# FACT SHEET

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

The City of Payette
522 River Street
Payette, Idaho 83661

Permit Number: ID-002067-2
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 Payette. 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 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 Department of Environmental Quality certify the NPDES permit for the City of Payette, 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 Payette 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:

- permit application and any supporting data submitted by the permittee
- draft permit
- fact sheet
- documents referenced in fact sheet
- a map showing the location of the wastewater treatment plant location
- 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**.

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 Payette
NPDES Permit No.: ID-002067-2

Facility Mailing Address:
700 Center Avenue
Payette, Idaho 83661

## II. FACILITY INFORMATION

A. Treatment Plant Description

The City of Payette 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 2.4 million gallons per day (mgd). Treatment of wastewater consists of metering, grit removal, influent screening, biological treatment through an oxidation ditch, clarification, and chlorination. Sludge is dried and land disposed.

The plant receives primarily domestic wastewater from residential and commercial sources. The primary industrial source is a fruit and vegetable processing plant, Chiquita Processed foods, LLC.

The City is in the process of updating the facility, front end only. Treatment capacity is not being expanded.

B. Background Information

The NPDES permit for the wastewater treatment plant expired on November 1, 1993. 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 for a new permit, the current permit was administratively extended.

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.

## III. RECEIVING WATER

A. Outfall location/ Receiving Water

The treated effluent from the City of Payette wastewater treatment facility is discharged from outfall 001, located at latitude 44° 0' 23" and longitude 116° 55' 2", to the Payette River at approximately river mile 0.5.

Flow information was based on information from the USGS gauging station near Payette, Idaho (13251000). Therefore, this flow will be used to determine if water quality-based effluent limitations are required for this discharge. According to this data, the 7Q10[2] for this reach is 450 cfs, while the 1Q10 is 333 cfs (based on post-1950 data).

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.

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[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.

[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.

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 Payette facility discharges to the Payette River at river mile 0.5, 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.

   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 B. The following summarizes the proposed effluent limitations that are in the draft permit.

A. Removal Requirements for $BOD_5$ and TSS: For any month, the monthly average effluent concentration must not exceed 15 percent of the monthly average influent concentration.

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

C. Table 1, below, presents the proposed effluent limits for $BOD_5$, TSS, fecal coliform bacteria, *E. coli* bacteria, chlorine, and pH.

| TABLE 1: Monthly, Weekly and Daily Effluent Limitations | | | |
|---|---|---|---|
| **Parameters** | **Average Monthly Limit** | **Average Weekly Limit** | **Maximum Daily Limit** |
| $BOD_5$ | 30 mg/L (600 lbs/day) | 45 mg/L (900 lbs/day) | --- |
| TSS | 30 mg/L (600 lbs/day) | 45 mg/L (900 lbs/day) | --- |
| Fecal Coliform Bacteria May 1 - September 30 | 50 colonies/100 ml | 200 colonies/100 ml | --- |
| Fecal Coliform Bacteria October 1 - April 30 | — | 200 colonies/100 ml | --- |
| *E. coli* Bacteria | 126 colonies/100 ml | --- | 406 colonies/100 ml |
| Total Residual Chlorine | 280 µg/L (5.6 lbs/day) | --- | 445 µg/L (8.9 lbs/day) |
| pH | 6.5 - 9.0 SU | | |

## V. MUNICIPAL SEWAGE SLUDGE/BIOSOLIDS MANAGEMENT

The biosolids conditions in the administratively extended permit were based on best professional judgment since EPA had not promulgated biosolids regulations at the time of permit issuance. Since that time EPA has promulgated regulations for the use and disposal of biosolids. Therefore, the biosolids requirements contained in the administratively extended permit have not been incorporated into the proposed permit.

EPA Region 10 has recently decided to separate the permitting of wastewater discharges and the disposal of biosolids. Under the Clean Water Act, EPA has the authority to issue separate "sludge only" NPDES permits for the purposes of regulating biosolids. EPA has historically implemented the biosolids standards by inclusion of the requirements in facility's NPDES wastewater permit, the other option authorized by the Act.

EPA will issue a sludge-only permit to this facility at a later date. This will likely be in the form of a general permit through which EPA can cover multiple facilities. In anticipation of that occurring, the City has submitted an updated sludge application.

Meanwhile, the environment will be protected since 1) the permittee's sludge activities will continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and 2) IDEQ conducts a program to review and approve biosolids activities. Part 503 contains provisions relating to pollutants in sewage sludge, the reduction of pathogens in sewage sludge, the reduction of the characteristics in sewage sludge that attract vectors, the quality of the exit gas from a sewage sludge incinerator stack, the quality of sewage sludge that is placed in a municipal solid waste landfill unit, the sites where sewage sludge

is either land applied or placed for final disposal, and sewage sludge incinerators. The Act prohibits any use or disposal of biosolids not in compliance with these standards. EPA has the authority under the Act to enforce these standards directly, including in the absence of a permit. The Act does not require the facility to have a permit prior to the use or disposal of its biosolids.

## 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 2 presents the proposed effluent monitoring requirements.

**Table 2 - Outfall 001 Effluent Limitations and Monitoring Requirements**

| PARAMETER | EFFLUENT LIMITATIONS | | | | MONITORING REQUIREMENTS | | |
|---|---|---|---|---|---|---|---|
| | **Units** | **Average Monthly Limit** | **Average Weekly Limit** | **Daily Maximum Limit** | **Sample Location** | **Sample Frequency** | **Sample Type** |
| Flow, | MGD | --- | --- | --- | Effluent | Continuous | Recording |
| Biological Oxygen Demand ($BOD_5$) | mg/L | 30 | 45 | --- | Influent and Effluent[1] | 1/week | 24 hr composite |
| | lb/day | 600 | 900 | --- | | | |
| Total Suspended Solids (TSS) | mg/l | 30 | 45 | --- | Influent and Effluent[1] | 1/week | 24 hr composite |
| | lb/day | 600 | 900 | --- | | | |
| Fecal Coliform Bacteria[2] | | | | | | | |
| May 1 - September 30 | #/100 ml | 50 | 200 | --- | Effluent | 1/week | grab |
| October 1 - April 30 | | --- | 200 | --- | | | |
| *E. coli* Bacteria[2] | #/100 ml | 126[3] | --- | 406[3a] | Effluent | 1/month | grab |
| Total Residual Chlorine [2] | mg/L | 0.280 | --- | 0.445 mg/L | Effluent | Daily | grab |
| | lb/day | 5.60 | --- | 8.90 | | | |
| Total Ammonia as N | (mg/L) | --- | --- | --- | Effluent | 1/ 2 months | 24 hr composite |

**Table 2 - Outfall 001 Effluent Limitations and Monitoring Requirements**

| PARAMETER | EFFLUENT LIMITATIONS | | | | MONITORING REQUIREMENTS | | |
|---|---|---|---|---|---|---|---|
| | Units | Average Monthly Limit | Average Weekly Limit | Daily Maximum Limit | Sample Location | Sample Frequency | Sample Type |
| Total Phosphorus | (lb/day) | | ---- | report | Effluent | 1/quarter [4] | 24 hr composite |
| Total Kjeldahl Nitrogen | (lb/day) | --- | --- | report | Effluent | 1/quarter [4] | 24 hr composite |
| Nitrate-Nitrite | (lb/day) | --- | --- | report | Effluent | 1/quarter [4] | 24 hr composite |
| Mercury [5] | µg/L | --- | --- | report | Effluent | 1/month | 24 hr composite |
| Dissolved Oxygen | mg/L | -- | -- | report | Effluent | 1/month | grab |
| Temperature | (°C) | --- | --- | report | Effluent | 1/quarter [4] | grab |

1 Influent and effluent composite samples shall be collected during the same 24-hour period.
2 Reporting is required within 24 hours if the maximum daily limit is violated.
The average weekly fecal coliform count must not exceed a geometric mean of 200/100 ml based on a minimum of five (5) daily samples taken over a thirty day period.
3 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.
3a This applies to a single sample.
4 Samples must be collected quarterly until a total of 12 samples have been collected and analyzed.
5 Mercury must be analyzed as total. The permittee must use methods that can achieve MDLs less than or equal to 0.001 µg/L. Sampling must continue monthly for one year.

EPA developed *Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequencies* (EPA, 1996) to help determine if the frequency of effluent monitoring may be reduced from the requirements in a permittee's current NPDES permit. This guidance document was used to determine if the frequency of effluent monitoring for $BOD_5$, TSS, and total residual chlorine could be reduced. The guidance document allows permitting authorities to use a statistical analysis of the permittee's historical effluent data to reduce unnecessary monitoring while at the same time maintaining a high level of environmental protection. Based on this guidance document, and the compliance history of the facility for the last five years it was found that monitoring for $BOD_5$, and TSS could be reduced from two times per week to once per week. Total residual chlorine will remain at daily because of the proposed new water quality-based effluent limit. In addition, based on evaluation of the data and that no

effluent limit is needed for ammonia, effluent monitoring for ammonia has been reduced to once every other month. These changes were made in the draft permit.

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. Since the City has previously conducted extensive testing of these parameters, as well as ammonia, the monitoring frequency for them have been reduced to once per quarter until a total of 12 samples have been collected for each parameter. Monitoring for mercury is to support future development of a TMDL in the Snake River for mercury, based on Oregon water quality standards. Mercury will be required to be sampled monthly for one year.

**Table 3: Surface Water Monitoring Parameter, Locations, and Method Detection Limits**

| Parameter | Units | Upstream Sampling Frequency | Downstream Sampling Frequency | Method Detection Limit (MDL) |
|---|---|---|---|---|
| Flow | mgd | 1/month | ----- | ----- |
| $BOD_5$ | mg/L | 1/month | ----- | ----- |
| TSS | mg/L | 1/month | ----- | ----- |
| *E. coli* bacteria | colonies/100 ml | 1/quarter | ----- | ----- |
| Dissolved Oxygen | mg/L | 1/quarter | 1/quarter | ----- |
| Total Phosphorus | mg/L | 1/quarter | 1/quarter | ----- |
| Ortho-phosphorus | mg/L | 1/quarter | 1/quarter | ----- |
| Total Ammonia as N | mg/L | 1/quarter | 1/quarter | ----- |
| Total Kjeldahl Nitrogen | mg/L | 1/quarter | 1/quarter | ----- |
| Nitrate-Nitrite | mg/L | 1/quarter | 1/quarter | ----- |
| Temperature | °C | 1/quarter | 1/quarter | ----- |
| pH | standard units | 1/quarter | 1/quarter | ----- |
| Mercury | : g/L | 1/month | 1/month | .001 : g/L |

## 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 within 120 days of the effective date of the final permit and to certify to EPA the completion of the plan. 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 4 - Facility Planning**

| Criteria | Value | Units |
|---|---|---|
| Average Flow | 2.4 | 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 IDAPA 58.01.02.200.02 state that surface waters of the state must be free from toxic substances in concentrations that impair designated beneficial uses. The City conducted two suites of tests in 1992 and 1994. The 1992 test, which was valid and statistically acceptable, resulted in a no effect concentration (NOEC) of 2 percent effluent concentration or more than 50 $TU_c$. This value would have resulted in requiring permit limits for whole effluent

toxicity for this facility. After evaluating chlorine and ammonia discharges from the Payette facility, EPA concluded that permit limits for whole effluent toxicity would not be needed, since limits are needed for chlorine.

However, 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 in the vicinity of the discharge.

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 Payette discharge, the following water quality criteria are necessary for the protection of the beneficial uses of the Payette River (US-22, Payette River, river mile 791 to American Falls Reservoir):

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.

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 58.01.02.200.06 - Excess Nutrient. Surface waters of the State must be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses.

D. IDAPA 58.01.02.200.08 - Sediment. Sediment must not exceed quantities specified in sections 250 and 252, or , in the absence of specific sediment criteria, quantities which impair designated beneficial uses. Determinations of impairment must be based on water quality monitoring and surveillance and the information utilized as described in section 350.

E. IDAPA 58.01.02.251.01. - Primary Contact Recreation: Waters designated for primary contact recreation are not to contain *E. coli* bacteria significant to the public health in concentrations exceeding:

1. a single sample of 406/100 ml, or
2. a geometric mean of 126/100 ml based on a minimum of five samples taken every three (3) to five (5) days over a thirty day period.

F. IDAPA 58.01.02.420.05.a. - Disinfection requirements for Sewage Wastewater Treatment Plant Effluent: when disinfection is determined to be required under subsection 420.04, sewage wastewater treatment plant effluent must receive adequate disinfection by any disinfection process which satisfies the following criteria, prior to discharge to any receiving water.

1. Fecal coliform concentrations in secondary treated effluent must not exceed a geometric mean of 200/100 ml based on no more than one week’s data and a minimum of five samples;

2. The samples must be representative of all samples collected during the week; and

3. Geometric mean computations must be calculated and recorded weekly.

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

H. IDAPA 58.01.02.250.01.c.i-ii. - The one (1) hour average concentration of total residual chlorine must not exceed nineteen (19) ∶g/L. The four (4) day average concentration must not exceed eleven (11) ∶g/L.

I. IDAPA 58.01.02.250.02.a. - Dissolved oxygen concentrations must exceed 6 mg/L at all times.

J. IDAPA 58.01.02.250.02.c.i - The one hour average concentration of un-ionized ammonia (as N) is not to exceed (0.43/A/B/2) mg/L, where:

A = 1 if the water temperature (T) is $ 20°C, or
$A = 10^{(0.03(20-T))}$ if T < 20°C, and

B = 1 if the pH is $ 8.0, or
$B = (1+ 10^{(7.4-pH)}) \div 1.25$ if pH is < 8.0

Using the 95th percentile downstream pH and temperature (8.8 standard units and 20.0 °C, respectively) the total ammonia criterion is 5.65 mg/L.

K. IDAPA 58.01.02.250.02.c.ii - The four day average concentration of un-ionized ammonia (as N) is not to exceed (0.66/A/B/C) mg/L, where:

A = 1.4 if T is $ 15°C, or
$A = 10^{(0.03(20-T))}$ if T < 15°C, and

B = 1 if the pH is $ 8.0, or
$B = (1+ 10^{(7.4-pH)}) \div 1.25$ if pH is < 8.0

C = 13.5 if pH is $ 7.7, or
$C = 20(10^{(7.7-pH)}) \div (1+ 10^{(7.4-pH)})$ if the pH is < 7.7

Using the 95th percentile downstream pH and temperature (8.8 standard units and 20.0 °C, respectively) the total ammonia criterion is 1.0 mg/L.

## 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 - Protects existing uses and provides the absolute floor of water quality.

B. Tier 2 - Protects the level of water quality necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water in waters that are currently of higher quality than required to support these uses. Before water quality in Tier 2 waters can be lowered , there must be an anti-degradation review consisting of: (1) a finding that it is necessary to accommodate important economic or social development in the area where the waters are located (2) full satisfaction of all intergovernmental coordination and public participation provisions; and (3) assurance that the highest statutory and regulatory requirements for point sources and best management practices for nonpoint sources are achieved. Furthermore, water quality may not be lowered to less than the level necessary to fully protect the "fishable/swimmable" uses and other existing uses.

C. Tier 3 - Protects the quality of outstanding national resources, such as waters of national and State parks and wildlife refuges and waters of exceptional recreational or ecological significance. There may be no new or increased discharges to these waters and no new or increased discharges to tributaries of these waters that would result in lower water quality.

The Payette River is a tier 1 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.

## I. Technology-based Effluent Limitations

The CWA requires Publicly Owned Treatment Works to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," that all POTWs were required to meet by July 1, 1977. EPA developed "secondary treatment" regulations which are specified in the 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 secondary treatment in terms of five-day biochemical oxygen demand ($BOD_5$), total suspended solids (TSS), and pH. The technology based effluent limits applicable to the City of Payette are as follows:

A. 5 day Biochemical Oxygen Demand ($BOD_5$) and Total Suspended Solids (TSS):

| | |
|---|---|
| Average Monthly Limit = | 30 mg/L |
| Average Weekly Limit = | 45 mg/L |
| Percent Removal Requirements = | 85 % |

B. Federal regulations at (40 CFR § 122.45 (f)) require $BOD_5$ and TSS limitations to be expressed as mass based limits using the design flow of the facility. The loading is calculated as follows: concentration X design flow X 8.34.

| | |
|---|---|
| BOD and TSS loading, monthly average = | |
| 30 mg/L X 2.4 mgd X 8.34 = | 600 lbs/day |
| BOD and TSS loading, weekly average = | |
| 45 mg/L X 2.4 mgd X 8.34 = | 900 lbs/day |

C. The pH range must between 6.5 - 9.0 standard units.

D. Fecal Coliform Bacteria: In addition to the above, the Idaho *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA16.01.02.420.02.b) require that fecal coliform concentrations in treated effluent not exceed a geometric mean of 200 colonies/100ml based on no more than one week's data and a minimum of five samples.

## II. Water Quality-based Evaluation

A. 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.

B. 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 (see Appendix A for the applicable water quality criteria).

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 loadings 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.

C. 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:

1. 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 not yet been completed for this section of the Payette River.

2. 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.

3. 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 state water quality standards require surface waters of the state to be free from toxic substances in concentration that impair designated uses. The administratively extended permit required the Permittee to conduct toxicity tests on its effluent. Results from these tests indicate that the whole effluent toxicity limits are not required for this discharge. Based on these results the toxicity testing requirements have also been deleted from the proposed permit.

b. Floating, Suspended or Submerged Matter

The Idaho state 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 state 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 reach of the river. Nutrient monitoring has been incorporated into the draft permit. The results of this monitoring will be used in the development of the TMDL. A reopener clause has also been incorporated into the draft permit to allow the permit to be reopened to incorporate the determinations made in the TMDL.

d. Fecal Coliform Bacteria

The Payette River is listed as water-quality limited for pathogens. Since there is no dilution available, the facility must meet the criteria at the end of the pipe. This will ensure that primary contact recreation uses are met in the river. The effluent limits are as follows:

Average Weekly Limit = 200 colonies/100 ml.

The permit currently in effect has the following loading requirements:

May 1 - September 30: Average Monthly Limit = 50 colonies/100ml
Average Weekly Limit = 100 colonies/100ml

October 1 - April 30: Average Monthly Limit = 100 colonies/100ml[1]
Average Weekly Limit = 200 colonies/100 ml

New water quality standards adopted by Idaho in May 2000 removed the fecal coliform limits and adopted *E. coli* bacteria limits. Average weekly disinfection requirements for sewage wastewater treatment plant effluents were included, since the 100 colonies/100 ml no longer apply.

e. *E. coli* bacteria

The Idaho state water quality standards require waters designated for primary contact recreation not contain *E. coli* bacteria in amounts exceeding:

(1) a single sample of 406/100 ml; or a geometric mean of 126/100 ml based on a minimum of five samples taken every three to five days over a thirty-day period.

These limits have been included in the draft permit.

f. 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.

g. Total Residual Chlorine

Idaho state water quality standards require surface waters of the state to meet an acute criterion of 19.0 µg/L and a chronic criterion of 11.0 µg/L for 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, the effluent limits have been recalculated and have been included in the proposed permit.

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 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 280 ：g/L (5.60 lbs/day) and the maximum daily limit is 445 ：g/L (8.90 lbs/day) (see page C-11 for calculations).

h. Dissolved Oxygen

The Payette River is not listed as water quality-limited for dissolved oxygen (D.O.). The state water quality standards require the level of D.O. to exceed 6 mg/L at all times for water bodies that are protected for aquatic life use. Effluent data are not available to determine if the facility is

meeting this requirement. Effluent monitoring will be required in the draft permit in order to determine if the facility will require a permit limit in the future.

i. Ammonia

IDEQ has developed water quality criteria to protect aquatic life against short term and long term adverse impacts from ammonia. A reasonable potential analysis was conducted and it was found that water quality-based effluent limits are not required for ammonia. The permit does require continued monitoring for ammonia.

**Reasonable Potential Analysis**

*Total Ammonia*

In the case of the Payette River the beneficial use that needs to be protected is aquatic life. The acute criterion for ammonia is 5.65 mg/L and the chronic criterion is 1.0 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 = 8.95 mg/L
$Q_e$ = maximum effluent flow = 3.7 cfs
$C_u$ = upstream concentration of pollutant = .100 mg/L
$Q_u$ = upstream flow = 450 cfs (7Q10)
%MZ = assume 25 percent mixing zone is authorized by the IDEQ

When determining the projected receiving water concentration, 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 a high of 368.

The maximum projected concentration ($C_e$) for the effluent is equal to the highest observed concentration value of the data set multiplied by the maximum projected concentration. Data from January 31, 1995 through January 31, 2001 was used to determine the maximum projected concentration. The highest value observed was on February 28, 1995. It was 5.7 mg/L. The CV

is 0.64. The reasonable potential multiplier is 1.57. The maximum projected concentration ($C_e$) is 8.95 mg/L (5.7 X 1.57).

The downstream receiving water concentration ($C_d$) is:

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

$$C_d = \frac{(8.95 \text{ X } 3.7) + (0.100\text{X } (450 \text{ X } 0.25)}{3.7 + (450 \text{ X } 0.25)} = \frac{44.36}{116.2} = 0.382 \text{ mg/L}$$

The projected concentration downstream is less than the chronic criterion for ammonia (1.0 mg/L), therefore, a water quality-based effluent limit is not required.

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

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 = 3.7 cfs

$C_e$ = concentration of pollutant in effluent = $WLA_{acute}$ or $WLA_{chronic}$
$Q_u$ = upstream flow = 450 cfs (7Q10), 333 cfs (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:

$$C_e = WLA = \frac{Q_d C_d - Q_u C_u}{Q_e}$$

when a mixing zone is allowed, this equation becomes:

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

where, %MZ is the mixing zone[3] allowable by the state standards. The Idaho water quality standards at IDAPA 58.01.02060 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.

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

$$= \frac{19(333 \text{ X } .25) + (19 \text{ X } 3.7)}{3.7} - \frac{333 \text{ X } 0\ (.25)}{3.7} = 446.5 \text{ : g/L}$$

$$WLA_{chronic} = \frac{11(450 \text{ X } .25) + (11 \text{ X } 3.7)}{3.7} - \frac{450 \text{ X } 0\ (.25)}{3.7} = 334.5 \text{ : g/L}$$

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,

[3] 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.

$F^2$ = $\ln(CV^2 + 1)$
z = 2.326 for 99th percentile probability basis
CV = coefficient of variation = .194
$LTA_{chronic} = WLA_{chronic} \times e^{[0.5F^2 - zF]}$
where,
$F^2$ = $\ln(CV^2/4 + 1)$
z = 2.326 for 99th percentile probability basis
CV = coefficient of variation = standard deviation/mean (the CV was calculated using data from January 1995 through January 2001)

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

$LTA_{acute}$ = 259.6 ：g/L
$LTA_{chronic}$ = 260.6 ：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:

$MDL = LTA_{acute} \times e^{[zF - 0.5F^2]}$
where,
$F^2$ = $\ln(CV^2 + 1)$
z = 2.326 for 99th percentile probability basis
CV = 0.25
**MDL = 446.5 ：g/L**

$AML = LTA_{acute} \times e^{[zF - 0.5F^2]}$
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 chlorine = 30
**AML = 279.5 ：g/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 = 0.2795 mg/L
Design Flow Rate = 2.4 mgd
Conversion Factor = 8.34
**AML = 5.6 lbs/day**

MDL = (MDL Concentration)(Design Flow Rate) (Conversion Factor)
where:
Daily Maximum Concentration = 0.4465 mg/L
**MDL = 8.9 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 Payette 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 Payette 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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