FACT SHEET

The United States Environmental Protection Agency (EPA)
Plans To Reissue A
National Pollutant Discharge Elimination System (NPDES) Permit To:

The City of Emmett
501 East Main Street
Emmett, Idaho 83617

Permit Number: ID-002031-1
Public Notice start date: July 18, 2001
Public Notice expiration date: September 4, 2001

Technical Contact

Name: Madonna Narvaez
Phone: (206) 553-1774
1-800-424-4372 ext. 1774 (within Alaska, Idaho, Oregon, and Washington)
Email: narvaez.madonna@epa.gov

EPA Proposes NPDES Permit Reissuance.

EPA proposes to reissue an NPDES permit to the City of Emmett. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to the Payette River. 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.

This Fact Sheet includes:

- information on public comment and public hearing procedures
- a description of the facility and current discharge
- a map of the location of the wastewater treatment plant
- a listing of proposed effluent limitations, schedules of compliance, and other conditions
- detailed technical material supporting the conditions in the permit

The State of Idaho Certification.

EPA is requesting that the Idaho Division of Environmental Quality certify the NPDES permit for the City of Emmett, under section 401 of the Clean Water Act.

Public Comment.

Persons wishing to comment on the tentative determinations contained in the proposed permit may do so, in writing, by the end date of this public comment period. Comments must be received within this public comment period to be considered in the formulation of final determinations regarding the application. All comments should include the name, address, and telephone number of the commenter and concise statement of the exact basis of any comment and the relevant facts upon which the comment is based.
Persons wishing to request that a public hearing be held may do so, in writing, by the end date of this public comment period. A request for a public hearing must state the nature of the issues to be raised, as well as the requester's name, address, and telephone number.

All written comments and requests should be submitted to the attention of the Director, Office of Water at the following address:

U.S. EPA, Region 10
Re: City of Emmett Wastewater Treatment Plant
1200 Sixth Avenue, M/S OW-130
Seattle, Washington 98101

Comments may also be submitted electronically to the technical contact listed above.

After the Public Notice expires, and all comments have been considered, EPA's Director for the Office of Water in Region 10 will make a final decision regarding permit re-issuance. If no significant 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 the permit is appealed to the Environmental Appeals Board within 30 days.

Persons wishing to comment on State Certification should submit written comments by the end date of this public comment period to the Regional Administrator, with a copy to EPA, at the following address:

Regional Administrator, State of Idaho
Department of Environmental Quality
Boise Regional Office
1445 N. Orchard
Boise, Idaho 83706-2239

Documents are Available for Review.
The following documents are available at the EPA Region 10 Office, 1200 Sixth Ave, Seattle, Washington, between 8:30 a.m. and 4:00 p.m., Monday through Friday:

1. permit application and any supporting data submitted by the permittee
2. draft permit
3. fact sheet
4. documents referenced in fact sheet
5. other documents (e.g., meeting reports, correspondence, trip reports, telephone memos, calculations, etc.)

The fact sheet and draft permit may also be viewed electronically at **www.epa.gov/r10earth/water.htm**.

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-1774 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

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I. APPLICANT

City of Emmett
NPDES Permit No.: ID-002031-1

Facility Mailing Address:
501 East Main Street
Emmett, Idaho 83617

II. FACILITY INFORMATION

A. Treatment Plant Description

The City of Emmett owns, operates, and has maintenance responsibility for a facility which treats domestic sewage from local residents and commercial establishments. The facility's application indicates that the design flow of the facility is 5.7 million gallons per day (mgd) and the population served is 5500. There are no significant industrial users. From 1998 through 2000 the facility's average monthly discharge has decreased from 2.58 to 1.89 mgd. Domestic wastewater is treated in a series of three waste stabilization lagoons. Effluent is chlorinated prior to discharge. Domestic sludge has accumulated in the bottom of the lagoons and removal has not been required to date.

B. Background Information

The NPDES permit for the wastewater treatment plant expired on April 22, 1991. Under federal law, specifically, the Administrative Procedures Act (APA), a federally issued NPDES permit is administratively extended (i.e., continues in force and effect) provided that the permittee submits a timely and complete application for a new permit prior to the expiration of the current permit. Since the City did submit a timely application (Standard Form A) that was received by EPA on October 26, 1990 for a new permit, the current permit was administratively extended. The City of Emmett subsequently filed a General Form 1 and NPDES Form 2A that was submitted to EPA on June 15, 2000. This updated application was requested by EPA on May 24, 2000.

A review of the facility's Discharge Monitoring Reports[1] for the past five years indicates that the facility has generally been in compliance with its permit effluent limits during the past 2 years. Three pH excursions were reported in 1998-1999, and one TSS excursions was reported in 1998.

III. RECEIVING WATER

A. Outfall Location/ Receiving Water

The treated effluent from the City of Emmett wastewater treatment facility is discharged from Outfall 001, located at latitude 43° 52' 00" and longitude 116° 32' 00", to the Payette River at approximately River Mile 30.

[1] Discharge monitoring reports are forms that the facility uses to report the results of monitoring the facility has done in compliance with their NPDES permit.

Flow information was available from USGS Station No. 13249500 to determine the 1Q10 or the 7Q10[2] flows at Emmett. The 1Q10 and 7Q10 for the Payette River at this location are 251 cubic feet per second (cfs) and 364 cfs, respectively, as calculated using Hydrotec. Therefore, these flows will be used to determine if water quality based effluent limitations are required for this discharge.

B. Water Quality Standards

A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as cold water biota, contact recreation, etc.) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary, by the State, to support the beneficial use classification of each water body. The anti-degradation policy represents a three tiered approach to maintain and protect various levels of water quality and uses.

1. The Idaho *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02.140.16.) protect the Payette River (SW-1, Payette River, Black Canyon Reservoir Dam to mouth) for the following beneficial use classifications: domestic water supply, cold water biota, salmonid spawning, and primary contact recreation.

   The criteria that the State of Idaho has deemed necessary to protect the beneficial uses for the Payette River, and the State's anti-degradation policy are summarized in Appendix A.

2. Oregon Water Quality Standards: The federal regulation at 40 CFR 122.4 states: "No permit may be issued when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states."

   The mid-point of the Snake River is the boundary between the states of Idaho and Oregon. Since the Emmett facility discharges to the Payette River at river mile 30, it is possible that the effluent discharged from the facility may affect the water quality of Snake River in Oregon State. Therefore, Oregon State water quality standards must be considered when developing effluent limits.

   The *Oregon Water Quality Standards and Beneficial Uses* (Oregon Administrative Code 340-041) classify this section of the Snake River for the following beneficial uses: public and private drinking water supply, industrial water supply, irrigation, livestock watering, salmonid fish rearing (trout), salmonid fish spawning (trout), resident fish (warm water) and aquatic life, wildlife and hunting, fishing, boating, water contact recreation, and aesthetic quality.

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[2] The 1Q10 represents the lowest daily flow that is expected to occur once in ten years.
The 7Q10 represents the lowest 7 day average flow that is expected to occur once in ten years.

In general, the Idaho water quality criteria will be protective of the beneficial uses established by Oregon, with the following exceptions: Oregon's standard for pH is more stringent, and its designation of salmonid spawning as a beneficial use of the river requires more stringent dissolved oxygen and temperature criteria. However, since the effluent from the Payette facility will be significantly diluted before reaching the Oregon side of the Snake River, it is anticipated that the effluent will not effect the Oregon water quality standards. Therefore, only Idaho water quality standards will be considered when developing effluent limits.

C. Water Quality Limited Segment

A water quality limited segment is any waterbody, or definable portion of water body, where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards. The Payette River has been listed as a water quality limited segment. This section of the river has been listed as water quality limited for bacteria, nutrients, and temperature. In the State of Oregon this section of the Snake River has been listed as water quality limited for temperature and toxics (mercury).

Section 303(d) of the Clean Water Act (CWA) requires States to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited. A TMDL documents the amount of a pollutant a waterbody can assimilate without violating a state's water quality standards and allocates that load to known point sources and nonpoint sources. The Idaho Department of Environmental Quality (IDEQ) issued an amendment to the Payette River TMDL on May 11, 2000 which was subsequently approved by EPA Region 10 on May 31, 2000. This amended TMDL addresses bacteria issues related to this section of the Payette River. A TMDL for nutrients for this lower portion of the Payette River is planned once a TMDL for upstream reaches is completed.

Neither the Idaho Department of Environmental Quality (IDEQ) nor the Oregon Department of Environmental Quality (ODEQ) has established a TMDL for this portion of the Snake River. However, the IDEQ is scheduled to complete a TMDL by December 2001, and the ODEQ is scheduled to complete a TMDL in 2005.

IV. EFFLUENT LIMITATIONS

In general, the Clean Water Act requires that the effluent limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based limits. A technology based effluent limit requires a minimum level of treatment for municipal point sources based on currently available treatment technologies. A water quality based effluent limit is designed to ensure that the water quality standards of a waterbody are being met. For more information on deriving technology-based effluent limits and water quality-based effluent limits see Appendix C. The following summarizes the proposed effluent limitations that are in the draft permit.

A. The pH range must be between 6.5 - 9.5 standard units.

B. Removal Requirements for BOD_5: During the non-irrigation season (October 1 through April 30), the monthly average effluent BOD_5 load must not exceed 35 percent of the monthly average influent BOD_5 load. During the irrigation season (May 1 through September 30), a mass loading limit for BOD_5 must apply.

C. Removal Requirements for TSS: During any month, the monthly average effluent TSS load must not exceed 35 percent of the monthly average influent TSS load.

D. There must be no discharge of floating solids or visible foam other than in trace amounts.

E. Table 1, below, presents the proposed effluent limits for BOD_5 and TSS. The BOD_5 and TSS concentration limits are continued from the existing permit. The BOD_5 mass limits for the non-irrigation season have been revised based on the facility design flow. BOD_5 mass limitations for the irrigation season have been continued from the existing permit. In addition, TSS mass limitations have been added to the permit. Mass-based limits based on design flow are calculated as Design Flow, MGD X Concentration, mg/L X 8.34 = lbs/day. BOD_5 mass limits during the irrigation season have been retained from the existing permit.

The pH has been changed to a range of 6.5 – 9.5 to be consistent with State water quality standards. The City of Emmett has been monitoring for total ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, total kjeldahl nitrogen, total phosphorus, and ortho-phosphorus twice per month since 1996 at the inlet and outlet of the wastewater treatment plant, and both upstream and downstream on the Payette River. A water quality-based limit has been added for ammonia (as N) as the data provided by the City of Emmett indicates there is a reasonable potential for ammonia water quality criteria to be exceeded. A water quality-based total residual chlorine limit has been included in the permit. Fecal coliform limits are continued from the existing permit and E. coli limits have been added to be consistent with the State of Idaho water quality standards.

Table 1. Effluent Limitations and Monitoring Requirements

PARAMETER	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, MGD	Report	---	Report	Influent or effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	Influent and Effluent	1/week	grab-composite
October 1 - April 30	1426 lb/day	2139 lb/day	---			

Table 1. Effluent Limitations and Monitoring Requirements						
PARAMETER	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit	Sample Location	Sample Frequency	Sample Type
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	Influent and Effluent	1/week	grab-composite
May 1 - September 30	713 lb/day	1070 lb/day	---			
Total Suspended Solids	70 mg/l	105 mg/l	---	Influent and Effluent	1/week	grab-composite
	3328 lb/day	4991 lb/day	---			
Ammonia (as N)	1.6 mg/l	---	4.3 mg/l	Effluent	1/week	grab-composite
	74 lb/day	---	205 lb/day			
Total Residual Chlorine [1,2]	58 ug/l	---	146 ug/l	Effluent	5/week	grab-composite
	2.8 lb/day	---	7.0 lb/day			
Fecal Coliform Bacteria **May 1 – September 30**	50/100 ml	200/100 ml[3]	---	Effluent	1/week	grab
Fecal Coliform Bacteria **October 1 – April 30**	---	200/100 ml[3]	---	Effluent	1/week	grab
E. coli Bacteria [2,4]	126/100 ml	---	406/100 ml[4a]	Effluent	1/ week	grab
Mercury	---	---	Report	Effluent	1/quarter[5]	grab-composite
Total Kjeldahl Nitrogen, mg/L	---	---	Report	effluent	1/ 2 month	24 hr comp
Nitrate - Nitrite (as N), mg/L	---	---	Report	effluent	1/ 2 month	24 hr comp
Total Phosphorus (as P), mg/L	---	---	Report	effluent	1/ 2 month	24 hr comp
Orthophosporus (as P), mg/L	---	---	Report	effluent	1/ 2 month	24 hr comp

1 The average monthly limit for total residual chlorine is not quantifiable using EPA approved analytical methods. EPA will use the Minimum Level of 100 ug/L as the compliance evaluation level for chlorine. If an analytical is less than the method detection limit for chlorine, the permittee must report "< numerical detection limit" on the discharge monitoring report.

2 Reporting is required within 24 hours if the maximum daily limit is violated.

3 The average weekly fecal coliform count must not exceed a geometric mean of 200/100 ml based on a minimum of five (5) samples per week.

4 A geometric mean of 126 organisms per 100 ml must be based on a minimum of 5 samples taken every 3 to 5 days over a thirty day period.

4a This applies to a single sample.

5 Sampling must continue until a total of 12 samples have been collected and analyzed.

V. SLUDGE REQUIREMENTS

The biosolids management regulations at 40 CFR §503 were designed so that the standards are directly enforceable against most users or disposers of biosolids, whether or not they obtain an NPDES permit. Therefore, the publication of 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, except those requirements that indicate that the permitting authority must specify what has to be done.

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, the quality of the exit gas from a biosolids incinerator stack, the quality of biosolids that is placed in a municipal solid waste landfill (MSWLF) unit, the sites where biosolids are either land applied or placed for final disposal, and for a biosolids incinerator.

Even though Part 503 is self-implementing, Section 405(f) of the CWA requires the inclusion of biosolids use or disposal requirements in any NPDES permit issued to a Treatment Works Treating Domestic Sewage (TWTDS). In addition, the biosolids permitting regulations in 40 CFR §122 and §124 have been revised to expand its authority to issue NPDES permits with these requirements. This includes all biosolids generators, biosolids treaters and blenders, surface disposal sites and biosolids incinerators. In the future, EPA Region 10 will be issuing a separate NPDES general permit which deals only with the use and disposal of biosolids. Facilities that generate biosolids, including the City of Emmett, will be required to be covered under the biosolids general permit. As mentioned earlier, even though the permittee does not presently have a permit for biosolids use or disposal, the Permittee is responsible for complying with the requirements of 40 CFR 503.

Presently, the permittee accumulates biosolids in the sewage lagoons. The draft permit requires the permittee to comply with 40 CFR Part 503 in the event that any biosolids are removed from the sewage lagoons.

VI. MONITORING REQUIREMENTS

Section 308 of the Clean Water Act and federal regulation 40 CFR 122.44(i) require monitoring 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 Permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports to EPA. Table 1 above presents the proposed effluent monitoring requirements.

Monitoring for nitrate-nitrite, total kjeldahl nitrogen, and total phosphorus have been included in the draft permit to support the development of the TMDL for the Payette River. Monitoring for mercury is to support future development of a TMDL in the Snake River for mercury, based on Oregon water quality standards. Table 2 describes the surface water monitoring requirements. The permit proposes to require the surface water monitoring (except for mercury) for two years. Mercury monitoring will only be required for one year.

Table 2. Surface Water Monitoring Parameter, Locations, and Method Detection Limits				
Parameter	Sample Type	Upstream Sampling Frequency[1]	Downstream Sampling Frequency[1]	Method Detection Limit (MDL)
Flow, mgd	Recording	1/month	-----	-----
BOD_5 , mg/L	grab-composite	1/month	-----	-----
TSS , mg/L	grab-composite	1/month	-----	-----
E. coli Bacteria, colonies/100 ml	grab	1/month	-----	-----
Dissolved Oxygen, mg/L	grab	1/month	1/month	-----
Total Phosphorus, mg/L	grab-composite	1/month	1/month	-----
Ortho-phosphorus, mg/L	grab-composite	1/month	1/month	-----
Total Ammonia as N, mg/L	grab-composite	1/month	1/month	-----
Total Kjeldahl Nitrogen, mg/L	grab-composite	1/month	1/month	-----
Nitrate-Nitrite, mg/L	grab-composite	1/month	1/month	-----
Temperature, °C	grab	1/month	1/month	-----
pH, standard units	grab	1/month	1/month	-----
Mercury, : g/L	grab-composite	1/month	1/month[2]	0.001µg/L

1 Sampling is required for all parameters except for mercury for two years.
2 Sampling is required for one year.

VII. OTHER PERMIT CONDITIONS

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the Permittee to develop a Quality Assurance Plan to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The Permittee is required to complete a Quality Assurance Plan and to certify to EPA completion of the plan within 120 days of the effective date of the final permit. The Quality Assurance Plan must consist of standard operating procedures the Permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Facility Planning

The permit also requires that the permittee compute an annual average value for flow, and BOD_5 and TSS loading entering the facility based on the previous 12 months of data or all data available. When the average annual values exceed the 85 percent of the design criteria for the WWTF three months in a row, the permittee is required to develop a facility plan and schedule within 18 months from the date of the exceedance. This plan or strategy is required to ensure that

the permittee will continue to comply with permit limits if capacity is being exceeded.

Table 3. - Facility Planning		
Criteria	**Value**	**Units**
Average Flow	5.7	mgd

C. Whole Effluent Toxicity Testing

Whole effluent toxicity tests are laboratory tests that use small vertebrate and invertebrate species, or plants, to measure the toxicity of an effluent. The effluent concentration that results in the death of 50% of test organisms during a 96-hour exposure determines the short-term (acute) toxicity. The highest effluent concentration that causes reduced growth or reduced reproduction of test organisms or plants during a 1-week (or other specified period of) exposure determines the long-term (chronic) toxicity.

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 exceedance of a narrative or numeric water quality standard. Idaho water quality standards at .01.02.200.02 state that surface waters of the state must be free from toxic substances in concentrations that impair designated beneficial uses. There is no WET testing data available for this facility, so the draft permit require the permittee to conduct WET testing.

Regulations at CFR § 122.21(j)(5) require that all POTWs with design rates equal to or greater than 1 mgd submit at least one year's worth of whole effluent toxicity test results, conducted quarterly with the application renewal. Therefore, the permit requires that the permittee conduct quarterly whole effluent toxicity testing during the fourth year of the permit.

D. Additional Permit Provisions

Sections II, III, and IV of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

VIII. 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 adversely affect any threatened or endangered species. EPA has determined that issuance of this permit will not affect any of the endangered species that may occur in the vicinity of the discharge. See Appendix C for further details.

B. State Certification

Section 401 of the Clean Water Act requires EPA to seek state certification before issuing a final permit. As a result of the certification, the state may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards.

C. Permit Expiration

This permit will expire five years from the effective date of the permit.

APPENDIX A - WATER QUALITY STANDARDS

I. Water Quality Criteria

For the City of Emmett discharge, the following water quality criteria are necessary for the protection of the beneficial uses of the Payette River:

A. IDAPA 58.01.02.200.02 - Surface waters of the State must be free from toxic substances in concentrations that impair designated beneficial uses. Furthermore, IDAPA 58.01.02.210.01 incorporates the National Toxics Rule by reference as found in 40 CFR 131.36(b)(1) that includes numeric criteria for toxic substances.

B. IDAPA 58.01.02.200.05 - Surface waters of the State must 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.

C. IDAPA 58.01.02.250.01.a. - Hydrogen ion concentration (pH) values within the range of 6.5 to 9.5 standard units.

D. IDAPA 58.01.02.250.01 c. – The one-hour average total residual chlorine concentration must not exceed 19 ug/L, and the four-day average total residual chlorine concentration must not exceed 11 ug/L.

E. IDAPA 58.01.02.250.02.b. – Water temperatures of 22 degrees C or less with a maximum daily average of no greater than 19 degrees C.

II. Anti-Degradation Policy

The State of Idaho has adopted an anti-degradation policy as part of their water quality standards. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses. The three tiers of protection are as follows:

A. Tier 1 – **Maintenance of Existing Uses for all Waters -** The existing in stream uses and the level of water quality necessary to protect the existing uses must be maintained and protected.

B. Tier 2 **– High Quality Water –** Where the quality of the water exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality must be maintained and protected unless the Department finds, after full satisfaction on the intergovernmental coordination and public participation provisions of the Department's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Department must assure water quality adequate to protect existing uses fully.

C. **Tier 3 - Outstanding Resource Waters –** Where high quality waters constitute an outstanding natural resource, such as waters of national and state parks and wildlife refuges, and waters of exceptional recreational or ecological significance,

that water must be maintained and protected from the impacts of point and nonpoint source activities.

The Payette River is a Tier 2 waterbody, therefore, water quality should be such that it results in no mortality and no significant growth or reproductive impairment of resident species. An NPDES permit cannot be issued that would result in the water quality criteria being violated. The draft permit contains effluent limits which ensures that the existing beneficial uses for the Payette River will be maintained.

APPENDIX B - Basis for Effluent Limitations

The CWA requires Publicly Owned Treatment Works to meet performance-based requirements (also known as technology based effluent limits) based on available wastewater treatment technology. EPA may find by analyzing the effect of an effluent discharge on the receiving water, that technology based effluent limits are not sufficiently stringent to meet water quality standards. In such cases, EPA is required to develop more stringent, water quality-based effluent limits designed to ensure that water quality standards are met. The draft effluent limits reflect whichever limits (technology-based or water quality-based) are more stringent. The following explains in more detail the derivation of technology based effluent limits and water quality based effluent limits.

A. Technology-Based Effluent Limitations

On September 20, 1984, EPA revised the Secondary Treatment Regulations (40 CFR 133.102) for facilities that use trickling filters or waste stabilization ponds as the principal process. These revisions established effluent limitations for Treatment Equivalent to Secondary Treatment (40 CFR 133.105). Furthermore, the State of Idaho has adjusted the suspended solids effluent limitations for waste stabilization ponds in accordance with 40 CFR 133.103(c) (IDAPA 58.01.01.420.02.b.ii). The resulting minimum discharge requirements for waste stabilization ponds in Idaho are summarized in the table below:

Parameter	Monthly Average	Weekly Average	Percent Removal
Biochemical Oxygen Demand (5-day) mg/L	45	65	65
Suspended Solids mg/L	70	105*	65*

*Although not specified in IDAPA 58.01.02.420.02.b.ii, a weekly average effluent limitation for suspended solids has been established in accordance with 40 CFR § 122.45(d)(2), and continues this weekly average limit from the existing permit. Additionally, a 65 percent removal requirement for TSS has been added consistent with 40 CFR § 133.105(c).

Discharge Monitor Report (DMR) data for the past two years indicates that the facility is able to meet more stringent effluent limitations for BOD_5 that those established above. Therefore, BOD_5 effluent limitations more stringent than Treatment Equivalent to Secondary Treatment are required, in accordance with 40 CFR 133.105(f)(1), based on past performance of the facility as follows:

Parameter	Monthly Average	Weekly Average	Percent Removal
Biochemical Oxygen Demand (5-day) mg/L	30	45	65

The existing permit also includes BOD_5 loading limits of 512 lbs/day (monthly average) and 768 lbs/day (weekly average) based on an average treatment plant flow rate of 2.04 mgd. These limits have been recalculated based on the facility design flow of 5.7 MGD. In addition, the facility will be required to meet TSS limitations of 70 mg/L monthly

average and 105 mg/L weekly average as continued from the existing permit. TSS mass limits also have been added to the permit.

As a result of infiltration during the irrigation season, the facility receives a dilute influent and cannot meet the 65% removal rate for BOD_5. Therefore, the BOD_5 percent removal requirement will be stated as the monthly average effluent BOD_5 load must not exceed 35 percent of the monthly average influent BOD_5 during the non-irrigation season of October 1 through April 30. During the irrigation season, May 1 through September 30, the existing BOD_5 mass loading limits will be continued.

Parameter	Monthly Average	Weekly Average
Biochemical Oxygen Demand (5-day) lbs/day	713	1070

The existing permit included the mass loading limits above as allowed under 40 CFR § 133.103(d) and a variance from the 65 percent BOD_5 removal that was granted by the State of Idaho on January 8, 1986. The mass loading limit is based on the projected maximum month average flow and an achievable concentration for 15 mg/L, as shown below.

Monthly Average: 5.7 MGD X 15 mg/L X 8.34 = 713 lbs/day

The Weekly Average is 1.5 X the monthly average or:

Weekly Average: 1.5 X 713 lbs/day = 1070 lbs/day

Federal regulations at 40 CFR § 133.102(c) allow for the pH to fall outside the range of 6.0 to 9.0 provided the POTW demonstrates that inorganic chemicals are not added to the wastestream as part of the treatment process and contributions from industrial sources do not cause the pH to less than 6.0 or greater than 9.5. The City of Emmett supplied that information to EPA. As a result, the permit limits for pH will be the State of Idaho water quality criteria for pH (6.5 - 9.5 S.U.).

B. Water Quality-based Evaluation

1. Statutory Basis for Water Quality-Based Limits

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Discharges to state waters must also comply with limitations imposed by the state as part of its certification of NPDES permits under section 401 of the CWA.

The NPDES regulation (40 CFR 122.44(d)(1)) implementing section 301 (b)(1)(C) of the CWA requires that 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 regulations require that this evaluation be made using procedures which account for existing controls on point and nonpoint sources of pollution, the

variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

2. Reasonable Potential Determination

When evaluating the effluent to determine if water quality-based effluent limits are needed based on chemical specific numeric criteria, a projection of the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern is made. The chemical specific concentration of the effluent and ambient water and, if appropriate, the dilution available from the ambient water are factors used to project the receiving water concentration. If the projected concentration of the receiving water exceeds the numeric criterion for a specific chemical, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

As mentioned above, sometimes it is appropriate to allow a small area of ambient water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loading of the pollutant to the water body, and decrease treatment requirements. Mixing zones can be used only when there is adequate ambient flow volume and the ambient water is below the criteria necessary to protect designated uses.

3. Procedure for Deriving Water Quality-Based Effluent Limits

The first step in developing a water quality based permit limit is to develop a wasteload allocation for the pollutant. A wasteload allocation is the concentration (or loading) of a pollutant that the Permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water. Wasteload allocations are determined in one of the following ways:

(a) TMDL-Based Wasteload Allocation

Where the receiving water quality does not meet water quality standards, the wasteload allocation is generally based on a TMDL developed by the State. A TMDL is a determination of the amount of a pollutant from point, non-point, 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 water bodies 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 (load allocations), point sources (wasteload allocations), 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 wasteload allocation for the point source.

A TMDL has been completed for bacteria for this section on the Payette River.

(b) Mixing zone based WLA

When the State authorizes a mixing zone for the discharge, the WLA is calculated by using a simple mass balance equation. The equation takes into account the available dilution provided by the mixing zone, and the background concentrations of the pollutant.

(c) Criterion as the Wasteload Allocation:

In some cases a mixing zone cannot be authorized, either because the receiving water already exceeds the criteria or the receiving water flow is too low to provide dilution. In such cases, the criterion becomes the wasteload allocation. Establishing the criterion as the wasteload allocation ensures that the Permittee will not contribute to an exceedance of the criteria.

Once the wasteload allocation has been developed, the EPA applies the statistical permit limit derivation approach described in Chapter 5 of the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to obtain monthly average, and weekly average or daily maximum permit limits. This approach takes into account effluent variability, sampling frequency, and water quality standards.

4. Water Quality-Based Effluent Limits

(a) Toxic Substances

The Idaho water quality standards require surface waters of the state to be free from toxic substances in concentration that impair designated uses. This application was not screened against the toxic substances found in the National Toxics Rule since the City of Emmett was not required to submit Expanded Effluent Testing Data or Toxicity Testing Data.

(b) Floating, Suspended or Submerged Matter

The Idaho water quality standards 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. Therefore, the draft permit specifies that there must be no discharge of floating solids or visible foam in other than trace amounts.

(c) Excess Nutrients

The Idaho water quality standards require surface waters of the state be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses. The Payette River has been listed as water quality limited for nutrients. As of this date a TMDL has not been established for this portion of the river. A water quality based ammonia limit has been incorporated into the permit.

(d) Fecal Colifom and E. coli Bacteria

The Payette River is listed as water quality limited for bacteria. A TMDL for bacteria has been completed for the waterbody which indicates that the overall contribution by municipal wastewater treatment plants is minimal. Fecal coliform limits are continued from the existing permit and protect for primary and secondary contact recreation in the appropriate season. In addition, E. coli limits have been added to maintain consistency with the State of Idaho water quality standards.

(e) Total Residual Chlorine

Federal regulations require permit limits for publicly owned treatment works to be expressed as an average monthly limit and an average weekly limit unless impracticable. An effluent limit that is below the analytical detection limit does not make it impracticable to incorporate that limit into the permit. Therefore, TRC effluent limits have been recalculated and have been included in the proposed permit.

The inability to measure to the necessary level of detection is addressed by establishing the Minimum Level[3] as the compliance evaluation level for use in reporting Discharge Monitoring Report data. Effluent discharges at or below the Minimum Level would be considered in compliance with the water quality-based effluent limit (*Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-based Effluent Limitations Set Below Analytical Detection/Quantitation Levels*, March 1994).

EPA will consider the Permittee in compliance with the water quality based effluent limits that are below the analytical detection limit provided the effluent does not exceed the minimum level. The minimum level for chlorine is 100 ∶g/L (*Guidelines Establishing Test Procedures for analysis and Pollutants and National Primary Drinking Water Regulations*, March 28, 1997).

As mentioned previously, federal regulations require permit limits to be expressed as average monthly and average weekly limits, unless impracticable. Region 10 considers it impracticable to incorporate weekly

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[3] Minimum Level - the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed.

limits into the permit because federal regulations do not prohibit a Permittee from increasing their sampling events above what is required in an NPDES permit. This is significant because a Permittee may collect as many samples as necessary during a week to bring the average of the data set below the average weekly effluent limit. In such cases, spikes of a pollutant could be masked by the increased sampling. While this is not a concern with pollutants that are not toxic, such as total suspended solids or phosphorus, it is a significant concern when toxic pollutants, such as chlorine or ammonia, are being discharged. Using a maximum daily limit instead of an average weekly limit will ensure that spikes do not occur, and will be protective of aquatic life. For these reasons EPA, Region 10 considers it impracticable to develop an average weekly limit for chlorine, and instead will incorporate a maximum daily limit. The average monthly limit is 58 ：g/L and the maximum daily limit is 146 ：g/L.

(g) pH

The Idaho state water quality standards require surface waters of the state to have a pH value within the range of 6.5 - 9.5 standard units. These minimum and maximum pH values have been included in the permit.

(h) Dissolved Oxygen

Discharges from the City of Emmett are not expected to have an appreciable effect on the dissolved oxygen concentration in the Payette River. BOD_5 limitations have been included in the permit to control the discharge of oxygen demanding constituents into the Payette River.

(i) Ammonia

IDEQ has developed water quality criteria to protect aquatic life against short term and long term adverse impacts from ammonia using the equations found in IDAPA 58.01.02.250.02.c.i (1-hour average) and IDAPA 58.01.02.250.02.c.ii (4-day average).

Using EPA's STORET database, pH values were obtained from Station EMM025 located on the Payette River at the Letha bridge, and temperature data were obtained from Station 13249500 located on the Payette River near the City of Emmett. This was the best pH and temperature data available for this portion of the Payette River.

Using the 95th percentile pH and temperature (8.3 standard units and 21.0 °C, respectively) the 1-hour average unionized ammonia criterion is 0.22 mg/L and the total ammonia criterion is 3.4 mg/L.

Using the 95th percentile pH and temperature (8.3 standard units and 21.0 °C, respectively) the 4-day average unionized ammonia criterion is 0.035 mg/L and the total ammonia criterion is 0.56 mg/L. The following reasonable potential analysis was completed which shows that effluent limitations for total ammonia are required in the permit.

Ammonia Reasonable Potential Analysis

In the case of the Payette River the beneficial use that needs to be protected is cold water aquatic life. The acute criterion for ammonia is 3.4 mg/L and the chronic criterion is 0.56 mg/L. The acute criterion protects against short term impacts to aquatic life, and the chronic criterion protects against long term impacts to aquatic life.

When evaluating the effluent to determine if a water quality based effluent limit (WQBEL) is needed based on chemical specific numeric criteria, a projection of the receiving water concentration (downstream of where the effluent enters the receiving water) for the pollutant of concern is made. If the projected concentration of the receiving water exceeds the applicable numeric criterion, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standards, and a WQBEL is required.

The following mass balance equation is used to determine the downstream receiving water concentration:

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

where,

C_d = receiving water concentration downstream of the effluent discharge

C_e = maximum projected effluent concentration = 8.21 mg/L (See Below)

Q_e = maximum effluent flow = 5.7 mgd (From 6/15/2000 Application)

C_u = upstream concentration of pollutant = Assume 0.31 (95^{th} percentile from 6/15/2000 Application))

Q_u = upstream flow = 162 mgd (1Q10) or 235 mgd (7Q10)

%MZ = assume 25 percent mixing zone is authorized by the IDEQ

When determining the projected receiving water concentration (that is, the concentration of pollutant at the edge of the mixing zone), EPA's *Technical Support Document for Water Quality-based Toxics Controls* (TSD, 1991) recommends using the maximum projected effluent concentration. To determine the maximum projected effluent concentration (C_e) EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV has been calculated, the reasonable potential multiplier used to derive the maximum projected effluent concentration (C_e) can be found in Table 3-1 of EPA's TSD. A reasonable potential multiplier may vary from a low of 1 to 368.

The maximum projected concentration (Ce) for the effluent is equal to the highest observed concentration value of the data set multiplied by the reasonable potential multiplier. Data from the June 15, 2000 application indicate a maximum ammonia (as N) calculation of 8.21 with a CV = 1.29 based on 99 samples. Since the number of samples is large, the reasonable potential multiplier equals 1.0. Therefore, the maximum projected concentration (Ce) is 8.21 mg/L.

The downstream receiving water concentration (Cd) using the 1Q10 flow is:

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

$$C_d = \frac{(8.21 \text{ X } 5.7) + (0.31 \text{ X } (162 \text{ X } 0.25)}{5.7 + (162 \text{ X } 0.25)} = \frac{59.35}{46.2} = 1.28 \text{ mg/L}$$

The projected concentration downstream does not exceed the acute criterion for total ammonia of 3.4 mg/L.

The downstream receiving water concentration (Cd) using the 7Q10 flow is:

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

$$C_d = \frac{(8.21 \text{ X } 5.7) + (0.31 \text{ X } (235 \text{ X } 0.25)}{5.7 + (235 \text{ X } 0.25)} = \frac{65.01}{64.45} = 1.0 \text{ mg/L}$$

The projected concentration downstream exceeds the chronic criterion for total ammonia of 0.56 mg/L; therefore, a water quality- based effluent limit is required.

Derivation of Water Quality-Based Effluent Limitations for Total Residual Chlorine and Total Ammonia

The purpose of a permit limit is to specify an upper bound of acceptable effluent quality. For water quality based requirements, the permit limits are based on maintaining the effluent quality at a level that will comply with the water quality standards, even during critical conditions in the receiving water (i.e., low flows). These requirements are determined by the wasteload allocation (WLA). The WLA dictates the required effluent quality which, in turn, defines the desired level of treatment plant performance or target long-term average (LTA).

To support the implementation of EPA's national policy for controlling the discharge of toxicants, EPA developed the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, March 1991). The following is a summary of the procedures recommended in the TSD in deriving water quality-based effluent limitations for toxicants. This procedure translates water quality criteria for chlorine and ammonia to “end of the pipe” effluent limits.

(1) Total Residual Chlorine Calculation

Step 1- Determine the WLA

The acute and chronic aquatic life criteria are converted to acute and chronic waste load allocations (WLA_{acute} or $WLA_{chronic}$) for the receiving waters based on the following mass balance equation:

$$Q_dC_d = Q_eC_e + Q_uC_u$$

where,
- Q_d = downstream flow = $Q_u + Q_e$
- C_d = aquatic life criteria that cannot be exceeded downstream
  - $C_{d(acute)}$ = 19 ∶g/L
  - $C_{d(chronic)}$ = 11 ∶g/L
- Q_e = effluent design flow = 5.7 mgd
- C_e = concentration of pollutant in effluent = WLA_{acute} or $WLA_{chronic}$
- Q_u = upstream flow = 162 mgd (1Q10)
- C_u = upstream background concentration of pollutant = 0 (no data available therefore, assume there is no background concentration)

Rearranging the above equation to determine the effluent concentration (C_e) or the wasteload allocation (WLA) results in the following:

$$C_e = WLA = \frac{Q_dC_d - Q_uC_u}{Q_e}$$

when a mixing zone is allowed, this equation becomes:

$$C_e = WLA = \frac{C_d(Q_u \times \%MZ) + C_dQ_e}{Q_e} - \frac{Q_uC_u(\%MZ)}{Q_e}$$

where, %MZ is the mixing zone[4] allowable by the state standards. The Idaho water quality standards at .01.02060 allow twenty-five percent (25%) of the receiving water to be used for dilution for aquatic life criteria. The effluent limits have been derived using Idaho's guidelines for mixing zone. However, establishing a mixing zone is a State discretionary function, if the State does not certify a mixing zone in the 401 certification process the effluent limits will be recalculated without a mixing zone.

$$WLA_{acute} = \frac{C_d(Q_u \times \%MZ) + C_dQ_e}{Q_e} - \frac{Q_uC_u(\%MZ)}{Q_e}$$

[4] Mixing zone - is an allocated impact zone where water quality criteria can be exceeded as long as acutely toxic conditions are prevented. Only the State of Idaho has the regulatory authority to grant a mixing zone.

$$= \frac{19(162 \text{ X } .25) + (19 \text{ X } 5.7)}{5.7} - \frac{162 \text{ X } 0\ (.25)}{5.7} = 154.0 \text{ : g/L}$$

$$WLA_{chronic} = \frac{11(162 \text{ X } .25) + (11 \text{ X } 5.7)}{5.7} - \frac{162 \text{ X } 0\ (.25)}{5.7} = 89.2 \text{ : g/L}$$

Step 2 - Determine the LTA

The acute and chronic WLAs are then converted to Long Term Average concentrations (LTA_{acute} and $LTA_{chronic}$) using the following equations:

$LTA_{acute} = WLA_{acute} \text{ X } e^{[0.5F^2 - zF]}$

where,

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

z = 2.326 for 99th percentile probability basis

CV = coefficient of variation = 0.6 (Assumed)

$LTA_{chronic} = WLA_{chronic} \text{ X } e^{[0.5F^2 - zF]}$

where,

F^2 = $\ln(CV^2/4 + 1)$

z = 2.326 for 99th percentile probability basis

CV = coefficient of variation = standard deviation/mean (the CV was calculated using data from January 1995 through March 1999)

Calculate the LTA_{acute} and the $LTA_{chronic}$:

LTA_{acute} = 49.4 : g/L

$LTA_{chronic}$ = 47.0 : g/L

Step 3

To protect a waterbody from both acute and chronic effects, the more limiting of the calculated LTA_{acute} and $LTA_{chronic}$ is used to derive the effluent limitations. The TSD recommends using the 95th percentile for the Average Monthly Limit (AML) and the 99th percentile for the Maximum Daily Limit (MDL).

Step 4 - Determine the Permit Limits

1. The maximum daily limit (MDL) and the average monthly limit (AML) would be calculated as follows:

$MDL = LTA_{chronic} \times e^{[zF-0.5F^2]}$

where,

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

$z = 2.326$ for 99^{th} percentile probability basis

$CV = 0.6$

MDL = 146 µg/L

$AML = LTA_{chronic} \times e^{[zF-0.5F^2]}$

where,

$F^2 = \ln(CV^2/n + 1)$

$z = 1.645$ for 95^{th} percentile probability basis

CV = coefficient of variation = standard deviation/mean

n = number of sampling events required per month for chlorine = 20

AML = 58 µg/L

Step 5 - Loading limitations

Federal regulations (40 CFR 122.45 (f)) require effluent limits to be expressed as mass based limits. The mass loading limitations for chlorine is as follows:

AML = (AML Concentration)(Design Flow Rate)(Conversion Factor)

where:

Monthly Concentration Limit = 0.058 mg/L

Design Flow Rate = 5.7 mgd

Conversion Factor = 8.34

AML = 2.8 lbs/day

MDL = (MDL Concentration)(Design Flow Rate) (Conversion Factor)

where:

Daily Maximum Concentration = 0.146 mg/L

MDL = 7.0 lbs/day

(2) Total Ammonia Calculation

C_d = aquatic life criteria that cannot be exceeded downstream

$C_{d(acute)}$ = 3.4 mg/L

$C_{d(chronic)}$ = 0.56 mg/L

Q_e = effluent design flow = 5.7 mgd

C_e = concentration of pollutant in effluent = WLA_{acute} or $WLA_{chronic}$

Q_u = upstream flow = 162 mgd (1Q10)

C_u = upstream background concentration of pollutant = 0.31 mg/L (Data from June 15, 2000 application was used to determine the 95th percentile background concentration).

Step 1- Determine the WLA

$$WLA_{acute} = \frac{C_d(Q_u \times \%MZ) + C_dQ_e}{Q_e} - \frac{Q_uC_u(\%MZ)}{Q_e}$$

$$= \frac{3.4(162 \times .25) + (3.4 \times 5.7)}{5.7} - \frac{162 \times 0.31\ (.25)}{5.7} = 25.4 \text{ mg/L}$$

$$WLA_{chronic} = \frac{0.56(162 \times .25) + (0.56 \times 5.7)}{5.7} - \frac{162 \times 0.31\ (.25)}{5.7} = 2.3 \text{ mg/L}$$

Step 2 - Determine the LTA

The acute and chronic WLAs are then converted to Long Term Average concentrations (LTA_{acute} and $LTA_{chronic}$) using the following equations:

$LTA_{acute} = WLA_{acute} \times e^{[0.5F^2 - zF]}$

where,

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

z = 2.326 for 99th percentile probability basis

CV = coefficient of variation = 1.29 (Data from June 15, 2000 application)

$LTA_{chronic} = WLA_{chronic} \times e^{[0.5F^2 - zF]}$

where,

F^2 = $\ln(CV^2/4 + 1)$

z = 2.326 for 99th percentile probability basis

CV = coefficient of variation = 1.29

Calculate the LTA_{acute} and the $LTA_{chronic}$:

LTA_{acute} = 4.14 mg/L

$LTA_{chronic}$ = 0.71 mg/L

Step 3

To protect a waterbody from both acute and chronic effects, the more limiting of the calculated LTA_{acute} and $LTA_{chronic}$ is used to derive the effluent limitations. The TSD recommends using the 95th percentile for the Average Monthly Limit (AML) and the 99th percentile for the Maximum Daily Limit (MDL).

Step 4 - Determine the Permit Limits

The maximum daily limit (MDL) and the average monthly limit (AML) would be calculated as follows:

$MDL = LTA_{chronic} \times e^{[zF-0.5F^2]}$

where,

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

z = 2.326 for 99th percentile probability basis

CV = 1.29

MDL = 4.3 mg/L

$AML = LTA_{chronic} \times e^{[zF- 0.5F^2]}$

where,

F^2 = $\ln(CV^2/n + 1)$

z = 1.645 for 95th percentile probability basis

CV = coefficient of variation = standard deviation/mean

n = number of sampling events required per month for ammonia = 4

AML = 1.6 mg/L

Step 5 - Loading limitations

Federal regulations (40 CFR 122.45 (f)) require effluent limits to be expressed as mass-based limits. The mass loading limitations for chlorine is as follows:

AML = (AML Concentration)(Design Flow Rate)(Conversion Factor)

where:

Monthly Concentration Limit = 1.6 mg/L

Design Flow Rate = 5.7 mgd

Conversion Factor = 8.34

AML = 74 lbs/day

MDL = (MDL Concentration)(Design Flow Rate) (Conversion Factor)

where:

Daily Maximum Concentration = 4.3 mg/L

MDL = 205 lbs/day

APPENDIX C - ENDANGERED SPECIES ACT

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding potential effects an action may have on listed endangered species.

The USFWS website for Gem County, Idaho identified the gray wolf and bald eagle as being federally-listed threatened species occurring in Payette County, Idaho (the location of the Payette discharge). This list has not changed according to the updated species list (1-4-01-SP-827) dated June 1, 2001.

EPA has determined that the requirements contained in the draft permit will not have an impact on the gray wolf and bald eagle. Hunting and habitat destruction are the primary causes of declines of the gray wolf. Issuance of the draft NPDES permit for City of Emmett Wastewater Treatment Plant, 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 the decline of the bald eagle are destruction of their habitat and food sources and widespread historic application of DDT. This permit will not impact any of these issues.

The gray wolf is included on the list as an experimental and non-essential population in the area. Habitat management plans are not developed for these populations. Therefore, EPA has determined that issuance of this permit will **not affect** any of the endangered species that may occur in the vicinity of the discharge.

APPENDIX D - MAP OF WASTEWATER TREATMENT PLANT LOCATION

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