

# FACT SHEET

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

Chiquita Processed Foods  
25 North 6<sup>th</sup> Street  
Payette, Idaho 83661

Permit Number: ID-000021-3  
Public Notice start date: July 18, 2001  
Public Notice expiration date: September 4, 2001

## **Technical Contact**

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

EPA proposes to reissue an NPDES permit to Chiquita Processed Foods. The draft permit places conditions on the discharge of pollutants from the facility 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, public hearing, and appeal procedures
- a description of the current discharge
- a listing of proposed effluent limitations and other conditions
- a map showing the location of the discharge
- 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 Chiquita Processed Foods, under section 401 of the Clean Water Act.

## **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) 1445 N. Orchard, Boise, Idaho 83706-2239. 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) 553-1774 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

Chiquita Processed Foods  
NPDES Permit No.: ID-000021-3

Facility Mailing Address:  
25 North 6<sup>th</sup> Street  
Payette, Idaho 83661

## II. FACILITY INFORMATION

### A. Treatment Plant Description

Chiquita Processed Foods owns and operates a facility that processes and cans various meat and bean products such as chili, hash, refried beans, stews, and soups. Corn is no longer processed at the facility. All process wastewater is discharged to the City of Payette POTW. Therefore, effluent limitation guidelines as found in 40 CFR Part 432 (Meat Products) and 40 CFR Part 407 (Canned Fruits & Vegetables) do not apply to the discharge of once-through non-contact cooling water from this facility.

Once processed foods are canned they are heated by steam in retorts and then cooled with non-contact cooling water. The cooling water is discharged to the Payette River at River Mile 1. The cooling water is treated with sodium hypochlorite for bacteria control to meet Food and Drug Administration (FDA) requirements.

### B. Background Information

The NPDES permit for this facility expired on December 31, 1978. 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. American Fine Foods, the former owner of the facility, filed a renewal application that was received by EPA on June 19, 1985. Chiquita Processed Foods subsequently filed a General Form 1 and NPDES Form 2E that was submitted to EPA on July 14, 2000. This updated application was requested by EPA on May 26, 2000. A review of the facility's Discharge Monitoring Reports<sup>1</sup> shows that the facility generally has been in compliance with the terms and conditions of the existing permit.

## III. RECEIVING WATER

### A. Outfall Location/ Receiving Water

The treated effluent from Chiquita Processed Foods is discharged from Outfall 001, located at latitude 44° 04' 21" and longitude 116° 56' 29", to the Payette River at approximately River Mile 1.

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<sup>1</sup> Discharge monitoring reports are forms that the facility uses to report the results of monitoring the facility has done in compliance with their NPDES permit.

Flow information was available from USGS Station No. 1325100 to determine the 1Q10 or the 7Q10<sup>2</sup> flows at Payette. The 1Q10 and 7Q10 for the Payette River at this location are 258 cubic feet per second (cfs) and 325 cfs, respectively, as calculated using Hydrotec. Therefore, these flows will be used to determine if water quality based effluent limitations are required for this discharge.

B. Water Quality Standards

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

1. The Idaho *Water Quality Standards and Wastewater Treatment Requirements* (.01.02.140.16.) protect the Payette River (SW-1, Payette River, Black Canyon Reservoir Dam to mouth) for the following beneficial use classifications: domestic water supply, cold water biota, salmonid spawning, and primary contact recreation.

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

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

The mid-point of the Snake River is the boundary between the states of Idaho and Oregon. Since the Chiquita Processed Foods facility discharges to the Payette River at river mile 1, it is possible that the effluent discharged from the facility may affect the water quality of Snake River in Oregon State. Therefore, Oregon State water quality standards must be considered when developing effluent limits.

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

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<sup>2</sup> The 1Q10 represents the lowest daily flow that is expected to occur once in ten years. The 7Q10 represents the lowest 7 day average flow that is expected to occur once in ten years.

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

C. Water Quality Limited Segment

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

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

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

IV. EFFLUENT LIMITATIONS

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

- A. The pH range must be between 6.5 - 9.0 standard units.

- B. There must be no discharge of floating solids or visible foam other than in trace amounts.
- C. Table 1, below, presents the proposed effluent limits for BOD<sub>5</sub> and TSS. The BOD<sub>5</sub> and TSS concentration and mass limits are continued from the existing permit. The BOD<sub>5</sub> and TSS mass limits are established based on a facility daily average flow of 0.3 mgd. A water quality-based total residual chlorine limit has been included in the permit since sodium hypochlorite is added to the cooling water for bacteria control.

Table 1: Monthly, Weekly and Daily Effluent Limitations

PARAMETER	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit	Sample Location <sup>1</sup>	Sample Frequency	Sample Type
Flow, MGD	Report	---	Report	Effluent	1/month	Instantaneous
Biochemical Oxygen Demand (BOD <sub>5</sub> )	10 mg/l	15 mg/l	---	Effluent	1/month	grab
	25 lb/day	40 lb/day	---			
Total Suspended Solids	20 mg/l	30 mg/l	---	Effluent	1/month	grab
	50 lb/day	75 lb/day	---			
Total Residual Chlorine <sup>2</sup>	1.3 mg/l	---	3.3 mg/l	Effluent	1/week	grab
	2.5 lb/day	---	6.4 lb/day			
Dissolved Oxygen, mg/L	---	---	Report minimum	Effluent	1/month	grab
Total Phosphorus, mg/L	---	---	Report	Effluent	1/month	grab-composite
Ortho-phosphorus, mg/L	---	---	Report	Effluent	1/month	grab-composite
Total Ammonia as N, mg/L	---	---	Report	Effluent	1/month	grab-composite
Total Kjeldahl Nitrogen, mg/L	---	---	Report	Effluent	1/month	grab-composite
Nitrate-Nitrite, mg/L	---	---	Report	Effluent	1/month	grab-composite
Temperature, °C	---	---	Report	Effluent	1/month	grab
pH, standard units	---	---	Report	Effluent	1/month	grab
Mercury, ug/L <sup>4</sup>	---	---	Report	Effluent	1/month	grab-composite

PARAMETER	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit	Sample Location <sup>1</sup>	Sample Frequency	Sample Type
1	Effluent sampling shall occur prior to discharge to receiving water.					
2	Reporting is required within 24 hours if the maximum daily limit is violated.					
3	Monitoring must continue for two years from the effective date of the permit.					
4	Mercury must be analyzed as total. Analytical methods which achieve a method detection limit of at least 0.001 ug/L must be used. Monitoring shall continue for one year from the effective date of the permit.					

## 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 data for future effluent limitations or to monitor effluent impacts on receiving water quality. The Permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports to EPA. Table 1 above presents the proposed effluent monitoring requirements.

Monitoring for nitrate-nitrite, total kjeldahl nitrogen, and total phosphorus have been included in the draft permit to support the development of the TMDL for the Payette River. Monitoring for mercury is to support future development of a TMDL in the Snake River for mercury, based on Oregon water quality standards. Table 2 describes the surface water monitoring requirements. Because the facility has not previously conducted surface water monitoring, the permit proposes to require the surface water monitoring (except for mercury) for two years. Mercury monitoring will only be required for one year.

Parameter	Sample Type	Upstream Sampling Frequency <sup>1</sup>	Downstream Sampling Frequency <sup>1</sup>	Method Detection Limit (MDL)
Flow, mgd	Recording	1/month	----	----
BOD <sub>5</sub> , mg/L	grab-composite	1/month	----	----
TSS, mg/L	grab-composite	1/month	----	----
Dissolved Oxygen, mg/L	grab	1/month	1/month	----
Total Phosphorus, mg/L	grab-composite	1/month	1/month	----
Ortho-phosphorus, mg/L	grab-composite	1/month	1/month	----
Total Ammonia as N, mg/L	grab-composite	1/month	1/month	----
Total Kjeldahl Nitrogen, mg/L	grab-composite	1/month	1/month	----
Nitrate-Nitrite, mg/L	grab-composite	1/month	1/month	----
Temperature, °C	grab	1/month	1/month	----

<b>Table 2. Surface Water Monitoring Parameter, Locations, and Method Detection Limits</b>				
Parameter	Sample Type	Upstream Sampling Frequency <sup>1</sup>	Downstream Sampling Frequency <sup>1</sup>	Method Detection Limit (MDL)
pH, standard units	grab	1/month	1/month	-----
Mercury, : g/L	grab-composite	1/month	1/month <sup>2</sup>	0.001µg/L
1	Sampling is required for two years.			
2	Sampling is required for one year. Mercury must be analyzed as total.			

## VI. OTHER PERMIT CONDITIONS

### A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the Permittee to develop and implement 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 completion of the plan to EPA. 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. 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.

## VII. OTHER LEGAL REQUIREMENTS

### A. Endangered Species Act

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

Issuance of an NPDES permit for Chiquita Processed Foods once-through non-contact cooling water discharges will not result in habitat destruction, nor will it result in changes in population that could result in increased habitat destruction for

any threatened or endangered species that may occur 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

### 1. Water Quality Criteria

For Chiquita Processed Foods discharge, the following water quality criteria are necessary for the protection of the beneficial uses of the Payette River:

- a. .01.02.200.02 - Surface waters of the State must be free from toxic substances in concentrations that impair designated beneficial uses. Furthermore, .01.02.210.01 incorporates the National Toxics Rule by reference as found in 40 CFR 131.36(b)(1) that includes numeric criteria for toxic substances.
- b. .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. .01.02.250.01.a. - Hydrogen ion concentration (pH) values within the range of 6.5 to 9.5 standard units.
- d. .01.02.250.01 c. – The one-hour average total residual chlorine concentration must not exceed 19 ug/L, and the four-day average total residual chlorine concentration must not exceed 11 ug/L.
- e. .01.02.250.02.b. – Water temperatures of 22 degrees C or less with a maximum daily average of no greater than 19 degrees C.

### 2. Anti-Degradation Policy

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

- a. **Tier 1 – Maintenance of Existing Uses for all Waters** - The existing in stream uses and the level of water quality necessary to protect the existing uses must be maintained and protected.
- b. **Tier 2 – High Quality Water** – Where the quality of the water exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality must be maintained and protected unless the Department finds, after full satisfaction on the intergovernmental coordination and public participation provisions of the Department’s continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Department must assure water quality adequate to protect existing uses fully.
- c. **Tier 3 - Outstanding Resource Waters** – Where high quality waters constitute an outstanding natural resource, such as waters of national and state parks and wildlife refuges, and waters of exceptional recreational or ecological significance,

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

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

## APPENDIX B - BASIS FOR EFFLUENT LIMITATIONS

The CWA requires dischargers to meet performance-based requirements (also known as technology based effluent limits). 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.

### 1. Technology-Based Effluent Limitations

- a. Effluent limitation guidelines as found in 40 CFR Part 432 (Meat Products) and 40 CFR Part 407 (Canned Fruits & Vegetables) do not apply since all process wastewater is discharged to the City of Payette POTW. The BOD<sub>5</sub> and TSS concentration and mass limitations are continued from the existing permit.

### 2. 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.

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

i. 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.

(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.

c. Water Quality-Based Effluent Limits

i. Toxic Substances

The Idaho water quality standards require surface waters of the state to be free from toxic substances in concentration that impair designated uses. This application was not screened against the toxic substances found in the National Toxics Rule since Chiquita Processed Foods discharges only once-through non-contact cooling water.

ii. Floating, Suspended or Submerged Matter

The Idaho water quality standards require surface waters of the state to be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses. Therefore, the draft permit specifies that there must be no discharge of floating solids or visible foam in other than trace amounts.

iii. Total Residual Chlorine

Water quality based TRC effluent limits have been calculated and included in the proposed permit. The average monthly limit is 1.3 mg/L and the maximum daily limit is 3.3 mg/L.

iv. pH

The pH values are continued from the existing permit and must be within the range of 6.5 – 9.0 standard units at any time. These limits are the most stringent of the water quality criteria for pH (6.5 to 9.5) and the technology-based limits of 6.0 to 9.0.

v. Temperature

The temperature of the discharge must not exceed 100 degrees F as continued from the existing permit. No data is available to indicate whether or not this effluent limit is protective of the water quality criteria for temperature. For that reason, the permit has included surface water monitoring for temperature.

d. 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.

i. 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:

$$Q_d C_d = Q_e C_e + Q_u C_u$$

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 average flow = 0.23 mgd  
 $C_e$  = concentration of pollutant in effluent =  $WLA_{acute}$  or  $WLA_{chronic}$   
 $Q_u$  = upstream flow = 168 mgd (1Q10)  
 $C_u$  = upstream background concentration of pollutant = 0 (no data available therefore, assume there is no background concentration)

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

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

when a mixing zone is allowed, this equation becomes:

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

where, %MZ is the mixing zone<sup>3</sup> allowable by the state standards. The Idaho water quality standards at .01.02060 allow twenty-five percent (25%) of the receiving water to be used for dilution for aquatic life criteria. The effluent limits have been derived using Idaho's guidelines for mixing zone. However, establishing a mixing zone is a State discretionary function, if the State does not certify a mixing zone in the 401 certification process the effluent limits will be recalculated without a mixing zone.

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

$$= \frac{19(168 \times .25) + (19 \times 0.23) - 168 \times 0 (.25)}{0.23} = 3489 : \text{g/L}$$

$$WLA_{chronic} = \frac{11(168 \times .25) + (11 \times 0.23) - 162 \times 0 (.25)}{0.23} = 2020 : \text{g/L}$$

### Step 2 - Determine the LTA

The acute and chronic WLAs are then converted to Long Term Average concentrations (LTA<sub>acute</sub> and LTA<sub>chronic</sub>) using the following equations:

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

where,

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

z = 2.326 for 99<sup>th</sup> percentile probability basis

CV = coefficient of variation = 0.6 (Assumed)

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

where,

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

z = 2.326 for 99<sup>th</sup> percentile probability basis

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

Calculate the LTA<sub>acute</sub> and the LTA<sub>chronic</sub> :

$$LTA_{acute} = 1120 : \text{g/L}$$

$$LTA_{chronic} = 1065 : \text{g/L}$$

### Step 3

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

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<sup>3</sup> 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.

#### Step 4 - Determine the Permit Limits

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

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

where,

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

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

$$\text{CV} = 0.6$$

$$\text{MDL} = \mathbf{3318 : g/L}$$

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

where,

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

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

$$\text{CV} = \text{coefficient of variation} = \text{standard deviation/mean}$$

$$n = \text{number of sampling events required per month for chlorine} = 20$$

$$\text{AML} = \mathbf{1315 : g/L}$$

#### 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:

$$\text{AML} = (\text{AML Concentration})(\text{Design Flow Rate})(\text{Conversion Factor})$$

where:

$$\text{Monthly Concentration Limit} = 1.3 \text{ mg/L}$$

$$\text{Design Flow Rate} = 0.23 \text{ mgd}$$

$$\text{Conversion Factor} = 8.34$$

$$\text{AML} = \mathbf{2.5 \text{ lbs/day}}$$

$$\text{MDL} = (\text{MDL Concentration})(\text{Design Flow Rate}) (\text{Conversion Factor})$$

where:

$$\text{Daily Maximum Concentration} = 3.3 \text{ mg/L}$$

$$\text{MDL} = \mathbf{6.4 \text{ lbs/day}}$$

## 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 City of Emmett, Payette River Facility, 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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