

## **STATEMENT OF BASIS**

### **Devils Lake Outlet ND-0026247**

#### **Reissuance**

The present permit issued to this facility expires June 30, 2008. The reapplication is for an intermittent discharge of surface water diverted from the West Bay of Devils Lake (Round Lake) to the Sheyenne River, a Class IA stream. The discharge from the diversion system enters the Sheyenne in the SW ¼ of the SE ¼, Section 8, Township 151N, Range 68W.

Included with the reapplication was a request for clarification on select items in the NDPDES permit. The request included: (a) updates to the description of the intake structure screen and gravel filter, (b) to allow for water quality values at the outlet from the previous day be subtracted from the values at Bremen and (c) to consider increases to the sulfate constraint (see request for clarification section). The statement of basis and permit also includes updated EPA boiler plate language and minor editing for clarification.

## **HISTORY**

The Devils Lake Basin has received above normal precipitation since 1993. This has resulted in a 25-foot rise in lake elevation. To address the flooding concerns, federal, state, and local officials have implemented a three-pronged approach consisting of basin water management, infrastructure protection, and an outlet to the Sheyenne River.

The Department of Health (Department) received an application for a NDPDES permit from the State Water Commission. On April 14, 2003, the Department gave notice of a hearing seeking comment and testimony concerning a proposed NDPDES permit pursuant to the Devils Lake outlet project in Benson County, North Dakota. Two public hearings were conducted to receive comment and testimony, one was held on May 20, 2003 at the Lake Region State College Auditorium, Devils Lake, N.D. and the other on May 21, 2003 at the Valley City State University Vangstad Auditorium, Valley City, N.D. The record of the hearing remained open for written comments on the proposed NDPDES permit through May 28, 2003. Public comments both supporting and opposing the Devils Lake outlet permit were presented. The major issues identified in the hearing record related to water quantity/quality impacts on the Sheyenne River and Devils Lake; upper basin storage; biota transfer and economic viability of the project. All comments in the record were evaluated by Department personnel for applicability to the proposed permit with a written response provided.

Having considered the comments and testimony submitted to the record the Department of Health issued the NDPDES permit in 2003 for the Devils Lake Outlet. The newly issued permit came under scrutiny by several entities including Environment Canada, the Province of Manitoba, Minnesota Department of Natural Resources, Minnesota Chapter of American Fisheries Society, and the People to Save the Sheyenne River. The NDPDES permit was challenged in State District Court and appealed to the State Supreme Court in 2004. Both courts ruled that the NDDH followed appropriate procedures in issuing the permit. Construction moved forward on the Devils Lake Outlet and was operational in the fall of 2004.

On May 12, 2006, the Department received a request from the State Water Commission (SWC) for a modification to North Dakota Pollutant Discharge Elimination System (NDPDES) permit ND-0026247. Included with the request was a March 22, 2006, document titled "Sources and Processes Affecting

Dissolved Sulfate Concentrations in the Upper Sheyenne River”, which presents trends and recent water quality monitoring data in the upper Sheyenne River. This monitoring indicates that natural background sulfate concentrations in the river are increasing. The modification request was to remove the time frame (specific months per year) the outlet could be operated, remove or revise the total suspended solids (TSS) limit in the permit and increase the 300 milligrams per liter (mg/l) instream sulfate limit at the Bremen site. According to state and federal rules, only the conditions subject to modification are reopened in the permit when it is modified (CFR 122.62 Modification or Revocation and Reissuance of Permits).

The modified NDPDES permit was issued in 2007 and challenged in State District Court and State Supreme Court. The district court ruled that the NDDH followed appropriate procedures in modifying the permit. The State Supreme Court ruled that the Health Department followed appropriate procedures on antidegradation requirements and modification of the sulfate limitation in the permit. The court also ruled by a 3 to 2 decision that affirmed the Department followed appropriate procedures in the modification to the period of operation. However, the court reversed the decision to modify the TSS standard.

## **BACKGROUND**

The outlet project operates during the open-water season (non-ice conditions). Actual outlet operation is dependent on the water quality of the West Bay and the water quality and volume of the base flow in the Sheyenne River. In addition, a minimum operating level has been established where no discharge will occur if the water level of Devils Lake falls below the 1445-foot elevation msl.

The outlet is operated to discharge at a maximum of 100 cubic feet per second (cfs), and not to exceed the Sheyenne River channel capacity of 600 cfs. Gauging stations measuring stream flow and specific conductance (conductivity) are upstream (Flora) and downstream (Bremen) of the discharge to provide continuous monitoring of the river conditions. Specific conductance meters are also located at several other sites (gage stations) along the Sheyenne and Red Rivers to monitor river conditions.

Any discharge from this project is managed so as not to exceed the 300 mg/l sulfate limit when natural background sulfate concentrations in the river are less than 260 mg/l. When the ambient concentration of sulfate in the river is equal to or greater than 260 mg/l, then a concentration not to exceed 15 percent above this level is allowed. However, the discharge from the outlet shall not cause the sulfate concentration at Bremen to exceed 450 mg/l. North Dakota’s water quality standard for sulfate is 450 mg/l in the Sheyenne River and 250 mg/l in the Red River.

Based on the North Dakota 2006 Integrated Section 305(b) Water Quality Assessment Report and Section 303(d) List of Waters Needing Total Maximum Daily Loads, Lake Ashtabula and several reaches of the Sheyenne River are listed as water quality impaired. The Sheyenne River empties into Lake Ashtabula north of Valley City. Lake Ashtabula is not currently supporting the designated use of recreation. There are segments of the Sheyenne River designated as fully supporting but threatened for aquatic life use due to sedimentation and siltation and other segments listed as threatened or not supporting recreational use due to total fecal coliform bacteria.

[http://www.health.state.nd.us/WQ/SW/A\\_Publications.htm](http://www.health.state.nd.us/WQ/SW/A_Publications.htm)

There presently are no federal effluent guidelines and standards for wastewater discharges from surface water bodies. However, the limitations for this project are appropriate, based on the Standards of Water Quality for the State of North Dakota and the Department of Health’s best professional judgment. The NDPDES permit and Process Control Monitoring Plan requirements will be used to address compliance issues, verify concentrations of water quality parameters, and confirm that the state

water quality standards on the Sheyenne and Red Rivers are not exceeded. (Note: Since this permit was originally issued in 2003, EPA published a proposed rule exempting water-to-water transfers from NDPDES permitting. EPA is presently compiling all comments prior to final rule promulgation).

## REQUEST FOR CLARIFICATION

In the reapplication process for the Devils Lake Outlet, the permittee requested clarification on specific items in the permit. The first part of the request relates to the discharge point description. The permittee requested removal of the following: *"The intake must be fitted with a screen system of sufficient mesh and size to preclude the uptake or transfer of adult fish species."* and replace with *"(1) the intake structure must have a ¼ inch by ¼ inch screen; (2) intake pipe joint to be wrapped with geotextile, and (3) drain holes at bottom of intake to be covered with perforated iron plates. In addition, a ¼ inch by ¼ inch screen has to be installed on the transition structure directly downstream of the gravel filter."*

The screen size on the intake structure is 2 inch by ¼ inch; however, a ¼ inch by ¼ inch screen has been placed over the original screen. The intent of having a screen on the intake was to protect the fishery of Devils Lake from unnecessary and easily avoidable losses and minimize the potential for damage to pumps. The original intake screen meets or exceeds the intended purpose. Power producing facilities commonly use a 3/8 inch by 3/8 inch size screen to meet the Federal/state regulations regarding cooling water intake structures.

The second part of the request relates to Part I.A.4. of the NDPDES permit (sulfate equation). The request was to use water quality values from the previous day (outlet samples) be subtracted from the values at Bremen. We understand that during low flow conditions in Sheyenne River, the travel time increases from the outlet to the compliance point at Bremen. The equation in this section of the permit takes into account the variability of sulfate and travel time constraints. A condition of the permit requires the initial sampling frequency for sulfate shall be 5 times per week. After the outlet has operated for a period of one year, the sampling frequency shall be reevaluated and could be adjusted upon notification of the Department. Based on the above, the request to use water quality values from the previous day at the outlet be subtracted from the values at Bremen is denied. The sulfate equation in Part I.A.4 that was established in the permit modification will remain the same.

The last item in the request asks the Department to consider increasing the sulfate constraint of 450 mg/l. During the past several years, it has been documented that natural background conditions in the Sheyenne River can exceed the sulfate standard of 450 mg/l. Allowing additional sulfate from the outlet into the river above the 15 percent above background would require a full antidegradation review. In addition, the Department can not allow additional sulfate into a receiving stream in violation the water quality standard. The sulfate constraint or limit that was established in the permit modification will remain the same.

## OUTFALL DESCRIPTION

**Outfall 001** – Active. Final Outfall. Devils Lake Outlet. This is an intermittent discharge consisting of surface water diverted from the West Bay of Devils Lake (Round Lake) to the Sheyenne River. The discharge from the diversion system enters the Sheyenne River in the SW ¼, SE ¼ Section 8, T151N, R68W.

The intake structure from the West Bay is located in the SW ¼, Section 35, T153N, R67W (also known as Round Lake). The intake structure must be fitted with a screen sufficient to protect the Devils Lake fishery from unnecessary and easily avoidable losses.

## PERMIT SUBMITTALS SUMMARY

Coverage Point	Submittal	Frequency	First Submittal Date
001A	Discharge Monitoring Report	Monthly	October 31, 2008
001W	Discharge Monitoring Report	Quarterly	October 31, 2008
Application Renewal	NPDES Application Renewal	1/permit cycle	January 1, 2013

## EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Traditionally, limits in NPDES permits are end-of-pipe limits specified for a discharge following all processes and treatment. In this case, the discharge does not result from a process but rather from another surface water body. The permit sets controls for the blending of water from Devils Lake with the Sheyenne River without violating water quality standards.

EPA proposed to exclude water transfers from regulation under the NPDES permitting program according to the June 7, 2006 Federal Register entitled "NPDES Water Transfers Proposed Rule." The Agency believes that Congress intended for water transfers to be subject to oversight by water resource management agencies and State non-NPDES authorities, rather than the NPDES permitting program. The proposed rule would define a water transfer as an activity that conveys waters of the United States to another water of the United States without subjecting the water to intervening industrial, municipal, or commercial use. This exclusion does not apply to pollutants that the water transfer itself may introduce to the water being transferred. The rules have not been finalized as of this date.

The effluent limitations in the permit for the Devils Lake outlet are dependent on conditions in the Sheyenne River. The Sheyenne River must be monitored both upstream (Flora) and downstream (Bremen) of the outlet's discharge ("insertion point") and at the outlet itself to determine compliance with the effluent limitations contained in this permit. The outlet discharge compliance monitoring shall be conducted at the canal terminal structure.

The general location of the stream monitoring stations will be as follows:

1. Upstream compliance monitoring shall be conducted at a point upstream of the outlet which is representative of river water quality prior to mixing with the effluent from the outlet system (Flora).
2. Downstream compliance monitoring shall be conducted at a point downstream of the outlet which is representative of river water quality after mixing with the effluent from the outlet system (Bremen).

Managing the flow rate of this discharge is critical for maintaining the desired downstream quality and for operating within the channel capacity of the river. The operator will have control over the flow rate and will be able to adjust the flow in response to changes in river and lake conditions. The permit identifies three flow limitations, of which the most limiting must be adhered to when managing the discharge.

The limitations and rationale are described below:

1. The flow from the outlet shall not exceed 100 cfs. This represents the capacity of the outlet described in the application and the highest outlet flow rate considered for this permit.

2. The flow from the outlet in cfs shall not exceed the value determined by:

600cfs -  $Q_i$      Where:  $Q_i$  = flow in cfs at the upstream location

The operating plan for the outlet provides that the discharge would be constrained so as not to exceed the Sheyenne River channel capacity of 600 cfs. The calculation determines the outlet flow rate based on the channel constraint.

3. When the ambient concentration of sulfate in the river at Bremen ( $C_{Bb}$ ) is equal to or greater than 260 mg/l, then a concentration not to exceed 15 percent above this calculated level at Bremen ( $C_{Bb}$ ) is allowed. However, the concentration at Bremen shall not exceed 450 mg/l.

The following equation will be used for compliance with the sulfate concentration at Bremen.

$$C_{Bb} = \frac{Q_B C_B - Q_O C_O}{Q_B - Q_O}$$

Where:  $Q_B$  = river flow in cfs measured at Bremen

$C_B$  = river sulfate in mg/l measured at Bremen

$Q_O$  = discharge flow in cfs measured at Outlet

$C_O$  = discharge sulfate in mg/l measured at Outlet

$C_{Bb}$  = sulfate concentration in mg/l at Bremen without Outlet water

During periods of outlet operation, the 7-day sulfate concentration measured in samples from the downstream location (Bremen) shall not exceed the applicable criteria as dictated by ambient conditions in the Sheyenne River. The criteria shall be as follows:

- a. 300 mg/l     when the background concentration ( $C_{Bb}$ ) is < 260 mg/l
- b.  $1.15 \times C_{Bb}$      when the background concentration ( $C_{Bb}$ ) is  $\geq 260$  mg/l and  $\leq 390$  mg/l
- c. 450 mg/l     when the background concentration ( $C_{Bb}$ ) is > 390 mg/l

The water quality standard for pH in the Sheyenne River is within the range of 7.0 to 9.0. Based on water quality records for the lake and river, the pH standard should be met. However, natural processes may cause the pH to drift outside the stated range. In the event the measured downstream pH is outside of the range, the discharge would be suspended if it were determined that the pH excursion is a result of the outlet discharge.

The permit includes a 100 mg/l limitation for total suspended solids applicable to the discharge from the outlet. The limitation has been included to ensure that the system is designed, operated and maintained to prevent excessive sediment contributions to the river. The proposed suspended solids limit is the same as that required by the Department in permits for construction and miscellaneous dewatering.

Continuous monitoring for specific conductance (conductivity) provides an immediate indication of the total dissolved solids (TDS) or salt content of water at all times. The conductivity measurements are made with direct reading instruments which can provide real time information for operating the outlet. The relationship between specific conductance and sulfate, as a component of dissolved solids, continue to be developed over time through the comparison of conductance and measured sulfate.

The minimum compliance monitoring requirements for the outlet, upstream, and downstream stations during outlet operation are specified below:

### Effluent Limitations and Monitoring Requirements for Outfall 001

Parameter	Sample Frequency	Sample Type
Total Flow, mgal	Continuous	Recorder
Sulfate <sup>a</sup>	5/week	Grab
pH <sup>b</sup>	1/week	Grab
Specific Conductance	Continuous	Recorder
Total Suspended Solids (TSS) <sup>c</sup>	Weekly	Grab
Whole Effluent Toxicity (WET) <sup>d</sup>	90 days	Grab

**Notes:**

- a. The initial sampling period for sulfate shall be daily (5 times per week). After the outlet has operated for a period of one year, the sampling frequency shall be reevaluated and could be adjusted upon notification by the Department.
- b. pH, an instantaneous limitation, shall be between 6.0 (s.u.) to 9.0 (s.u.).
- c. The permit includes a 100 mg/l limitation for total suspended solids applicable to the discharge from the outlet. The limitation has been included to ensure that the system is designed, operated and maintained to prevent excessive sediment contributions to the river. The proposed suspended solids limit is the same as that required by the Department in permits for construction and miscellaneous dewatering.
- d. Testing shall be performed on the first discharge made each calendar year. Thereafter, tests shall be performed at least once every ninety (90) days in which there is a discharge.

In addition to the compliance monitoring requirements listed above, the permittee must conduct (or otherwise secure) a downstream monitoring program at a network of sites on the Sheyenne and Red Rivers. The monitoring program is outlined under Process Control Monitoring (also included in Part II Special Conditions of the permit). The Process Control Monitoring will provide information needed to verify and refine model predictions used in designing an operating plan for the outlet. The information may also be used to adjust discharge limitations to maintain the desired water quality in the Sheyenne and Red Rivers.

River flow and water quality information collected by other agencies may be used to satisfy the compliance monitoring requirements. The collection and transportation of all samples must conform with EPA preservation techniques, holding times, and test procedures. The permittee is responsible for obtaining the data in a timely manner and including it in the discharge monitoring reports (DMRs). Should an agency providing compliance data discontinue monitoring at a location, it is the permittee's responsibility to make arrangements to continue the required monitoring.

The Department of Health may make certain adjustments to the effluent limitations and monitoring requirements described in this part without providing a public notice and comment period. Increased or additional monitoring may be required if deemed necessary to further evaluate the impact of the discharge. The Department may specify additional discharge conditions or restrictions (including temporarily limitations) to ensure established water quality standards are maintained and/or to prevent the discharge from interfering with downstream uses.

The Department must be notified, in advance, of any facility expansions, additions, or modifications to increase outlet capacity. The increase in any effluent (discharge) limitation identified in the permit, including the instream limit for sulfate, is considered a major permit modification. Major modifications require the issuance of a public notice inviting public comment.

The actual dates of discharge, frequency of analyses, total volume discharged, discharge flow rates, and the number of exceedances shall also be included on the Discharge Monitoring Reports (DMRs). A separate attachment shall be included with the DMRs, providing the sample dates and test results for sulfate, TDS, and daily flow rates (upstream, downstream, and discharge).

## **ANTIDEGRADATION**

Based on the established antidegradation policy and the Water Quality Standards, it was determined that a formal review was not required for the re-issuance of this NDPDES permit.

## **PROCESS CONTROL MONITORING**

The discharge will be constrained so as not to exceed 100 cfs, a combined maximum flow of 600 cfs, and the weekly sulfate concentration measured in samples from the downstream location (Bremen) shall not exceed the applicable criteria as dictated by ambient conditions in the Sheyenne River. The permit limits the operation of the outlet to the open-water season, non-ice conditions in the receiving stream. In addition, a minimum operating level is established where no discharge will occur if the water level of Devils Lake falls below the 1445-foot elevation msl.

Three water quality monitoring sites are established to ensure the discharge is in compliance with permit conditions. Monitoring is required at the outlet, upstream of the outlet on the Sheyenne River, and downstream of the outlet on the Sheyenne River following mixing. Flow and conductivity will be measured continuously at all three sites.

The permittee must adjust the discharge rate, based on calculations estimating the blended sulfate concentrations from upstream flow and conductivity measurements. The downstream site will be used to validate calculations and enforce permit requirements. Conductivity can be used to estimate TDS concentrations, and sulfate concentrations can be estimated as a percent of TDS. Therefore, estimates of sulfate concentrations can be determined almost instantaneously. Daily sulfate sampling and analysis is required to calibrate the calculations.

An extensive monitoring network exists along the Sheyenne and Red Rivers. Monitoring sites are operated by the Department of Health and the U.S. Geological Survey.

The state of North Dakota established a Devils Lake Outlet Management Committee in October 1, 1997. The committee's purpose is to develop an annual plan for the operation of the project. The committee is comprised of: (1) three governor-appointed members representing downstream interests impacted by a Devils Lake outlet, (2) one member appointed by the Red River Joint Water Resource Board, (3) one member appointed by the Devils Lake Joint Water Resource Board, (4) one county commissioner from Ramsey County, (5) one county commissioner from Benson County, (6) one representative of the Spirit Lake Nation, and (7) the State Engineer or designee.

## **PARAMETERS AND LOCATIONS**

The purpose of this monitoring is to regulate and/or adjust the discharge rate to ensure that the desire to manage Devils Lake levels is balanced by the protection of water quality and the beneficial uses of the Sheyenne and Red Rivers. Monitoring will also be used to refine the HEC-5Q Model and to interpret significant changes in biological and physical characteristics.

The Department may consider requests for less frequent monitoring. Less frequent monitoring may be granted when the accumulated test data for the parameter is consistent and at a level which would not

result in a violation of an established water quality standard. A reduction in monitoring frequency for a parameter may also be considered if a satisfactory relationship between the parameter and an alternate test can be demonstrated.

1. Devils Lake Outlet

The sampling location will be at the canal terminal structure.

Table: Devils Lake Outlet Monitoring Requirements	
Parameters	Sampling Frequency
Temperature	Continuous
Specific Conductance	Continuous
pH	1/day
TDS & Major Ions <sup>a</sup>	1/week
Ammonia	2/month <sup>b</sup>
Nitrate/Nitrite	2/month <sup>b</sup>
Total Kjeldahl Nitrogen	2/month <sup>b</sup>
Total Phosphorus	2/month <sup>b</sup>
Dissolved Phosphorus	2/month <sup>b</sup>
Suspended Solids	2/month <sup>b</sup>
Trace Metals <sup>a</sup>	1/month
a. Refer to Table: Water Chemistry Groupings	
b. Take a grab sample every other week.	

2. Sheyenne River Upstream of the Devils Lake Discharge (Flora)

The upstream compliance monitoring shall be conducted at a point upstream of the outlet which is representative of river quality prior to mixing with the effluent from the outlet system. Parameters and sampling frequency are the same as for No. 1 (above).

3. Sheyenne River Downstream of Discharge (Bremen)

The downstream compliance monitoring shall be conducted at a point downstream of the outlet which is representative of river quality after mixing with the effluent from the outlet system. Parameters and sampling frequency are the same as for No. 1 (above).

4. Sheyenne River Near Cooperstown, ND

Table: Sheyenne River Monitoring Requirements	
Parameters	Sampling Frequency
Stream Flow	Continuous
Specific Conductance	Continuous
TDS & Major Ions <sup>a</sup>	1/week
Ammonia	2/month <sup>b</sup>
Nitrate/Nitrite	2/month <sup>b</sup>
Dissolved Phosphorus	2/month <sup>b</sup>



Table: Sheyenne River Monitoring Requirements	
Parameters	Sampling Frequency
Suspended Solids	2/month <sup>b</sup>
Trace Metals <sup>a</sup>	1/month
a. Refer to Table: Water Chemistry Groupings	
b. Take a grab sample every other week.	

5. Sheyenne River Near Valley City, ND  
Parameters and sampling frequency are the same as for No. 4.

6. Sheyenne River Above Diversion Near Horace, ND  
Parameters and sampling frequency are the same as for No. 4.

7. Red River Above the Confluence of the Sheyenne River Near Harwood, ND

Table: Red River of the North Monitoring Requirements	
Parameters	Sampling Frequency
Flow	Continuous
Specific Conductance	Continuous
TDS & Major Ions <sup>a</sup>	1/week
a. Refer to Table: Water Chemistry Groupings	

8. Red River at Halstad, MN  
Parameters and sampling frequency are the same as for No. 7.

9. Red River at Pembina, ND  
Parameters and sampling frequency are the same as for No. 7.

10. The ecological condition of the Sheyenne River will be determined through a biological assessment of the river within four stream reaches. One assessment reach should be located upstream from the outlet, one downstream of the outlet (approximately 1 mile), one just upstream from Lake Ashtabula, and one near the river's confluence with the Red River of the North. Three sites will be sampled within each reach as a measure of spatial variability. The site located upstream of the outlet will be sampled the same time the downstream reaches are sampled to provide a measure of temporal variability. The biological assessment will consist of three biological assemblages (macroinvertebrates, fish, and periphyton) and a physical habitat assessment. At the same time these samples are collected, a grab water sample will be collected for chemical analysis. Field procedures should follow those used by the U.S. Environmental Protection Agency's Environmental Monitoring and Assessment Program for the Western States (EMAP Western Pilot).

An initial assessment was completed by the permit holder prior to the operation of the outlet. Subsequent assessments will be completed on a periodic basis deemed appropriate by the Department.

11. Adaptive Management Plan (AMP). The criteria for establishing and implementing the adaptive management plan as developed should ensure compliance with permit requirements and maintenance of beneficial uses of the water resources downstream. The plan should outline the basic procedures for evaluating monitoring data, responding to observed impacts to downstream water resources, and adjusting the operation discharge as needed.

The adaptive management plan has been submitted and approved by the Department.

## WATER CHEMISTRY GROUPS

Table: Water Chemistry Groupings		
TDS and Major Ions consist of the following parameters:		
Bicarbonate	Calcium	Carbonate
Chloride	Conductivity	Fluoride
Iron	Magnesium	Manganese
Nitrate	Percent sodium	pH
Potassium	Sodium	Sodium absorption ratio
Sulfate	Total alkalinity	Total dissolved solids
Total hardness	Turbidity	
Trace Metals consist of the following parameters:		
Aluminum	Antimony	Arsenic
Barium	Beryllium	Boron
Cadmium	Chromium	Copper
Lead	Nickel	Selenium
Silver	Thallium	Zinc

## WHOLE EFFLUENT TOXICITY (WET) REQUIREMENTS

### Acute Toxicity Testing

Wet tests shall be performed on the first discharge made each calendar year, unless specifically waived by the Department. Thereafter, tests shall be performed at least once every ninety (90) days in which there is a discharge.

Acute test failure (LC50) is defined as lethality to 50% or more of the test organisms exposed to 100% effluent for *Ceriodaphnia dubia*. 48 hour and fathead minnow 96 hour test. The 48 hour and 96 hour LC50 effluent value must be >100% to indicate a passing test. Any 48 hour or 96 hour LC50 effluent value of 100% or less will constitute a failure. Tests in which the control survival is less than 90% are invalid and must be repeated.

Table: Acute WET requirements for Outfall 001						
Effluent Dilution	0%(Control)	12.5%	25%	50%	75%	100%
Species and	<i>Ceriodaphnia dubia</i> - 48 Hour Acute - Static Renewal					
Test Type	Fathead Minnow - 96 Hour Acute - Static Renewal					
Endpoint	LC50					

If acute toxicity occurs in a routine test, an additional test shall be conducted within four weeks of the date of the initial sample. Should acute toxicity occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of Part I.D ("Toxicity Reduction Evaluation (TRE)") shall be determined by the Department. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge.

The permittee shall report the following results of each toxicity test on the quarterly DMR for that reporting period:

*Pimephales promelas* (Fathead Minnow)

- a. If the lowest Fathead minnow test value for % effluent is less than >100% in 100% effluent, enter a "1"; otherwise, enter a "0" for Parameter No. TGN6C.
- b. Report the lowest % effluent LC50 for Fathead minnow, Parameter No. TAB6C.

*Ceriodaphnia dubia* (Water Flea)

- a. If the lowest *Ceriodaphnia dubia* test value for % effluent is less than >100% in 100% effluent, enter a "1"; otherwise, enter a "0" for Parameter No. TGM3B.
- b. Report the lowest % effluent LC50 for *Ceriodaphnia dubia*, Parameter No. TAA3B.

The static replacement toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms," EPA-821-R-02-0012 (Fifth Ed., October 2002) and the "Region VIII EPA NPDES Acute Test Conditions-Static Renewal Whole Effluent Toxicity Tests." In the case of conflicts, the Region VIII document will prevail. The permittee shall conduct an acute 48-hour static toxicity test using freshwater fleas, *Ceriodaphnia dubia* and an acute 96-hour static replacement toxicity test using fathead minnows, *Pimephales promelas*.

Chronic Toxicity Testing

No chronic toxicity limits are imposed on this permit. Therefore, the permittee is not required to monitor or test for chronic toxicity.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," EPA-600-4-91-002, and the "Region VIII EPA NPDES Chronic Test Conditions-Static Renewal Whole Effluent Toxicity Tests." In case of conflicts, the Region VIII document will prevail. Test species shall consist of freshwater fleas, *Ceriodaphnia dubia* and fathead minnow, *Pimephales promelas*.

Reduced Monitoring (Only Applies to Acute WET Testing)

If the results of a minimum of four consecutive samples taken over at least a 12 month period indicate no acute toxicity, the permittee may request the Department to allow a reduction to quarterly acute toxicity testing on only one species. The Department may approve or deny the request, based on the biomonitoring results and other available information. If the request is approved, the test procedures are to be the same as specified above for test species.

Reporting Requirements

Test results shall be submitted with the DMR for each reporting period. The format for the report shall be consistent with the latest revision of the "Region VIII Guidance for Acute Whole Effluent Reporting" and shall include all chemical and physical data as specified for the tests.

## Toxicity Reduction Evaluation (TRE)

If toxicity is detected, and it is determined by the Department that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

If the TRE establishes that the toxicity cannot be eliminated by the current treatment system, the permittee shall submit a proposed compliance plan to the Department. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Department, this permit may be reopened and modified.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations or proper discharge management as approved by the Department, the permittee may:

- a. Submit an alternative control program for compliance with the numerical requirements; or
- b. If necessary, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

If acceptable to the Department, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Department, and/or a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the Department, shall in no way relieve the permittee from maintaining compliance with the whole effluent toxicity requirements of this permit.

## **EXPIRATION DATE**

The recommended expiration date for this permit is June 30, 2013.

GB/ (04/12/08)