Fact Sheet

NPDES Permit Number: ID-002285-3
Date: June 18, 1999
Public Notice Expiration Date: July 23, 1999
Technical Contact: Carla Fisher 206/553-1756 or
1-800-424-4372 (within Region 10)
fisher.carla@epa.gov

The U.S. Environmental Protection Agency (EPA) Proposes to Reissue a Wastewater Discharge Permit to:

City of Coeur d'Alene Wastewater Facility
710 Mullan Avenue
Coeur d'Alene, Idaho 83814

and
the State of Idaho proposes to Certify the Permit

EPA Proposes NPDES Permit Reissuance

EPA proposes to reissue a National Pollutant Discharge Elimination System (NPDES) permit to the City of Coeur d'Alene Wastewater Facility. The draft permit sets conditions on the discharge of pollutants from the City's waste water treatment plant to the Spokane River. It also authorizes the facility to continue to transfer processed sewage sludge, also called biosolids, to a composting facility. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged, and places conditions on the use of biosolids.

This fact sheet includes:

- information on public comment, public hearing, and appeal procedures
- a description of the current and proposed discharge and biosolids practices
- a listing of past and proposed effluent limitations and other conditions
- a map and description of the discharge location
- detailed background information supporting the conditions in the draft permit

Idaho State Certification

The Idaho Division of Environmental Quality proposes to certify the NPDES permit for the City of Coeur d'Alene, under section 401 of the Clean Water Act. The state provided preliminary comments prior to the Public Notice which have been incorporated into the draft permit.

Public Comment

Persons wishing to comment on the tentative determinations contained in the draft permit may do so in writing, within 35 days of the date of this public notice. Comments must be received within the 35 day period to be considered in the formulation of final determinations regarding the permits. All comments should include the name, address and telephone number of the commenter and a concise statement of the exact basis of any comment and the relevant facts upon which it is based.

All written comments should be submitted to EPA at the above address to the attention of the Director, Office of Water.

Persons wishing to comment on State Certification should submit written comments within the 30 day period to the Administrator, State of Idaho Division of Environmental Quality, 2110 Ironwood Parkway, Coeur d'Alene, Idaho 83814.

A workshop has been scheduled on July 19, 1999 at the Lake City Senior Center 1916 Lakewood Drive, Coeur d'Alene from 3:00 - 5:00 p.m. The workshop provides time for the public to informally ask questions regarding the permit conditions. A public hearing will follow the workshop at the Lake City Senior Center beginning at 7:00 p.m. and ending when all persons have been heard. During the public hearing, EPA will receive written and oral testimony regarding the draft permit.

If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If comments are received, EPA will address the comments and issue the permit. The permit will become effective 30 days after the issuance date, unless a request for an evidentiary hearing is submitted within 30 days.

Documents are Available for Review

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (See address below).

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-124372 or
1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permit are also available at:

EPA Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706

(208) 378-5746

IDEQ Coeur d'Alene Office
2110 Ironwood Parkway
Coeur d'Alene, Idaho 83814
(208) 769-1422

Coeur d'Alene Public Library
201 East Harrison Avenue
Coeur d'Alene, Idaho 83814-3240
(208) 769-2315

Hayden Lake Library
8385 North Government Way
Hayden Lake, Idaho 83835-9280
(208) 772-5612

Post Falls Library
821 North Spokane Street
Post Falls, Idaho 83854-8698
(208) 773-1506

The draft permit and fact sheet can also be found by visiting the Region 10 website at www.epa.gov/r10earth/offices/water/npdes.htm.

For technical questions regarding the permit or fact sheet, contact Carla Fisher at the phone numbers or email address at the top of this fact sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384. Ask to be connected to Carla Fisher at the above phone numbers. Additional services can be made available to persons with disabilities by contacting Carla Fisher.

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LIST OF ACRONYMS

AML	Average Monthly Limit
BMP	Best Management Practices
BOD_5	Five-day Biochemical Oxygen Demand
CBOD	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CWA	Clean Water Act
DMR	Discharge Monitoring Report
CV	Coefficient of Variation
EPA	United States Environmental Protection Agency
IDEQ	Idaho Division of Environmental Quality
LTA	Long Term Average
MDL	Maximum Daily Limit or Method Detection Limit
mgd	Million Gallons per Day
mg/l	Milligrams per Liter
ml	Milliliters
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
POTW	Publicly Owned Treatment Works
RP	Reasonable Potential
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
TSD	*Technical Support Document for Water Quality-based Toxics Control*, (EPA 1991)
TSS	Total Suspended Solids
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Survey
WWF	Wastewater Facility
WLA	Wasteload Allocation
%MZ	Percent Mixing Zone
μg/L	Micrograms per Liter

BACKGROUND INFORMATION

I. APPLICANT

City of Coeur d'Alene Wastewater Facility — NPDES Permit No.: ID-002285-3

Facility Location:
915 Hubbard Avenue
Coeur d'Alene, Idaho 83814

Mailing Address:
710 Mullan Avenue
Coeur d'Alene, Idaho 83814

Facility contact: Sid Fredrickson, Superintendent

II. FACILITY ACTIVITY

The City of Coeur d'Alene owns and operates a municipal treatment facility that provides secondary treatment and disinfection of domestic and industrial wastes prior to discharge to the Spokane River. The current average design flow of the facility is 6.0 million gallons per day (mgd). Based on data submitted by the City, the current annual average flow is 3.0 mgd. The City transfers biosolids generated during the treatment process to a composting facility owned by the City. The final product is sold as a soil amendment.

See Appendix A for a map of the location of the treatment plant and discharge. Appendix B contains a detailed discussion of the treatment processes and waste streams.

III. RECEIVING WATER

The Coeur d'Alene Wastewater Facility (WWF) discharges to the Spokane River between the outlet of Lake Coeur d'Alene and the Post Falls Dam (latitude 47^{O} 40' 56", longitude 116^{O} 47' 47"). The outfall is located approximately one-half mile upstream of the U.S. Highway 95 bridge on the east bank of the River, at river mile 110.2.

The State of Idaho Water Quality Standards and Wastewater Treatment Requirements (1997) designate beneficial uses for waters of the State. The Spokane River is designated as being protected for primary and secondary contact recreation, cold water biota, salmonid spawning, domestic water supply, and agricultural water supply.

This segment of the Spokane River is listed on Idaho's 303(d) list (a list of impaired waters compiled under section 303(d) of the Clean Water Act) as not meeting standards for temperature and metals (specifically, cadmium, lead, and

zinc). In addition, concerns regarding algal growth in the River prompted formation of the Spokane River Technical Advisory Committee (TAC) to address nutrients (phosphorus and nitrogen) in the River.

IV. FACILITY BACKGROUND

On January 15, 1988, EPA issued the current permit for the Coeur d'Alene WWF. The permit was modified on November 20, 1989, and it expired January 14, 1993. The City applied for reissuance on July 15, 1992. Because the City submitted a timely application, the permit has been administratively extended and the City is authorized to continue discharging.

The City submits monthly discharge monitoring reports (DMRs) to EPA summarizing the results of effluent monitoring required by the permit. Based on the past five years' DMRs, the City has reported only one violation of the permit, a monthly average limit for five-day biochemical oxygen demand (BOD_5).

V. EFFLUENT LIMITATIONS

EPA followed the Clean Water Act, State and federal regulations, and EPA's 1991 *Technical Support Document for Water Quality-Based Toxics Control* (*TSD*) to develop the proposed effluent limits. In general, the Clean Water Act requires that the effluent limits for a particular pollutant be the more stringent of either the technology-based or water quality-based limits. Appendix C provides the basis for the development of technology-based and water quality-based effluent limits.

Technology-based limits are set based on the level of treatment that is achievable using readily available technology. For publicly owned treatment works, federal regulations include technology-based limits for three parameters: five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. The regulations allow carbonaceous biochemical oxygen demand (CBOD) to be substituted for BOD_5. Based on a request by the City, the draft permit limits are based on CBOD.

The Agency evaluates the technology-based limits to determine whether they are adequate to ensure that water quality standards are met in the receiving water. If the limits are not adequate, EPA must develop additional water quality-based limits. These limits are designed to prevent exceedences of the Idaho water quality standards in theSpokane River. The proposed permit includes water quality-based limits for total ammonia, fecal coliform, total residual chlorine, phosphorus, copper, lead, silver, zinc, and pH. Appendix D provides an example calculation for development of a water quality-based permit limit.

Table 1 compares the limits in the 1988 permit with those in the draft permit.

Table 1: Outfall 001 Effluent Limits

Parameter	Average Monthly Limit		Average Weekly Limit		Maximum Daily Limit	
	Draft	1988	Draft	1988	Draft	1988
Effluent Flow, mgd	---	4.2	---	---	---	---
BOD_5						
mg/l	---	30	---	45	---	---
lb/day	---	1,050		1,580		
Percent Removal[1]	---	85				
CBOD						
mg/l	25	---	40	---	---	---
lb/day	1,250	---	2,000	---	---	---
Percent Removal[1]	85	---	---	---	---	---
TSS						
mg/l	30	30	45	45	---	---
lb/day	1,500	1,050	2,250	1,580	---	---
Percent Removal[1]	85	85				
Total Ammonia (as N) Effluent Flow $\leq$ 4.2 mgd						
July 1 - September 30						
mg/l	5.0	---	---	---	14	---
lb/day	175	500[2]	---	---	490	670[2]
Total Ammonia (as N) Effluent Flow > 4.2 mgd						
July 1 - September 30	3.6	---	---	---	10	---
mg/l	180	500[2]	---	---	500	670[2]
lb/day						
October 1 - June 30	19	---	---	---	55	---
mg/l	950	500[2]	---	---	2,750	670[2]
lb/day						
Fecal Coliform, #/100 ml						
May 1 - September 30	50	50	200	100	500[3]	---
October 1 - April 30	---	100	200	200	800[4]	---

Table 1: Outfall 001 Effluent Limits

Parameter	Average Monthly Limit		Average Weekly Limit		Maximum Daily Limit	
	Draft	1988	Draft	1988	Draft	1988
Total Residual Chlorine						
July 1 - September 30						See
μg/l	39	---	---	---	102	Footnote
lb/day	2.0	---	---	---	5.1	5
October 1 - June 30						
μg/l	150	---	—	—	390	
lb/day	20	---	—	—	980	
Phosphorus removal, %[1]						
March 1 - October 31[6]	85[7]	85	---	---	---	---
Copper						
July 1 - September 30						
μg/l[8]	18	---	---	---	33	---
lb/day	0.90	—	—	---	1.7	---
Lead						
μg/l[8]	2.5	---	---	---	5.8	---
lb/day	0.13	—	—	—	0.29	---
Silver						
μg/l[8]	1.2	---	---	---	2.7	---
lb/day	0.06	—	---	---	0.14	---
Zinc						
μg/l[8]	99	---	---	---	150	---
lb/day	5.0	---	---	---	7.5	---
pH, std units	---	---	---	---	6.3-9.0[9]	6.0-9.0[9]

Footnotes:
1 The percent removal requirements represent a minimum.
2 Ammonia limits in the 1988 permit apply between June 1 and October 31.
3 The draft permit also contains a requirement that no more than 10% of samples over a 30 day period may exceed 200/100 ml.
4 The draft permit also contains a requirement that no more than 10% of samples over a 30 day period may exceed 400/100 ml.
5 The 1988 permit contained tiered limits for chlorine residual. See Appendix C, section IV.D.
6 March 1 - October 31 is the default “critical time period.” The City of Coeur d’Alene may submit documentation that a shorter critical period is appropriate in any given year.
7 The draft permit also contains a limit of 1 mg/l, whichever is greater.
8 Metals limits in the draft permit are based on the total recoverable form of the metal.
9 The 1988 and draft permits require that the pH be within the specified range at all times.

The draft permit prohibits the discharge of waste streams that are not part of the normal operation of the facility, as reported in the permit application. The draft

permit also requires that the discharge be free from floating, suspended, or submerged matter in concentrations that cause/may cause a nuisance.

VI. PRETREATMENT PROGRAM

Section 301(b) of the Clean Water Act requires that industrial users who discharge to publicly owned treatment works comply with pretreatment requirements established under section 307 of the Act. The objectives of the pretreatment program are: 1) to prevent the introduction of pollutants to the treatment system that will interfere with the plant's operation, that could pass untreated through the system and contribute to water quality problems, or otherwise be incompatible with the treatment plant, and 2) to improve opportunities to reclaim and recycle municipal and industrial waste water and sludges.

The draft permit contains pretreatment requirements that are essentially the same as those in the 1988 permit. The draft permit requires Coeur d'Alene to implement the pretreatment program in accordance with their 1983 Industrial Pretreatment Program, with subsequent modifications. The pretreatment program includes requirements to enforce pretreatment standards promulgated under section 307 of the Act, issue permits to significant industrial users that contain limits and other conditions, maintain records, carry out inspections, and obtain remedies for non-compliance by industrial users. The draft permit also requires monitoring of influent and sludge twice a year for metals and cyanide. Finally, the draft permit requires Coeur d'Alene to submit an annual report outlining pretreatment program activities.

VII. MUNICIPAL SEWAGE SLUDGE/BIOSOLIDS MANAGEMENT

The City of Coeur d'Alene composts its sewage sludge at a city-owned facility that has been operating since 1989. In its permit application, the City indicated that the wastewater treatment facility treats its sludge by anaerobic digestion and dewatering. The dewatered sludge is then trucked to the City's compost facilities.

The draft permit covers the transfer of sludge to the composting facility. The draft permit also discusses the general responsibility the Clean Water Act places on all generators to ensure the sludge they create is properly disposed. No permit has been written for the composting facility. However, the requirements of Section 405 of the Clean Water Act are self-implementing, which means that the composting facility must comply with the regulations even without a permit. See Appendix E for further discussion of sludge management requirements.

VIII. MONITORING REQUIREMENTS

A. Effluent Monitoring

Section 308 of the Clean Water Act and federal regulation 40 CFR 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The City of Coeur d'Alene is responsible for conducting the monitoring and for reporting results to EPA on Discharge Monitoring Reports (DMRs).

Table 2 compares the proposed monitoring requirements in the draft permit to those in the 1988 permit. Monitoring frequency is based on the minimum sampling necessary to adequately monitor the facility's performance as well as the monitoring requirements in the 1988 permit.

TABLE 2: Outfall 001 Monitoring Requirements

Parameter	Draft Sample Frequency	1988 Sample Frequency
$CBOD_5$, mg/l, percent removal[1]	3/Week	3/Week
TSS, mg/l, percent removal[1]	3/Week	3/Week
Total Ammonia as N, mg/l	2/Week	1/Week
Fecal Coliform Bacteria, #/100 ml	4/Week	3/Week
Total Residual Chlorine, mg/l	3/Day	3/Day
Phosphorus, mg/l, percent removal[1]	3/Week	3/Week
Copper, μg/l[2]	Monthly	—
Lead, μg/l[2]	Monthly	—
Silver, μg/l[2]	Monthly	—
Zinc, μg/l[2]	Monthly	—
Cadmium, μg/l[2]	Monthly	—
Flow, mgd	Continuous	Continuous
Temperature, °C	3/Week	---
pH, standard units[3]	Daily	Daily
Spokane River Flow, cfs	Daily	Daily
Chronic Whole Effluent Toxicity Testing	Semi-annually for 5 years	Annually

TABLE 2: Outfall 001 Monitoring Requirements		
Parameter	**Draft Sample Frequency**	**1988 Sample Frequency**

Footnotes:
1 The draft permit and the 1988 permit require influent and effluent monitoring to determine compliance with effluent limitations and percent removal requirements.
2 The draft permit requires metals analysis as total recoverable metals.
3 The draft permit requires the City to report the number and duration of pH excursions during the month.

B. Representative Sampling

The draft permit has expanded the requirement in the federal regulations regarding monitoring (40 CFR 122.41[j]). This provision now specifically requires representative sampling whenever a bypass, spill, or non-routine discharge of pollutants occurs, if the discharge may reasonably be expected to cause or contribute to a violation of an effluent limit under the permit. If such a discharge occurs, the City must conduct additional, targeted monitoring to quantify the effects of the discharge on the final effluent. This provision is included in the draft permit because routine monitoring could easily miss permit violations and/or water quality standards exceedences that could result from bypasses, spills, or non-routine discharges.

C. Method Detection Limits

Some of the water quality-based effluent limits in the draft permit are close to the capability of current analytical technology to detect and/or quantify. To address this concern, the permit contains a provision requiring the City to use methods that can achieve a method detection level (MDL) equal to 0.1 times the effluent limitation or the most sensitive EPA approved method, whichever is greater. Method Detection Limits (MDLs) are the minimum levels that can be accurately detected by current analytical technology. For purposes of averaging results, the draft permit requires the City to use 0 for all values below the MDL.

D. Whole Effluent Toxicity

Whole effluent toxicity tests are laboratory tests that replicate to the greatest extent possible the total effect and actual environmental exposure of aquatic life to effluent toxicants without requiring the identification of specific toxicants. Whole effluent toxicity tests use small vertebrate and invertebrate species, and/or plants, to measure the aggregate toxicity of an effluent. There are two different durations of toxicity test: acute and chronic. Acute toxicity tests measure survival over a 96-hour exposure. Chronic toxicity

tests measure reductions in survival, growth, and reproduction over a 7-day exposure.

Federal regulations at 40 CFR 122.44(d)(1) require that permits contain limits on whole effluent toxicity when a discharge has reasonable potential to cause or contribute to an exceedence of a water quality standard. In Idaho, the relevant water quality standards (IDAPA 16.01.02200.02) state that surface waters of the state shall be free from toxic substances in concentrations that impair designated beneficial uses.

Coeur d'Alene's 1988 permit required annual acute toxicity testing using water fleas. Although the tests generally show little acute toxicity in the City's effluent, they provide no information regarding chronic toxicity. Therefore, the draft permit requires semi-annual chronic toxicity testing of the final effluent for five years, using *Ceriodaphnia dubia* (water flea) and *Pimephales promelas* (fathead minnow).

IX. OTHER PERMIT CONDITIONS

A. Quality Assurance Plan

Federal regulations at 40 CFR 122.41(e) require permittees to properly operate and maintain their facilities, including "adequate laboratory controls and appropriate quality assurance procedures." To implement this requirement, the draft permit requires that the City develop a Quality Assurance Plan to ensure that monitoring data are accurate and to explain data anomalies if they occur. Coeur d'Alene is required implement the plan within 120 days of the effective date of the draft permit. The Quality Assurance Plan must include standard operating procedures the City must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Operation & Maintenance Plan

Section 402 of the Clean Water Act and federal regulations 40 CFR 122.44(k)(2) and (3) authorize EPA to require best management practices, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. For municipal facilities, these measures are typically included in the facility's Operation & Maintenance (O&M) plan. These measures are important tools for waste minimization and pollution prevention.

The draft permit requires the City of Coeur d'Alene to incorporate appropriate BMPs into their O&M plan within 180 days of permit issuance.

Specifically, the City must consider spill prevention and control, optimization of chlorine and other chemical use, public education aimed at controlling the introduction of household hazardous materials to the sewer system, and water conservation. To the extent that any of these issues have already been addressed, the City need only reference the appropriate document in its O&M plan. The O&M plan must be revised as new practices are developed.

As part of proper operation and maintenance, the draft permit requires the City to develop a facility plan when the annual average flow exceeds 85 percent of the design flow of the plant (6.0 mgd). This plan requires the City to develop a strategy for remaining in compliance with effluent limits in the permit.

C. Additional Permit Provisions

In addition to facility-specific requirements, sections IV, V, and VI of the draft permit contain “boilerplate” requirements. Boilerplate is standard regulatory language that applies to all permittees and must be included in NPDES permits. Because the boilerplate requirements are based on regulations, they cannot be challenged in the context of an NPDES permit action. The boilerplate covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and general requirements.

X. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service if their actions could beneficially or adversely affect any threatened or endangered species. EPA has determined that issuance of this permit will not affect any of the threatened or endangered species in the vicinity of the discharge. See Appendix F for further details.

B. State Certification

Section 401 of the Clean Water Act requires EPA to seek certification from the State that the permit is adequate to meet State water quality standards before issuing a final permit. The regulations allow for the State to stipulate more stringent conditions in the permit, if the certification cites the Clean Water Act or State law provisions upon which that condition is based. In addition, the regulations require a certification to include statements of the

extent to which each condition of the permit can be made less stringent without violating the requirements of State law.

Part of the State's certification is authorization of a mixing zone. Idaho DEQ provided a pre-certification of the permit on June 16, 1999. The pre-certification authorized the use of 25 percent of the low flow as a mixing zone. If the State authorizes a different mixing zone in its final certification, EPA will recalculate the effluent limitations based on the dilution available in the final mixing zone. If the State does not certify the mixing zone, EPA will recalculate the permit limitations based on meeting water quality standards at the point of discharge.

C. Permit Expiration

This permit will expire five years from the effective date.

REFERENCES

EPA 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. Washington, D.C., March 1991. EPA/505/2-90-001.

Pelletier, Greg. 1996. *Applying Metals Criteria to Water Quality-Based Discharge Limits*. Washington State Department of Ecology, Environmental Investigations and Laboratory Services Program. Olympia, Washington. September, 1996.

Yearsley, J.R. 1980. *Water Quality Studies of the Spokane River Between Coeur d'Alene, Idaho and Post Falls, Idaho 1978-1979.* EPA 910/9-80-072, U.S. EPA, Region 10, Seattle, Washington, p. 53 July 1980.

Yearsley, J.R. 1989. *Water Quality Studies of the Spokane River Between Coeur d'Alene, Idaho and Post Falls, Idaho 1988.* U.S. EPA, Region 10, Seattle, Washington, In Press, 1989.

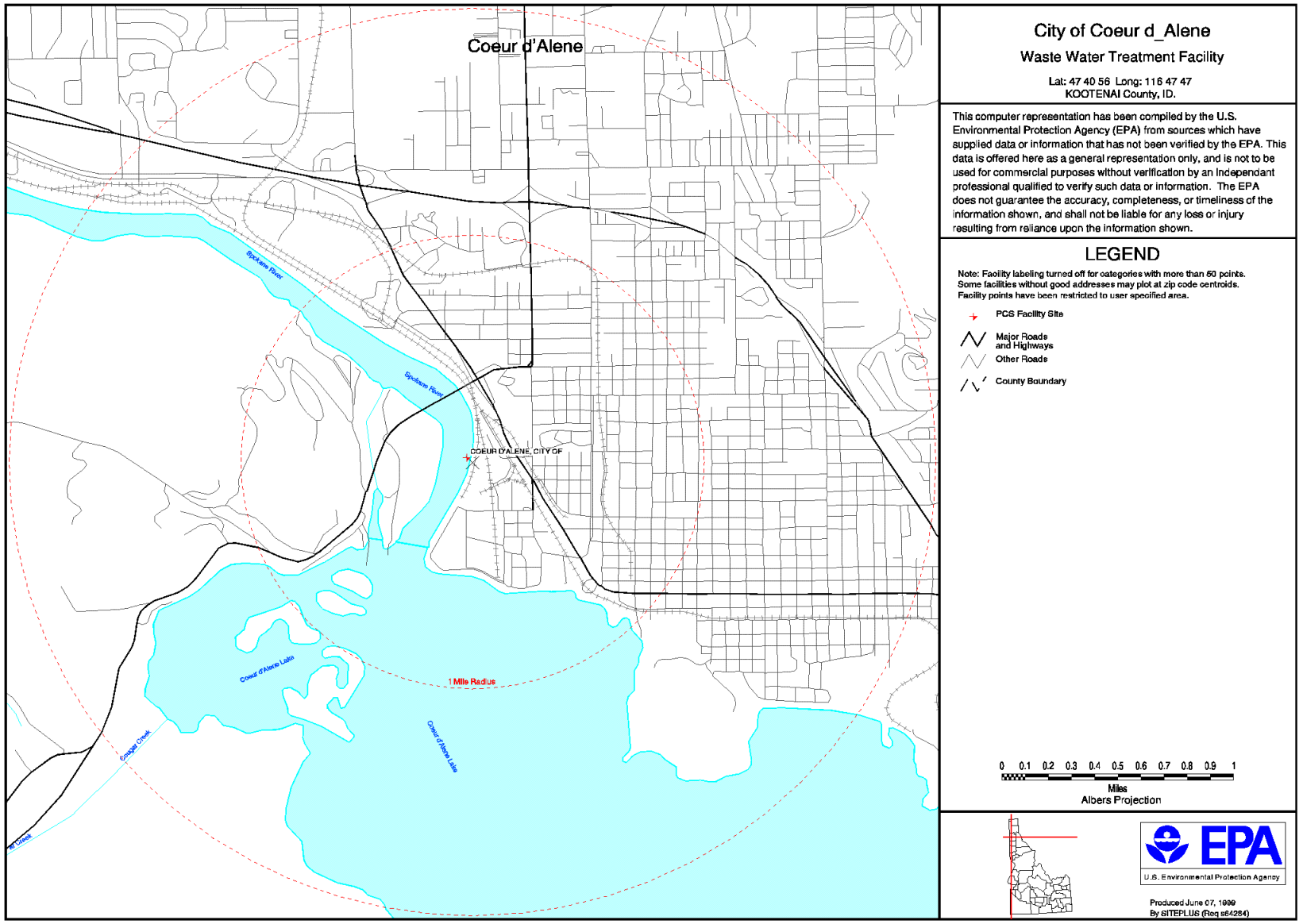

Figure A-1: City of Coeur d'Alene - Facility Location

APPENDIX B - CITY OF COEUR D'ALENE WASTE STREAMS AND TREATMENT PROCESSES

I. Discharge Composition

In determining the pollutants present in the discharge and their maximum concentrations, EPA considered the City's NPDES application, effluent and pretreatment sampling required under the 1988 permit, and additional sampling performed by the City in December 1997 in response to a request by EPA. Table B-1 lists the maximum concentration of pollutants reported by the City as being detected in its discharge. The toxic and conventional pollutant categories are defined in the regulations (40 CFR 401.15 and 401.16, respectively). The category of nonconventional pollutants includes all pollutants not included in either of the other categories.

Table B-1: Pollutants Detected in Discharge

Pollutant Type	Parameter	Maximum Reported Concentration
Conventional	5-day Biochemical Oxygen Demand (BOD_5), weekly average	50 mg/l
	Total Suspended Solids (TSS), weekly average	37.5 mg/l
	pH, min - max	5.93 - 8.05
	Fecal Coliform Bacteria, weekly average	5525 /100ml
Toxic	Arsenic, daily maximum[1]	5.05 μg/l
	Cadmium, daily maximum[1]	0.378 μg/l
	Chromium, daily maximum[1]	2.06 μg/l
	Copper, daily maximum[1]	24.1 μg/l[2]
	Lead, daily maximum[1]	5.8 μg/l[3]
	Mercury, daily maximum[1]	0.040 μg/l[4]
	Nickel, daily maximum[1]	4.19 μg/l
	Selenium, daily maximum[1]	1.1 μg/l[4]
	Silver, daily maximum[1]	6.39 μg/l
	Zinc, daily maximum[1]	122 μg/l[5]
Non-conventional	Ammonia, monthly average	26.6 mg/l
	Carbonaceous Biochemical Oxygen Demand (CBOD), weekly average	21 mg/l

Table B-1: Pollutants Detected in Discharge		
Pollutant Type	**Parameter**	**Maximum Reported Concentration**
	Chlorine, daily average	4.3 lb/day
	Phosphorus, monthly average	6.6 mg/l
	Heat (temperature)	72^{O}F

Footnotes
1 Metals concentrations are reported as total metals.
2 One value of 120 μg/l was reported on 7/15/96. This value is considered an outlier and was not used in calculating reasonable potential or the coefficient of variation.
3 One value of 34.4 μg/l was reported on 7/15/96. This value is considered an outlier and was not used in calculating reasonable potential or the coefficient of variation.
4 Because this concentration is below the method detection limit, zero was used in calculating "reasonable potential" for this parameter.
5 One value of 222 μg/l was reported on 7/15/96. This value is considered an outlier and was not used in calculating reasonable potential or the coefficient of variation.

II. Treatment Processes

Preliminary treatment:

- Flow measurement and recording
- Solids removal (bar screen)
- Dewatering and landfilling removed solids
- Preaeration/grit removal (grit chamber)

Primary treatment:

- Primary Clarification

Secondary treatment:

- Trickling filter
- Alum addition for phosphorus removal (seasonal)
- Secondary clarification
- Chlorination
- Dechlorination with sulfur dioxide
- Flow measurement

Final Discharge

- Design flow - 6.0 mgd
- Maximum effluent flow (1/93-4/98) - 3.58 mgd

- Average effluent flow (1/93-4/98) - 3.00 mgd

Biosolids (sludge) handling

- Anaerobic digestion
- Belt filter press
- Aerated static pile composting

APPENDIX C - BASIS FOR EFFLUENT LIMITATIONS

I. Statutory and Regulatory Basis for Limits

Sections 101, 301(b), 304, 308, 401, 402, and 405 of the Clean Water Act provide the basis for the effluent limitations and other conditions in the draft permit. The EPA evaluates discharges with respect to these sections of the CWA and the relevant NPDES regulations to determine which conditions to include in the draft permit.

In general, the EPA first determines which technology-based limits must be incorporated into the permit. EPA then evaluates the effluent quality expected to result from these controls, to see if it could result in any exceedences of the water quality standards in the receiving water. If exceedences could occur, EPA must include water quality-based limits in the permit. The draft permit limits reflect whichever requirements (technology-based or water quality-based) are more stringent. A table of the limits that EPA is proposing in the draft permit is found in Section V.A of this fact sheet. This Appendix describes the technology-based and water quality-based evaluation for the City of Coeur d'Alene.

II. Technology-based Evaluation

The 1972 Clean Water Act required publicly owned treatment works (POTWs) to meet performance-based requirements based on available wastewater treatment technology. Under Section 301(b)(1)(B) of the Act, EPA was required to develop a performance level referred to as "secondary treatment" for POTWs.

Based on this statutory requirement, EPA developed secondary treatment regulations which are specified in 40 CFR Part 133.102. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. The regulations allow carbonaceous biochemical oxygen demand (CBOD) to be substituted for BOD_5. As requested by the City, the draft permit contains limits based on CBOD.

In addition to the federal technology requirements, the State of Idaho has technology-based requirements for fecal coliform bacteria for municipal sewage treatment plants. See section IV for a complete discussion of the limits for CBOD, TSS, and pH.

III. Water Quality-based Evaluation

In addition to the technology-based limits discussed above, EPA evaluated the discharge to determine compliance with Section 301(b)(1)(C) of the Clean Water Act. This section requires the establishment of limitations in permits necessary to meet water quality standards by July 1, 1977.

The regulations at 40 CFR 122.44(d)(1) implement section 301(b)(1)(C) of the Clean Water Act. These regulations require that NPDES permits include limits for all pollutants or parameters which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation (WLA).

In determining whether water quality-based limits are needed and developing those limits when necessary, EPA uses the approach outlined below:

a. Determine the appropriate water quality criteria
b. Determine whether there is "reasonable potential" to exceed the criteria
c. If there is "reasonable potential", develop a WLA
d. Develop effluent limitations based on the WLA

The following sections provide a detailed discussion of each step. Appendix D provides example calculations to illustrate how these steps are implemented.

A. Determine Water Quality Criteria

The first step in developing water quality-based limits is to determine the applicable water quality criteria. For Idaho, the State water quality standards are found at IDAPA 16, Title 1, Chapter 2. The applicable criteria are determined based on the beneficial uses of the receiving water as identified in Section III of the Fact Sheet. For any given pollutant, different uses may have different criteria. To protect all beneficial uses, the permit limits are based on the most stringent of the water quality criteria applicable to those uses (see Table C-2 in Section B.5).

B. Reasonable Potential Evaluation

To determine if there is "reasonable potential" to cause or contribute to an exceedence of the water quality criteria for a given pollutant, EPA compares applicable water quality criteria to the maximum expected receiving water concentrations for a particular pollutant. If the expected receiving water

concentration exceeds the criteria, there is "reasonable potential" and a water quality-based effluent limit must be included in the permit.

EPA used the recommendations in Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD, EPA 1991) to conduct this "reasonable potential" analysis for the City of Coeur d'Alene Wastewater Facility. An example reasonable potential (RP) analysis for total ammonia is found in Appendix D.

The maximum expected receiving water concentration C_d is determined using the following mass balance equation.

$$C_d = \frac{(C_e \times Q_e) + (C_u \times Q_u)}{Q_d}$$

where,

C_d = receiving water concentration downstream of the effluent discharge (at the edge of the mixing zone)
C_e = maximum projected effluent concentration
= maximum reported effluent value X reasonable potential multiplier
Q_e = design flow
C_u = upstream concentration of pollutant
Q_d = receiving water flow downstream of the effluent discharge
= $Q_e + Q_u$
Q_u = upstream flow

Sections 1 through 4 below discuss each of the factors used in the mass balance equation to calculate C_d. Section 5 discusses the actual "reasonable potential" calculation for Coeur d'Alene's discharge.

1. Effluent Concentration

The maximum projected effluent concentration (C_e) in the mass balance equation is represented by the 99th percentile, calculated using the statistical approach recommended in the TSD. The 99th percentile effluent concentration is calculated by multiplying the maximum reported effluent concentration by a reasonable potential multiplier.

The reasonable potential multiplier accounts for uncertainty in the data. The multiplier decreases as the number of data points increases and variability of the data decreases. Variability is measured by the coefficient of variation (CV) of the data. When there are not enough data to reliably determine a CV, the TSD recommends using 0.6 as a default value. A partial listing of

reasonable potential multipliers can be found in Table 3-1 of the TSD. See Table C-2 in section 5, below, for a summary of maximum reported effluent concentrations, reasonable potential multipliers, and maximum projected effluent concentrations.

2. Effluent Flow

The effluent flow used in the equation is the design flow of the facility. The design flow used in the 1988 permit was 4.2 million gallons per day (mgd). The plant has since expanded, and the design flow used to calculate the limits in the draft permit is 6.0 mgd. For ammonia, the permit contains tiered limits based on flows of 4.2 mgd and 6.0 mgd (see section IV.B for further discussion).

3. Upstream (Ambient) Concentration

The ambient concentration in the mass balance equation is based on a reasonable worst-case estimate of the pollutant concentration upstream from the City of Coeur d'Alene's discharge. For criteria that are expressed as maxima (for example, copper, ammonia), the 95th percentile of the ambient data is generally used as an estimate of worst-case. For criteria that are expressed as minima (for example, pH) the 5th percentile of the ambient data is generally used as an estimate of worst-case. These percentiles were calculated based on data submitted by the City of Coeur d'Alene, data collected by the Department of Ecology, and data collected as part of a study of water quality in the Spokane River between 1990 and 1991 (Falter 1992). Where there were no data to determine the ambient concentration, zero was used in the mass balance equation. See Table C-2 in section 5, below, for a summary of ambient concentrations for specific pollutants.

4. Upstream Flow

Under Idaho's water quality standards, dischargers are generally not authorized to use the entire upstream flow for dilution of their effluent. Instead, the standards contain the following restrictions on mixing zones for determining compliance with chronic criteria:

> The size may be up to 25 percent of the stream width or 300 meters plus the horizontal length of the diffuser, whichever is less;

The mixing zone may be no closer to the 7-day, 10-year low flow (7Q10)[1] than 15 percent of the stream width; and

The mixing zone may not be more than 25 percent of the volume of the stream flow.

In addition to these restrictions, the standards specify that an acute mixing zone may be authorized inside the chronic mixing zone. The size of that mixing zone is limited to the "zone of initial dilution." Typically, EPA and the State have interpreted the acute mixing zone to be 25 percent of the 1-day, 10-year low flow (1Q10)[2].

Flows in the Spokane River vary significantly with season. In its pre-certification, the State indicated that it would authorize mixing zones for the City's discharge based on seasonal flows, with July1 through September 30 considered summer flow and October 1 through June 30 considered winter flow. Furthermore, the State indicated that the flow record prior to 1968 was not representative of current flows in the River. Therefore, the flows provided were based on data from 1968 to 1995.

Table C-1 contains the seasonal flows used in developing permit limits and the dilutions calculated using 25 percent of those flows. Because the draft permit contains tiered limits for ammonia, dilutions were calculated for design flows of 4.2 mgd and 6.0 mgd.

Table C-1: Design Flows and Dilution

Date	1Q10 Flow	Acute Dilution		7Q10	Chronic Dilution	
		Q_e = 6 mgd	Q_e = 4.2 mgd		Q_e = 6 mgd	Q_e = 4.2 mgd
October 1 - June 30	728	21	29	1,042	29	41

[1]The 7-day, 10-year low flow is the 7-day average low flow that has a 10 percent chance of occurring in any given year. The 7Q10 was calculated based on the Log Pearson Type III distribution using United States Geological Survey (USGS) data (station # 12419000) from 1968 through 1998.

[2]The 1-day, 10-year low flow is the 1-day low flow that has a 10 percent chance of occurring in any given year. The 1Q10 was calculated based on the Log Pearson Type III distribution using United States Geological Survey (USGS) data (station # 12419000) from 1968 through 1998.

Table C-1: Design Flows and Dilution						
Date	**1Q10 Flow**	**Acute Dilution**		**7Q10**	**Chronic Dilution**	
		Q_e = 6 mgd	Q_e = 4.2 mgd		Q_e = 6 mgd	Q_e = 4.2 mgd
July 1 - September 30	163	5.4	7.3	329	9.9	14

In accordance with state water quality standards, only the Idaho Division of Environmental Quality (IDEQ) may authorize mixing zones. If IDEQ authorizes a different size mixing zone in its final 401 certification, EPA will recalculate the reasonable potential and effluent limits based on the final mixing zone. If the State does not authorize a mixing zone in its 401 certification, EPA will recalculate the limits based on meeting water quality criteria at the point of discharge.

5. "Reasonable Potential" Calculation

Table C-2 summarizes the data, multipliers, and criteria used to determine "reasonable potential" to exceed criteria. When all effluent data for a particular pollutant were below the detection limit (for example, mercury), EPA assumed that there was no reasonable potential.

C. Wasteload Allocation Development

Once EPA has determined that a water quality-based limit is required for a pollutant, the first step in developing a permit limit is development of a wasteload allocation (WLA) for the pollutant. A WLA is the concentration (or loading) of a pollutant that the permittee may discharge without causing or contributing to an exceedence of water quality standards in the receiving water. WLAs for this permit were calculated in three ways: based on a mixing zone for ammonia, chlorine, copper (during summer only), and pH, based on a WLA established as part of a TMDL for phosphorus, and based on meeting water quality criteria at "end-of-pipe" for fecal coliform, lead, silver, and zinc.

1. Mixing zone-based WLA

Where the state authorizes a mixing zone for the discharge, the WLA is calculated as a mass balance, based on the available dilution, background concentrations of the pollutant(s), and the water quality criteria. The mass balance equation is the same as that used to calculate reasonable potential, with the acute or chronic criterion substituted for C_d and the WLA substituted for C_e.

Because acute aquatic life and chronic aquatic life criteria apply over different time frames and may have different mixing zones, it is not possible to compare them directly to determine which criterion results in more stringent limits. The acute criteria are applied as a one-hour average and have a smaller mixing zone, while the chronic criteria are applied as a four-day average and have a larger mixing zone. To allow for comparison, the acute and chronic WLAs are statistically converted to long-term average WLAs. The more stringent long-term average WLA is used to calculate the permit limits.

TABLE C-2: Reasonable Potential Calculations

Parameter	Maximum Reported Effluent Conc	Number of Samples	CV	Reasonable Potential Multiplier	Maximum Projected Effluent Conc (C_e)	Upstream Conc (C_u)	Projected Downstream Conc (C_d)		Most Stringent Criterion
							Summer	Winter	
Fecal Coliform Bacteria, #/100 ml	5525	780	N/A	N/A	N/A	0	151[1]	49	50/100[2]
Arsenic, μg/l	5.05[3]	15	0.7	2.9	15	1.5	2.8	2.0	50
Cadmium, μg/l	0.378[3]	25	0.5	1.9	0.72	0.32[4,5]	N/A[4]	N/A[4]	1.3[6,7]
Chromium, μg/l	2.06[3]	15	0.5	2.2	4.5	0.24[5]	0.66[5]	0.38[5]	11[7]
Copper, μg/l	24.1[3]	15	0.5	2.2	53	0.54[5]	5.7[1,5]	2.3[5]	2.9[7]
Lead, μg/l	5.8[3]	25	0.8	2	11.6[1]	3.3[4]	N/A[4]	N/A[4]	3.3[6]
Mercury, μg/l	0.04[3,8]	15	0.6	5.6	0	0[8]	0	0	0.012
Nickel, μg/l	4.19[3]	15	0.4	1.9	8.0	0.31	1.1[5]	0.57[5]	40[7]
Selenium, μg/l	1.1[3]	6	0.6	3.8	4.2	0[5]	0.72	0.14	5
Silver, μg/l	6.39[3]	15	0.8	3.3	21[1]	0.11[5]	N/A[5]	N/A[5]	2.3[6,7]
Zinc, μg/l	122[3]	25	0.3	1.5	183[1]	102[4]	N/A[4]	N/A[4]	130[6]
Ammonia, mg/l	26.6	228	0.9	1.2	32	0	3.24[1]	1.10[1]	0.58
Chlorine, μg/l	70	1,825	0.6	1	70	0	7.1	2.4	11
pH, std units	5.93 -8.05[9]	N/A[10]	N/A[10]	N/A[10]	N/A[10]	6.65 - 8.1	N/A[10]	N/A[10]	6.5 - 9.5

Footnotes
1 Maximum projected concentration indicates “reasonable potential” to exceed water quality standards.
2 Fecal coliform standards are seasonal, with 50/100 ml applying in the summer and 100/100 ml applying in the winter.
3 Effluent metals concentrations are reported as total recoverable metal.
4 Because no mixing zone was used for this parameter exceeds the criterion, the criterion was compared to the maximum projected effluent.
5 The criterion for this parameter is based on effluent hardness. See section IV.F for further discussion.
6 Metals criteria (except arsenic, lead, mercury, and selenium) are expressed as dissolved metal.
7 Upstream and downstream concentrations for these parameters are reported as dissolved metal.
8 Effluent and upstream concentrations are below the method detection limit. Therefore, zero was used in the calculations.
9 These values are the minimum and maximum pH reported by the City of Coeur d’Alene.
10 See the discussion on pH in Section IVG.

2. TMDL-based WLA

Where the receiving water quality does not meet water quality standards, the WLA is generally based on a TMDL developed by the state or EPA. A TMDL is a determination of the amount of a pollutant, from point, nonpoint, and natural background sources, including a margin of safety, that may be discharged to a water body without causing the water body to exceed the criterion for that pollutant. Any loading above this capacity risks violating water quality standards. Section 303(d) of the CWA requires states to develop TMDLs for waterbodies that will not meet water quality standards after the imposition of technology-based effluent limitations, to ensure that these waters will come into compliance with water quality standards.

The first step in establishing a TMDL is to determine the assimilative capacity (the loading of pollutant that a water body can assimilate without exceeding water quality standards). The next step is to divide the assimilative capacity into allocations for non-point sources (called load allocations), point sources (called WLAs), natural background loadings, and a margin of safety to account for any uncertainties. Permit limitations are then developed for point sources that are consistent with the WLAs. In cases where the TMDL specifies the duration of the WLA (for example, maximum, monthly average, or long-term average), the statistical approach described in section 1 above is not necessary to compare different duration criteria. In some cases, the WLA can be used directly as permit limits without using the permit limit derivation procedure described in section D.

The phosphorus limit in the draft permit is based on a TMDL that was done by the Washington Department of Ecology for Long Lake, in Washington. See section IV.E for details.

3. “End-of-Pipe” WLA

In some cases, there is no dilution available, either because the receiving water exceeds the criteria or because the state has decided not to authorize a mixing zone for a particular pollutant. When there is no dilution, the criterion becomes the WLA. Establishing the criterion as the WLA ensures that the permittee does not contribute to an exceedence of the criteria. As with the mixing-zone based WLA, the acute and chronic criteria must be converted to long-term averages using the statistical approach in the TSD and compared to determine which one is more stringent. The more stringent WLA is then used to develop permit limits.

D Permit Limit Derivation

Once the WLA has been developed, EPA applies the statistical permit limit derivation approach described in Chapter 5 of the TSD to obtain daily maximum and monthly average permit limits. This approach takes into account effluent variability (through the CV), sampling frequency, and the difference in time frames between the monthly average and daily maximum limits.

The daily maximum limit is based on the CV of the data and the probability basis, while the monthly average limit is dependent on these two variables and the monitoring frequency. As recommended in the TSD, EPA used a probability basis of 95 percent for monthly average limit calculation and 99 percent for the daily maximum limit calculation. As with the reasonable potential calculation, when there were not enough data to calculate a CV, EPA assumed a CV of 0.6 for both monthly average and daily maximum calculations. Appendix D provides an example permit limit calculation.

E. Antidegradation

In addition to water quality-based limitations for pollutants that could cause or contribute to exceedences of numeric or narrative criteria, EPA must consider the State's antidegradation policy. This policy is designed to protect existing water quality when it is better than that required to meet the standard and to prevent water quality from being degraded below the standard when existing quality at the level of the standard.

For waters that are at the level of the standard (known as "Tier 1" waters), the antidegradation policy requires that water quality standards continue to be met. For waters with better quality than the standards (known as "high quality" or "Tier 2" waters), antidegradation requires that the State find that allowing lower water quality is necessary to accommodate important economic or social development before any lowering of water quality is authorized. States may also designate waters as "Tier 3," in which case no lowering of water quality is allowed.

In Idaho, waters that are listed in the State standards as "Special Resource Waters" are considered Tier 2 waters. In addition, the State may designate other waters as Tier 2. In its pre-certification, DEQ indicated that the Spokane River is a Tier 1 water. Therefore, increases in pollutant loadings are allowed, provided that the permit limits ensure that water quality standards continue to be met.

IV. Pollutant-specific Analysis

This section outlines the basis for each of the effluent limitations in the City of Coeur d'Alene's draft permit.

A. Biochemical Oxygen Demand and Total Suspended Solids

The Coeur d'Alene Wastewater Facility is a publicly owned treatment works (POTW). As such, the facility is subject to the technology-based requirements for oxygen-demanding substances and solids. Typically, oxygen-demanding substances are controlled by limitations on five-day biochemical oxygen demand (BOD_5), as specified in 40 CFR 133.102(a)(1)-(3). However, 40 CFR 133.102(a)(4) allows the substitution of carbonaceous biochemical oxygen demand (CBOD) in cases where nitrification of the effluent is a concern. The concentration limitations for CBOD are 5 mg/l less than the corresponding BOD_5 limits, but the percent removal requirement is the same. As requested by the City of Coeur d'Alene, the limitations in the draft permit are based on CBOD.

In addition to limitations for BOD_5 and CBOD, 40 CFR 133.102 establishes limitations for total suspended solids (TSS) for POTWs. The limits are for both concentration and percent removal. These limits have been incorporated into the draft permit.

Table C-3 outlines the secondary treatment requirements that are applicable to Coeur d'Alene's discharge. In addition, the table contains the loading limits required by 40 CFR 122.45(f). Mass-based limits are derived by multiplying the design flow (6 mgd) by the concentration limit and a conversion factor of 8.34.

Table C-3: CBOD and TSS Limitations

Parameter	Average Monthly Limitation		Average Weekly Limitation		Percent Removal (%)
	mg/l	lb/day	mg/l	lb/day	
CBOD	25	1,250	40	2,000	85
TSS	30	1,500	45	2,250	85

B. Total Ammonia (as N)

Low concentrations of ammonia can be toxic to freshwater fish, particularly salmonids. Un-ionized ammonia (NH_3) is the principal toxic form of

ammonia. The ammonium ion (NH_4^+) is much less toxic. The relative percentages of these two forms of ammonia in the water vary as the temperature and pH vary. As the pH and temperature increase, the percentage of ammonia that is in the un-ionized form increases, causing increased toxicity.

Although it is the un-ionized form that is toxic, the criteria are expressed as total ammonia. As effluent mixes with receiving water, the temperature and pH change, making it difficult to predict how much of the total ammonia in the discharge will convert to the un-ionized form. Therefore, the limits in the draft permit are expressed as total ammonia, not un-ionized ammonia.

Because the toxicity of ammonia is dependent upon pH and temperature, the criteria are also pH and temperature dependent. For the Spokane River, temperature varies greatly with season, although pH does not. Therefore, EPA developed seasonal limits for ammonia, using the appropriate flow, temperature, and pH for each season as outlined in Table C-4. The 95th percentile temperature and pH values were used to represent reasonable worst-case conditions.

Table C-4: Seasonal Temperature and pH Values for the Spokane River

Dates	**pH (Standard Units)**	**Temperature (Deg C)**	**Ammonia Criteria**	
			Acute (mg/l, N)	Chronic (mg/l, N)
October 1 - June 30	8.1	15	4.6	1.0
July 1 - September 30	8.1	23.5	3.5	0.58

Because the City will not be able to immediately meet the limits required to meet the ammonia criteria at the edge of the mixing zone, EPA established tiered limits in the draft permit. The first tier is for the design flow in the 1988 permit (4.2 mgd) and the second tier is for the current design flow (6.0 mgd). Using a lower effluent flow results in a larger dilution (shown in Table C-1) and higher effluent limits.

Using the statistical permit derivation method in the TSD, EPA calculated daily maximum and monthly average limits as shown in Table C-5. At an effluent flow of 4.2 mgd, the discharge only has reasonable potential to cause or contribute to an exceedence of water quality standards in the summer. Therefore, the draft permit does not include limits for ammonia during the winter at the lower flow tier.

Table C-5: Coeur d'Alene Ammonia Limits				
Effluent Flow (mgd)	**Summer Limits**		**Winter Limits**	
	Daily Max	Monthly Avg	Daily Max	Monthly Avg
≤ 4.2 mgd	14 mg/l 490 lb/day	5 mg/l 175 lb/day	--- —	--- ---
> 4.2 mgd	10 mg/l 500 lb/day	3.6 mg/l 180 lb/day	55 mg/l 2,750 lb/day	19 mg/l 950 lb/day

C. Fecal Coliform Bacteria

In establishing fecal coliform limits for Coeur d'Alene's draft permit, EPA considered three requirements: 1) Idaho's technology-based requirement for POTWs; 2) Idaho's water quality standard for primary recreation; and 3) Idaho's water quality standard for secondary recreation. Table C-6 provides a summary of the requirements and the times of year that the requirements are applicable.

Table C-6: Idaho Fecal Coliform Standards				
Basis	**Period of Applicability**	**Average Monthly (#/100 ml)[1]**	**Average Weekly (#/100 ml)[1]**	**Maximum Daily (#/100 ml)**
Technology standard for POTWs (IDAPA 16.01.02420.05)	Year-round	---	200	---
Water Quality Criterion for Primary Contact Recreation (IDAPA 16.01.02250.01.a)	May 1-September 30	50	---	500[2]
Water Quality Criterion for Secondary Contact Recreation (IDAPA 16.01.02250.01.b)	Year-round	200	---	800[3]

Footnotes:
1 For fecal coliform bacteria, the average is defined as the geometric mean, based on a minimum of 5 samples.
2 The standard for primary contact recreation also states that no more than 10 percent of the samples can exceed 200/100ml.
3 The standard for secondary contact recreation also states that no more than 10 percent of the samples can exceed 400/100ml.

The draft permit incorporates the most stringent of the fecal coliform requirements for each season. The draft permit does not include 200/100 ml as a monthly average permit limit in the winter because the weekly average

limit of 200/100 ml will ensure that the monthly requirement is met. The 1988 permit required meeting criteria at the point of discharge. Therefore, in evaluating reasonable potential for this discharge, EPA did not consider a mixing zone. Table C-7 presents the draft permit limits for fecal coliform.

Table C-7: Fecal Coliform Limits

Period of Applicability	Average Monthly	Average Weekly	Maximum Daily	Value Not to Be Exceeded by >10% of Samples
May 1 - Sept 30	50	200	500	200
Oct 1 - Apr 30	---	200	800	400

D. Total Residual Chlorine

The State acute and chronic water quality criteria for total residual chlorine for protection of aquatic life (IDAPA 16.01.02250.02.a.iii) are 19 µg/l and 11 µg/, respectively. The loading limitations in the 1988 permit were evaluated to determine whether they were adequate to meet these criteria at the edge of the mixing zone.

The City's 1988 permit contains tiered limits for chlorine, expressed as a daily average loading. At the lowest tier (Spokane River flow less than 2,000 cubic feet per second), the limit is 3.5 lb/day. At the design effluent flow, this loading corresponds to a concentration in the effluent of 0.070 mg/l. As can be seen in Table C-8, this concentration is lower than the water quality-based daily maximum limit, but higher than the monthly average limit during the summer. To ensure that the City continues to control chlorine discharges, the draft permit contains seasonal chlorine limits as shown in Table C-8.

Table C-8: Coeur d'Alene Total Residual Chlorine Limits

Season	Daily Max	Monthly Avg
October 1 - June 30	0.39 mg/l 19.5 lb/day	0.15 mg/l 7.5 lb/day
July 1 - September 30	0.10 mg/l 5.1 lb/day	0.039 mg/l 1.9 lb/day

During the summer, the monthly average effluent limit for chlorine falls below the minimum level (ML) achievable for chlorine using the analytical

methods in 40 CFR Part 136. The ML is defined as the level at which the concentration of a pollutant can be accurately measured. For chlorine, this level is 0.100 mg/l. Because the summer monthly average limit in the draft permit are below this level, the draft permit contains a provision stating that any values below the ML should be considered zero for averaging purposes.

E. Phosphorus

Although the Spokane River in Idaho is not water quality limited for phosphorus, it is upstream from Long Lake, in Washington. This lake has had problems with algal blooms due to phosphorus enrichment. Because of this problem, a phosphorus wasteload allocation strategy was implemented for ten municipal and industrial dischargers in Washington and Idaho (Patmount 1987).

Based on this work, the 1988 permit contained a requirement for 85 percent removal of phosphorus from the City's effluent during the "critical time period", generally defined as March 1 through October 31.

In a letter dated February 5, 1990, EPA indicated its intent to modify the City's NPDES permit upon enactment of a phosphorus ban. The proposed modification was based upon the infeasibility of continuing to achieve 85 percent removal if the influent phosphorus concentrations dropped significantly. In this letter, EPA indicated that a preferred option would be to establish an effluent limit of 1 mg/l or 85 percent removal, whichever was greater.

Although the permit was never modified to incorporate a loading limit for phosphorus, EPA still believes that the proposed approach is the most reasonable way to control phosphorus in Coeur d'Alene's discharge. Therefore, the draft permit proposes a concentration limitation of 1 mg/l or 85 percent removal, whichever is greater, during the critical period. As in the 1988 permit, the critical period is between March 1 and October 31, unless Coeur d'Alene submits documentation based on the methodology described in Mires and Soltero, 1983, as amended, that the critical period is not in effect on those dates.

F. Metals

In Idaho, the most stringent criteria for metals other than arsenic are for the protection of aquatic life. For arsenic, the most stringent criterion is for protection of human health. This section discusses the calculation of the

metals criteria and the conversion of these criteria to limits in the draft permit.

1. Criteria calculation

Idaho's aquatic life criteria for the metals of concern (cadmium, copper, lead, nickel, silver, and zinc) are calculated as a function of hardness, measured in milligrams per liter calcium carbonate (mg/l $CaCO_3$). As the hardness of the receiving water increases, the toxicity decreases.

In addition to the calculation for hardness, Idaho's criteria include a "conversion factor" to convert from total recoverable to dissolved criteria. Conversion factors were developed by EPA and adopted by the State to address the relationship between the total amount of metal in the water column and the fraction of that metal that causes toxicity.

Total recoverable metals analysis measures both the particulate and the dissolved fraction of the metal. EPA's criteria for metals were originally expressed as total recoverable. Further research showed that it is the dissolved metals are "bioavailable," meaning that they can be taken up by aquatic organisms and cause toxicity. Multiplying the criteria by the conversion factors adjusts the criteria to reflect the fraction of metal that was dissolved in the toxicity tests used to develop the criteria. Table C-9 shows the criteria equations, including the conversion factors.

Table C-9: Metals Criteria for the Spokane River at Coeur d'Alene

Parameter		Conversion Factor	Criterion
Copper	Acute	0.960	exp(0.9422*ln[hardness] -1.464)
	Chronic	0.960	exp(0.8545*ln[hardness] -1.465)
Cadmium	Acute	(1.136672-0.041838*ln[hardness])[1]	exp(1.128*ln[hardness] -3.828)[2]
	Chronic	(1.101672-0.041838*ln[hardness])	exp(0.7852*ln[hardness] -3.490)
Lead	Acute	(1.46203-0.145712*ln[hardness])[1]	exp(1.273*ln[hardness] -1.460)[2]
	Chronic	(1.46203-0.145712*ln[hardness])[1]	exp(1.273*ln[hardness] - 4.705)[2]
Silver	Acute	0.85	exp(1.72*ln[hardness] - 6.52)[2]
	Chronic	N/A	N/A
Zinc	Acute	0.978	exp(0.8473*ln[hardness] + 0.8604)
	Chronic	0.986	exp(0.8473*ln[hardness] + 7614)

Table C-9: Metals Criteria for the Spokane River at Coeur d'Alene		
Parameter	**Conversion Factor**	**Criterion**
Footnotes: 1 These conversion factors were not used. See section 2, below. 2 These criteria were not used. See discussion in this section, below.		

EPA used two approaches to calculating the metals criteria for the Spokane River. For copper, where the upstream concentration does not exceed the criteria, EPA used a mixing zone. In this case, the hardness used to calculate the acute and chronic criteria was the hardness at the edge of the mixing zone (25 mg/l $CaCO_3$).

For cadmium, lead, and zinc, the 95th percentile upstream concentration exceeds the criteria. Therefore, there is no "clean" upstream water to dilute the effluent, so criteria must be met at the point of discharge. In this case, the hardness used to calculate the criteria was the effluent hardness (132 mg/l $CaCO_3$). Silver was also evaluated in this way.

Because the curves for lead, silver, and the acute cadmium criterion are convex (bend upward), the effluent may contribute to an exceedence of the criteria as the effluent and receiving water mix. To address the problem, EPA calculated "substitute criteria" (i.e., allowable 4-day and 1-hour concentrations, as appropriate) as tangents to the criteria curves at the receiving water hardness, as shown for the chronic lead criterion in Figure C1. The tangent is a straight line that touches the criterion curve at the receiving water hardness and is always below the curve. Use of the tangent as a substitute criterion ensures that the mixture of effluent and receiving water will not exceed the criteria.

Based on data submitted by the City as part of its pretreatment program and additional monitoring, the above analysis indicates that copper, lead, silver, and zinc show reasonable potential to contribute to exceedences in the receiving water. Therefore, the draft permit contains limits for these metals.

2. Permit Limit Calculation

Although the metals criteria are based on dissolved metal, 40 CFR 122.45(c) requires that metals limits be based on total recoverable metals. This is because changes in water chemistry as the effluent and receiving water mix could cause some of the particulate metal in the effluent to dissolve.

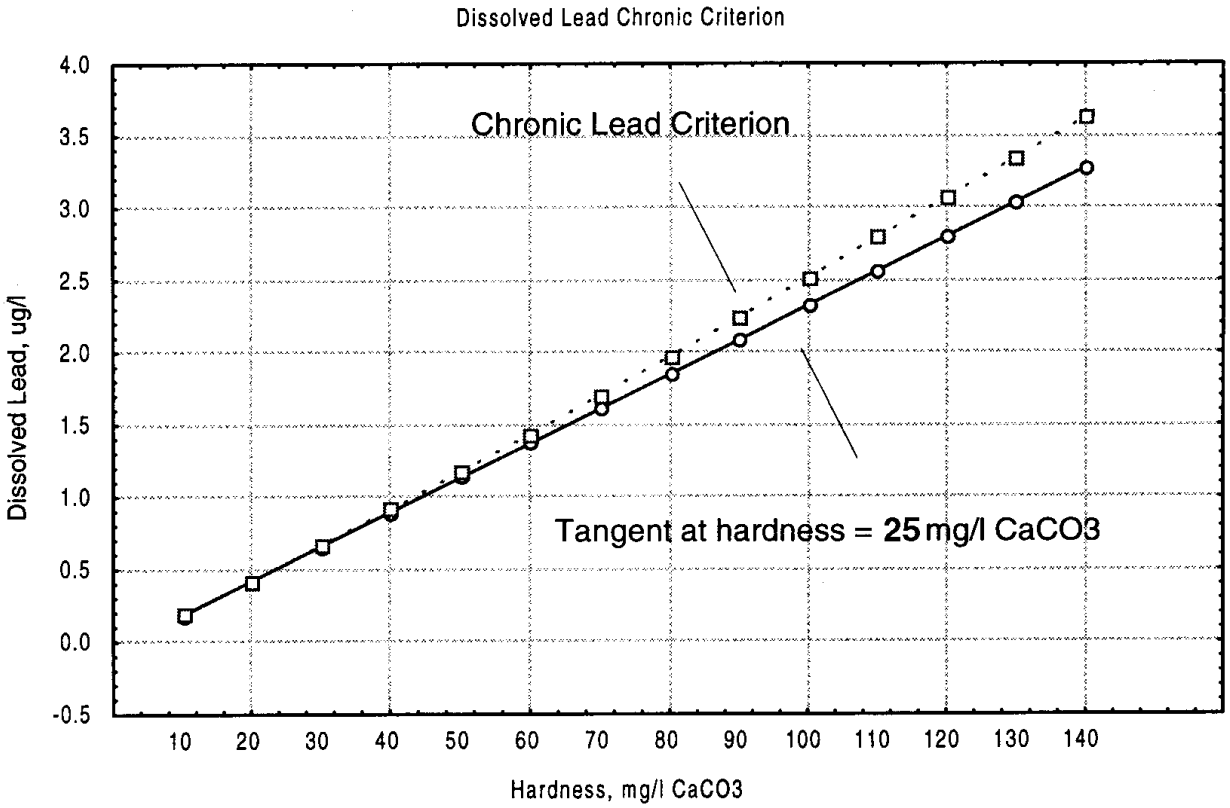

Figure C1 - Chronic Lead Criterion

To account for the difference between total recoverable effluent concentrations and dissolved criteria, “translators” are used in calculating effluent limits. “Translators” are based on the fraction of the total recoverable metals that is predicted to be in the dissolved form in the receiving water. The dissolved wasteload allocation is multiplied by the translator, resulting in a total recoverable value.

Translators can either be site-specific numbers based on data collected using effluent and receiving water, or default numbers recommended by EPA in *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (EPA 823-B-96-007, June 1996). The default translators recommended by EPA are the conversion factors in Table C-6. These translators are based on the fraction of the metal that would be in the dissolved form in water with no particulate matter, which is a worst-case assumption. In waters in which there is particulate matter, the dissolved fraction, and therefore the

toxicity, would be lower. Using these translators is equivalent to converting the dissolved criteria back to total recoverable.

While the use of default translators is appropriate for most of the metals, it creates difficulties in the case of lead and cadmium when the criteria are evaluated at the effluent hardness. For these metals, use of the default translator results in some exceedences of the criteria as the effluent and receiving water mix. To address this problem, EPA used the total recoverable acute and chronic equations and developed tangents to those curves. The total recoverable criteria were then used to develop the permit limits for lead. As with the other parameters, the statistical approach from the TSD was used.

Table C-10 shows the limits for copper, lead silver, and zinc.

Table C-10: Metals Limits for the City of Coeur d'Alene

Parameter	Average Monthly Limit		Maximum Daily Limit	
	Concentration (μg/l)	Loading (lb/day)	Concentration (μg/l)	Loading (lb/day)
Copper, Total Recoverable	18	0.90	33	1.7
Lead, Total Recoverable	2.5	0.13	5.8	0.29
Silver, Total Recoverable	1.2	0.06	2.7	0.14
Zinc, Total Recoverable	99	5.0	150	7.5

EPA and the State of Idaho have proposed a TMDL for cadmium, lead, and zinc. When the TMDL is finalized, EPA may reopen this permit to incorporate the WLAs in the permit.

G. pH

In addition to limits on BOD_5 and TSS, 40 CFR 133.102 requires that effluent pH be within the range of 6.0 to 9.0 standard units for POTWs. In addition, the State water quality standards for protection of aquatic life (IDAPA 16.01.02250.02) require that ambient pH be in the range of 6.5 to 9.5 standard units.

Because pH is a logarithmic scale, the statistical approach in the TSD cannot be used to establish reasonable potential. Instead, a model of pH mixing was used to determine the effluent pH values that would result in meeting the criteria at the edge of the mixing zone. For the upper end of the pH range, the technology-based limit is clearly protective of water quality at

the edge of the mixing zone. Therefore, EPA only modeled the low end of the range to determine whether the technology-based limit was adequate.

Ambient pH is a function of effluent and ambient pH, flow, alkalinity (buffering capacity), and temperature. The worst-case scenario is a warm, highly buffered, acidic effluent being discharged into a warm, poorly buffered, acidic stream. Table C-11 shows the values used to represent this scenario. As with other parameters, the 5th percentile is used to represent the lowest reasonable worst case and the 95th percentile is used to represent the highest reasonable worst case.

Table C-11: Input Data for Coeur d'Alene pH Model

Parameter	**July 1 - September 30**		**October 1 - June 30**	
	Effluent	Ambient	Effluent	Ambient
Temperature, ^{O}C	23	23.5	23	15
pH, Standard Units		6.86		6.6
Alkalinity, mg/l $CaCO_3$	168	17.4	168	17.4

This analysis did not produce significantly different results for summer and winter. Therefore, the draft permit contains limits of 6.3 to 9.0 year-round.

H. Floating, Suspended or Submerged Matter

The State water quality standards (IDAPA 16.01.02200.05) require surface waters of the State to be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses. This condition was included in the 1988 permit and has been retained in the draft permit.

REFERENCES

EPA. *1996. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* EPA 823-B-96-007, June 1996.

Patmount, C.R., et al. 1987. *The Spokane River Basin: allowable Phosphorus Loading*. Harper-Owes Report to Washington State Department of Ecology, Olympia, WA.

Yearsley, J.R., 1987. An Estimate of NPDES Permit Limits for the City of Post Falls and Coeur d'Alene, Idaho. US EPA Region 10, Seattle, WA.

APPENDIX D - SAMPLE EFFLUENT LIMIT CALCULATIONS

NPDES Permit Limit Calculation for Ammonia

Step 1: Determine the appropriate criteria

1A. Determine the uses

The Spokane River is protected by the State of Idaho for the following uses: domestic and agricultural water supply, cold water biota, salmonid spawning, and primary and secondary recreation

1B. Determine the most stringent criterion to protect the uses

The most stringent criterion associated with these uses is for protection of salmonid spawning. The criteria for ammonia are based on temperature and pH. Using reasonable worst-case assumptions of 8.1 standard units for pH and 23.5^{O}C for temperature, the acute (CMC) and chronic criteria (CCC) corresponding to this level of protection are 3.56 mg/l as a one-hour average and 0.58 mg/l as a four-day average, respectively.

Step 2: Determine whether there is "reasonable potential" to exceed the criteria

2A. Determine the "reasonable potential" multiplier

The "reasonable potential" multiplier is based on the coefficient of variation (CV) of the data and the number of data points. Where there are fewer than 10 data points to calculate a CV, the TSD recommends using 0.6 as a default value. In this case, there were 228 data points, with a CV of 0.9. Using the equations in section 3.3.2. of the TSD, the "reasonable potential" multiplier (RPM) is calculated as follows:

p_n = (1 - confidence level)$^{1/n}$

where,
p_n = the percentile represented by the highest concentration
n = the number of samples

p_n = (1-0.99)$^{1/228}$
p_n = 0.98

This means that the largest value in the data set of 228 data points is greater than the 98th percentile.

Next, the ratio of the 99th percentile to the 98th percentile is calculated, based on the equation:

$C_p = \exp(z\sigma - 0.5\sigma^2)$

where,

$\sigma^2 = \ln(CV^2 + 1)$

CV = coefficient of variation
= 0.9

$\sigma^2 = \ln(0.9^2 + 1)$
= 0.59

z = normal distribution value
= 2.326 for the 99th percentile
= 2.054 for the 98th percentile

$C_{99} = \exp(2.326*0.77 - 0.5*0.59)$
= 4.46

$C_{98} = \exp(2.054*0.77 - 0.5*.59)$
= 3.62

$RPM = C_{99}/C_{98}$
= 4.46/3.62

RPM= 1.2

2B. Calculate the concentration of the pollutant at the edge of the mixing zone

There is reasonable potential to exceed criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the criterion. The maximum projected concentration is calculated from the following equation:

$$C_d = \frac{(C_e * Q_e) + (C_u * (Q_u * \%MZ))}{Q_e + (Q_u * \%MZ)}$$

where,

C_d = receiving water concentration at the edge of the mixing zone
C_e = maximum projected effluent concentration
= maximum reported effluent concentration * reasonable potential multiplier (26.6*1.2= 31.9 mg/l)
Q_e = maximum effluent flow (9.3 cfs)
C_u = upstream concentration of pollutant (0 mg/l)
Q_u = upstream flow (163 cfs for acute, 329 cfs for chronic)
%MZ = % of upstream flow allowed for mixing zone (25%)

For the acute criterion, use the acute flow

$$C_d = \frac{(31.9*9.3) + (0*163*0.25)}{9.3 + (163*0.25)}$$

C_d = 5.92 mg/l

For the chronic criterion, use the chronic flow

$$C_d = \frac{(31.9*9.3) + (0*329*0.25)}{9.3 + (329*0.25)}$$

C_d = 3.24 mg/l

The concentrations at the edges of the acute and chronic mixing zones are greater than the criteria, therefore a limit must be included in the permit.

Step 3: Calculate the wasteload allocations

Wasteload allocations (WLAs) are calculated using the same mass balance equation used to calculate the concentration of the pollutant at the edge of the mixing zone. However, C_d becomes the CMC or CCC and C_e is replaced by the acute or chronic WLA. The equation is rearranged to solve for the WLA, becoming:

$$WLA_a = \frac{CCC*Q_u * \%MZ + CCC*Q_e - Q_u*C_u*\%MZ}{Q_e}$$

For the acute criterion

$$WLA_a = \frac{3.56*163*0.25 + 3.56*9.3 - 163*0*0.25}{9.3}$$

WLA_a = 19.16 mg/l

For the chronic criterion

$$WLA_c = \frac{0.58*329*0.25 + 0.58*9.3 - 329*0*0.25}{9.3}$$

WLA_c = 5.71 mg/l

The WLAs are converted to long-term average concentrations, using the following equations from EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$$LTA_a = WLA_a * \exp[0.5\sigma^2 - z\sigma]$$

$$LTA_c = WLA_c * \exp[0.5\sigma_4^2 - z\sigma_4]$$

where,

$\sigma^2 = \ln(CV^2 + 1)$
$= 0.593$
$\sigma_4^2 = \ln(CV^2/4 + 1)$
$= 0.184$
$z = 2.326$ for 99th percentile probability basis

$LTA_a = 19.16 * \exp[0.5 * 0.593 - 2.326 * 0.770]$

LTA_a = 4.29 mg/l

$LTA_c = 5.71 * \exp[0.5 * 0.184 - 2.326 * 0.429]$

LTA_c = 2.30 mg/l

The LTAs are compared and the most stringent is used to develop the daily maximum and monthly average permit limits. In this case, the chronic LTA is the most stringent.

Step 4: Derive the maximum daily (MDL) and average monthly (AML) permit limits

Using the TSD equations, the MDL and AML permit limits are calculated as follows:

$MDL = LTA_c * \exp[z\sigma - 0.5\sigma^2]$

where:

$\sigma^2 = \ln(CV^2 + 1)$
$= 0.593$
$z = 2.326$ for 99th percentile probability basis
CV = coefficient of variation

$MDL = 2.30 * \exp[2.326 * 0.770 - 0.5 * 0.593]$

MDL= 10 mg/l

$AML = LTA_c * \exp[z\sigma - 0.5\sigma^2]$

where:

$\sigma^2 = \ln(CV^2/n + 1)$
$= 0.096$
$z = 1.645$ for 95th percentile probability basis
CV = coefficient of variation

n = number of sampling events required per month (8)

AML= 2.30 * exp[1.645 * 0.310 - 0.5 * 0.096]

AML= 3.65 mg/l

APPENDIX E - SEWAGE SLUDGE (BIOSOLIDS) REQUIREMENTS

A. General Requirements

The biosolids management regulations at 40 CFR 503 were designed to be directly enforceable against most users or disposers of biosolids, whether or not they obtain a permit. The publication of 40 CFR Part 503 in the Federal Register on February 19, 1993 served as notice to the regulated community of its duty to comply with the requirements of the rule, with the exception of those requirements that will be specified by the permitting authority.

Even though Part 503 is largely self-implementing, Section 405(f) of the Clean Water Act requires the inclusion of biosolids use or disposal requirements in any NPDES permit issued to a treatment works treating domestic sewage. In addition, the biosolids permitting regulations in 40 CFR 122 and 124 have been revised to expand EPA's authority to issue NPDES permits with these requirements. This includes all biosolids generators, biosolids treaters and blenders, surface disposal sites and biosolids incinerators. Therefore, the requirements of 40 CFR Part 503 have to be met when biosolids are applied to the land, placed on a surface disposal site, placed in a municipal solid waste landfill unit, or fired in a biosolids incinerator.

Requirements are included in Part 503 for pollutants in biosolids, the reduction of pathogens in biosolids, the reduction of the characteristics in biosolids that attract vectors (for example, rats or flies), and the sites where biosolids are either land applied or placed for final disposal. In addition, the regulations place requirements on biosolids incinerators, including the quality of the exit gas from the incinerator stack. The sections of the federal standards at 40 CFR Part 503 applicable to the City of Coeur d'Alene's proposed practices are Section A (General Provisions, 503.1-9), Section B (Land Application, 503.10-18), and Section D (Pathogen & Vector Control, 503.30-33).

B. Biosolids Management

The permit application indicates that the City of Coeur d'Alene Wastewater Facility treats its sludge by anaerobic digestion and dewatering. The City reports that, at this point, the sludge is Class B biosolids. The dewatered sludge is then trucked to the City's compost facilities.

The sludge is composted by an aerated static pile process. Blowers provide air to the pile for approximately 21 days, including at least 3 days at a temperature of at least 131^{O}F to destroy pathogens. The material is then screened, cured for an additional 30 days, and distributed as compost.

Because the City's composting facility is separate from the wastewater treatment plant, the draft NPDES permit considers the wastewater treatment plant as a facility that transfers its sludge to another facility for processing into compost.

The permit for the composting facility will be addressed at a later date. As mentioned above, the biosolids practices at the composting facility are still regulated, however, because all composting facilities are automatically subject to all the requirements in the current federal standards (40 CFR 503), and are subject to state solid waste permitting.

C. Permit Requirements

To ensure compliance with the Act and 40 CFR 503, the draft permit contains the following requirements:

1. Authorization to Transfer Biosolids: The permit authorizes the wastewater treatment plant to transfer biosolids to any Class A facility. This provision was included to allow flexibility for the City to use another facility in case the City cannot or decides not to use its own composting facility. Because the facility did not apply for any other method of sludge use/disposal (for example, land application, disposal in a municipal solid waste landfill), the permit does not authorize any other method of disposal or use.

2. State Laws and Federal Standards: Pursuant to 40 CFR 122.41(a), a condition has been incorporated into the draft permit requiring the City to comply with all federal and state laws and regulations applying to biosolids use and disposal. These standards are interpreted using the following EPA guidance documents:

   Part 503 Implementation Guidance, EPA 833-R-95-001, and

   Environmental Regulations and Technology: Control of Pathogens and Vector Attraction in Sewage Sludge, EPA/625/R-92/013.

   These documents are used by EPA Region 10 as the primary technical references for both permitting and enforcement activities.

   In addition to complying itself with applicable laws and regulations, the draft permit requires the City to ensure, to the extent practicable, that the requirements of 40 CFR 503, Subparts A, B, and D are met when biosolids are used or disposed. This provision ensures that the waste water treatment plant makes some effort to see that the receiving facility is properly operated. As part of this requirement, the City must provide the receiving facility with any information it needs to comply with Part 503, as required by 40 CFR 503.12(g).

   To further ensure compliance with State and Federal standards, the draft permit prohibits the transfer of sludge to any receiving facility that is not in compliance with its sludge permit and applicable requirements of 40 CFR Part 503. This requirement prevents any further harm to the environment

or public health that could be caused by delivering sludge to a facility that is not properly managing its sludge.

3. Health and Environmental General Requirement: The Clean Water Act requires that the environment and public health be protected from toxic effects of any pollutants in biosolids. Therefore, the draft permit requires the City to handle and use/dispose of biosolids in such a way as to protect human health and the environment. Under this requirement, the City is responsible for being aware of all pollutants allowed to accumulate in the biosolids, and for preventing harm to the public from those pollutants.

   The U.S. Department of Agriculture can assist the facility in evaluating potential nutrient or micronutrient problems. Additionally, EPA has published the following guidance to assist facilities in evaluating their biosolids for pollutants other than those listed in 40 CFR 503:

   Technical Support Document for Land Application of Sewage Sludge (NTIS PB93-110575).

4. Protection of Surface Waters from Biosolids Pollutants: Section 405(a) of the Clean Water Act prohibits any practice where biosolids pollutants removed in a treatment works at one location would ultimately enter surface waters at another location. The draft permit requires the City to ensure that pollutants from biosolids do not enter surface waters. This includes pollutants that could be discharged indirectly from spilled or stored sludge through storm water runoff. In addition, the permit prohibits the City from:

   - receiving sludge mixed with its incoming sewage flow, or
   - mixing its sludge with the sewage flow going to any other facility.

   These prohibitions are designed to prevent the discharge of pollutants that "pass through" the treatment plant and accumulate in the sludge, especially metals. Studies show that 20 to 50 percent of metals pass through to the sludge.

5. Control of Pathogens, Vectors, and Metals: The regulations do not specify any pathogen control or vector attraction requirements that apply to the transfer of sludge. Therefore, the draft permit does not include pathogen control or vector attraction reduction requirements.

   Of particular concern in the regulations are metals (arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, silver, and zinc). To ensure that the final compost does not exceed the metals levels specified in the regulations, the draft permit specifies the maximum concentration of metals in the compost transferred to the receiving facility not exceed the concentrations in Tables 1 or 3 of 40 CFR 503.13. If the receiving facility

has established different metals levels as part of its feedstock control plan, the sludge must meet those levels before it is transferred.

6. Monitoring Requirements: The draft permit requires the City to monitor biosolids for the metals in 40 CFR 503.13. To ensure that biosolids samples are representative, the permit requires the City to consider the variability in biosolids quality, location, season, processing, and handling when planning sample collection (see 40 CFR 503.8).

   The regulations at 40 CFR 503.16(a) specify the monitoring frequency required for facilities, based on size. At their current biosolids generation rate, the default monitoring frequency for the City is quarterly. However, 40 CFR 503.16(a)(2) allows for reduced monitoring frequency after a facility has collected data for two years. Therefore, the draft permit requires monitoring twice per year.

7. Contingency Plan: Since treatment processes are dependent on mechanical systems, there is a potential for periods of break-down, major repair, or maintenance. The permit requires the City to conduct an assessment of the maximum duration of any period when the receiving facility may be unavailable for biosolids disposal and develop a contingency plan to address alternatives. The contingency plan must be prepared within 18 months of the effective date of the permit. If any measures or changes are needed so that safe disposal will always be available, those changes must be implemented within 36 months from the effective date of the permit.

8. Reporting: At a minimum, 40 CFR 503.18 specifies that certain facilities report annually the information that they are required to develop and retain under the record keeping requirements specified at 40 CFR 503.17. This requirement applies to permittees defined as Class I management facilities, POTWs with a flow rate equal to or greater than one mgd, and POTWs serving a population of 10,000 or greater.

   The draft permit requires the City to submit an annual report (by February 19 of each year) that includes the following information:

   - the results of any sampling and analysis, including the number of samples, sample collection techniques, analytical methods, and the number of excursions,
   - identification of the receiving facility and the company that transfers biosolids to the receiving facility
   - a report of any times that the biosolids were stockpiled or disposed of in a manner other than that authorized by the permit.

APPENDIX F - ENDANGERED SPECIES ACT

In a letter dated November 28, 1997, the US Fish and Wildlife Service (USFWS) identified the following federally-listed species in the area of discharge:

1. Endangered Species
   - Gray Wolf (*Canis lupus*)
   - Bald Eagle (*Haliaeetus leucocephalus*)

2. Proposed Species
   - Bull trout (*Salvelinus confluentus*)

In a letter dated January 21, 1998, the National Marine Fisheries Service (NMFS) stated that there are currently no threatened or endangered species under its jurisdiction in the Spokane River. There are however, several species of salmonids that are proposed or candidate species located in the Columbia River, downstream from the Spokane River.

EPA has determined that the draft permit will not impact the gray wolf, bald eagle, or bull trout. Hunting and habitat destruction are the primary causes of the gray wolf's decline. Issuance of NPDES permits for the City of Coeur d'Alene will not result in habitat destruction, nor will it result in changes in population that could result in increased habitat destruction. Furthermore, issuance of this draft permit will not impact the food sources of the gray wolf. The primary reasons for decline of the bald eagle are destruction of their habitat and food sources and widespread historic application of DDT. This draft permit will have no impact on any of these issues. Although bull trout was listed for the Spokane River, the Interior Columbia Ecosystem Management Project lists bull trout as "known absent" on the River. USFWS stated that based on their information, bull trout cannot get past the Post Falls Dam and any bull trout in the Spokane River are probably transients from Lake Coeur d'Alene[1].

[1]Audet, Suzanne, US Fish and Wildlife Service. Personal communication with Carla Fisher, EPA. February 25, 1998.