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Fact Sheet

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Proposed Reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA)

City of Ashton Wastewater Treatment Plant

EPA Proposes To Reissue NPDES Permit

EPA proposes to reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. 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 from the facility.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

State Clean Water Act Section 401 Certification

EPA is requesting that the Idaho Department of Environmental Quality (IDEQ) certify the NPDES permit for this facility, under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

Idaho Department of Environmental Quality
900 N. Skyline, Suite B
Idaho Falls, ID 83402
(208) 528-2650

Public Comment

Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the 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 comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. 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 substantive comments are received, EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board 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 at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "<http://epa.gov/r10earth/waterpermits.htm>."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

US EPA Region 10
1435 N. Orchard
Boise, ID 83706
(208) 378-5746

Idaho Department of Environmental Quality
900 N. Skyline, Suite B
Idaho Falls, ID 83402
(208) 528-2650

Ashton Public Library
925 Main Street
Ashton, ID 83420
(208) 652-7280

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Acronyms

| | |
|------------------|--|
| 1Q10 | 1 day, 10 year low flow |
| 7Q10 | 7 day, 10 year low flow |
| 30Q10 | 30 day, 10 year low flow |
| 30B3 | Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow. |
| AML | Average Monthly Limit |
| AWL | Average Weekly Limit |
| BOD ₅ | Biochemical oxygen demand, five-day |
| BMP | Best Management Practices |
| °C | Degrees Celsius |
| CFR | Code of Federal Regulations |
| CFS | Cubic Feet per Second |
| CV | Coefficient of Variation |
| CWA | Clean Water Act |
| DMR | Discharge Monitoring Report |
| DO | Dissolved oxygen |
| EFH | Essential Fish Habitat |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| IDEQ | Idaho Department of Environmental Quality |
| I/I | Infiltration and Inflow |
| lbs/day | Pounds per day |
| LTA | Long Term Average |
| mg/L | Milligrams per liter |
| ML | Minimum Level |
| µg/L | Micrograms per liter |
| mgd | Million gallons per day |
| MDL | Maximum Daily Limit or Method Detection Limit |
| N | Nitrogen |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |

| | |
|-------|---|
| OWW | Office of Water and Watersheds |
| O&M | Operations and maintenance |
| POTW | Publicly owned treatment works |
| QAP | Quality assurance plan |
| RP | Reasonable Potential |
| RPM | Reasonable Potential Multiplier |
| RWC | Receiving Water Concentration |
| SS | Suspended Solids |
| s.u. | Standard Units |
| TKN | Total Kjeldahl Nitrogen |
| TMDL | Total Maximum Daily Load |
| TRC | Total Residual Chlorine |
| TSD | Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) |
| TSS | Total suspended solids |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | United States Geological Survey |
| WQBEL | Water quality-based effluent limit |
| WQS | Water Quality Standards |
| WWTP | Wastewater treatment plant |

I. Applicant

A. General Information

This fact sheet provides information on the draft NPDES permit for the following entity:

City of Ashton
Wastewater Treatment Plant

Physical Location:
West of U.S. Highway 20, North of Ashton
44° 5' 4.24" N latitude
111° 27' 40.65" W longitude

Mailing Address:
P.O. Box 689
Ashton, ID 83420

Contact: Delray Jensen, Operator

II. Facility Information

A. Treatment Plant Description

The City of Ashton owns, operates, and has maintenance responsibility for the wastewater treatment plant, which treats domestic sewage from local residents and commercial establishments. The plant is designed to provide treatment equivalent to secondary treatment to 0.365 mgd of wastewater. The average flow rate is 0.18 mgd, according to the permit application. The maximum daily flow rate over the term of the previous permit was 0.32 mgd, according to discharge monitoring reports (DMRs).

The wastewater treatment plant uses a four-cell lagoon to provide treatment equivalent to secondary treatment. Treated wastewater is disinfected by chlorination.

B. Background Information

The most recent NPDES permit for the wastewater treatment plant was issued and became effective on August 9, 2001, and expired on August 9, 2006. An NPDES application for permit reissuance was received by EPA on October 16, 2006. The first NPDES permit was issued to this facility in December 1974.

A map has been included in Appendix A which shows the location of the treatment plant and the discharge location.

III. Receiving Water

This facility discharges to an unnamed perennial stream, which is a tributary of Spring Creek, which is a tributary of the Henry's Fork (sometimes called the North Fork) of the Snake River.

A. Low Flow Conditions

The *Technical Support Document for Water Quality-Based Toxics Control* (hereinafter referred to as the TSD) (EPA, 1991) and Section 210 of the Idaho Water Quality Standards (WQS) recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling. The TSD and the WQS state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (7Q10) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (1Q10) for acute criteria. Because the chronic criterion for ammonia is a 30-day average concentration not to be exceeded more than once every three years, EPA generally uses the 30B3 or the 30Q10 for the chronic ammonia criterion instead of the 7Q10. The 30B3 is a biologically-based flow rate designed to ensure an excursion frequency of no more than once every three years for a 30-day average flow rate. For human health criteria, the Idaho water quality standards recommend the 30Q5 flow rate for non-carcinogens, and the harmonic mean flow rate for carcinogens.

There were not enough receiving water flow data available to calculate the 1Q10, 7Q10, 30B3, or 30Q5 of the receiving water. The minimum flow rate of the receiving water upstream from the point of discharge is 7,000 gallons per day, and the harmonic mean flow rate is 35,000 gallons per day.

B. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. 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 drinking water supply, contact recreation, and aquatic life) 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.

This facility discharges to an unnamed perennial stream in the Upper Henry's subbasin (HUC 17040202), which is tributary to Spring Creek, which is tributary to the Henry's Fork of the Snake River. Neither the immediate receiving water nor Spring Creek are designated for specific beneficial uses in the Idaho Water Quality Standards. Undesignated surface waters are protected for the uses of cold water aquatic life and primary contact recreation (IDAPA 58.01.02.101.01.a.) Water quality criteria designed to protect these beneficial uses appear in Sections 210, 250, and 251 of the Idaho Water Quality Standards.

In addition, the Idaho Water Quality Standards state that all waters of the State of Idaho are protected for industrial and agricultural water supply (Section 100.03.b and c), wildlife habitats (100.04) and aesthetics (100.05). The WQS state, in Sections 252.02, 252.03, and 253 that these uses are to be protected by narrative criteria which appear in Section 200. These narrative criteria state that all surface waters of the State shall be free from hazardous materials; toxic substances; deleterious materials; radioactive materials; floating, suspended or submerged matter; excess nutrients; oxygen-demanding materials; and sediment in concentrations which

would impair beneficial uses. The WQS also state, in Section 252.02 that the criteria from *Water Quality Criteria 1972* (EPA-R3-73-033), also referred to as the “Blue Book,” can be used to determine numeric criteria for the protection of the agricultural water supply use.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits. The basis for the effluent limits proposed in the draft permit is provided in Appendices C, D, and E.

B. Proposed Effluent Limitations

Below are the proposed effluent limits that are in the draft permit.

1. The permittee must not discharge floating, suspended, or submerged matter of any kind in amounts causing nuisance or objectionable conditions or that may impair designated beneficial uses.
2. Removal Requirements for BOD₅ and TSS: The monthly average effluent concentration must not exceed 35 percent of the monthly average influent concentration. Percent removal of BOD₅ and TSS must be reported on the Discharge Monitoring Reports (DMRs). For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period.
3. The permittee must not discharge floating, suspended, or submerged matter of any kind in amounts causing nuisance or objectionable conditions or that may impair designated beneficial uses of the receiving water.

Table 1 (below) presents the proposed numeric effluent limits.

C. Basis for Deleting Fecal Coliform Effluent Limits and for Less Stringent BOD and TSS limits

The draft permit proposes to delete the previous permit’s effluent limits for fecal coliform and to make the BOD and TSS effluent limits less stringent than those in the previous permit. Effluent limitations for all other pollutants are as stringent as or more stringent than those in the current permit.

| Table 1: Proposed Effluent Limits | | | | |
|---|--------------|------------------------------|-----------------------------|----------------------------|
| Parameter | Units | Effluent Limits | | |
| | | Average Monthly Limit | Average Weekly Limit | Maximum Daily Limit |
| Five-Day Biochemical Oxygen Demand (BOD₅) | mg/L | 45 | 65 | — |
| | lb/day | 137 | 198 | — |
| | % removal | 65% (min.) | — | — |
| Total Suspended Solids (TSS) | mg/L | 45 | 65 | — |
| | lb/day | 137 | 198 | — |
| | % removal | 65% (min.) | — | — |
| E. Coli | #/100 ml | 126 ¹ | — | 406 ² |
| pH | s.u. | 6.5 – 9.0 at all times | | |
| Total Residual Chlorine (Final) | µg/L | 9.0 | — | 18.1 |
| | lb/day | 0.027 | — | 0.055 |
| Total Residual Chlorine (Interim) | µg/L | 500 | 750 | — |
| | lb/day | 1.5 | 2.3 | — |
| Total Ammonia as N (Final) | mg/L | 1.7 | — | 3.5 |
| | lb/day | 5.3 | — | 11.6 |
| Total Ammonia as N (Interim) | mg/L | 25 | 34 | — |
| | lb/day | 76 | 103 | — |
| Notes: 1. Geometric mean. 2. Instantaneous/single sample maximum. | | | | |

Statutory Prohibitions on Backsliding

Section 402(o) of the Clean Water Act (CWA) generally prohibits the establishment of effluent limits in a reissued NPDES permit that are less stringent than the corresponding limits in the previous permit, but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)), but in this case, the effluent limits being revised are water quality-based effluent limits (WQBELs).

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy. Additionally, Section 402(o)(2) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the *U.S. EPA NPDES Permit Writers' Manual* (EPA-833-B-96-003) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied.

Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of water quality standards or effluent limit guidelines.

Fecal Coliform

The draft permit proposes to delete the fecal coliform limits in the previous permit, while retaining the E. coli limits from the previous permit. The receiving water has not been listed on Idaho's "303(d) list" as not attaining or not being expected to attain water quality standards for bacteria. When water quality standards for the relevant pollutant are being attained, Section 303(d)(4)(B) of the Act states that water quality-based effluent limits may be revised if the revision is consistent with the State's antidegradation policy.

The draft permit, like the previous permit, includes "criteria end-of-pipe" effluent limits for bacteria, in order to protect contact recreation beneficial uses in the receiving water. The new water quality criteria and effluent limits simply use the indicator organism currently specified in the Idaho water quality standards (E. coli) to provide the same level of protection for the beneficial use of primary contact recreation as was provided by the fecal coliform effluent limits. EPA does not believe that the change from fecal coliform limits to E. coli limits will result in degradation of the receiving water or have any effect on beneficial uses. Therefore, EPA believes that the deletion of the of fecal coliform effluent limits is compliant with Section 303(d)(4)(B) of the Act.

BOD₅ and TSS

Section 402(o)(1) of the act restricts the establishment of less stringent effluent limits in reissued permits, for effluent limits based on Sections 301(b)(1)(C), 303(d), 303(e), and 402(a)(1)(B), meaning water quality-based effluent limits and technology-based effluent limits based on best professional judgment.

The technology-based effluent limits for TSS and BOD₅ in both the 2001 final permit and the draft permit are based on Section 301(b)(1)(B) of the Act. Therefore, the relaxation of the concentration and percent removal limits for BOD₅ and TSS is not subject to the anti-backsliding restrictions of Section 402(o) of the Act.

The BOD₅ and TSS concentration effluent limits are less stringent than those in the previous permit because EPA has determined that the facility is eligible for "treatment equivalent to secondary" effluent limits, as explained in Appendix C.

Clean Water Act Section 402(o)(3) Requirements

Because the E. coli limits apply current water quality criteria at the end-of-pipe, the effluent limits are derived from and comply with water quality standards for E. coli. The secondary treatment technology-based effluent limits do not include effluent limits for bacteria. Because the effluent limits will continue to ensure that water quality standards are met and do not violate the secondary treatment effluent limits, the limits proposed limits comply with Section 402(o)(3) of the CWA.

EPA is requesting that IDEQ certify that the deletion of the fecal coliform limits and the less-stringent BOD₅ and TSS concentration and percent removal limits are protective of Idaho's water quality standards under Section 401 of the CWA.

D. Compliance Schedules for Chlorine and Ammonia

Effluent data indicate that the permittee cannot comply with the proposed water quality-based effluent limits for total residual chlorine or total ammonia as N immediately. The proposed average monthly limits for total residual chlorine and total ammonia as N are 0.009 mg/L and 1.7 mg/L, respectively. The average effluent chlorine and ammonia concentrations have been 0.52 mg/L and 9.0 mg/L, respectively.

Federal regulations (40 CFR 122.47) and the Idaho Water Quality Standards (IDAPA 58.01.02.400.03) allow for compliance schedules in permits. Idaho's compliance schedule rule allows compliance schedules only for water quality-based effluent limits "when new limitations are in the permit for the first time." The federal compliance schedule rule allows compliance schedules "when appropriate," requires compliance with effluent limits "as soon as possible," and requires "interim requirements and the dates for their achievement." Under 40 CFR 122.47(b)(3), permits may contain alternative schedules of compliance, which are schedules leading to cessation of discharge rather than continuing to operate and meeting permit requirements.

The draft permit contains two schedules of compliance: One leading to cessation of the discharge, and one leading to compliance with water quality-based effluent limits for total residual chlorine and total ammonia as N. Federal regulations require that the schedules contain an interim deadline for a final decision on whether to cease the discharge, or continue the discharge (40 CFR 122.47(b)(3)(i)). In this case, the decision is required within 180 days of the effective date of the final permit. Once the final decision has been made, the permittee must follow the schedule leading to the chosen endpoint (40 CFR 122.47(b)(3)(iv)).

Both schedules have been authorized by the State of Idaho its draft Clean Water Act Section 401 certification. The permit includes interim requirements and the dates for their achievement, in compliance with 40 CFR 122.47(a)(3). The draft permit also proposes interim effluent limits for these parameters. The interim effluent limits apply during the term of the compliance schedule. The interim ammonia limits represent the level of ammonia control currently achieved at the facility. The interim chlorine limits are the applicable technology-based effluent limits.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA 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 effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permit also requires the permittee to perform effluent monitoring required by part B.6 of the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit.

The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) and on the application for renewal, as appropriate, to the U.S. Environmental Protection Agency (EPA).

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility’s performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the method detection limits are less than the effluent limits.

Table 2, below, presents the proposed effluent monitoring requirements for the City of Ashton WWTP. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

| Parameter | Units | Sample Location | Sample Frequency | Sample Type |
|--------------------------------|----------------|----------------------|------------------|--------------------------|
| Flow | mgd | Influent or Effluent | Continuous | recording |
| BOD₅ | mg/L | Influent & Effluent | 2/month | grab |
| | lb/day | Influent & Effluent | | calculation ¹ |
| | % Removal | % Removal | 1/month | calculation ² |
| TSS | mg/L | Influent & Effluent | 2/month | grab |
| | lb/day | Influent & Effluent | | calculation ¹ |
| | % Removal | % Removal | 1/month | calculation ² |
| pH | standard units | Effluent | 1/week | grab |
| E. Coli | #/100 ml | Effluent | 5/month | grab |
| Total Residual Chlorine | µg/L | Effluent | 1/week | grab |
| | lb/day | Effluent | | calculation ¹ |
| Total Ammonia as N | mg/L | Effluent | 2/month | grab |
| | lb/day | Effluent | | calculation ¹ |
| Total Phosphorus | mg/L | Influent & Effluent | 2/year | grab |
| Dissolved Oxygen | mg/L | Effluent | 2/year | grab |
| Nitrate + Nitrite | mg/L | Effluent | 2/year | grab |
| Oil and Grease | mg/L | Effluent | 2/year | grab |
| Temperature | °C | Effluent | 1/week | grab |
| Total Dissolved Solids | mg/L | Effluent | 2/year | grab |
| Total Kjeldahl Nitrogen | mg/L | Effluent | 2/year | grab |

Notes:

1. Loading is calculated by multiplying the concentration in mg/L by the flow in mgd and a conversion factor of 8.34. If the concentration is measured in µg/L, the conversion factor is 0.00834.
2. Percent removal is calculated using the following equation:
(average monthly influent – average monthly effluent) ÷ average monthly influent.
3. The permittee must report the minimum effluent dilution ratio observed during the month.
4. Each sampling event must include three 24-hour composite samples taken over the course of a calendar week.

Monitoring Changes from the Previous Permit

Effluent BOD₅ and TSS concentrations have been greater than the proposed average monthly limits of 45 mg/L about 9% of the time for BOD₅ and about 10% of the time for TSS. Therefore EPA has increased the monitoring frequency for BOD₅ and TSS in order to better determine compliance with the BOD₅ and TSS effluent limits.

EPA proposes twice per year effluent monitoring for the pollutants listed in Part B.6 of the Form 2A NPDES application that are not subject to effluent limits (total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, oil and grease, total phosphorus, dissolved oxygen, and total dissolved solids) so that these data will be available when the permittee applies for a renewal of this permit.

C. Surface Water Monitoring

Surface water monitoring results must be submitted with the application for renewal of the permit. EPA proposes to discontinue receiving water monitoring for temperature, pH, and ammonia, because the purpose of this monitoring was to determine if the discharge had the reasonable potential to cause or contribute to excursions above water quality standards for ammonia. An analysis of effluent and receiving water data shows that the discharge does, in fact, have the reasonable potential to cause or contribute to excursions above water quality standards for ammonia, therefore, further monitoring for pH, temperature, and ammonia in the receiving water will not yield meaningful data.

EPA proposes quarterly surface water monitoring for dissolved oxygen, upstream and downstream from the point of discharge. These data will be used to determine if water quality-based effluent limits for biochemical oxygen demand and/or dissolved oxygen are necessary when the permit is reissued.

VI. Sludge (Biosolids) Requirements

EPA Region 10 separates wastewater and sludge permitting. EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

VII. Other Permit Conditions

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The City of Ashton is required to update the Quality Assurance Plan for the wastewater treatment plant within 180 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Operation and Maintenance Plan

The permit requires the City of Ashton to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop and implement an operation and maintenance plan for their facility within 180 days of the effective date of the final permit. The plan shall be retained on site and made available to EPA and IDEQ upon request.

C. Sanitary Sewer Overflows and Proper Operation and Maintenance of the Collection System

Untreated or partially treated discharges from separate sanitary sewer systems are referred to as sanitary sewer overflows (SSOs). SSOs may present serious risks of human exposure when released to certain areas, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. Untreated sewage contains pathogens and other pollutants, which are toxic. SSOs are not authorized under this permit. Pursuant to the NPDES regulations, discharges from separate sanitary sewer systems authorized by NPDES permits must meet effluent limitations that are based upon secondary treatment. Further, discharges must meet any more stringent effluent limitations that are established to meet EPA-approved state water quality standards.

The permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. The permit requires that the permittee identify SSO occurrences and their causes. In addition, the permit establishes reporting, record keeping and third party notification of SSOs. Finally, the permit requires proper operation and maintenance of the collection system. The following specific permit conditions apply:

Immediate Reporting – The permittee is required to notify the EPA of an SSO within 24 hours of the time the permittee becomes aware of the overflow. (See 40 CFR 122.41(l)(6))

Written Reports – The permittee is required to provide the EPA a written report within five days of the time it became aware of any overflow that is subject to the immediate reporting provision. (See 40 CFR 122.41(l)(6)(i)).

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to a likelihood of human exposure; or unanticipated bypass and upset that exceeds any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to develop, in consultation with appropriate authorities at the local, county, and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported and to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to the EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

Proper Operation and Maintenance – The permit requires proper operation and maintenance of the collection system. (See 40 CFR 122.41(d) and (e)). SSOs may be indicative of improper operation and maintenance of the collection system. The permittee may consider the development and implementation of a capacity, management, operation and maintenance (CMOM) program.

The permittee may refer to Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by EPA inspectors to evaluate a collection system's management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

D. Standard Permit Provisions

Sections III, IV, and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and 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 National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. EPA has determined that the issuance of this NPDES permit will have no effect on threatened or endangered species. Therefore, consultation is not required for this action. However, EPA will notify USFWS and NOAA Fisheries of the issuance of this draft permit and will consider any comments made by the Services prior to issuance of a final permit. See Appendix F of this fact sheet for more information.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. EPA has determined that the discharge from the City of Ashton WWTP will not affect any EFH species in the vicinity of the discharge, therefore consultation is not required for this action.

C. State Certification

Section 401 of the CWA 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, or treatment standards established pursuant to any State law or regulation.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

Appendix A: Facility Information

General Information

NPDES ID Number: ID0023710

Physical Location: West of U.S. Highway 20, North of Ashton
44° 5' 4.24" N latitude
111° 27' 40.65" W longitude

Mailing Address: P.O. Box 689
Ashton, ID 83420

Facility Background: The most recent NPDES permit for the wastewater treatment plant was issued and became effective on August 9, 2001, and expired on August 9, 2006. An NPDES application for permit reissuance was received by EPA on October 16, 2006. The first NPDES permit was issued to this facility in December 1974.

Facility Information

Type of Facility: Publicly Owned Treatment Works (POTW)

Treatment Train: 4-cell aerated lagoon, chlorination

Flow: Design flow is 0.365 mgd. Average flow is 0.18 mgd; the maximum daily flow is 0.32 mgd.

Outfall Location: latitude 44° 5' 12" N; longitude 111° 27' 45" W

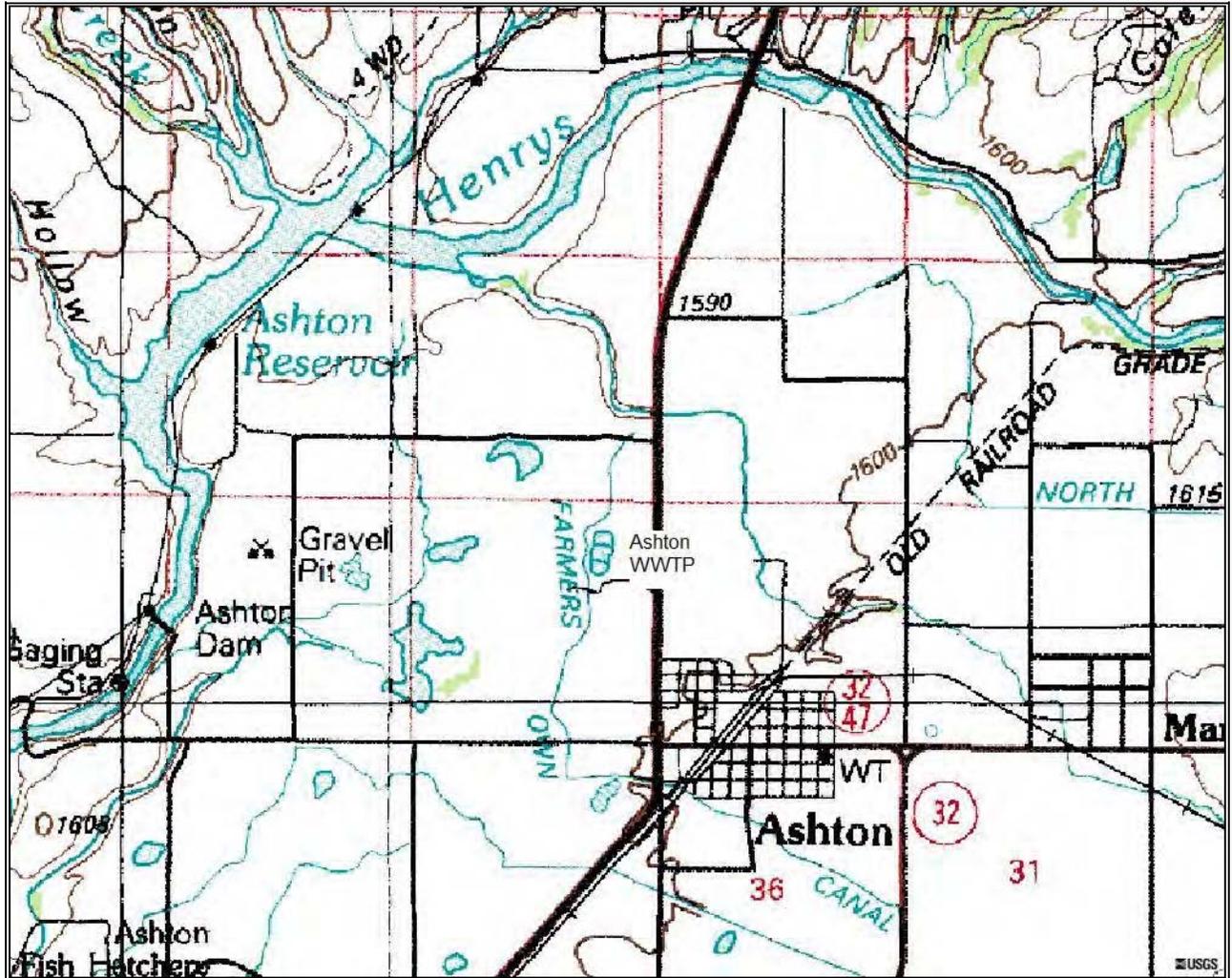
Receiving Water Information

Receiving Water: An unnamed perennial stream which is tributary to Spring Creek, which is tributary to the Henry's Fork of the Snake River

Watershed: Upper Henry's (HUC 17040202)

Beneficial Uses: Cold water aquatic life, primary contact recreation, industrial and agricultural water supply, wildlife habitats, and aesthetics

Appendix B: Facility Map



Appendix C: Basis for Effluent Limits

The following discussion explains in more detail the statutory and regulatory basis for the technology and water quality-based effluent limits in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits in general, and Part C discusses facility specific water quality-based effluent limits.

A. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as “secondary treatment,” which all POTWs were required to meet by July 1, 1977. EPA has developed and promulgated “secondary treatment” effluent limitations, which are found in 40 CFR 133. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD₅, TSS, and pH.

For most POTWs, the applicable technology-based effluent limits are found in 40 CFR 133.102. These are the technology-based effluent limits that appeared in the previous permit. However, some facilities are eligible for “treatment equivalent to secondary” effluent limits found in 40 CFR 133.105, which are less stringent than the “secondary treatment” limits of 40 CFR 133.102.

EPA has determined that the Ashton WWTP is eligible for treatment equivalent to secondary because it cannot consistently comply with the “secondary treatment” effluent limits of 40 CFR 133.102, it uses waste stabilization ponds as its principal treatment process, and it provides significant biological treatment of municipal wastewater, meaning it consistently removes at least 65% of influent BOD₅ (40 CFR 133.101(g), (k)). Therefore, the draft permit contains technology-based effluent limits consistent with the treatment equivalent to secondary rules.

The federally promulgated treatment equivalent to secondary effluent limits applicable to this facility are listed in Table C-1.

| Parameter | Average Monthly Limit | Average Weekly Limit | Range |
|--|-----------------------|----------------------|----------------|
| BOD ₅ | 45 mg/L | 65 mg/L | --- |
| TSS | 45 mg/L | 65 mg/L | --- |
| Removal Rates for BOD ₅ and TSS | 65% (minimum) | --- | --- |
| pH | --- | --- | 6.0 - 9.0 s.u. |

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The plant uses chlorine disinfection.

A 0.5 mg/L average monthly limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate chlorine contact time can meet a 0.5 mg/L total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. The AWL is calculated to be 1.5 times the AML, consistent with the "secondary treatment" limits for BOD₅ and TSS. This results in an AWL for chlorine of 0.75 mg/L.

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

$$\text{Mass based limit (lb/day)} = \text{concentration limit (mg/L)} \times \text{design flow (mgd)} \times 8.34^1$$

The mass limits for BOD₅ and TSS are more stringent than those in the previous permit, even though the concentration limits are less stringent. According to the fact sheet for the previous permit, EPA used a design flow of 1.0 mgd to calculate effluent limits (see 2001 Fact Sheet at Page 4). The most recent application, received on May 24, 2006, states that the design flow of the facility is 0.365 mgd. EPA has used the design flow from the most recent application to calculate the mass limits in the draft permit.

Use of Technology-based Effluent Limits in the Draft Permit

EPA has determined that the technology-based effluent limits for BOD₅ and TSS are stringent enough to ensure compliance with Idaho's federally-approved water quality standards. As stated above, the mass limits for BOD and TSS are more stringent than those in the previous permit, thus, the impact of those constituents upon water quality will be less than that allowed under the previous permit. Therefore, the technology-based effluent limits for BOD₅ and TSS appear in the draft permit. More stringent water quality-based effluent limits are proposed for pH and chlorine.

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

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 or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States. The NPDES regulation (40 CFR 122.44(d)(1)) implementing Section

¹ 8.34 is a conversion factor equal to the density of water in pounds per gallon

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 or Tribal water quality standard, including narrative criteria for water quality, and that the level of water quality to be achieved by limits on point sources is derived from and complies with all applicable water quality standards.

The regulations require the permitting authority to make this evaluation 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.

Reasonable Potential Analysis

When evaluating the effluent to determine if water quality-based effluent limits are needed, based on numeric criteria, EPA projects the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific chemical, then the discharge has the reasonable potential to cause or contribute to an exceedance of the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it is appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body and will decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and when the receiving water meets the criteria necessary to protect the designated uses of the water body. Mixing zones must be authorized by IDEQ.

Procedure for Deriving Water Quality-based Effluent Limits

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) 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.

In cases where a mixing zone is not authorized, either because the receiving water already exceeds the criterion, the receiving water flow is too low to provide dilution, or the State does not authorize one, the criterion becomes the WLA. Establishing the criterion as the wasteload allocation ensures that the permittee will not cause or contribute to an exceedance of the criterion. The following discussion details the specific water quality-based effluent limits in the draft permit.

Once a WLA is developed, EPA calculates effluent limits which are protective of the WLA using statistical procedures described in Appendix E.

C. Facility-Specific Water Quality-based Limits

Ammonia

The Idaho water quality standards contain criteria for the protection of aquatic life from the toxic effects of ammonia. EPA has applied ammonia criteria which are protective of salmonids, including early life stages. These are the generally applicable statewide criteria for Idaho. The criteria are dependent on pH and temperature, because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. The following table details the equations used to determine water quality criteria for ammonia, and the values of these equations at the 95th percentile pH, which is 8.20 standard units, and the maximum temperature observed in the receiving water downstream from the discharge, which is 18 °C.

| Table C-2: Water Quality Criteria for Ammonia | | |
|--|--|---|
| | Acute Criterion | Chronic Criterion |
| Equations: | $\frac{0.275}{1+10^{7.204-pH}} + \frac{39}{1+10^{pH-7.204}}$ | $\left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times \text{MIN}(2.85, 1.45 \times 10^{0.028 \times (25-T)})$ |
| Results | 3.18 | 1.43 |

E. Coli

The Idaho water quality standards state that waters of the State of Idaho that are designated for recreation are not to contain E. coli bacteria in concentrations exceeding a geometric mean of 126 organisms per 100 ml based on a minimum of five samples taken every three to seven days over a thirty day period. Therefore, the draft permit contains a monthly geometric mean effluent limit for E. coli of 126 organisms per 100 ml, and a minimum sampling frequency of five grab samples per month (IDAPA 58.01.02.251.01.a.).

The Idaho water quality standards also state that a water sample that exceeds certain “single sample maximum” values indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of water quality standards. For waters designated for primary contact recreation, the “single sample maximum” value is 406 organisms per 100 ml (IDAPA 58.01.02.251.01.b.ii.).

The goal of a water quality-based effluent limit is to ensure a low probability that water quality standards will be exceeded in the receiving water as a result of a discharge, while considering the variability of the pollutant in the effluent (see TSD at Section 5.3.1). Because a single sample value exceeding 406 organisms per 100 ml indicates a likely exceedance of the geometric mean criterion, EPA has imposed an instantaneous (single grab sample) maximum effluent limit for E. coli of 406 organisms per 100 ml, in addition to a monthly geometric mean limit of 126 organisms per 100 ml, which directly implements the water quality criterion for E. coli. This will ensure that the discharge will have a low probability of exceeding water quality standards for E. coli.

Regulations at 40 CFR 122.45(d)(2) require that effluent limitations for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. The terms “average monthly limit” and “average weekly limit” are defined in 40 CFR 122.2 as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a permit using monthly and weekly arithmetic average limits.

The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. In order to ensure that the effluent limits are “derived from and comply with” the geometric mean water quality criterion, as required by 40 CFR 122.44(d)(1)(vii)(A), it is necessary to express the effluent limits as a monthly geometric mean and an instantaneous maximum limit.

Floating, Suspended and Submerged Matter

The State of Idaho has a narrative water quality criterion which reads “Surface waters of the state shall 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 (IDAPA 58.01.02.200.05).” This criterion has been included in the permit as a narrative effluent limit.

Summary of Limits and Bases

The following table summarizes the general statutory and regulatory bases for the limits in the draft permit.

| Table C-3: Summary of Effluent Limit Bases | |
|---|--|
| Limited Parameter | Basis for Limit |
| BOD ₅ | Clean Water Act (CWA) Section 301(b)(1)(B), 40 CFR 133 (technology-based) |
| TSS | CWA Section 301(b)(1)(B), 40 CFR 133 (technology-based) |
| Floating, Suspended or Submerged Matter | CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.200.05 (water quality-based) |
| pH | CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.250.01.a (water quality-based) |
| E. Coli | CWA Sections 301(b)(1)(C) and 402(o), 40 CFR 122.44(d), IDAPA 58.01.02.251.01 (water quality-based and anti-backsliding) |
| Chlorine, Interim | CWA Section 402(a)(1)(B), 40 CFR 122.44(l)(1), 40 CFR 122.47(a)(3) (technology-based, best professional judgment, anti-backsliding, compliance schedule interim dates) |
| Chlorine, Final | CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.210 (water quality-based) |
| Ammonia, Interim | 40 CFR 122.47(a)(3) (compliance schedule interim dates) |
| Ammonia, Final | CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.250 (water quality-based) |

Appendix D: Reasonable Potential Calculations

The following describes the process EPA has used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of Idaho's federally approved water quality standards. EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential.

To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This section discusses how the maximum projected receiving water concentration is determined.

A. Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \quad (\text{Equation D-1})$$

where,

C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)

C_e = Maximum projected effluent concentration

C_u = 95th percentile measured receiving water upstream concentration

Q_d = Receiving water flow rate downstream of the effluent discharge = $Q_e + Q_u$

Q_e = Effluent flow rate (set equal to the design flow of the WWTP)

Q_u = Receiving water low flow rate upstream of the discharge (e.g. 1Q10 or 7Q10)

When the mass balance equation is solved for C_d , it becomes:

$$C_d = \frac{C_e Q_e + C_u Q_u}{Q_e + Q_u} \quad (\text{Equation D-2})$$

The above form of the equation is based on the assumption that a mixing zone is allowed, the discharge is rapidly and completely mixed with the receiving stream, and 100% of the stream flow is available for mixing, under the State's mixing zone policies.

In this case, there is very little flow in the receiving water upstream from the discharge. The minimum upstream receiving water flow rate is 7,000 gallons per day, and the harmonic mean flow rate is 35,000 gallons per day. The design flow rate of the treatment plant is 365,000 gallons per day. The upstream receiving water flow rate is only a small fraction of the effluent flow rate. Therefore, there is not enough flow in the receiving water to authorize a mixing zone. Even if a mixing zone could be authorized, it would not significantly change the outcome of the reasonable potential analysis or the effluent limits. If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \quad (\text{Equation D-3})$$

B. Maximum Projected Effluent Concentration

For chlorine, EPA has used the technology-based average weekly limit of 750 µg/L as the maximum projected effluent concentration. Water quality-based effluent limits are necessary only in cases where the technology-based effluent limit does not ensure compliance with water quality standards.

To calculate the maximum projected effluent concentration for ammonia, EPA has used the procedure described in section 3.3 of the TSD, “Determining the Need for Permit Limits with Effluent Monitoring Data.” In this procedure, the 99th percentile of the effluent data is the maximum projected effluent concentration in the mass balance equation.

Since there are a limited number of data points available, the 99th percentile is calculated by multiplying the maximum reported effluent concentration by a “reasonable potential multiplier” (RPM). The RPM is the ratio of the 99th percentile concentration to the maximum reported effluent concentration. The RPM is calculated from the coefficient of variation (CV) of the data and the number of data points.

The CV is defined as the ratio of the standard deviation of the data set to the mean, but when fewer than 10 data points are available, the TSD recommends making the assumption that the CV is equal to 0.6 (see TSD at Page 53).

Using the equations in section 3.3.2 of the TSD, the reasonable potential multiplier (RPM) is calculated based on the CV and the number of samples in the data set as follows. The following discussion presents the equations used to calculate the RPM, and also works through the calculations for the RPM for copper as an example. Reasonable potential calculations for all pollutants can be found in Table D-1.

First, the percentile represented by the highest reported concentration is calculated.

$$p_n = (1 - \text{confidence level})^{1/n} \quad (\text{Equation D-4})$$

where,

p_n = the percentile represented by the highest reported concentration

n = the number of samples

confidence level = 99% = 0.99

The data set contains 13 ammonia samples collected from the effluent, therefore:

$$p_n = (1 - 0.99)^{1/13}$$

$$p_n = 0.702$$

This means that we can say, with 99% confidence, that the maximum reported effluent copper concentration is greater than the 70th percentile.

The reasonable potential multiplier (RPM) is the ratio of the 99th percentile concentration (at the 99% confidence level) to the maximum reported effluent concentration. This is calculated as follows:

$$\text{RPM} = C_{99}/C_p \quad (\text{Equation D-5})$$

Where,
 $C = \exp(z\sigma - 0.5\sigma^2)$ (Equation D-6)

Where,
 $\sigma^2 = \ln(CV^2 + 1)$ (Equation D-7)
 $\sigma = \sqrt{\sigma^2}$

CV = coefficient of variation = (standard deviation) ÷ (mean)

z = the inverse of the normal cumulative distribution function at a given percentile

In the case of ammonia:

$$CV = \text{coefficient of variation} = 0.7725$$

$$\sigma^2 = \ln(CV^2 + 1) = 0.468$$

$$\sigma = \sqrt{\sigma^2} = 0.684$$

$$z = 2.326 \text{ for the } 99^{\text{th}} \text{ percentile} = 0.529 \text{ for the } 70^{\text{th}} \text{ percentile}$$

$$C_{99} = \exp(2.326 \times 0.684 - 0.5 \times 0.468) = 3.635$$

$$C_{90} = \exp(1.297 \times 0.684 - 0.5 \times 0.468) = 1.909$$

$$RPM = C_{99}/C_{70} = 3.89/1.14$$

$$\mathbf{RPM = 3.42}$$

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$$C_e = (RPM)(MRC) \quad (\text{Equation D-8})$$

where MRC = Maximum Reported Concentration

In the case of ammonia,

$$C_e = (3.42)(27.1 \text{ mg/L}) = \mathbf{92.7 \text{ mg/L}}$$

C. Maximum Projected Receiving Water Concentration

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant is greater than the criterion. For ammonia:

$$C_d = C_e = 92.7 \text{ mg/L}$$

For chlorine:

$$C_d = C_e = 750 \text{ } \mu\text{g/L}$$

Table D-1: Reasonable Potential Calculations

| Parameter | Ambient Concentration (metals as dissolved) <i>ug/L</i> | State Water Quality Standard | | Max concentration at edge of... | | LIMIT REQ'D? | <i>Pn</i> | max effluent conc. measured (metals as total recoverable) <i>ug/L</i> | Coeff Variation <i>CV</i> | <i>s</i> | # of samples <i>n</i> | Multiplier | Acute Dil'n Factor | Chronic Dil'n Factor | COMMENTS |
|-----------------|--|------------------------------|------------------------|----------------------------------|------------------------------------|--------------|-----------|--|------------------------------|----------|--------------------------|------------|--------------------|----------------------|----------|
| | | Acute <i>ug/L</i> | Chronic <i>ug/L</i> | Acute Mixing Zone <i>ug/L</i> | Chronic Mixing Zone <i>ug/L</i> | | | | | | | | | | |
| Ammonia, mg/L | | 3.81 | 1.43 | 92.72 | 92.72 | YES | 0.702 | 27.1 | 0.772 | 0.684 | 13 | 3.42 | 1.00 | 1.00 | EOP |
| Chlorine (TBEL) | | 19 | 11 | 750 | 750 | YES | N/A | 750 | N/A | N/A | N/A | 1.00 | 1.00 | 1.00 | EOP |

Appendix E: WQBEL Calculations - Aquatic Life Criteria

The following calculations demonstrate how the water quality-based effluent limits (WQBELs) in the draft permit were calculated. The new WQBELs for ammonia and chlorine are derived from aquatic life criteria. The following discussion presents the general equations used to calculate the water quality-based effluent limits for the ammonia WQBEL. The calculations are summarized in Table E-1.

A. Calculate the Wasteload Allocations (WLAs)

In cases where no mixing zone is authorized, the wasteload allocations are equal to the water quality criteria.

$$C_e = WLA = C_d \quad (\text{Equation E-1})$$

In the case of ammonia, for the acute criterion,

$$WLA_a = 3.81 \text{ mg/L}$$

For the chronic criterion,

$$WLA_c = 1.43 \text{ mg/L}$$

The next step is to compute the “long term average” concentrations which will be protective of the WLAs. This is done using the following equations from Chapter 5 of EPA’s *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$$LTA_a = WLA_a \times \exp(0.5\sigma^2 - z\sigma) \quad (\text{Equation E-2})$$

$$LTA_c = WLA_c \times \exp(0.5\sigma_4^2 - z\sigma_4) \quad (\text{Equation E-3})$$

where,

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

$$\sigma = \sqrt{\sigma^2}$$

$$\sigma_{30}^2 = \ln(CV^2/30 + 1)$$

$$\sigma_{30} = \sqrt{\sigma_{30}^2}$$

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

In the case of ammonia, for the season of June through October,

$$\sigma^2 = \ln(0.6^2 + 1) = 0.307$$

$$\sigma = \sqrt{\sigma^2} = 0.555$$

$$\sigma_{30}^2 = \ln(0.6^2/30 + 1) = 0.0119$$

$$\sigma_{30} = \sqrt{\sigma_{30}^2} = 0.109$$

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

Therefore,

$$LTA_a = 3.81 \text{ mg/L} \times \exp(0.5 \times 0.307 - 2.326 \times 0.555)$$

$$LTA_a = 1.22 \text{ mg/L}$$

$$LTA_c = 1.43 \text{ mg/L} \times \exp(0.5 \times 0.0119 - 2.326 \times 0.109)$$

$$\text{LTA}_c = 1.12 \text{ mg/L}$$

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits as shown below. For ammonia, the chronic LTA of 1.12 mg/L is more stringent.

B. Derive the maximum daily and average monthly effluent limits

Using the TSD equations (section 5.4.1), the MDL and AML effluent limits are calculated as follows:

$$\text{MDL} = \text{LTA} \times \exp(z_m \sigma - 0.5 \sigma^2) \quad (\text{Equation E-4})$$

$$\text{AML} = \text{LTA} \times \exp(z_a \sigma_n - 0.5 \sigma_n^2) \quad (\text{Equation E-5})$$

where σ , and σ^2 are defined as they are for the LTA equations (E-2 and E-3) and,

$$\sigma_n^2 = \ln(\text{CV}^2/n + 1)$$

$$\sigma = \sqrt{\sigma_n^2}$$

$$z_a = 1.645 \text{ for } 95^{\text{th}} \text{ percentile probability basis}$$

$$z_m = 2.326 \text{ for } 99^{\text{th}} \text{ percentile probability basis}$$

$$n = \text{number of sampling events required per month (minimum of 4)}$$

In the case of ammonia,

$$\text{MDL} = 1.12 \text{ mg/L} \times \exp(2.326 \times 0.555 - 0.5 \times 0.307)$$

$$\text{MDL} = 3.5 \text{ mg/L}$$

$$\text{AML} = 1.12 \text{ mg/L} \times \exp(1.645 \times 0.294 - 0.5 \times 0.0862)$$

$$\text{AML} = 1.7 \text{ mg/L}$$

Table E-1, on the following page, summarizes the calculations for water quality-based effluent limits based on two-value aquatic life criteria.

Table E-1: Effluent Limit Calculations

| Statistical variables for permit limit calculation | | | | | | | | | | | | | | | |
|--|--------------------|----------------------|--------------------------------------|---|---|--|--|----------|--|----------------------------|--------------------------|----------------------------|-----------------------------|------------------------------------|------------------------------------|
| LTA Probability Basis | 99% | | | | | | | | | | | | | | |
| MDL Probability Basis | 99% | | | | | | | | | | | | | | |
| AML Probability Basis | 95% | | | | | | | | | | | | | | |
| Permit Limit Calculation Summary | | | | | | | | | Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations | | | | | | |
| PARAMETER | Acute Dil'n Factor | Chronic Dil'n Factor | Ambient Concentration <i>ug/L</i> | Water Quality Standard Acute <i>ug/L</i> | Water Quality Standard Chronic <i>ug/L</i> | Average Monthly Limit (AML) <i>ug/L</i> | Maximum Daily Limit (MDL) <i>ug/L</i> | Comments | WLA Acute <i>ug/L</i> | WLA Chronic <i>ug/L</i> | LTA Acute <i>ug/L</i> | LTA Chronic <i>ug/L</i> | Limiting LTA <i>ug/L</i> | Coeff. Var. (CV) <i>decimal</i> | # of Samples per Month <i>n</i> |
| Ammonia, mg/L | 1.00 | 1.00 | | 3.815 | 1.433 | 1.7 | 3.5 | EOP | 3.81 | 1.43 | 1.22 | 1.12 | 1.12 | 0.60 | 4.00 |
| Chlorine | 1.00 | 1.00 | | 19 | 11 | 9.0 | 18.1 | EOP | 19.0 | 11.0 | 6.10 | 5.80 | 5.80 | 0.60 | 4.00 |

Appendix F: Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the US Fish and Wildlife Service (USFWS) regarding potential effects that a federal action may have on listed endangered and threatened species.

In an e-mail dated January 21, 2009, NOAA Fisheries stated that there are no threatened or endangered species under NOAA's jurisdiction in the Snake River drainage upstream of the Hells Canyon Dam, which is located at river mile 247.5. The City of Ashton discharge is more than 600 miles upstream from the nearest ESA-listed threatened or endangered species under NOAA's jurisdiction. Therefore, the reissuance of this permit will have no effect on any listed threatened or endangered species under NOAA's jurisdiction.

The subject discharge is located in Fremont County, Idaho. The USFWS county species list for Fremont County lists the following threatened and endangered species:

- Canada lynx (*Lynx canadensis*) Listed Threatened
- Ute ladies' tresses (*Spiranthes diluvialis*) Listed Threatened
- Utah valvata snail (*Valvata utahensis*) Listed Endangered

Discharges of pollutants to surface waters have the potential to directly affect aquatic species. The only aquatic species on the list is the Utah valvata snail. According to the *Snake River Aquatic Species Recovery Plan* (USFWS 1995a), both the current and historic distributions of the Utah valvata snail are downstream from the American Falls dam, which is located at river mile 714 on the Snake River, about 148 river miles downstream from the subject discharge. Because the draft permit includes water quality-based limits for all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to excursions above water quality standards (40 CFR 122.44(d)(1)(i, iii)), as well as technology-based effluent limits which have been shown to be protective of water quality, and these limits ensure a level of water quality that is derived from and complies with water quality standards (40 CFR 122.44(d)(1)(vii)(A)) at the end-of-pipe, the discharge will not affect water quality downstream of the American Falls dam. Therefore, the reissuance of the City of Ashton NPDES permit will have no effect on the Utah valvata snail.

EPA has also determined that the reissuance of an NPDES permit to the City of Ashton will have no effect on the Canada lynx or Ute ladies' tresses. These species are terrestrial species, which are generally not susceptible to the water quality impacts that may result from the reissuance of an NPDES permit.

The primary causes of the Canada lynx's decline are habitat destruction, overutilization for commercial, recreational, scientific, or educational purposes, and climate change (USFWS 2005). The primary causes of the Ute ladies' tresses decline include modification of riparian and wetland habitats associated with livestock grazing, vegetation removal, excavation, construction, stream channelization, exotic species invasion, and actions that alter hydrology (USFWS 1995b).

Reissuance of an NPDES permit to the City of Ashton will have no effect on habitat destruction, utilization of species for commercial, recreational, scientific, or educational purposes, climate change, livestock grazing, vegetation removal, excavation, construction, stream channelization,

exotic species invasion, or hydrologic alteration. Therefore, the issuance of this permit will have no effect on the gray wolf, Canada lynx, or the Ute ladies' tresses.

References

US Fish and Wildlife Service. 1995. Snake River Aquatic Species Recovery Plan. Snake River Basin Office, Ecological Services, Boise, Idaho. 92 pp.

US Fish and Wildlife Service. 1995. Ute ladies' tresses (*Spiranthes diluvialis*) recovery plan. US Fish and Wildlife Service, Denver, Colorado. 46 pp.

US Fish and Wildlife Service. 2005. Recovery Outline for the Contiguous United States Distinct Population Segment of the Canada Lynx.

Appendix G: Draft Clean Water Act Section 401 Certification



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

OCT 13 2009

900 North Skyline Drive, Suite B • Idaho Falls, Idaho 83402 • (208) 528-2650

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

October 6, 2009

Mr. Michael Lidgard
US Environmental Protection Agency, Region 10
1200 6th Avenue, OW-130
Seattle, Washington 98101

RE: DRAFT §401 Water Quality Certification for the City of Ashton, NPDES Permit No. ID-0023710.

Dear Mr. Lidgard:

The State of Idaho Department of Environmental Quality (Department) has reviewed the draft permit for the city of Ashton's discharge from their existing Waster Water Treatment Plant (WWTP). After review of the permit and fact sheets, the Department submits the specific comment below and the draft §401 water quality certification as an attachment. After the public comment period ends, the Department will address any comments and issue a final certification.

SPECIFIC COMMENTS

Fact Sheet, p. C-3: The Department will not authorize a mixing zone for use in water quality based effluents in the draft permit.

Please direct any questions to Troy Saffle at 208.528.2650 or troy.saffle@deq.idaho.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Erick Neher".

Erick Neher
Regional Administrator
Idaho Falls Regional Office

c: Doug Conde, Deputy Attorney General
Barry Burnell, Water Quality Division Administrator
Brian Nickel, EPA Region 10, Seattle

SCANNED

OCT 07 2009



Idaho Department of Environmental Quality
DRAFT §401 Water Quality Certification

October 6, 2009

NPDES Permit Number: **ID-0023710** City of Ashton

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended, 33 USC Section 1341 (a)(1), the Idaho Department of Environmental Quality (DEQ) has authority to review National Pollution Discharge Elimination System (NPDES) permits and issue a water quality certification decision.

DEQ has reviewed the preliminary draft NPDES permit and associated fact sheet for the above-referenced facility. Based upon its review and consideration of this information, DEQ certifies that if the permittee complies with the terms and conditions imposed by the above-referenced permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the discharge(s) will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, including the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02) and other appropriate requirements of state water quality law. This certification includes both the deletion of fecal coliform limits, less stringent Biologic Oxygen Demand limits and Total Suspended Solids limits that are less stringent than the past permit but still consistent with IDAPA 58.01.02 and protective of surface water quality.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations or permits.

AMMONIA COMPLIANCE SCHEDULE

Pursuant to IDAPA 58.01.02.400.03, DEQ authorizes a compliance schedule, and associated interim limits. Four years and six months after the effective date of the permit, the City will complete any necessary studies and facility upgrades needed to comply with the final ammonia limits and demonstrate it can meet those final limits. The final limits shall become effective on the expiration date of the permit.

MIXING ZONES

Due to the low flow volumes associated with the receiving waterbody, DEQ does not approve any mixing zones for this outfall.

OTHER CONDITIONS

The certification is conditioned upon the requirement that any material modification of this permit or the permitted activities including without limitation, any modifications of the permit to reflect new or modified TMDL waste load allocations or other new information, shall first be

provided to DEQ for review to determine compliance with state Water Quality Standards and to provide additional certification pursuant to section 401.

RIGHT TO APPEAL FINAL CERTIFICATION

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5), and the Rules of Administrative Procedure Before the Board of Environmental Quality, IDAPA 58.01.23, within thirty-five (35) days of the date of the final certification.

Questions regarding the actions taken in this certification should be directed to Troy Saffle, DEQ (Idaho Falls Regional Office) at (208) 528-2650.

Erick Neher
Regional Administrator
DEQ Idaho Falls Regional Office