement the plan. Where a slug prevention plan is required, the Permittee shall ensure that the plan contains at least the minimum elements required in 40 CFR Section 403.8(f)(2)(v);
  - iv. The Permittee shall investigate instances of non-compliance with Pretreatment Standards and requirements indicated in reports and notices required under 40 CFR Section 403.12, or indicated by analysis, inspection, and surveillance activities.
  - v. The Permittee shall enforce all applicable Pretreatment Standards and requirements and obtain remedies for noncompliance by any industrial user;
  - vi. The Permittee shall control, through the legal authority in the approved pretreatment program, the contribution to the Domestic Wastewater Treatment Works (DWTW) by each industrial user to ensure compliance with applicable Pretreatment Standards and requirements. In the case of industrial users identified as significant under 40 CFR Section 403.3(t), this control shall be achieved through permit, order, or similar means and shall contain, at a minimum, the following conditions:
    - (A) Statement of duration (in no case more than five (5) years);
    - (B) Statement of non-transferability without, at a minimum, prior notification to the Permittee and provision of a copy of the existing control mechanism to the new owner or operator;
    - (C) Effluent limits based on applicable Pretreatment Standards, Categorical Pretreatment Standards, local limits, and State and local law;
    - (D) Self-monitoring, sampling, reporting, notification and record keeping requirements, including an identification of the pollutants to be monitored, sampling location, sampling frequency, and sample type, based on the applicable Pretreatment Standards in 40 CFR Part 403, Categorical Pretreatment Standards, local limits, and State and local law; and,
    - (E) Statement of applicable civil and criminal penalties for violation of Pretreatment Standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond deadlines mandated by federal statute or regulation.
  - vii. The Permittee shall provide adequate staff, equipment, and support capabilities to carry out all elements of the pretreatment program as required by 40 CFR Section 403.8(f)(3);
  - viii. The approved program shall not be substantially modified by the Permittee without the approval of the EPA. Substantial and non-substantial modifications shall follow the procedures outlined in 40 CFR Section 403.18;

- ix. The Permittee shall develop, implement, and maintain an enforcement response plan as required by 40 CFR Section 403.8(f)(5); and
  - x. The Permittee shall notify all Industrial Users of the users' obligations to comply with applicable requirements under Subtitles C and D of the Resource Conservation and Recovery Act (RCRA) as required by 40 CFR Section 403.8(f)(2)(iii).
- b. The Permittee shall establish and enforce specific local limits to implement the provisions of 40 CFR Section 403.5(a) and (b), as required by 40 CFR Section 403.5(c). The Permittee shall continue to develop these limits as necessary and effectively enforce such limits.

In accordance with EPA policy and with the requirements of 40 CFR sections 403.8(f)(4) and 403.5(c), the Permittee shall determine if technically based local limits are necessary to implement the general and specific prohibitions of 40 CFR sections 403.5(a) and (b).

This evaluation should be conducted in accordance with the latest revision of the "EPA Region VIII Strategy for Developing Technically Based Local Limits", and after review of the "Guidance Manual on the Development and implementation of Local Discharge Limitations Under the Pretreatment Program" December 1987. Where the Permittee determines that revised or new local limits are necessary, the Permittee shall submit the proposed local limits to the Approval Authority in an approvable form based upon the findings of the technical evaluation within two-hundred and seventy (270) days from the effective date of this permit.

- c. The Permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR Part 122 Appendix D (NPDES Application Testing Requirements) Table II at least **twice per year** and the toxic pollutants in Table III at least **quarterly**. If, based upon information available to the Permittee, there is reason to suspect the presence of any toxic or hazardous pollutant listed in Table V, or any other pollutant in a quantity or concentration known or suspected to adversely affect DWTW operation, receiving water quality, or solids disposal procedures, analysis for those pollutants shall be performed at least **quarterly** on both the influent and the effluent.
- i. Along with the Permittee's pretreatment annual report, the Permittee will submit a list of compounds included in Table V that are suspected or known to be present in its influent wastewater. This determination shall be based on a review of the Permittee's pretreatment program records. The state permitting authority and/or Approval Authority may review and comment on the list and the list may be revised if, in the opinion of the state permitting authority and/or Approval Authority, the list is incomplete. The Permittee will perform **quarterly** analysis on the influent for the revised list of compounds for which there are acceptable testing procedures.
  - ii. Where the pollutants monitored in accordance with this section are reported as being above the method detection limit, the results for these pollutants shall be reported in the Permittee's pretreatment annual report.
- d. The Permittee shall review the pollutants listed in 40 CFR Part 122 Appendix D, tables II and V. With the exception of volatiles, if any of the pollutants in these tables were above detection in the influent samples during the previous 2 years or the last two analyses, whichever is greater, the Permittee shall sample and analyze its sewage sludge for these pollutants. If the Permittee does not dispose of biosolids during the calendar year, the Permittee shall certify to that in the Pretreatment Annual Report and the monitoring requirements in this paragraph shall be suspended for that calendar year.
- i. The Permittee shall review the pollutants in 40 CFR Part 122, Appendix D, tables II and V. If any of the pollutants in these tables were above detection in the influent samples during the previous 2 years or the last two analyses, whichever is greater, the Permittee shall sample and analyze its sewage sludge for these pollutants. The Permittee shall perform this evaluation and analysis at least once per year.
  - ii. The Permittee shall use sample collection and analysis procedures as approved for use under 40 CFR Part 503.
  - iii. The Permittee shall report the results for these pollutants in the Permittee's pretreatment annual report.



- e. All analyses shall be in accordance with test procedures established in 40 CFR Part 136. Where analytical techniques are not specified or approved under 40 CFR Part 136, the Permittee shall use its best professional judgement and guidance from the State and the Approval Authority regarding analytical procedures. All analytical procedures and method detection limits must be specified when reporting the results of such analyses. Sampling methods shall be those defined in 40 CFR Part 136, 40 CFR Part 403, as defined in this permit, or as specified by the Approval Authority. Where sampling methods are not specified, the influent and effluent samples collected shall be composite samples consisting of at least twelve (12) aliquots collected at approximately equal intervals over a representative 24-hour period and composited according to flow. Where automated composite sampling is inappropriate, at least four (4) grab samples shall be manually taken at equal intervals over a representative 24-hour period, and composited prior to analysis using approved methods.
- f. The Permittee shall prepare annually a list of industrial users, which during the preceding twelve (12) months have significantly violated Pretreatment Standards or requirements. This list is to be published annually in the largest newspaper in the Permittee's service area as required by 40 CFR Section 403.8(f)(2)(vii).

In addition, on or before March 28, the Permittee shall submit a pretreatment program annual report to the Approval Authority and the state permitting authority that contains the following information:

- i. An updated list of all SIUs as defined at 40 CFR 403.3(t). For each SIU listed the following information shall be included:
- (A) All applicable Standard Industrial Classification (SIC) codes and categorical determinations, as appropriate. In addition, a brief description of the industry and general activities;
  - (B) Permit status. Whether each SIU has an unexpired control mechanism and an explanation as to why any SIUs are operating without a current, unexpired control mechanism (e.g. permit);
  - (C) A summary of all monitoring activities performed within the previous twelve (12) months. The following information shall be reported:  
  
Total number of SIUs inspected; and  
Total number of SIUs sampled.
- ii. For all industrial users that were in Significant Non-Compliance during the previous twelve (12) months, provide the name of the violating industrial user, indicate the nature of the violations, the type and number of actions taken (warning letter, notice of violation, administrative order, criminal or civil suit, fines or penalties collected, etc.) and current compliance status. If the industrial user was put on a schedule to attain compliance with effluent limits, indicate the date the schedule was issued and the date compliance is to be attained. Determination of Significant Non-Compliance shall be performed as defined at 40 CFR Section 403.8(f)(2)(vii).
- iii. A summary of all enforcement actions not covered by the paragraph above conducted in accordance with the approved Enforcement Response Plan.
- iv. A list of all SIUs whose authorization to discharge was terminated or revoked during the preceding twelve (12) month period and the reason for termination;
- v. A report on any Interference, Pass Through, upset or CDPS permit violations known or suspected to be caused by non-domestic discharges of pollutant and actions taken by the Permittee in response;
- vi. Verification of publication of industrial users in Significant Non-Compliance;
- vii. Identification of the specific locations, if any, designated by the Permittee for receipt (discharge) of trucked or hauled waste;

- viii. Information as required by the Approval Authority or state permitting authority on the discharge to the DWTW from the following activities:
- (A) Ground water clean-up from underground storage tanks;
  - (B) Trucked or hauled waste; and,
  - (C) Groundwater clean-up from RCRA or Superfund sites.
- ix. A description of all changes made during the previous calendar year to the Permittee's pretreatment program that were not submitted as substantial or non substantial modifications to EPA.
- x. The Permittee shall evaluate actual pollutants loadings against the approved Maximum Allowable Headworks Loadings (MAHLs). Where the actual loading exceeds the MAHL, the Permittee shall immediately begin a program to either revise the existing local limit and/or undertake such other studies as necessary to evaluate the cause(s) of the exceedence. The Permittee shall provide a summary of its intended action.
- xi. Other information that may be deemed necessary by the Approval Authority.
- g. The Permittee shall prohibit the introduction of the following pollutants into the DWTW:
- i. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (DWTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than sixty (60) degrees Centigrade (140 degrees Fahrenheit) using the test methods specified in 40 CFR Section 261.21;
  - ii. Pollutants which will cause corrosive structural damage to the DWTW, but in no case discharges with pH lower than 5.0, unless the works are specifically designed to accommodate such discharges;
  - iii. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the DWTW, or other interference with the operation of the DWTW;
  - iv. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with the DWTW;
  - v. Heat in amounts which will inhibit biological activity in the DWTW resulting in Interference but in no case heat in such quantities that the temperature at the DWTW treatment plant exceeds forty (40) degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the DWTW, approves alternate temperature limits;
  - vi. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;
  - vii. Pollutants which result in the presence of toxic gases, vapors, or fumes within the DWTW in a quantity that may cause acute worker health and safety problems;
  - viii. Any trucked or hauled pollutants, except at discharge points designated by the DWTW; and,
  - ix. Any specific pollutant that exceeds a local limitation established by the DWTW in accordance with the requirements of 40 CFR Section 403.5(c) and (d).
  - x. Any other pollutant which may cause Pass Through or Interference.

- h. The Permittee shall provide the pretreatment Approval Authority with adequate notice of any substantial change in the volume or character of pollutants being introduced into the treatment works by any SIU introducing pollutants into the treatment works at the time of application for the discharge permit. For the purposes of this section, "substantial change" shall mean a level of change which has a reasonable probability of affecting the Permittee's ability to comply with its permit conditions or to cause a violation of stream standards applied to the receiving water.

Adequate notice shall include information on: (1) the quality and quantity of effluent to be introduced into the treatment works, and (2) any anticipated impact of the change on the quality or quantity of effluent to be discharged from the publicly owned treatment works.

- i. Section 309(f) of the Act provides that EPA may issue a notice to the DWTW stating that a determination has been made that appropriate enforcement action must be taken against an industrial user for noncompliance with any Pretreatment Standards and requirements. The notice provides the DWTW with thirty (30) days to commence such action. The issuance of such permit notice shall not be construed to limit the authority of the permit issuing authority or Approval Authority.
- j. The state permitting authority and the Approval Authority retains, at all times, the right to take legal action against the industrial contributor for violations of a permit issued by the Permittee, violations of any Pretreatment Standard or requirement, or for failure to discharge at an acceptable level under national standards issued by EPA under 40 CFR, chapter I, subchapter N. In those cases where a CDPS permit violation has occurred because of the failure of the Permittee to properly develop and enforce Pretreatment Standards and requirements as necessary to protect the DWTW, the state permitting authority and/or Approval Authority shall hold the Permittee responsible and may take legal action against the Permittee as well as the Indirect Discharger(s) contributing to the permit violation.

9. Biosolids Limitations and Management Requirements

In accordance with the Water Quality Control Commission Biosolids Regulations, Section 64.11, and the Colorado Discharge Permit System Regulations, Section 61.8(3), biosolids generated by this facility to be used for land application for beneficial use shall comply with the following limitations.

a. Pollutant Limitations

i. Biosolids, which are to be land applied to agricultural land, forestland, a public contact site or a reclamation site, shall meet either:

(A) The daily maximum pollutant concentrations and the cumulative pollutant loading limits identified in the following table; or

(B) The daily maximum pollutant concentrations and the monthly average pollutant concentrations identified in the following table.

**Table I - Biosolids Pollutant Concentrations**

Pollutant	Pollutant Concentration (mg/Kg dry weight basis)		Cumulative Pollutant Loading Limits (kg/Ha)
	Daily Maximum	Monthly Average	
Total Arsenic	75	41	41
Total Cadmium	85	39	39
Total Copper	4300	1500	1500
Total Lead	840	300	300
Total Mercury	57	17	17
Total Molybdenum	75	-	-
Total Nickel	420	420	420
Total Selenium	100	100	100
Total Zinc	7,500	2,800	2,800

i. Biosolids to be sold or given away in a bag or similar enclosure for application to the land for other than lawn or home garden use shall meet:

(A) The daily maximum pollutant concentrations and the annual pollutant loading limits identified in the table in Part I.A.9.a.(iii), below; or

(B) The daily maximum pollutant concentrations and the monthly average pollutant concentrations identified in the table in Part I.A.9.a.(iii), below.

- ii. Biosolids to be applied to a lawn or home garden shall meet the monthly average pollutant concentrations identified in Table II.

**Table II - Monthly Average Pollutant Concentrations**

Pollutant	Pollutant Concentration (mg/Kg dry weight basis)	
	Daily Maximum	Monthly Average
Total Arsenic	75	41
Total Cadmium	85	39
Total Copper	4300	1500
Total Lead	840	300
Total Mercury	57	17
Total Molybdenum	75	-
Total Nickel	420	420
Total Selenium	100	100
Total Zinc	7,500	2,800

b. Pathogen Limitations

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site, the biosolids shall meet either Class A or Class B (including the site restrictions) criteria identified in the following two tables. If the biosolids are to be sold or given away in a bag or similar enclosure for application to land or for use on a lawn or home garden, the biosolids shall meet Class A criteria as described in the following table. Compliance with either Class A or Class B fecal coliform or salmonella requirements as listed in the following two tables shall be determined based upon seven discrete samples for Class A and the geometric mean of seven individual biosolids samples collected over a two week period for Class B.

**Class A Pathogen Requirements**

Fecal Coli form and Salmonella Limits		Process Requirements (One of the following):
Fecal Coliforms shall be < 1000 MPN per gram of total solids <b>OR</b> Salmonella shall be < 3 MPN per 4 grams of total solids <b>OR</b> Any other method of biosolids treatment which is certified as a Process to Further Reduce Pathogens by the USEPA, Region 8, or, after assumption of delegation by the State, which is certified as such by the division	<b>AND</b>	1. Composting using either the within-vessel or static aerated pile method, the temperature of the sludge is maintained at 55°C or higher for three days. <b>OR</b> 2. Composting using the windrow method, the temperature of the sludge is maintained at 55°C or higher for 15 days or longer, with a minimum of 5 turnings of the pile during those 15 days.

**Class B Pathogen Requirements**

Fecal Coliform Limit	OR	Process Requirements
Fecal Coliforms shall be < 2,000,000 MPN or CFU/gram of total solids  <b>OR</b>  Any other method of biosolids treatment which is certified as a Process to Further Reduce Pathogens by the USEPA, Region 8, or, after assumption of delegation by the State, which is certified as such by the division	<b>OR</b>	Aerobic digestion for 40 days at 20°C to 60 days at 15°C. Anaerobic digestion for 15 days within 35°C-55°C to 60 days at 20°C

i. Site Restrictions

The permittee shall comply with all of the site restrictions listed below:

- (A) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
- (B) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remain on the land surface for four months or more prior to incorporation into the soil.
- (C) Food crops with harvested parts below the land surface shall not be harvested for 38 months after application if the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
- (D) Other food crops and feed crops shall not be harvested from the land for 30 days after application.
- (E) Animals shall not be allowed to graze on the land for 30 days after application.
- (F) Turf grown on land where biosolids are applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (G) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (H) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.

c. Vector Attraction Reduction Limitations

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site, the biosolids shall meet any one of the alternatives c.i. through c.v.

If the biosolids are to be sold or given away in a bag or similar enclosure for application to land or for use on a lawn or home garden, the biosolids shall meet one of the three alternatives (i) through (iii) below.

- i. The mass of volatile solids in the biosolids shall be reduced by a minimum of 38 percent prior to land application. Alternately, if aerobically digested biosolids cannot meet the 38 percent volatile solids reduction requirement, a portion of the previously digested biosolids (with a percent solids content of 2 percent or less) shall be digested aerobically in the laboratory in a bench-scale unit for an additional 30 days at a temperature between 20° and 22°C. At the end of the 30 days, the volatile solids content shall have been reduced by no more than 15 additional percent.
- ii. The specific oxygen uptake rate (SOUR) for the biosolids treated in an aerobic process shall be equal to or less than 1.5 mg of oxygen/hour/gram of total solids at a temperature of 20°C.

- iii. The biosolids shall be treated in an aerobic process for 14 days or longer with a temperature remaining above 40°C. The average temperature shall be greater than 45°C.
- iv. The biosolids shall be injected below the surface of the land and no significant amount of biosolids shall be present on the land surface within one hour after the biosolids are injected. If the biosolids meet the Class A pathogen requirements (Part I.A.9.b.i.), the biosolids shall be injected below the land surface within 8 hours after the biosolids are discharged from the pathogen reduction process.
- v. Biosolids applied to the land surface shall be incorporated into the soil within 6 hours after application to the land. Biosolids that are incorporated into the soil and which meet the Class A pathogen requirements (Part I.A.9.b.i.) shall be applied to or placed on the land within 8 hours after being discharged from the pathogen treatment process.

d. Biosolids Management Practices

- i. If the biosolids or material derived from biosolids meet the pollutant concentration limits in Part I.A.9.a., the Class A pathogen reduction limits in Part I.A.9.b. and one of the first four vector attraction reduction alternatives in Part I.A.9.c., the following management practices are not required unless requested by the Division through permit modification procedures under Part II.B.8.e. of this permit.
- ii. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:
  - (A) The permittee shall provide to the Division and to EPA within 90 days of the issuance of this permit a land application plan. At a minimum, the plan is to include the components listed in section 2.3 of the latest version of the EPA Region VIII Biosolids Management Handbook.
  - (B) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater underlying the sites. Biosolids shall not be applied to any site area with standing water or where the annual high groundwater level is less than five feet without written permission of the Division.
  - (C) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the U.S. (as defined in 40 CFR 122.2).
  - (D) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. The treatment plant shall provide written notification to the applier of the biosolids, if not the same, of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Division is required to exceed the agronomic rate.
  - (E) No person shall apply sludge for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to five percent unless one of the following requirements is met:
    - (1) A vegetated buffer strip of at least 50 feet is provided between the application area and the site boundary;  
or,
    - (2) Division approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
  - (F) The biosolids or the application of the biosolids shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species after application.

- (G) For biosolids that are sold or given away, either a label shall be affixed to the bag or similar enclosure or an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
- (1) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
  - (2) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
  - (3) When biosolids which are sold or given away do not meet the monthly average pollutant concentrations in Part I.A.9.a), the annual whole biosolids application rate for biosolids which do not cause the annual pollutant loading rates in Part I.A.9.a)(iii). to be exceeded.
- (H) Biosolids subject to the cumulative pollutant loading rates in Part I.A.9.a)(i) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Part I.A.9.a)(i) have been reached.
- (I) If the permittee applies the sludge, it shall provide the owner or lease holder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.

iii. Special Conditions on Biosolids Storage

Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two years. Written permission to store biosolids for more than two years must be obtained from the Division. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.

iv. Change in Biosolids Treatment System or Use/Disposal Practice

The permittee must inform the Division and the EPA at least 180 days prior to any significant change in the biosolids generation and handling processes at the plant and any major change in use/disposal practices. This includes, but is not limited to, the addition or removal of biosolids treatment units (e.g., digesters, drying beds, etc.) and/or any other change which would require a major modification of the permit (e.g., changing from land application to surface disposal). For any biosolids that are landfilled, the requirements in section 2.12 of the latest version of the Region VIII Biosolids Management Handbook should be followed.



B. MONITORING REQUIREMENTS

1. Influent Parameters

Regardless of whether or not an effluent discharge occurs and in order to obtain an indication of the current influent loading as compared to the approved capacity specified in Part I, Section A.2.; the permittee shall monitor influent parameters at the following required frequencies, the results to be reported on the Discharge Monitoring Report (See Part I, Section D.2.):

<u>Influent Parameter</u>	<u>Frequency</u>	<u>Sample Type f/</u>
Flow, MGD	Continuous	Recorder
BOD <sub>5</sub> , mg/l (lbs/day)	Daily	Composite
Total Suspended Solids, TSS, mg/l	Daily	Composite

Self-monitoring samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Monitoring point 300I, at a representative point prior to any treatment.

2. Effluent Parameters

In order to obtain an indication of the probable compliance or non-compliance with the effluent limitations specified in Part I, Section A.5, the permittee shall monitor effluent parameters at the following required frequencies, the results to be reported on the Discharge Monitoring Report (See Part I, Section D.2.):

<u>Effluent Parameter</u>	<u>Frequency</u>	<u>Sample Type f/</u>
Flow, MGD, h/	Continuous	Recorder
BOD <sub>5</sub> , mg/l	Daily	Composite
Total Suspended Solids, TSS, mg/l	Daily	Composite
Effluent E. Coli., Number/100 ml	Daily	Grab
Effluent Total Residual Chlorine, mg/l DPD Method	4X/Day	Grab
Amperometric Titration Method	Daily	Grab
Effluent pH, s.u.	Daily	Grab
Effluent Oil & Grease, mg/l	Daily	Visual i/
Effluent Total Ammonia as N, mg/l	Daily	Composite
Cyanide, Weak Acid Dissociable, ug/l	Quarterly	Grab
Arsenic, Total, ug/l	Quarterly	Composite
Cadmium, PD, ug/l	Quarterly	Composite
Chromium, Tri, TR, ug/	Quarterly	Composite
Chromium, Hex, Dissolved, ug/l	Quarterly	Grab
Copper, PD, ug/l	Monthly	Composite
Iron, Dissolved, ug/l	Monthly	Composite
Iron, TR, ug/l	Quarterly	Composite
Lead, PD, ug/l	Monthly	Composite
Manganese, Dissolved, ug/l	Monthly	Composite
Mercury, Total, ug/l	Quarterly	Composite
Nickel, PD, ug/l	Quarterly	Composite
Selenium, Total, ug/l	Monthly	Composite
Silver, PD, ug/l	Monthly	Composite
Zinc, PD, ug/l	Quarterly	Composite
Whole Effluent Toxicity, Chronic	Quarterly	3 Composites/Test

Self-monitoring samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Discharge point 001A, following disinfection and prior to mixing with the receiving stream.

3. Biosolids Parameters

- a. The permittee shall identify the annual biosolids production rate on a dry weight basis, in the Annual Biosolids Report (see Part I, Section D.3).
- b. If biosolids from the treatment facilities are disposed of at a solid waste disposal site or applied to land for beneficial use\*, the following requirements apply.

The discharge of solid waste to land for disposal is regulated by the Colorado Solid Wastes Disposal Sites and Facilities Act (30-20, Part 1 CRS 1973). The Act requires that either a Certificate of Designation be issued by the appropriate board of county commissioners for any disposal site located within an unincorporated portion of a county, or that approval be granted by the appropriate governing body of an incorporated portion of a county for any disposal site located within that incorporated area. Biosolids are considered, by definition, [30-20-101(6)] to be a solid waste.

Section 30-20-102(6) provides an exemption from the Certificate of Designation requirement for biosolids that are used in a beneficial manner and are designated as meeting all applicable regulations of the Department. The application of biosolids to agricultural or disturbed land as a soil conditioner/fertilizer is subject to the Colorado Biosolids Regulations 64 (5CCR 1002-64). Biosolids disposed of in this manner shall comply with the requirements of these Regulations.

- c. If land application is practiced, the permittee shall monitor biosolids quality as follows. Results of monitoring shall be included in the Annual Biosolids Report (see Part I, Section D.3.).
  - i. Upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored per the schedule in the following table:

ANNUAL BIOSOLIDS PRODUCTION (dry tons)	FREQUENCY
less than 319	once per year
320 to less than 1,650	once per quarter
1,651 to less than 16,500	once per two months
16,500 and greater	monthly

- ii. If this facility does not collect samples on a regular basis because sampling occurs from long-term treatment piles, compost piles, drying beds, etc., a sampling and analysis plan is to be prepared and submitted to the Division and to EPA within 90 days of issuance of this permit. If, when the permit is issued the permittee was not sampling in this manner but a change in process necessitates this form of sampling, then the plan must be submitted 30 days before the change occurs. This plan is to detail how representative samples are to be obtained and should include elements presented in Section 2.13 of the latest version of the EPA Region VIII Biosolids Management Handbook. The number of samples collected will be at least as many as those that would be collected annually as required from the amount of sludge produced (i.e. six for this facility).
- iii. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: 1) For biosolids stability/volatile solids reduction, samples shall be taken before digestion and dewatering (or other stabilization processes) and after the biosolids has been digested and/or dewatered (or otherwise stabilized) but prior to transport or disposal; 2) For all other parameters, samples shall be taken after digestion and/or dewatering (or other stabilization processes) but prior to transport or disposal. All samples shall be representative of the biosolids stream being sampled.

\* "Beneficial Use" means the use of nutrients and/or moisture in the biosolids to act as a soil conditioner or low grade fertilizer for the promotion of vegetative growth on land.

d. Analytical and Sampling Methods for Monitoring

Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of the Biosolids Regulations, 64 (5CCR 1002-64) and/or other criteria specified in this permit. Metals analyses are to be performed using method SW 846 with samples prepared in accordance with method 3050. The methods are also described in the latest version of the EPA Region VIII Biosolids Management Handbook.

e. Records

Biosolids which are Class A with respect to pathogens and which meet the monthly pollutant concentration limits identified in Part I.A.9.a. shall comply with the recordkeeping requirements identified in sections 4.e.i.(A) through 4.e.i.(C), below. If the biosolids are Class B with respect to pathogens, or if any pollutant limited in Part I.A.9.a. increases to the point where the biosolids no longer meet the monthly average pollutant concentration limits in Part I.A.9.a., the permittee shall comply with all of the recordkeeping requirements identified below:

i. The permittee is required to have access to the following information for at least 5 years:

- (A) Test results showing the concentration of each pollutant in Part I.A.9.a.;
- (B) A description of how the pathogen reduction requirements in Part I.A.9.b. were met;
- (C) A description of how the vector attraction reduction requirements in Part I.A.9.c. were met;
- (D) A description of how the management practices in Part I.A.9.e. were met (if necessary);
- (E) A description of how the site restrictions in Part I.A.9.b. were met (if necessary); and
- (F) The following certification statement:

"I certify under the penalty of law, that the pathogen requirements in Part I.A.9.b., one of the vector attraction reduction alternatives in Part I.A.9.c., the management practices in Part I.A.9.d. (if necessary) and the site restrictions in Part I.A.9.b. (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."

ii. Records of monitoring information shall include the following:

- (A) The date, exact place, and time of sampling or measurements and the initials or name(s) of the individual(s) who performed the sampling or measurements;
- (B) The date(s) and times analyses were performed;
- (C) The initials or name(s) of individual(s) who performed the analyses;
- (D) All references and written procedures, when available, for the analytical techniques or methods used; and
- (E) The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

iii. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit for the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this permit must be maintained on site during the duration of activity at the permitted location.

4. Chronic WET Testing-Outfall 001:

a. Testing and Reporting Requirements

**Tests shall be done at the frequency listed in Part I.B.2.** Test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the reporting period during which the sample was taken. (i.e., WET testing results for the first calendar quarter ending March 31 shall be reported with the DMR due April 28.) The results shall be submitted on the Chronic Toxicity Test report form, available from the Division. Copies of these reports are to be submitted to both the Division and EPA along with the DMR.

The permittee shall conduct each chronic WET test in general accordance with methods described in Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001 or the most current edition, except as modified by the most current Division guidance document entitled Guidelines for Conducting Whole Effluent Toxicity Tests. The permittee shall conduct such tests using *Ceriodaphnia dubia* and fathead minnows.

b. Failure of Test and Division Notification

Beginning on the effective date of the limitation, a chronic WET test is failed whenever there is a statistically significant difference in lethality between the control and any effluent concentration less than or equal to the instream waste concentration ("IWC"). The IWC for this permit has been determined to be 81.9 %. The permittee must provide written notification of the failure of a WET test to the Division, along with a statement as to whether a Preliminary Toxicity Investigation ("PTI")/Toxicity Identification Evaluation ("TIE") or accelerated testing is being performed. **Notification must be received by the Division within 21 calendar days of the demonstration of chronic WET in the routine required test.** "Demonstration" for the purposes of Parts I.B.4(b),(c),(d), (e) and (g) means no later than the last day of the laboratory test.

c. Automatic Compliance Schedule Upon Failure of Test

If a routine chronic WET test is failed the following automatic compliance schedule shall apply. As part of this, the permittee shall either:

- i. Proceed to conduct the PTI/TIE investigation as described in Part I.B.4.d, or
- ii. Conduct accelerated testing using the single species found to be more sensitive.

**If accelerated testing is being performed, the permittee shall provide written notification of the results within 14 calendar days of completion of the "Pattern of Toxicity"/"No Toxicity" demonstration.** Testing will be at least once every two weeks for up to five tests until; 1) two consecutive tests fail or three of five tests fail, in which case a pattern of toxicity has been demonstrated or 2) two consecutive tests pass or three of five tests pass, in which case no pattern of toxicity has been found. If no pattern of toxicity is found the toxicity episode is considered to be ended and routine testing is to resume. If a pattern of toxicity is found, a PTI/TIE investigation is to be performed. If a pattern of toxicity is not demonstrated but a significant level of erratic toxicity is found, the Division may require an increased frequency of routine monitoring or some other modified approach.

d. PTI/TIE

**The results of the PTI/TIE investigation are to be received by the Division within 120 days of the demonstration of chronic WET in the routine test, as defined above, or if accelerated testing is performed, the date the pattern of toxicity is demonstrated. A status report is to be provided to the Division at the 30, 60 and 90 day points of the PTI/TIE investigation.** The Division may extend the time frame for investigation where reasonable justification exists. A request for an extension must be made in writing and received prior to the 120 day deadline. Such request must include a justification and supporting data for such an extension.

The permittee may use the time for investigation to conduct a PTI or move directly into the TIE. A PTI consists of a brief search for possible sources of WET, which might reveal causes of such toxicity and appropriate corrective actions more simply and cost effectively than a formal TIE. If the PTI allows resolution of the WET incident, the TIE need not necessarily be conducted. If, however, WET is not identified or resolved during the PTI, the TIE must be conducted within the allowed 120 day time frame.

Any permittee that is required to conduct a PTI/TIE investigation shall do so in conformance with procedures identified in the following documents, or as subsequently updated: 1) Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F May 92, 2) Methods for Aquatic Toxicity Identification Evaluations, Phase I Toxicity Characterization Procedures, EPA/600/6-91/003 Feb. 91 and 3) Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures, EPA/600/3-88/035 Feb. 1989.

A fourth document in this series is Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures, EPA/600/3-88/036 Feb. 1989. As indicated by the title, this procedure is intended to confirm that the suspected toxicant is truly the toxicant. This investigation is optional.

Within 90 days of the determination of the toxicant or no later than 210 days after demonstration of toxicity, whichever is sooner, a control program is to be developed and received by the Division. The program shall set down a method and procedure for elimination of the toxicity to acceptable levels.

e. Request For Relief

The permittee may request relief from further investigation and testing where the toxicant has not been determined and suitable treatment does not appear possible. In requesting such relief, the permittee shall submit material sufficient to establish the following:

- i. It has complied with terms and conditions of the permit compliance schedule for the PTI/TIE investigation and other appropriate conditions as may have been required by the WQCD;
- ii. During the period of the toxicity incident it has been in compliance with all other permit conditions, including, in the case of a POTW, pretreatment requirements;
- iii. During the period of the toxicity incident it has properly maintained and operated all facilities and systems of treatment and control; and
- iv. Despite the circumstances described in paragraphs (i) and (iii) above, the source and/or cause of toxicity could not be located or resolved.

If deemed appropriate by the Division, the permit or the compliance schedule may be modified to revise the ongoing monitoring and toxicity investigation requirements to avoid an unproductive expenditure of the permittee's resources, provided that the underlying obligation to eliminate any continuing exceedance of the toxicity limit shall remain.

f. Spontaneous Disappearance

If toxicity spontaneously disappears at any time after a test failure, the permittee shall notify the Division in writing within 14 days of a demonstration of disappearance of the toxicity. The Division may require the permittee to develop and submit additional information, which may include, but is not limited to, the results of additional testing. If no pattern of toxicity is identified or recurring toxicity is not identified, the toxicity incident response is considered closed and normal WET testing shall resume.

g. Toxicity Reopener

This permit may be reopened and modified (following proper administrative procedures) to include new compliance dates, additional or modified numerical permit limitations, a new or different compliance schedule, a change in the whole effluent toxicity testing protocol, or any other conditions related to the control of toxicants if one or more of the following events occur:

- i. Toxicity has been demonstrated in the effluent and the permit does not contain a toxicity limitation.
- ii. The PTI/TIE results indicate that the identified toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits and the permit issuing authority agrees that the control of such toxicants through numerical limits is the most appropriate course of action.
- iii. The PTI/TIE reveals other unique conditions or characteristics, which, in the opinion of the permit issuing authority, justify the incorporation of unanticipated special conditions in the permit.









## FOOTNOTES

a/ - The thirty (30) day average is defined as being the arithmetic mean of the analytical results for all samples collected during a thirty (30) consecutive day period. The permittee shall report the arithmetic mean of all self-monitoring sample data collected during the calendar month on the Discharge Monitoring Reports. No individual sample result may be used for more than one thirty (30) day average. (For fecal coliform and E. coli bacteria determinations, see footnote c/).

b/ - The seven (7) day average shall be determined by an arithmetic mean of the analytical results for all samples collected during a seven (7) consecutive day period. Such seven (7) day averages shall be calculated for all calendar weeks, which are defined as beginning on Sunday and ending on Saturday. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the seven (7) day average calculated for that calendar week shall be associated with the month that contains the Saturday. No individual sample result may be used for more than one (1) seven (7) day average. (For fecal coliform and E. coli bacteria determinations, see footnote c/).

c/ - For fecal coliform bacteria and E. coli bacteria concentrations, the thirty (30) day and seven (7) day averages shall be determined as explained in footnotes a/ and b/ above, respectively, except that the geometric mean shall be used instead of the arithmetic mean. The geometric mean may be calculated using two different methods. For the methods shown, a, b, c, d, etc. are individual sample results, and n is the total number of samples.

### Method 1:

Geometric Mean =  $(a*b*c*d*...)^{(1/n)}$  "\*" - means multiply

### Method 2:

Geometric Mean = antilog ( [log(a)+log(b)+log(c)+log(d)+...]/n )

Graphical methods, even though they may also employ the use of logarithms, may introduce significant error and may not be used.

In calculating the geometric mean, for those individual sample results that are reported by the analytical laboratory to be "less than" a numeric value, the numeric value shall be used in the calculations unless the result is "less than 2.2". If the result is "less than 2.2", use a value of 1 in the calculations. If all individual analytical results for the month are reported to be less than numeric values, then report "less than" the largest of those numeric values on the monthly DMR. Otherwise, report the calculated value.

For any individual analytical result of "too numerous to count" (TNTC), that analysis shall be considered to be invalid and another sample shall be promptly collected for analysis. If another sample cannot be collected within the same sampling period for which the invalid sample was collected (during the same month if monthly sampling is required, during the same week if weekly sampling is required, etc.), then the following procedures apply:

- i. A minimum of two samples shall be collected for coliform analysis within the next sampling period.
- ii. If the sampling frequency is monthly or less frequent: For the period with the invalid sample results, leave the spaces on the corresponding DMR for reporting coliform results empty and attach to the DMR a letter noting that a result of TNTC was obtained for that period, and explain why another sample for that period had not been collected.

If the sampling frequency is more frequent than monthly: Eliminate the result of TNTC from any further calculations, and use all the other results obtained within that month for reporting purposes. Attach a letter noting that a result of TNTC was obtained, and list all individual analytical results and corresponding sampling dates for that month.

d/ - The "Daily Maximum" limitation for this parameter shall be applied as an instantaneous maximum (or, for pH or DO, instantaneous minimum) value. The instantaneous value is defined as the analytical result of any individual sample. Report the maximum (and/or minimum) of all instantaneous values within the calendar month. Any instantaneous value beyond the noted daily maximum limitation for the indicated parameter shall be considered a violation of this permit.

e/ - The "Daily Maximum" limitation for this parameter shall be applied as a maximum daily average. The daily average is defined as the arithmetic mean of the analytical results for all samples collected during a 24-hour period. If only one sample is collected during the 24-hour period, the analytical result for that single sample shall be used as the daily average. Report the maximum of all daily average values within the calendar month. Any daily average beyond the noted daily maximum limitation for the indicated parameter shall be considered a violation of this permit.

f/ - Definitions for sample types are as follows:

- i. A "recorder" requires the continuous operation of a chart and/or totalizer (or drinking water rotor meters or pump hour meters where previously approved).
- ii. A "composite" sample, for monitoring requirements, is defined as a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow.
- iii. A "24 hour composite" sample is a combination of at least eight (8) sample aliquots of at least 100 milliliters, collected at equally spaced intervals during the operating hours of a facility over a twenty-four (24) hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the wastewater or effluent flow at the time of sampling or the total wastewater or effluent flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.
- iv. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected so as to be representative of the parameter being monitored.
- v. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement using existing monitoring facilities.
- vi. A "sludge composite" sample is a representative sample of sludge from a wastewater treatment process unit, storage unit or stabilization process unit. The sample shall consist of a minimum of three grab samples of 500 milliliters each taken at the start, middle and end of a pumping cycle, or if discharge is continuous or of a cyclical nature, grab samples of 250 milliliters each shall be taken four times during a twenty-four (24) hour period and combined. Compositing samples of semi-dewatered, dewatered and dried sludge shall consist of a minimum of four (4) grab samples of 0.5 kilograms each taken four times during a twenty-four (24) hour period and combined.

g/ - Monitoring is required only when chlorine is used for disinfection. In the calculation of average total residual chlorine concentrations, those analytical results that are less than the method detection limit shall be considered to be zero for calculation purposes. If all individual analytical results that would be used in the calculations are below the method detection limit, then "less than  $\bar{x}$ ", where  $\bar{x}$  is the method detection limit, shall be reported on the monthly DMR. Otherwise, report the calculated value.

For purposes of this permit the method detection limits of the DPD colorimetric and the amperometric titration methods of analysis for total residual chlorine are as follows:

<u>Method</u>	<u>Method Detection Limit, mg/l</u>
DPD colorimetric	0.10 mg/l
Amperometric titration	0.05 mg/l

If, during the life of this permit, there are improvements in approved analytical procedures that result in lower detection limits, this permit may be reopened to propose the incorporation of those detection limits into this permit. Modification of the permit will be in accordance with the requirements of 40 CFR, Part 124.

h/ - For this facility, a single flow recording device is provided and is located at the point of inflow to the treatment plant. Since effluent flows will not be significantly different from influent flows, the single flow measurement device will be used for the recording and reporting of both influent and effluent flows. Reported influent flows will be used to monitor compliance with the effluent flow limitation.

- i/ - If visible sheen is noted, a grab sample shall be collected and analyzed for oil and grease. The results are to be reported on the DMR under parameter 03582.
- j/ - When the measurement frequency indicated is quarterly, samples may be collected at any time during the calendar quarter, with the results being reported on the monthly DMR corresponding to the last month of the quarter (March, June, September or December). If the discharge is intermittent, samples must be collected during the period when discharge occurs.
- k/ - "(PD)" means potentially dissolved as defined in the Basic Standards and Methodologies [31.5(22)]. The selection of the sample preparation procedures (e.g., potentially dissolved) used in this permit was based on acceptable procedures that would best approximate the species of metal that was used in establishing water quality criteria for this metal in the receiving water. If there is a change in the species of metal upon which the water quality criterion is based and/or if a more appropriate sample preparation procedure is developed and it is acceptable to the division, the permittee may request that the permit be reopened to propose the appropriate modifications of the effluent limitations and self-monitoring requirements. Modifications of the permit will be in accordance with the requirements of 40 CFR, Part 124.
- l/ - Metals and phenols must be analyzed by methods capable of producing calculated method detection limits equal to or less than the values listed below. In the calculation of average concentrations of metals, those analytical results that are less than the method detection limit shall be considered to be zero for calculation purposes. If all individual analytical results that would be used in the calculations are below the method detection limit, then "less than  $\underline{x}$ ", where  $\underline{x}$  is the method detection limit, shall be reported on the monthly DMR. Otherwise, report the calculated value.

<u>Effluent Characteristic</u>	<u>Method Detection Limits, ug/l</u>
Arsenic	10
Cadmium	0.5
Chromium	10
Chromium, Hexavalent	10
Copper	5
Lead	5
Mercury	0.003
Nickel	20
Phenols	50
Selenium	10
Silver	0.2
Zinc	10

If during the life of this permit, the Division considers the use of analytical procedures capable of producing lower method detection limits to be appropriate for any of the above pollutants, this permit may be amended, in accordance with the Colorado Discharge Permit System Regulations (5 CCR 1002-61), in order to modify the method detection limits listed above.

- m/ - Metals concentrations measured in compliance with the effluent monitoring requirements listed in Part I.B.2. of this permit may be used to satisfy any pretreatment or industrial waste management metals monitoring requirements listed in Part I.A.8., with the potentially dissolved, dissolved, or total recoverable concentrations, as specified in Part I.B.2., being substituted for the total metals concentrations specified in Part I.A.8. However, the special sampling procedures (e.g. 24-hour composite samples) specified in Part I.A.8. must be followed. For hexavalent chromium, special provisions apply - see footnote n/.
- n/ - For hexavalent chromium, samples must be un-acidified to prevent conversion of the trivalent species to the hexavalent species. Accordingly, dissolved concentrations will be measured rather than potentially dissolved concentrations. In addition, the holding time must be under 24-hours. If performing 24-hour composite sampling for dissolved hexavalent chromium, the sample must be refrigerated during collection and laboratory analysis of the sample must begin within 2 hours after the last aliquot is collected.

- o/ - Due to the fact that there is no reliable method of measuring free cyanide in a chlorinated effluent, the American Society for Testing and Materials (ASTM) analytical procedure D2036-91, Method C, which detects weak acid dissociable cyanides, shall be the analytical procedure used. The lower method detection limit for the analysis described above must be at least as low as 0.030 mg/l. In the calculation of average concentrations of cyanide, those analytical results that are less than the method detection limit shall be considered to be zero for calculation purposes. If all individual analytical results that would be used in the calculations are below the method detection limit, then "less than  $\bar{x}$ ", where  $\bar{x}$  is the method detection limit, shall be reported on the monthly DMR. Otherwise, report the calculated value.
- p/ - "AD" - Antidegradation limits apply as the average of all data collected for months in that group during a rolling 24-month period. These limits become effective after data has been collected for all months in the group during the 24 months following permit issuance. Where antidegradation group are not indicated data from all months will be utilized to determine the AD reporting value and the limit will become effective in the 24th month in which the permit is effective.

## ADDITIONAL MONITORING REQUIREMENTS

### 1. Representative Sampling

Samples and measurements taken for the respective identified monitoring points as required herein shall be representative of the volume and nature of: 1) all influent wastes received at the facility, including septage, biosolids, etc.; 2) the monitored effluent discharged from the facility; and 3) biosolids produced at the facility. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the influent, effluent, or biosolids wastestream joins or is diluted by any other wastestream, body of water, or substance. Monitoring points shall not be changed without notification to and prior approval by the Division.

### 2. Influent and Effluent Sampling Points

Influent and effluent sampling points shall be so designed or modified so that: 1) a sample of the influent can be obtained prior to primary or biological treatment and 2) a sample of the effluent can be obtained at a point after the final treatment process and prior to discharge to state waters. The permittee shall provide access to the Division to sample at these points.

### 3. Analytical and Sampling Methods for Monitoring

The permittee shall install, calibrate, use and maintain monitoring methods and equipment, including biological and indicated pollutant monitoring methods. Analytical and sampling methods utilized by the discharger shall be approved methods as defined by the Regulations for Effluent Limitations (5 CCR 1002-62, 62.5), Federal regulations (40 CFR 136) and any other applicable State or Federal regulations.

When requested in writing, the Water Quality Control Division may approve an alternative analytical procedure or any significant modification to an approved procedure.

### 4. Records

a. The permittee shall establish and maintain records. Those records shall include, but not be limited to, the following:

- i. The date, type, exact place, and time of sampling or measurements;
- ii. The individual(s) who performed the sampling or measurements;
- iii. The date(s) the analyses were performed;
- iv. The individual(s) who performed the analyses;
- v. The analytical techniques or methods used; and
- vi. The results of such analyses.

b. The permittee shall retain for a minimum of three (3) years records of all monitoring information, including all original strip chart recordings for continuous monitoring instrumentation, all calibration and maintenance records, copies of all reports required by this permit and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Division or Regional Administrator.

### 5. Additional Monitoring by Permittee

If the permittee, using the approved analytical methods, monitors any parameter more frequently than required by this permit, then the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form or other forms as required by the division. Such increased frequency shall also be indicated.

6. Flow Measuring Devices

Flow metering at the headworks shall be provided to give representative values of throughput and treatment of the wastewater system. The metering device shall be equipped with a local flow indication instrument and a flow indication-recording-totalization device suitable for providing permanent flow records, which should be in the plant control building. For mechanical facilities, where influent flow metering is not practical and the same results may be obtained from metering at the effluent end of the treatment facility, this type of flow metering arrangement will be considered. For lagoons, an instantaneous or continuous effluent flow measuring device shall be required in addition to the above described influent flow measuring device. At the request of the Division, the permittee must be able to show proof of the accuracy of any flow-measuring device used in obtaining data submitted in the monitoring report. The flow-measuring device must indicate values within ten (10) percent of the actual flow entering the facility.

D. REPORTING

1. Signatory Requirements

All reports, and other information required by the Division shall be signed and certified for accuracy by the permittee in accord with the following criteria:

- a. In the case of corporations, by a principal executive officer of at least the level of vice-president or his or her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the form originates;
- b. In the case of a partnership, by a general partner;
- c. In the case of a sole proprietorship, by the proprietor;
- d. In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

The permittee shall make the following certification on all such documents:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

2. Monthly Reports

Monitoring results shall be summarized for each month and reported on the Discharge Monitoring Report forms (EPA forms 3320-1). The forms shall be mailed to the agencies listed below so that they are received by the agencies no later than the 28th day of the following month. If no discharge occurs during the reporting period, "No Discharge" shall be reported.

The Discharge Monitoring Report forms shall be filled out accurately and completely in accordance with the requirements of this permit and the instructions on the forms, and shall be signed by an authorized person as identified in the preceding section, Part I.D.1. The Discharge Monitoring Report forms consist of four pages - the top "original" copy, and three attached no-carbon-required copies. After the DMR form has been filled out and signed, the four copies must be separated and distributed as follows.

The top, original copy of each form shall be submitted to the following address:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT  
WATER QUALITY CONTROL DIVISION  
WQCD-P-B2  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530

The second copy of each form shall be submitted to the following address:

U. S. ENVIRONMENTAL PROTECTION AGENCY  
TECHNICAL ENFORCEMENT PROGRAM 8ENF-T  
OFFICE OF ENFORCEMENT, COMPLIANCE ASSISTANCE AND ENVIRONMENTAL JUSTICE  
999 18th STREET SUITE 500  
DENVER, CO 80202-2466

The third and fourth copies are for the permittee's records.

3. Annual Biosolids Report

The permittee shall provide the results of all biosolids monitoring performed in accordance with **Part I.B.3**, and information on management practices, land application sites, site restrictions and certifications. Such information shall be provided no later than **February 19th** of each year. Reports shall be submitted addressing all such activities that occurred in the previous calendar year. If no biosolids were applied to the land during the reporting period, "no biosolids applied" shall be reported. Until further notice, biosolids monitoring results shall be reported on forms, or copies of forms, provided by the Division. Annual Biosolids Reports required herein, shall be signed and certified in accordance with the Signatory Requirements, Part I.D.1, and submitted as follows:

The original copy of each form shall be submitted to the following address:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT,  
WATER QUALITY CONTROL DIVISION  
WQCD-PERMITS-B2  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, COLORADO 80246-1530

A copy of each form shall be submitted to the following address:

WATER PROGRAM REGIONAL BIOSOLIDS PROGRAM  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION VIII, P2-W-P  
999 18TH STREET, SUITE 500  
DENVER, CO 80202-2466

ATTENTION: BIOSOLIDS PROGRAM MANAGER

4. Special Notifications

a. Definitions

- i. Bypass: The intentional diversion of waste streams from any portion of a domestic wastewater treatment works.
- ii. Severe Property Damage: A) Substantial physical damage to property at the treatment facilities to cause them to become inoperable, or B) substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

- iii. Spill: An incident in which flows or solid materials are accidentally or unintentionally allowed to flow or escape so as to be lost from the domestic wastewater treatment works as defined in the Colorado Water Quality Control Act, which may cause pollution of state waters.
- iv. Upset: An exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- v. TMDL. Within 30 days of EPA approval of the Boulder Creek ammonia TMDL, the permittee shall request that the permit be opened, and
  - 1) an amendment be incorporated requiring the facility be upgraded to meet the final TMDL limits, and
  - 2) the final TMDL limits be incorporated into the permit with an effective date prior to the expiration of the permit.

b. Noncompliance Notification

- i. If, for any reason, the permittee does not comply with or will be unable to comply with any maximum discharge limitations, standards or conditions specified in this permit, the permittee shall, at a minimum, provide the Water Quality Control Division and EPA with the following information:
  - (A) A description of the discharge and cause of noncompliance.
  - (B) The period of noncompliance, including exact dates and times and/or the anticipated time when the discharge will return to compliance; and
  - (C) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.
- ii. The following instances of noncompliance shall be reported orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances. A written report, containing the information requested in Part I.D.4.b(i), above, shall be mailed to the Division within five (5) working days of the time the permittee becomes aware of the circumstances.
  - (A) Any instance of noncompliance which may endanger human health or the environment, regardless of the cause for the incident.
  - (B) Any unanticipated bypass, or any upset or spill, which causes any permit limitation to be exceeded.
  - (C) Any suspected discharge of toxic pollutants or hazardous substances, which are listed in Part III. of this permit, in excess of a daily maximum limit or where there is no limit for the toxic pollutant or hazardous substance in question.
- iii. The permittee shall report all other instances of noncompliance, which are not required to be reported within twenty-four (24) hours, at the time Discharge Monitoring Reports are submitted, except as required in (iv) below. The reports shall contain the information listed in "Noncompliance Notification" (paragraph (i) above).
- iv. If the permittee knows in advance of the need for a bypass, it shall submit written notification to the division of the need for such bypass at least ten days before the date of the contemplated bypass.

c. Submission of Incorrect or Incomplete Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or report to the division, it shall promptly submit such facts or information.



d. Compliance Schedule Notification

No later than fourteen (14) calendar days following a date identified in the compliance schedules in this permit, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

e. Change in Discharge or Wastewater Treatment Facility

The permittee shall inform the Division (Permits Unit) in writing of any intent to construct, install, or alter any process, facility, or activity that is likely to result in a new or altered discharge either in terms of location or effluent quality prior to the occurrence of the new or altered discharge, and shall furnish the Division such plans and specifications which the Division deems reasonably necessary to evaluate the effect on the discharge and receiving stream.

Notice is required only when:

- i. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged; or
- ii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported pursuant to an approved land application plan.

If the Division finds that such new or altered discharge might be inconsistent with the conditions of the permit, the Division shall require a new or revised permit application and shall follow the procedures specified in the Colorado Discharge Permit System Regulations, 5CCR 1002.61, Sections 61.5 through 61.6, and 61.15 prior to the date that the new or altered discharge takes place.

f. Deactivation

The permittee shall notify the Permits Unit of the Division within thirty (30) days of deactivation of the permitted facility. Deactivation includes ceasing operation of the facility, ceasing all discharges to State Waters for the remaining term of the existing permit and/or the connection to another wastewater treatment facility.

PART II

A. MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

1. Bypass

- a. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure optimal operation. These bypasses are not subject to the provisions noted in item b., below. Division notification is not required.
- b. A bypass which causes effluent limitations to be exceeded is prohibited, and the division may take enforcement action against a permittee for such a bypass, unless:
  - i. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
  - iii. The permittee submitted notices as required in "Non-Compliance Notification," Part I, Section D

2. Upsets

a. Effect of an Upset

An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of paragraph (b) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

b. Conditions Necessary for a Demonstration of Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that:

- i. An upset occurred and that the permittee can identify the specific cause(s) of the upset;
- ii. The permitted facility was at the time being properly operated and maintained; and
- iii. The permittee submitted notice of the upset as required in Part I, Section C of this permit (24-hour notice).
- iv. The permittee took all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

A. MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

2. Upsets (Continued)

In addition to the demonstration required above, if the permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards, they shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

c. Burden of proof

In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

3. Reduction, Loss, or Failure of Treatment Facility

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with this permit, control sources of wastewater, or all discharges, or both until the facility is restored or an alternative method of treatment is provided. This provision also applies to power failures, unless an alternative power source sufficient to operate the wastewater control facilities is provided.

In an enforcement action a permittee shall not use a defense that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State.

For all domestic wastewater treatment works, the permittee shall dispose of sludge in accordance with State and Federal regulations.

5. Minimization of Adverse Impacts

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. As necessary, accelerated or additional monitoring of the influent or effluent will be required to determine the nature and impact of noncompliance.

6. Discharge Point

Any discharge to the waters of the State from a point source other than specifically authorized herein is prohibited.

7. Inspections and Right to Entry

The permittee shall allow the Director of the Division, and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;

A. MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

7. Inspections and Right to Entry (Continued)

- b. At reasonable times to have access to inspect and copy any records required to be kept under the terms and conditions of this permit and to inspect any monitoring equipment or monitoring method required in the permit; and
- c. To enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect and/or investigate any actual, suspected, or potential source of water pollution, or to ascertain compliance or noncompliance with any applicable state or federal statute or regulation or any order promulgated by the division. The investigation may include, but is not limited to the following: sampling of any discharge and/or process waters, the taking of photographs, interviewing of any persons having any knowledge related to the discharge permit or alleged violation, access to any and all facilities or areas within the permittee's premises that may have any affect on the discharge, permit, or alleged violation. Such entry is also authorized for the purpose of inspecting and copying records required to be kept concerning any effluent source.

In the making of such inspections, investigations, and determinations, the Division, insofar as practicable, may designate as its authorized representatives any qualified personnel of the Department of Agriculture. The Division may also request assistance from any other state or local agency or institution.

- d. The Division shall split samples taken by the Division during any investigation with the permittee if requested to do so by the permittee.

8. Duty to Provide Information

The permittee shall furnish to the division, within a reasonable time, any information which the division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

9. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Clean Water Act and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.5 (4)(b), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division and the Regional Administrator.

As required by the Federal Clean Water Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Clean Water Act, and Section 25-8-610 C.R.S.

10. Transfer of Ownership or Control

A permit may be transferred to a new permittee only upon the completion of the following:

- a. The current permittee notifies the division in writing 30 days in advance of the proposed transfer date;
- b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; and

A. MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

10. Transfer of Ownership or Control (Continued)

- c. The Division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue, the permit.
- d. Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15 have been met.

11. Contract Requirements

The permittee shall include pertinent terms and conditions of this permit in all contracts for receipt by the permittee of any effluent not required to be received by the permittee.

B. ADDITIONAL CONDITIONS

1. Permit Violations

Failure to comply with any terms and/or conditions of this permit shall be a violation of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

2. Civil and Criminal Liability

Except as provided in Part I, Section C and Part II, Section A, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance (See 40 CFR 122.41).

3. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibility, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.

4. Division Emergency Power

Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

5. Severability

The provisions of this permit are severable. If any provisions of this permit, or the application of any provision of this permit in any circumstance, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

6. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 (Oil and Hazardous Substance Liability) of the Clean Water Act, except as recognized by federal law.

B. ADDITIONAL CONDITIONS (CONTINUED)

7. Property Rights

The issuance of this permit does not convey any property or water rights in either real or personal property or stream flow or any exclusive privileges, nor does it authorize any injury to private property, any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

8. Modification, Suspension, or Revocation of Permit

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

All permit modification, termination or revocation and reissuance actions shall be subject to the requirements of the Colorado Discharge Permit System Regulations, Sections 61.5 (2&3), 61.6, 61.7 and 61.15 except for minor modifications.

- a. This permit may be modified, suspended, or terminated in whole or in part during its term for reasons determined by the Division including, but not limited to, the following:
  - i. Violation of any terms or conditions of the permit;
  - ii. Obtaining a permit by misrepresentation or failing to disclose any fact which is material to the granting or denial of a permit or to the establishment of terms or conditions of the permit; or
  - iii. Materially false or inaccurate statements or information in the permit application of the permit; or
  - iv. A determination that the permitted activity endangers human health or the classified or existing uses of state waters and can only be regulated to acceptable levels by permit modifications or termination.
- b. A permit may be modified in whole or in part for the following causes, provided that such modification complies with the provisions of Section 61.10:
  - i. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.
  - ii. The Division has received new information which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of different permit conditions at the time of issuance. For general permits, this cause includes information indicating that cumulative effects on the environment are unacceptable. For permits issued to new sources or new dischargers, this cause includes information derived from effluent testing required under Section 61.4 (7)(e). This provision allows a modification of the permit to include conditions that are less stringent than the existing permit only to the extent allowed under Section 61.10.
  - iii. The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued. Permits may be modified during their terms for this cause only as follows:

B. ADDITIONAL CONDITIONS

8. Modification, Suspension, or Revocation of Permit (Continued)

- (A) The permit condition requested to be modified was based on a promulgated effluent limitation guideline, EPA approved water quality standard, or an effluent limitation set forth in 5 CCR 1002-63, Regulation No. 63, et seq.; and
  - (B) EPA has revised, withdrawn, or modified that portion of the regulation or effluent limitation guideline on which the permit condition was based, or has approved a Commission action with respect to the water quality standard or effluent limitation on which the permit condition was based; and
  - (C) The permittee requests modification as required in the Colorado Discharge Permit System Regulations after the notice of final action by which the EPA effluent limitation guideline, water quality standard, or effluent limitation is revised, withdrawn, or modified; or
  - (D) For judicial decisions, a court of competent jurisdiction has remanded and stayed EPA promulgated regulations or effluent limitation guidelines, if the remand and stay concern that portion of the regulations or guidelines on which the permit condition was based and a request is filed by the permittee in accordance with this Regulation, within ninety (90) days of judicial remand.
- iv. The Division determines that good cause exists to modify a permit condition because of events over which the permittee has no control and for which there is no reasonable available remedy.
  - v. The permittee has received a variance.
  - vi. When required to incorporate applicable toxic effluent limitation or standards adopted pursuant to ' 307(a) of the Federal act.
  - vii. When required by the reopener conditions in the permit.
  - viii. As necessary under 40 C.F.R. 403.8(e), to include a compliance schedule for the development of a pretreatment program.
  - ix. When the level of discharge of any pollutant which is not limited in the permit exceeds the level which can be achieved by the technology-based treatment requirements appropriate to the permittee under Section 61.8 (2) of the Colorado Discharge Permit System Regulations.
  - x. To establish a pollutant notification level required in Section 61.8 (5) of the Colorado Discharge Permit System Regulations.
  - xi. To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions, to the extent allowed in Section 61.10 of the Colorado Discharge Permit System Regulations.
  - xii. When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
  - xiii. For any other cause provided in Section 61.10 of the Colorado Discharge Permit System Regulations.

B. ADDITIONAL CONDITIONS

8. Modification, Suspension, or Revocation of Permit (Continued)

- c. Any condition set forth in the approval of the site location may become a condition of the permit, if so identified. Any site approval condition that is included in this permit pursuant to these regulations shall only be subject to enforcement through the Colorado Water Quality Control Act, C.R.S. 25-8-101, et seq.
- d. At the request of a permittee, the Division may modify or terminate a permit and issue a new permit if the following conditions are met:
  - i. The Regional Administrator has been notified of the proposed modification or termination and does not object in writing within thirty (30) days of receipt of notification,
  - ii. The Division finds that the permittee has shown reasonable grounds consistent with the Federal and State statutes and regulations for such modifications or termination;
  - iii. Requirements of Section 61.15 of the Colorado Discharge Permit System Regulations have been met, and
  - iv. Requirements of public notice have been met.
- e. Permit modification (except for minor modifications), termination or revocation and reissuance actions shall be subject to the requirements of Sections 61.5 (2&3), 61.6, 61.7 and 61.15 of the Colorado Discharge Permit System Regulations. The Division shall act on a permit modification request, other than minor modifications requests, within 180 days of receipt thereof. Except for minor modifications, the terms of the existing permit govern and are enforceable until the newly issued permit is formally modified or revoked and reissued following public notice.
- f. Upon consent by the permittee, the Division may make minor permit modifications without following the requirements of Sections 61.5 (2&3), 61.7, and 61.15 of the Colorado Discharge Permit System Regulations. Minor modifications to permits are limited to:
  - i. Correcting typographical errors; or
  - ii. Increasing the frequency of monitoring or reporting by the permittee; or
  - iii. Changing an interim date in a schedule of compliance, provided the new date of compliance is not more than 120 days after the date specific in the existing permit and does not interfere with attainment of the final compliance date requirement; or
  - iv. Allowing for a transfer in ownership or operational control of a facility where the Division determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittees has been submitted to the Division; or
  - v. Changing the construction schedule for a discharger which is a new source, but no such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge; or



B. ADDITIONAL CONDITIONS

8. Modification, Suspension, or Revocation of Permit (Continued)

- vi. Deleting a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits; or
- vii. Incorporating conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 C.F.R. 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 C.F.R. 403.18) as enforceable conditions of the POTW's permits.
- g. When the permit is modified, only the conditions subject to modification are reopened. If the permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term.
- h. The filing of a request by the permittee for a permit modification, revocation and reissuance or termination does not stay any permit condition.

All permit modifications and reissuances are subject to the antibacksliding provisions set forth in 61.10 (e) through (g) of the Colorado Discharge Permit System Regulations.

9. Permit Renewal Application

If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least one hundred eighty (180) days before this permit expires. If the permittee anticipates there will be no discharge after the expiration date of this permit, the division must be promptly notified so that it can terminate the permit in accordance with Part II Section B.8.

10. Confidentiality

Any information relating to any secret process, method of manufacture or production, or sales or marketing data, which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the commission or the division, but shall be kept confidential. Any person seeking to invoke the protection of this Subsection (10) shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

11. Fees

The permittee is required to submit an annual fee as set forth in the 1998 amendments to the Water Quality Control Act, Section 25-8-502 (l) (b), and the Colorado Discharge Permit System Regulations 5CCR 1002-61, Section 61.15 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. seq., C.R.S. 1973 as amended.

**PART III**

**CATEGORICAL INDUSTRIES**

Aluminum Forming  
Asbestos Manufacturing  
Battery Manufacturing  
Builders' Paper and Board Mills  
Canned & Preserved Fruits and Vegetables Processing  
Canned & Preserved Seafood Processing  
Carbon Black Manufacturing  
Cement Manufacturing  
Coal Mining  
Coil Coating  
Copper Forming  
Dairy Products Processing  
Electrical and Electronic Components  
Electroplating  
Explosives Manufacturing  
Feedlots  
Ferroalloy Manufacturing  
Fertilizer Manufacturing  
Glass Manufacturing  
Grain Mills  
Gum and Wood Chemicals Manufacturing  
Hospital  
Ink Formulation  
Inorganic Chemicals Manufacturing  
Iron and Steel Manufacturing  
Leather Tanning and Finishing

Meat Products  
Metal Finishing  
Metal Molding and Casting (Foundries)  
Mineral Mining and Processing  
Nonferrous Metals Manufacturing  
Nonferrous Metals Forming and Metal Powders  
Oil and Gas Extraction  
Organic Chemicals, Plastics, and Synthetic Fibers  
Ore Mining and Dressing  
Paint Formulation  
Paving and Roofing Materials (Tars and Asphalt)  
Pesticide Chemicals  
Petroleum Refining  
Pharmaceutical Manufacturing  
Phosphate Manufacturing  
Photographic  
Plastics Molding and Forming  
Porcelain Enameling  
Pulp, Paper, and Paperboard Manufacturing  
Rubber Manufacturing  
Soap and Detergent Manufacturing  
Steam Electric Power Generating  
Sugar Processing  
Textile Mills  
Timber Products Processing

**PRIORITY POLLUTANTS AND HAZARDOUS SUBSTANCES**

ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS  
IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)

Volatiles

acrolein  
acrylonitrile  
benzene  
bromoform  
carbon tetrachloride  
chlorobenzene  
chlorodibromomethane  
chloroethane  
2-chloroethyl vinyl ether  
chloroform  
dichlorobromomethane  
1,1-dichlorethane  
1,2-dichlorethane  
1,1-dichlorethylene  
1,2-dichloropropane  
1,3-dichloropropylene  
ethylbenzene  
methyl bromide  
methyl chloride  
methylene chloride

Base/Neutral

acenaphthene  
acenaphthylene  
anthracene  
benzidine  
benzo(a)anthracene  
benzo(a)pyrene  
3,4-benzofluoranthene  
benzo(ghi)perylene  
benzo(k)fluoranthene  
bis(2-chloroethoxy)methane  
bis(2-chloroethyl)ether  
bis(2-chloroisopropyl)ether  
bis(2-ethylhexyl)phthalate  
4-bromophenyl phenyl ether  
butylbenzyl phthalate  
2-chloronaphthalene  
4-chlorophenyl phenyl ether  
chrysene  
dibenzo(a,h)anthracene  
1,2-dichlorobenzene

Acid Compounds

2-chlorophenol  
2,4-dichlorophenol  
2,4-dimethylphenol  
4,6-dinitro-o-cresol  
2,4-dinitrophenol  
2-nitrophenol  
4-nitrophenol  
p-chloro-m-cresol  
pentachlorophenol  
phenol  
2,4,6-trichlorophenol

Pesticides

aldrin  
alpha-BHC  
beta-BHC  
gamma-BHC  
delta-BHC  
chlordane  
4,4'-DDT  
4,4'-DDE  
4,4'-DDD  
dieldrin  
alpha-endosulfan  
beta-endosulfan  
endosulfan sulfate  
endrin  
endrin aldehyde  
heptachlor  
heptachlor epoxide  
PCB-1242  
PCB-1254  
PCB-1221

**PRIORITY POLLUTANTS AND HAZARDOUS SUBSTANCES**  
**ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS**  
**IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)**

Volatiles

1,1,2,2-tetrachloroethane  
tetrachloroethylene  
toluene  
1,2-trans-dichloroethylene  
1,1,1-trichloroethane  
1,1,2-trichloroethane  
trichloroethylene  
vinyl chloride

Base/Neutral

1,3-dichlorobenzene  
1,4-dichlorobenzene  
3,3-dichlorobenzidine  
diethyl phthalate  
dimethyl phthalate  
di-n-butyl phthalate  
2,4-dinitrotoluene  
2,6-dinitrotoluene  
di-n-octyl phthalate  
1,2-diphenylhydrazine (as azobenzene)  
fluorene  
fluoranthene  
hexachlorobenzene  
hexachlorobutadiene  
hexachlorocyclopentadiene  
hexachloroethane  
indeno(1,2,3-cd)pyrene  
isophorone  
naphthalene  
nitrobenzene  
N-nitrosodimethylamine  
N-nitrosodi-n-propylamine  
N-nitrosodiphenylamine  
phenanthrene  
pyrene  
1,2,4-trichlorobenzene

Acid Compounds

Pesticides

PCB-1232  
PCB-1248  
PCB-1260  
PCB-1016  
toxaphene

**OTHER TOXIC POLLUTANTS**  
**(METALS AND CYANIDE) AND TOTAL PHENOLS**

Antimony, Total  
Arsenic, Total  
Beryllium, Total  
Cadmium, Total  
Chromium, Total  
Copper, Total  
Lead, Total  
Mercury, Total  
Nickel, Total  
Selenium, Total  
Total Recoverable Thallium, mg/□  
Silver, Total  
Thallium, Total  
Zinc, Total  
Cyanide, Total  
Phenols, Total

**TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES**  
REQUIRED TO BE IDENTIFIED BY EXISTING DISCHARGERS  
IF EXPECTED TO BE PRESENT

**Toxic Pollutants**

Asbestos

**Hazardous Substances**

Acetaldehyde	Isoprene
Allyl alcohol	Isopropanolamine
Allyl chloride	Keithane
Amyl acetate	Kepone
Aniline	Malathion
Benzonitrile	Mercaptodimethur
Benzyl chloride	Methoxychlor
Butyl acetate	Methyl mercaptan
Butylamine	Methyl methacrylate
Captan	Methyl parathion
Carbaryl	Mexacarbate
Carbofuran	Monoethyl amine
Carbon disulfide	Monomethyl amine
Chlorpyrifos	Naled
Coumaphos	Napthenic acid
Cresol	Nitrotoluene
Crotonaldehyde	Parathion
Cyclohexane	Phenolsulfanate
2,4-D(2,4-Dichlorophenoxy acetic acid)	Phosgene
Diazinon	Propargite
Dicamba	Propylene oxide
Dichlobenil	Pyrethrins
Dichlone	Quinoline
2,2-Dichloropropionic acid	Resorcinol
Dichlorvos	Strontium
Diethyl amine	Strychnine
Dimethyl amine	Styrene
Dinitrobenzene	TDE (Tetrachlorodiphenylethane)
Diquat	2,4,5-T (2,4,5-Trichlorophenoxy acetic acid)
Disulfoton	2,4,5-TP [2-(2,4,5-Trichlorophenoxy) propanoic acid]
Diuron	Trichlorofan
Epichlorohydrin	Triethylamine
Ethanolamine	Trimethylamine
Ethion	Uranium
Ethylene diamine	Vandium
Ethylene dibromide	Vinyl Acetate
Formaldehyde	Xylene
Furfural	Xylenol
Guthion	Zirconium