

# FACT SHEET

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

The City of Weippe  
P.O. Box 146  
Weippe, Idaho 83553

Permit Number: ID-002035-4  
Public Notice start date:  
Public Notice expiration date:

## **EPA Proposes NPDES Permit Reissuance.**

EPA proposes to reissue an NPDES permit to the City of Weippe. The draft permit places conditions on the discharge of pollutants from the City of Weippe's wastewater treatment plant to Jim Ford Creek. 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, public hearing, and appeal procedures
- a description of the current discharge and current sewage sludge (biosolids) practices
- a listing of proposed effluent limitations, schedules of compliance, and other conditions
- a map and description of the discharge location
- technical material supporting the conditions in the permit

## **The State of Idaho Proposes Certification.**

EPA is requesting that the Idaho Department of Environmental Quality certify the NPDES permit for the City of Weippe, under section 401 of the Clean Water Act. The state provided preliminary comments on the draft permit, and these comments have been incorporated into the draft permit.

## **Public Comment.**

Persons wishing to comment on, or request a Public Hearing for, the draft permit may do so in writing by the expiration date of the Public Notice. 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 will make a final decision regarding permit reissuance.

Persons wishing to comment on State Certification should submit written comments by the Public Notice expiration date to the Idaho Department of Environmental Quality (IDEQ) at Lewiston Regional Office, State Office Building, 1118 7<sup>th</sup> Street, Lewiston, Idaho 83501. A copy of the comments should also be submitted to EPA.

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

**Documents are Available for Review.**

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (See address below). Draft permits, Fact Sheets, and other information can also be found by visiting the Region 10 website at "[www.epa.gov/r10earth/water.htm](http://www.epa.gov/r10earth/water.htm)."

United States Environmental Protection Agency  
Region 10  
1200 Sixth Avenue, OW-130  
Seattle, Washington 98101  
(206) 553-0523 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 Weippe  
NPDES Permit No.: ID-002035-4

Facility Mailing Address:  
P.O. Box 146  
Weippe, Idaho 83553

**II. FACILITY INFORMATION**

A. Treatment Plant Description

The City of Weippe owns and operates a facility which treats domestic sewage from local residents and commercial establishments. There are no significant industrial dischargers to the system. The facility has a design flow of 0.536 million gallons per day (mgd). Because of the minimum instream dilution requirement provided by the existing permit, the facility can typically only discharge during January through June each year. During 1999 (January through April) and 2000 (February through April), the average daily flow rates were 0.370 mgd and 0.424 mgd. The facility provides biological treatment in three aerated lagoons, as well as disinfection by chlorination prior to discharging effluent to Jim Ford Creek.

During Summer 1991, the city enlarged the holding capacity of the lagoons. The enlargement of the first lagoon apparently thinned the clay seal and caused a leak. An underdrain was installed to provide drainage which now discharges at a low rate (<0.01 cubic feet per second or cfs) to Grasshopper Creek year round. Grasshopper Creek flows into Jim Ford Creek immediately upstream of Outfall 001. The underdrain has been identified as a source of fecal coliform loadings to Grasshopper Creek.

The facility has never removed solids during the operating history of the facility and does not expect to do so during the next five years.

B. Background Information

The NPDES permit for the wastewater treatment plant expired on June 15, 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 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<sup>1</sup> for the past five years indicates that the facility has generally been in compliance with its permit effluent limits. Occasionally, the five-day biochemical oxygen demand (BOD<sub>5</sub>) removal has been below 65 percent, primarily due to low influent BOD<sub>5</sub> concentrations. This is expected due to the known infiltration and inflow into the collection system.

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

### III. RECEIVING WATER

#### A. Outfall Location/Receiving Water

The treated effluent from the City of Weippe's wastewater treatment facility is discharged from Outfall 001 to Jim Ford Creek. From the city, Jim Ford Creek flows approximately 16 miles downstream to the confluence with the Clearwater River at Orofino, Idaho. The upper portion of the creek flows through forested uplands and prairie. Below Weippe, the creek passes over a 65 foot waterfall and then flows through a steep basalt canyon.

Jim Ford Creek is intermittent at the City of Weippe. It is characterized by low flows of about 2 cfs during the summer months increasing to approximately 50 cfs during the spring and fall. The bank full flow is about 170 cfs. To ensure compliance with minimum dilution requirements, the city uses an Idaho Department of Environmental Quality (IDEQ)-approved methodology to calculate upstream flow based on velocity and stream depth and width. During the months when discharges occurred from 1995 to 2000, the average calculated upstream flow ranged from 8.6 to 56 cfs.

#### 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.

The Idaho *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02.101.01.) protect Jim Ford Creek at the City of Weippe for cold water biota, primary and secondary contact recreation, domestic water supply and agricultural water supply. Jim Ford Creek is protected below the waterfall for salmonid spawning.

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<sup>1</sup>Discharge monitoring reports are forms used by The permittee to report the results of monitoring that is conducted to verify that they are adhering to the effluent limitations and conditions in their NPDES permit.

The criteria that the State of Idaho has deemed necessary to protect the beneficial uses for this portion of the Jim Ford Creek, and the state's anti-degradation policy are summarized in Appendix B.

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. Jim Ford Creek has been listed as water quality limited for sediment, temperature, pathogens, nutrients, ammonia, oil and grease, dissolved oxygen, habitat modification, and flow.

Section 303(d) of the Clean Water Act requires states to develop a plan, known as a Total Maximum Daily Load (TMDL) management plan, for water bodies determined to be water quality limited. The 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. In March 2000, IDEQ, the Nez Pierce Tribe, and EPA jointly completed the *Jim Ford Creek Total Maximum Daily Load, Watershed Management Plan*. The following summarizes the TMDL requirements as they apply to the City of Weippe's discharges:

1. The TMDL did not establish wasteload allocations for ammonia and oil and grease because 1998 data did not show these pollutants being found at levels that exceeded water quality criteria. There was no reasonable potential for the city's discharge to violate the water quality standards. The TMDL did not address flow or habitat modification.
2. Temperature requirements do not apply to the discharge from Outfall 001 because the city does not discharge during the critical period (July 1 through August 15).
3. Outfall 001 is assigned a loading of 30 pounds per month of total phosphorous. The TMDL indicated that Jim Ford Creek is currently meeting nitrogen targets and no nitrogen wasteload allocation has been established.
4. Outfall 001 is assigned a fecal coliform load allocation at the existing permit limit of 50 cfu/100ml during the primary contact recreation season of May 1 through September 30.
5. The TMDL indicates that the underdrain discharge to Grasshopper Creek will be eliminated and assigns wasteload allocations of zero to this source.

#### 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 effluent 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 and they may

be more stringent than technology-based effluent limits. For more information on deriving technology-based effluent limits and water quality-based effluent limits see Appendices C and D.

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

1. Weippe can discharge to Jim Ford Creek only when the flow in the creek is sufficient to provide at least a 50:1 dilution on a daily basis.
2. The pH range shall be between 6.5 - 9.0 standard units.
3. For any month, the monthly average effluent concentration for BOD<sub>5</sub> and TSS shall not exceed 35 percent of the monthly average influent concentration.
4. There shall be no discharge of floating solids or visible foam, or oil and grease other than in trace amounts.
5. There shall be no discharge of floating solids or visible foam, or oil and grease other than trace amounts.
6. Table 1, below, presents the proposed average monthly, average weekly, and instantaneous maximum effluent limits for BOD<sub>5</sub>, total suspended solids (TSS), escherichia coli (E. coli) bacteria, fecal coliform bacteria, total residual chlorine, and total phosphorus.

<b>TABLE 1: Monthly, Weekly and Daily Effluent Limitations</b>				
Parameters	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit <sup>1</sup>	Instantaneous Maximum Limit <sup>1</sup>
BOD <sub>5</sub>	45 mg/L (75 lbs/day)	65 mg/L (113 lbs/day)	---	---
TSS	70 mg/L (313 lbs/day)	105 mg/L (469 lbs/day)	---	---
E. coli Bacteria	126 /100 ml	---	---	406 /100 ml
Fecal Coliform Bacteria (May 1 through September 30)	---	50/100 ml	---	---
Fecal Coliform Bacteria (October 1 through April 30)	---	200/100 ml	---	---

<b>TABLE 1: Monthly, Weekly and Daily Effluent Limitations</b>				
Parameters	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit <sup>1</sup>	Instantaneous Maximum Limit <sup>1</sup>
Total Residual Chlorine <sup>2</sup>	74 µg/L	---	260 µg/L	---
	0.33 lbs/day		(1.2 lbs/day)	
Total Phosphorus	0.22 mg/L	0.43 mg/L		---
	1.0 lbs/day	1.9 lbs/day		
<p>1 Reporting is required within 24 hours of a maximum daily or instantaneous maximum daily violation.</p> <p>2 The effluent limits for total residual chlorine are not quantifiable using EPA-approved analytical methods. EPA will use 100 µg/L (the Minimum Level) as the compliance evaluation level for this parameter.</p>				

## V. 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 effluent and ambient data to determine if additional effluent limitations are required and/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.

Data evaluated during the preparation of TMDLs for Jim Ford Creek showed there was no reasonable potential for Weippe's discharge to violate state water quality standards at the minimum 50:1 dilution required when the city is discharging. Therefore, the only ambient monitoring required of the city is upstream flow in order to determine compliance with the dilution requirement.

Table 2 presents the proposed monitoring requirements.

<b>TABLE 2: City of Weippe Waste Water Treatment Plant Monitoring Requirements</b>			
Parameter	Sample Location	Sample Frequency	Sample Type
Instream Flow, mgd	Upstream of Outfall	daily	calculation
Flow, mgd	Effluent	continuous	recording
BOD <sub>5</sub> , mg/L	Influent and effluent	1/month	grab
TSS, mg/L	Influent and effluent	1/month	grab
pH, standard units	Effluent	5/week (Monday - Friday)	grab
Fecal Coliform Bacteria, colonies/100 ml	Effluent	5/week	grab



<b>TABLE 2: City of Weippe Waste Water Treatment Plant Monitoring Requirements</b>			
Parameter	Sample Location	Sample Frequency	Sample Type
E. coli Bacteria, colonies/100 ml	Effluent	5/month <sup>1</sup>	grab
Total Residual Chlorine, mg/L	Effluent	5/week (Monday - Friday)	grab
Total Phosphorous, mg/L	Effluent	1/week	grab

<sup>1</sup>Samples must be taken every three to five days over a thirty-day period.

## **VI. SLUDGE (BIOSOLIDS) REQUIREMENTS**

Currently, sludge from the treatment plant is stored at the bottom of the ponds. The permittee does not anticipate having to remove the sludge from the bottom of the ponds during the term of this permit (five years).

EPA Region 10 recently decided to separate wastewater and sludge permitting. Under the Clean Water Act (CWA), EPA has the authority to issue separate sludge-only permits for the purposes of regulating biosolids. EPA will issue a sludge-only permit to this facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, any sludge management and disposal activities at the 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, meaning that permittees must comply with them whether or not a permit has been issued. Therefore, the CWA does not require the facility to have a permit prior to use or disposal of biosolids.

## **VII. OTHER PERMIT CONDITIONS**

### **A. Quality Assurance Plan**

The federal regulation at 40 CFR 122.41(e) requires The permittee to develop and submit 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 60 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. Elimination of Underdrain Discharge**

The underdrain discharge from the first aeration lagoon represents untreated wastewater that has been shown to be contributing fecal coliform to Grasshopper Creek. The draft

permit establishes a compliance schedule for eliminating the underdrain discharge within 2 years of the effective date of the permit.

C. 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. See Appendix E for further details.

B. State Certification

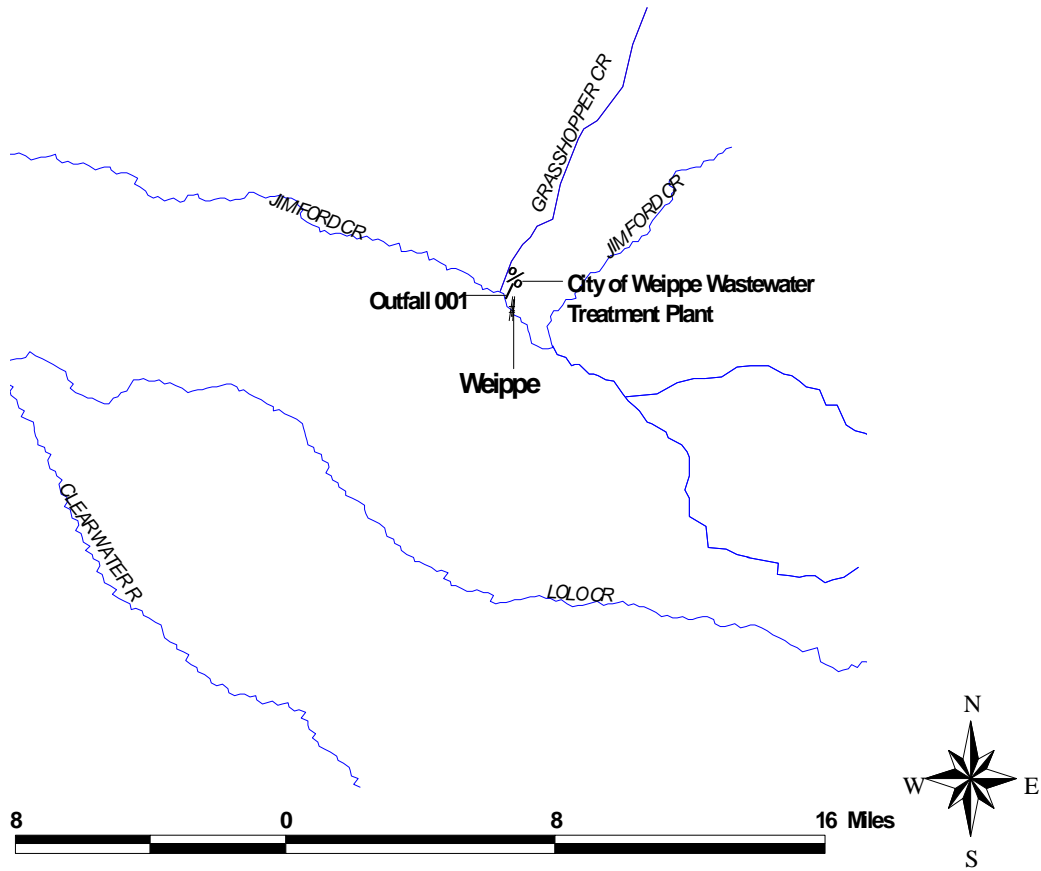
Section 401 of the Clean Water Act requires EPA to seek state certification before issuing a final permit. As a result of the certification, the state may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards.

C. Permit Expiration

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

APPENDIX A  
Treatment Plant Map

## City of Weippe Wastewater Treatment Plant and Outfall 001 Locations



**APPENDIX B**  
**Water Quality Standards**

**(A) Water Quality Criteria**

For the City of Weippe, the following water quality criteria are necessary for the protection of the beneficial uses of Jim Ford Creek:

1. IDAPA 58.01.02.200.02 - Surface waters of the State shall be free from toxic substances in concentrations that impair designated beneficial uses. These substances do not include suspended sediment produced as a result of nonpoint source activities.
2. IDAPA 58.01.02.200.05 - 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.
3. IDAPA 58.01.02.200.06 - Excess Nutrients. Surface waters of the State shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses.
4. IDAPA 58.01.01.200.08.a - Sediment. Sediment shall not exceed quantities specified in section 250 and 252, or , in the absence of specific sediment criteria, quantities which impair designated beneficial uses. Determinations of impairment shall be based on water quality monitoring and surveillance and the information utilized as described in Subsection 350.
5. IDAPA 58.01.250.01.a - Hydrogen ion concentration (pH) values within the range of 6.5 to 9.5 standard units.
6. IDAPA 58.01.250.01.c - Total chlorine residual: (i) One hour average concentration not to exceed 19 ug/l and (ii) four day average concentration not to exceed 11 ug/L.
7. IDAPA 58.01.02.250.02 - Cold Water: waters designated for cold water aquatic life are to exhibit the following characteristics:
  - i. Dissolved oxygen concentration exceeding 6 mg/l at all times.
  - ii. Water temperature of 22°C or less with a maximum daily average of no greater than 19°C.
  - iii. 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  $\geq 20^{\circ}\text{C}$ , or  
 $A = 10^{(0.03(20-T))}$  if  $T < 20^{\circ}\text{C}$ , and  
  
 $B = 1$  if the pH is  $\geq 8.0$ , or  
 $B = (1 + 10^{(7.4-\text{pH})}) \div 1.25$  if pH is  $< 8.0$
  - iv. The four day average concentration of un-ionized ammonia (as N) is not to exceed  $(0.66A/B/C)$  mg/L, where:

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

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

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

8. IDAPA 58.01.02.251.01. - Waters designated for primary contact recreation are not to contain E. coli bacteria significant to the public health in concentrations exceeding:
  - i. A single sample of four hundred and six E. coli organisms per one hundred ml; or
  - ii. A geometric mean of one hundred and twenty six E. coli organisms per one hundred ml based on a minimum of five samples taken, every three to five days, over a thirty day period.
9. IDAPA 58.01.02.252.01 - Domestic Water Supply: radioactive materials or radioactivity not to exceed concentrations specified in Idaho Department of Environmental Quality Rules, IDAPA 58.01.08, "Rules Governing Public Drinking Water Systems." These rules incorporate the Federal maximum contaminant levels for radioactive materials at 40 CFR 141.
10. IDAPA 58.01.02.252.02 - Agricultural Water Supply: water quality criteria will generally be satisfied by the water quality criteria set forth in Section 200 (General Surface Water Quality Criteria).

**(B) 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:

- Tier 1 - Protects existing uses and the level of water quality necessary to protect those uses.
- 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.
- 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.

Jim Ford Creek 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 ensure that the existing beneficial uses for Jim Ford Creek will be maintained.

## APPENDIX C **Basis for Effluent Limitations**

The Clean Water Act (CWA) requires Publicly Owned Treatment Works (POTW) 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 which are designed to ensure that water quality standards are met.

Furthermore, technology-based effluent limits don't always limit every parameter that is in an effluent. For example, technology-based effluent limits for POTWs only limit five-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), and pH. Yet effluent from a POTW may contain other pollutants such as chlorine, ammonia, or metals depending on the type of treatment system used and the service area of the POTW (i.e., industrial facilities as well as residential areas that discharge into the POTW). In these cases, where technology-based effluent limits do not exist for a particular pollutant, EPA must determine if the pollutants will cause or contribute to a violation of the water quality standards for the water body. If they do, EPA is required to develop water quality-based effluent limits designed to ensure that water quality standards are met.

The proposed 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. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits, and Part C compares the technology-based effluent limits with the water quality-based effluent limits, and shows the effluent limits that are proposed in the draft permit.

### **A. Technology-based Effluent Limitations**

The CWA requires POTWs 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 BOD<sub>5</sub>, TSS, and pH.

The definition of "secondary treatment" includes special considerations regarding waste stabilization ponds. The regulations allow alternative limits for facilities, such as the City of Weippe, using waste stabilization ponds. These alternative limits are called "treatment equivalent to secondary treatment."

The regulation also includes a provision for an Alternative State Requirement [40 CFR 133.105(d)]. This allows the state the flexibility to set permit limits above the maximum levels for "treatment equivalent to secondary treatment." For waste stabilization ponds, the Idaho *Water Quality Standards and Wastewater Treatment Requirements* at IDAPA 58.01.02.420.02.b. has established average monthly limits for BOD<sub>5</sub> and TSS. The technology-based effluent limits applicable to the city of Weippe are as follows:

1. 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>) and Total Suspended Solids (TSS), concentration based limits:

BOD<sub>5</sub>

Average Monthly Limit =	45 mg/L
Average Weekly Limit =	65 mg/L
Percent Removal Requirements =	65 %

TSS

Average Monthly Limit =	70 mg/L
Average Weekly Limit =	105 mg/L
Percent Removal Requirements =	65 %

Although not specified in the Idaho Water Quality Standards, a weekly average effluent limitation for BOD<sub>5</sub> TSS has been established in accordance with 40 CFR 122.45(d)(2). The average weekly limit is 1.5 times the value of the monthly average limitation.

2. Mass based limits: Federal regulations at (40 CFR § 122.45 (f)) require BOD<sub>5</sub> 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.

$$\begin{aligned} \text{BOD}_5 \text{ loading, monthly average} &= 45 \text{ mg/L} \times 0.536 \text{ mgd} \times 8.34 = 201 \text{ lbs/day} \\ \text{BOD}_5 \text{ loading, weekly average} &= 65 \text{ mg/L} \times 0.536 \text{ mgd} \times 8.34 = 291 \text{ lbs/day} \end{aligned}$$

$$\begin{aligned} \text{TSS loading, monthly average} &= 70 \text{ mg/L} \times 0.536 \text{ mgd} \times 8.34 = 313 \text{ lbs/day} \\ \text{TSS loading, weekly average} &= 105 \text{ mg/L} \times 0.536 \text{ mgd} \times 8.34 = 469 \text{ lbs/day} \end{aligned}$$

The existing permit includes monthly and weekly average mass based BOD<sub>5</sub> limits of 75 and 113 lbs/day. The draft permit cannot include less stringent limits than the existing permit due to anti-backsliding provisions [40 CFR 122.44(1)]. Therefore the existing BOD<sub>5</sub> mass loading limits are included in the draft permit. The city has been able to comply with the existing permit limits. The existing permit did not include mass limits for TSS. The loadings as calculated above are included in the draft permit for TSS. Federal regulations include a percent removal requirement for TSS and are, therefore, more restrictive than state requirements and must be included in the permit.

3. pH: The pH range must be between 6.0 - 9.0 standard units.
4. The technology-based chlorine effluent limitation of 0.5 mg/L 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. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/L limit on a monthly average basis. Additionally, NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) as well as average monthly limits (AMLs) unless impracticable. The AWL is expressed as 1.5 times the AML, or in this case 0.75 mg/L. Finally, federal regulations



require limitations to be expressed as mass-based limits using the design flow of the facility.

5. Fecal Coliform Bacteria: The Idaho *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02.420.02.b) require that fecal coliform concentrations in treated effluent not to exceed a geometric mean of 200 colonies/100mL based on no more than one week's data and a minimum of five samples. Since the TMDL allocation of 50 colonies/100 ml only applies during May 1 through September 30, the draft permit includes a limit of 200 colonies/100 ml during the remainder of the year.

## **B. Water Quality-Based Effluent Limits**

### 1. Statutory Basis for Water Quality-Based Limits

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

The NPDES regulation (40 CFR 122.44(d)(1)) implementing section 301 (b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.

The regulations require that this evaluation be made using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

### 2. 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 for this permit have been determined in one of the following ways:

- (a) 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 of the waterbody (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.

The state has completed a TMDL for Jim Ford Creek which provides the City of Weippe with wasteload allocations for total phosphorus and fecal coliform.

- (b) In some cases a mixing zone is not authorized, either because the receiving water already exceeds the criteria, the receiving water flow is too low to provide dilution, or the state does not authorize one. 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, EPA applies the statistical permit limit derivation approach (if appropriate) 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.

### 3. Specific Water Quality-Based Effluent Limits

#### (a) **Toxic Substances**

The Idaho Water Quality Standards require surface waters of the state to be free from toxic substances in concentrations that impair designated uses. There are no significant industrial discharges to the facility, and concentrations of priority pollutants from cities without a significant industrial component are low. Therefore, it is not anticipated that toxicity will be a problem in the effluent, and water quality-based effluent limits have not been proposed.

#### (b) **Floating, Suspended or Submerged Matter/Oil and Grease**

Jim Ford Creek has oil and grease listed as a pollutant of concern. According to the Jim Ford Creek TMDL, however, 1998 data show no detectable levels of oil and grease in the creek. The Idaho Water Quality Standards require surface waters of the state to be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions that may impair designated beneficial uses. Therefore, a narrative condition is proposed for the draft permit that states there must be no discharge of floating solids or visible foam or oil and grease other than trace amounts.

(c) **Excess Nutrients**

The Idaho Water Quality Standards require surface waters of the state be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses. Jim Ford Creek has been listed as water quality limited for nutrients. The TMDL provides a total phosphorus wasteload allocation (WLA) for the City of Weippe's wastewater treatment plant. Federal regulations at 40 CFR 122.44(d)(vii)(B) require EPA to incorporate effluent limits based on WLAs from the state's TMDL into NPDES permits.

The following water quality-based effluent limits have been proposed, based on the TMDL: average monthly and weekly limits of 1.0 and 1.9 lbs/day for phosphorus have been incorporated into the draft permit. For details on deriving the effluent limits see Appendix D.

(d) **Sediment/Total Suspended Solids (TSS)**

Jim Ford Creek is listed as water quality limited for sediment. The TMDL specifically addresses coarse sediment; fine sediment is not considered a problem because the state turbidity criterion is being met. The TMDL indicates that TSS levels in the discharge from Outfall 001 are low compared to non-point source contributions and are not affecting beneficial uses. Therefore, requirements more stringent than the technology-based limits are not necessary.

(e) **pH**

The Idaho Water Quality Standards require surface waters of the state to have a pH value within the range of 6.5 - 9.5 standard units. It is anticipated that a mixing zone will not be authorized for the water quality-based criterion for pH. Therefore, this criterion must be met before the effluent is discharged to the receiving water. The technology-based effluent limits for pH are 6.0 - 9.0 standard units, and also must be met before the effluent is discharged to the receiving water. To ensure that both water quality-based requirements and technology-based requirements are met, the draft permit incorporates the lower range of the water quality standards (6.5 standard units) and the upper range of the technology-based limits (9.0 standard units).

(f) **Dissolved Oxygen (D.O.)**

Jim Ford Creek is listed as water quality limited for dissolved oxygen (D.O.), and the Idaho 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. The Jim Ford Creek TMDL addressed D.O. by establishing wasteload allocations for total phosphorous and providing for implementation of the TMDL using best management practices to reduce phosphorus in the creek. Therefore, a water quality-based effluent limit has not been proposed for dissolved oxygen.

(g) **Temperature**

The Idaho Water Quality Standards require ambient water temperatures of 22°C or less with a maximum daily average of no greater than 19°C. As indicated in the TMDL, the city does not discharge during the temperature critical period of July 1 through August 15. Therefore, no temperature limit or monitoring requirements have been included in the draft permit.

(h) **Ammonia**

The Idaho Water Quality Standards contain water quality criteria to protect aquatic life against short term and long term adverse impacts from ammonia. The Jim Fork TMDL provides data indicating that ammonia levels in the creek above and below Outfall 001 are well below water quality criteria. Therefore, the TMDL did not establish wasteload allocations for ammonia and the draft permit does not include permit limits or monitoring requirements for ammonia.

(i) **Escherichia Coli (E. Coli) Bacteria**

According to the Idaho Water Quality Standards, waters designated for primary contact recreation, such as Jim Ford Creek, are not to contain E. coli bacteria significant to the public health in concentrations exceeding:

- a. A single sample of four hundred and six E. coli organisms per one hundred ml; or
- b. A geometric mean of one hundred and twenty six E. coli organisms per one hundred ml based on a minimum of five samples taken, every three to five days, over a thirty day period.

Since the creek is listed as impaired for pathogens, it is anticipated that a mixing zone will not be authorized for bacteria, therefore, the criteria must be met before the effluent is discharged to the receiving water. The proposed water quality-based effluent limits in the permit include an instantaneous maximum limit of 406 organisms/100 ml, and an average monthly limit of 126 organisms/100 ml.

The Jim Ford Creek TMDL also established a wasteload allocation of 50 colonies/100 ml for fecal coliform during May through September. This allocation has been included in the draft permit as a weekly average limit.

(j) **Total Residual Chlorine**

The acute and chronic water quality criteria for total residual chlorine (TRC) are 0.019 ug/L and 0.011 ug/L, respectively (IDAPA 16.01.02.250.01.c.i and ii). Because there are no other sources of chlorine in the vicinity of the discharge and chlorine dissipates rapidly in water, the concentration upstream of Outfall 001 is assumed to be zero. Idaho Water Quality Standards provide that a mixing zone cannot exceed 25 percent of the stream volume. Typically, EPA uses the 7Q10 and 1Q10 flows to calculate a mixing zone. However, Jim Ford is intermittent at

the discharge point, i.e., the 7Q10 and 1Q10 flows are zero. Instead, the permit provides a 50:1 minimum dilution requirement. Assuming that 25 percent of this minimum dilution is available as a mixing zone, the water quality-based limits would be 74 ug/L (monthly average) and 260 µg/L (daily maximum). See Appendix D for details on the derivation of the permit limits. DMR data for 1995-2000 include a number levels above these criteria (up to 300 ug/L). Therefore, there is a reasonable potential of exceedance of the water quality-based limits and they have been included in the draft permit.