



Gouveia, Susan

From: Lashway, Lisa
Sent: Monday, August 18, 2014 9:58 AM
To: Canning, Sean; Gouveia, Susan; Quinn, Tim
Subject: FW: Musconetcong Sewerage Authority, NJ0027821
Attachments: draft musconetcong.pdf

Lisa Lashway
Mt. Olive Twp. Clerk
973-691-0900 Ext. 7291
FAX 973-691-2080
PO Box 450
Budd Lake, NJ 07828

From: Robert Hall [mailto:Robert.Hall@dep.nj.gov]
Sent: Monday, August 18, 2014 9:17 AM
To: Lashway, Lisa
Subject: FW: Musconetcong Sewerage Authority, NJ0027821

FYI..please find attached a draft NJPDES permit issued for a facility in your township.

From: Susan Rosenwinkel
Sent: Tuesday, August 12, 2014 5:32 PM
To: Susan Rosenwinkel
Cc: Beth@musconetcong.org; Josilo.Michelle@epamail.epa.gov; Rich Paull; Robert Hall; jschilling@msa-nj.org; Scatton, Joan; Marzooq Alebus
Subject: Musconetcong Sewerage Authority, NJ0027821

Please find attached the Draft Surface Water Permit Action for the above mentioned facility as prepared by the Bureau of Surface Water Permitting. The Department has attached a PDF'd version of the draft permit to provide you an opportunity to submit any formal comments regarding the draft within 30 days of the date of the publication of this action in the newspaper as described on the cover letter. If you have any questions or comments regarding the draft permit action, please contact Robert Hall via email at or at (609) 292-4860. Robert can be reached at Robert.hall@dep.nj.gov

Sincerely,

Susan Rosenwinkel

Supervising Environmental Engineer

Mail Code 401-02B
NJDEP: Division of Water Quality
Bureau of Surface Water Permitting
401 East State Street, P.O. Box 420
Trenton, NJ 08625-0420
Tel #: (609) 292-4860
Fax #: (609) 984-7938
www.state.nj.us/dep/dwq



State of New Jersey

CHRIS CHRISTIE
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BOB MARTIN
Commissioner

Mail Code – 401-02B

Water Pollution Management Element

Bureau of Surface Water Permitting

P.O. Box 420 – 401 E State St

Trenton, NJ 08625-0420

Phone: (609) 292-4860 / Fax: (609) 984-7938

KIM GUADAGNO
Lt. Governor

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

7011 2970 0003 7284 3174

August 12, 2014

James Schilling, Director
Musconetcong Sewer Authority
110 Continental Drive
Budd Lake, NJ 07828

Re: Draft Surface Water Revoke & Reissue Permit Action
Category: A - Sanitary Wastewater
NJPDES Permit No. NJ0027821
Musconetcong Sewerage Authority
Mount Olive Twp, Morris County

Dear Mr. Schilling:

Enclosed is a **draft** New Jersey Pollutant Discharge Elimination System (NJPDES) permit action identified above which has been issued in accordance with N.J.A.C. 7:14A.

Notice of this draft permit action will appear in the *Daily Record* and in the August 20, 2014 *DEP Bulletin*. The *DEP Bulletin* is available on the internet at <http://www.state.nj.us/dep/bulletin>. In accordance with N.J.A.C. 7:14A-15.10(c)1i, the public comment period will close thirty days after its appearance in the newspaper.

As detailed in the *DEP Bulletin* and aforementioned newspaper, written comments or a request that the Department hold a non-adversarial public hearing on the draft document, must be submitted in writing to Pilar Patterson, Chief, Mail Code 401-02B, Division of Water Quality, Bureau of Surface Water Permitting, P.O. Box 420, Trenton, NJ 08625-0420 by the close of the public comment period. All persons, including the applicant, who believe that any condition of this draft document is inappropriate or that the Department's tentative decision to issue this draft document is inappropriate, must raise all reasonable arguments and factual grounds supporting their position, including all supporting materials, during the public comment period.

The Department will respond to all significant and timely comments upon issuance of the final document. The permittee and each person who has submitted written comments will receive notice of the Department's final decision to issue, revoke, or redraft the document.

This permit includes limitations for nitrate as per existing regulations. However, based on the fact that a Stipulation of Settlement is in progress which acknowledges that a stay of the existing nitrate limitations for the flow of 4.31 MGD will remain in effect until such time as a renewal permit becomes effective or until resolution of the adjudicatory hearing, the Department is going to continue, uninterrupted, to stay

these nitrate limitations for the flow of 4.31 MGD. The permittee need not file a new adjudicatory hearing and stay request for the nitrate limits. This stay will remain in effect until such time as the permit is modified or renewed and/or until resolution of the adjudicatory hearing. The permittee must continue to monitor and report for nitrate for the flow of 4.31 MGD. Note that finalization of this permit action is contingent on the Stipulation of Settlement addressing the nitrate issue as described.

If you have questions or comments regarding the draft action, please contact Robert Hall at (609) 292-4860.

Sincerely,



Susan Rosenwinkel
Supervising Environmental Engineer
Bureau of Surface Water Permitting

Enclosures

c: Permit Distribution List

Masterfile #: 3578; PI #: 46474

Table of Contents

1. **Cover Letter**
2. **Table of Contents**
3. **Public Notice**
4. **NJDEP Bulletin Notice**
5. **Fact Sheet / Statement of Basis**
6. **USGS Topographical Map**
7. **Facility Flow Diagram**
8. **NJPDES Permit Authorization Page**
9. **Part I – General Requirements: NJPDES**
10. **Part II – General Requirements: Discharge Categories**
11. **Part III – Limits and Monitoring Requirements**
12. **Part IV – Specific Requirements: Narrative**
13. **Appendix A: Chronic Toxicity Testing Specifications for Use in the NJPDES Permit Program**
14. **Appendix B: Approved RWBR Authorizations**

New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Surface Water Permitting

PUBLIC NOTICE

Notice is hereby given that the New Jersey Department of Environmental Protection (Department) proposes to revoke and reissue the New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Surface Water (DSW) Permit NJ0027821 in accordance with N.J.A.C. 7:14A-1 et seq., and by authority of the Water Pollution Control Act at N.J.S.A. 58:10A-1 et seq., for the following discharge:

Applicant or Permittee

Musconetcong Sewer Authority
110 Continental Drive
Budd Lake, NJ 07828

Facility

Musconetcong Sewerage Authority
110 Continental Drive
Mount Olive, Morris County

The existing facility discharges treated and disinfected domestic wastewater into the Musconetcong River, classified as FW2-TM waters. The Musconetcong River is located within the Delaware River Basin and is a tributary to the Delaware River. The existing facility has NJPDES flow values of 4.31 million gallons per day (MGD) with a future stage flow of 5.79 MGD and currently discharges a monthly average flow of approximately 2.38 MGD. This action proposes effluent limitations based on a flow of 4.31 and 5.79 MGD. Treatment consists of aerated grit removal, flow equalization, primary clarification, aeration, flash mixing, secondary clarification, microscreen filtration, ultraviolet disinfection, and step aeration.

Modification provisions as cited in the permit may be initiated in accordance with the provisions set forth in Part IV and upon written notification from the Department.

A draft NJPDES permit revoke and reissue action has been prepared for this facility based on the administrative record which is on file at the offices of the Department, located at 401 East State Street, Trenton, New Jersey. It is available for inspection, by appointment, Monday through Friday, between 8:30 A.M. and 4:00 P.M. Appointment for inspection may be requested through the Open Public Records Act office. Details are available online at www.nj.gov/dep/opra, or by calling (609) 341-3121. Appointments for inspection of the NJPDES file only or requests for a copy of the draft document (for a nominal charge) may be made by calling Central File at (609) 292-0400.

Written comments, or a request that the Department hold a non-adversarial public hearing on the draft document, must be submitted in writing to Pilar Patterson, Chief, or Attention: Comments on Public Notice NJ0027821, at Mail Code 401-02B, Division of Water Quality, Bureau of Surface Water Permitting, P.O. Box 420, Trenton, NJ 08625-0420 by the close of the public comment period, which closes thirty calendar days after publication of this notice in the newspaper. All persons, including the applicant, who believe that any condition of this draft document is inappropriate or that the Department's decision to issue this draft document is inappropriate, must raise all reasonable arguments and factual grounds supporting their position, including all supporting materials, during the public comment period.

The Department will respond to all significant and timely comments upon issuance of the final document. The permittee and each person who has submitted written comments will receive notice of the Department's permit decision.

New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Surface Water Permitting

FACT SHEET

Masterfile #: 3578

PI #: 46474

This fact sheet sets forth the principle facts and the significant factual, legal, and policy considerations examined during preparation of the draft permit. This action has been prepared in accordance with the New Jersey Water Pollution Control Act and its implementing regulations at N.J.A.C. 7:14A-1 et seq. - The New Jersey Pollutant Discharge Elimination System.

PERMIT ACTION: Surface Water Revoke & Reissue Permit Action

The Department is proposing to revoke and reissue this permit in order to reestablish effluent limitations and conditions based on updated values of the USGS stream flow for the Musconetcong River.

1 Name and Address of the Applicant:

Musconetcong Sewer Authority
110 Continental Drive
Budd Lake, NJ 07828

2 Name and Address of the Facility/Site:

Musconetcong Sewerage Authority
110 Continental Drive
Mount Olive Twp, Morris County

3 Receiving Water Discharge Location Information:

A copy of the appropriate section of a USGS quadrangle map indicating the location of the facility and discharge point is included towards the end of this Fact Sheet.

Outfall Designator: 001A

General Information		Watershed Information	
Receiving Water:	Musconetcong River	Downstream Confluences:	Delaware River
Via :	Step Aeration Cascade Unit and Rip-Rap	Receiving River Basin:	Delaware River Basin
Classification (a):	FW2-TM	WMA (b):	01
Latitude:	40° 54' 49.7"	Watershed:	Musconetcong River (above Trout Bk)
Longitude:	74° 43' 21"	Subwatershed:	Musconetcong River (Wills Bk to Lake Hopatcong)
County:	Morris	HUC 14 (c):	02040105150030
Municipality:	Mount Olive	Water Quality Impairments (d):	pH, temperature
Outfall Description			
Outfall Configuration:	non-submerged pipe		

Current Receiving Stream Design Low Flow Values (e)

MA1CD10 / 1Q10:	3.5 cfs	MA1CD10 (1Q10) summer:	3.5 cfs
MA7CD10 / 7Q10:	4.2 cfs	MA1CD10 (1Q10) winter:	5.4 cfs
75 th percentile flow (f):	15 cfs	MA30CD10 (30Q10) summer:	5.2 cfs
		MA30CD10 (30Q10) winter:	10 cfs

Footnotes:

- (a) The designated uses for this waterbody classification can be found at N.J.A.C. 7:9B-1.12.
- (b) WMA = Watershed Management Area
- (c) HUC 14 = 14 digit Hydrologic Unit Code
- (d) These parameters are listed on Sublist 5 as impaired for this waterbody as per New Jersey's 2010 Integrated Water Quality Monitoring and Assessment Report (includes 305(b) Report and 303(d) List).
- (e) Please refer to Section 6 for the specific stream design low flow values utilized in parameter limitation calculations. These flow values represent a point upstream of the facilities discharge upstream of the braiding in the main channel of the Musconetcong River.
- (f) The 75th percentile flow is defined as the flow which is exceeded 75 percent of the time for the appropriate "period of record" as determined by the United States Geological Survey (USGS).

As per the Surface Water Quality Standards at N.J.A.C. 7:9B, the designated uses for the Freshwater 2 (FW2) receiving waters are:

1. Maintenance, migration and propagation of the natural and established biota;
2. Primary and secondary contact recreation;
3. Industrial and agricultural water supply;
4. Public potable water supply after conventional filtration treatment (a series of processes including filtration, flocculation, coagulation, and sedimentation, resulting in substantial particulate removal but no consistent removal of chemical constituents) and disinfection; and
5. Any other reasonable uses.

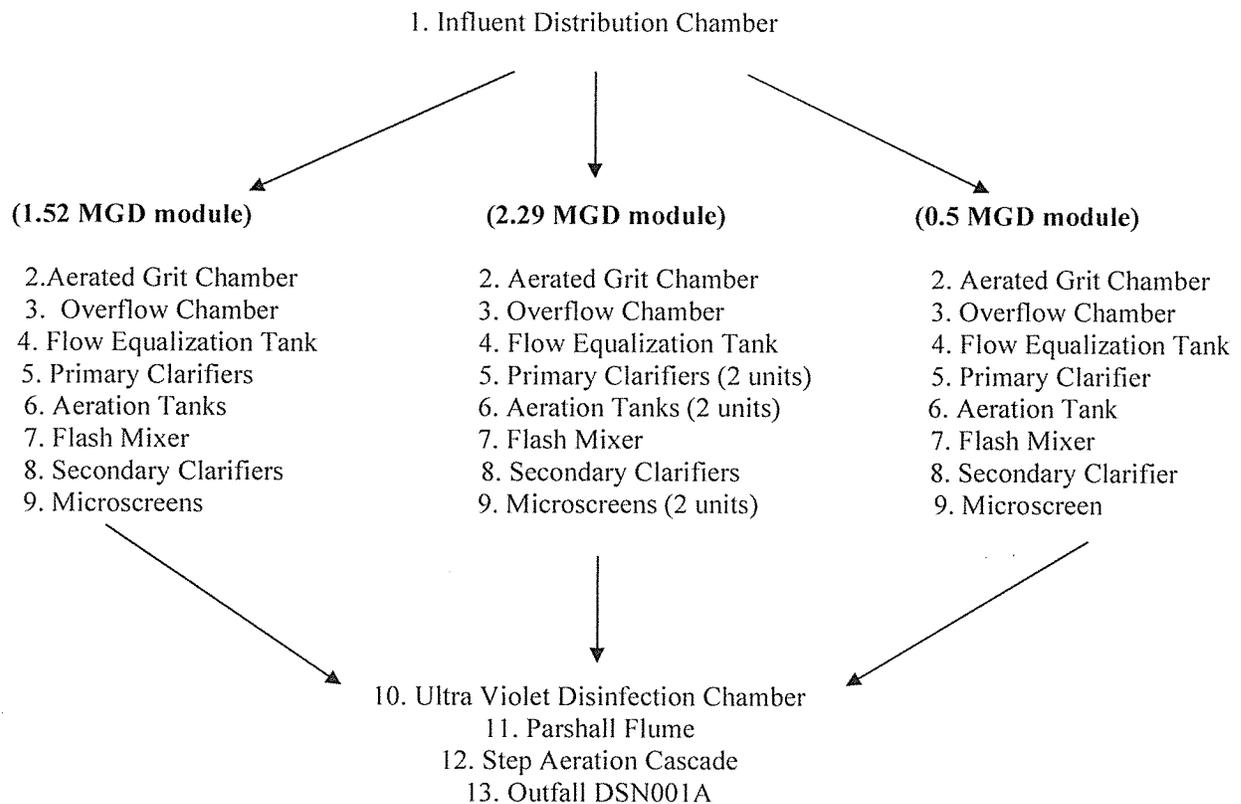
As noted in Section 3 above, this segment of the Musconetcong River is impaired for pH and Temperature. This permit requires the permittee to monitor and report both pH and temperature. In addition, minimum and maximum effluent limits are imposed for pH.

4 Facility Description:

The facility is classified as a major discharger by the Department of Environmental Protection (Department) in accordance with the United States Environmental Protection Agency (EPA) rating criteria. The facility's NJPDES flow value is 4.31 million gallons per day (MGD) with a future staged flow of 5.79 MGD.

The permittee is a non-delegated local agency, and the Department will implement the Industrial Pretreatment Program (IPP) requirements as set forth in 40 CFR 403.8(f). However, non-delegated status does not relieve the permittee from the responsibility of controlling the wastewater that it accepts for treatment if that wastewater violates the local sewer use ordinance or regulations or causes the permittee to violate the terms of its NJPDES permit. The IPP in the non-delegated area will be a cooperative effort between the permittee and the Department to resolve problems when they arise.

Sanitary wastewater is processed through the following units



The three modules specified above compromise a total flow of 4.31 MGD. In the future, an additional module may be added to accommodate up to 5.79 MGD.

A schematic of the facility's treatment is included at the end of the fact sheet.

All residuals generated at this facility will be managed off-site at an approved residuals management operation.

5 Type and Quantity of the Wastes or Pollutants:

The Permit Summary Table near the end of this fact sheet contains a summary of the quantity and quality of pollutants treated and discharged from the facility and the proposed effluent limitations.

6 Summary of Permit Conditions:

The proposed effluent limitations and other pertinent information regarding the draft permit are described below:

A. Basis for Effluent Limitations and Permit Conditions - General:

The effluent limitations and permit conditions in this permit have been developed to ensure compliance with the following, as applicable:

1. NJPDES Regulations (N.J.A.C. 7:14A),
2. New Jersey Surface Water Quality Standards (N.J.A.C. 7:9B),
3. New Jersey's 2010 Integrated Water Quality Monitoring and Assessment Report (includes 305(b) Report and 303(d) List),
4. Requirements of the Delaware River Basin Commission (N.J.A.C. 7:9B-1.5(b)1),
5. Secondary Treatment Standards (40 CFR Part 133, N.J.A.C. 7:14A-12.2 and -12.3),
6. Existing permit limitations in accordance with N.J.A.C. 7:14A-13.19 and 40 CFR 122.44 (antibacksliding requirements),
7. Permit limitations in accordance with N.J.A.C. 7:9B-1.5(d) (antidegradation requirements),
8. Statewide Water Quality Management Planning Rules (N.J.A.C. 7:15),
9. Sludge Quality Assurance Regulations (N.J.A.C. 7:14C),
10. Pretreatment Requirements (N.J.A.C. 7:14A-19)

In accordance with N.J.A.C. 7:14A-13.5, Water Quality Based Effluent Limitations (WQBELs) are imposed when it has been determined that the discharge of a pollutant causes an excursion of criteria specified in the New Jersey Surface Water Quality Standards (SWQS), N.J.A.C. 7:9B-1.1 *et seq.*, and the Federal Water Quality Standards, 40 CFR Part 131. WQBELs are authorized by Section 301 of the Clean Water Act, 40 CFR 122, N.J.S.A. 58:10A-4, and N.J.A.C. 7:14A-13.2 and 13.3. The procedures used to develop WQBELs are contained in the State and Federal Standards. Specific procedures, methodologies, and equations are contained in the current USEPA "Technical Support Document for Water Quality-based Toxics Control" (TSD) (EPA- 505/2-90-001) and are referenced in N.J.A.C. 7:14A-13.5 and 13.6.

Expression of all effluent limitations is in accordance with N.J.A.C. 7:14A-13.14 and 13.15.

Whole effluent toxicity is expressed as a minimum as percent effluent.

Loading limitations (kg/day or g/day) are calculated by multiplying the flow value of 4.31 MGD and 5.79 MGD by the conversion factor of 3.785 (L/gal) and the appropriate concentration limitation (mg/L or µg/L).

B. Basis and Derivation for Effluent Limitations and Monitoring Requirements- Specific:

Receiving Stream Flow Values

In the existing permit issued on October 14, 2011, the Department imposed effluent limitations for many parameters based on only 30% of the USGS stream flows of the Musconetcong River. The basis for using only 30% came from the final thermal study entitled "Study of Potential Thermal Impacts within the Upper Musconetcong River", dated May 31, 2005 as prepared by Najarian Associates on behalf of Musconetcong Sewerage Authority (MSA). The permittee adjudicated the October 14, 2011 permit and some of the limitations based on 30% of the flow were subsequently stayed by the Department for the 4.31 MGD flow only. These stayed limits include nitrate, phosphorus and total dissolved solids.

Most recently, the Department reconsidered the application of the thermal study in establishing limitations based on stream flow. These findings are described in a December 9, 2013 letter to James Schilling of MSA from Marco Alebus, Research Scientist I of the Bureau of Surface Water Permitting, of the Department. As noted in the letter, the Department has determined that the stream morphology has significantly changed since the thermal study was performed based on a site inspection by the Department on December 2, 2013. Based on the assessment, it was determined that the stream is interconnected, transient, and ill-defined; and that the stream morphology is affected by changes in magnitude of flow and sediment load over a period of time. This is due to the constantly changing stream flows in the Musconetcong River due to varying let down amounts from Lake Hoptacong, which is not constant. As such, it was recommended that 100% of the low flow values provided by USGS be used in derivation of permit limitations from this point forward. This is consistent with the derivation of permit limitations prior to issuance of the 2011 permit.

Therefore, in this permit renewal, the Department has utilized the 100% USGS flows as show in the table above for effluent limitation calculations, which has caused many of the existing limitations to become less stringent than were calculated in the existing permit. This is allowable under the antibacksliding regulations exemptions at 40 CFR 122.44(l)2.i.B, which allows for less stringent limitations when new information becomes available. Also, the effluent limitations for total nitrate and total phosphorus were stayed after issuance of the existing final permit and never were effective.

All permit limitations and conditions in this permit action, are equal to or more stringent than those contained in the existing permit action, unless otherwise identified below. As a result, this permit action satisfies the federal and state anti-degradation regulations at 40 CFR 131.12 and N.J.A.C. 7:9B-1.5(d), and no further anti-degradation analysis is necessary.

Monitoring frequencies and sample types are in accordance with N.J.A.C. 7:14A-14, unless specified otherwise in the permit. In accordance with N.J.A.C. 7:14A-14.2, the permittee may submit a written request for a modification of the permit to decrease monitoring frequencies for non-limited parameters listed in Part III if site specific conditions indicate the applicability of such a modification.

1. Flow:

This permit action does not include a numerical limitation for flow. Monitoring conditions are applied pursuant to N.J.A.C. 7:14A-13.13.

Flow shall be monitored on a **continuous** basis and the sample type shall be **metered**.

2. 5-Day Biochemical Oxygen Demand (BOD₅):

The summer and winter concentration limitations for 4.31 MGD and 5.79 MGD are retained from the existing permit and were originally based on the report entitled "Phase Two Study Report – Impact Analysis of Wastewater Discharge on the Water Quality of the Upper Musconetcong River – February 1993". This report was performed by Najarian Associates on behalf of the Musconetcong Sewerage Authority. The effluent loading limitations are based on N.J.A.C. 7:14A-13.14 and 13.15, as well as the provisions at N.J.A.C. 7:14A-13.19. Percent removal limitations are based on the definition of secondary treatment at 40 CFR 133.102(a)(3) and N.J.A.C. 7:14A-12.2(b)3.

The existing monitoring frequencies for the flow of 4.31 MGD of **three per month** and for the flow of 5.79 MGD of **twice per week** are being carried forward from the existing permit. The sample types for both flows shall be a **24 hour composite** sample type.

3. Total Suspended Solids (TSS):

The concentration limitations for 4.31 MGD and 5.79 MGD are retained from the existing permit and were originally based on the definition of secondary treatment at 40 CFR 133.102 (b) (1) and (2). and N.J.A.C. 7:14A-12.2(e) 1. and 2. The effluent loading limitations are based on N.J.A.C. 7:14A-13.14 and 13.15, as well as antibacksliding provisions at N.J.A.C. 7:14A-13.19. Percent removal limitations are based on the definition of secondary treatment at 40 CFR 133.102(b)(3) and N.J.A.C. 7:14A-12.2(e) 3.

The existing monitoring frequencies for the flow of 4.31 MGD of **three per month** and for the flow of 5.79 MGD of **twice per week** are being carried forward from the existing permit. The sample types for both flows shall be a **24 hour composite** sample type.

4. Total Dissolved Solids (TDS):

4.31 MGD

The monitoring requirements for TDS for the flow of 4.31 MGD have been retained from the existing permit. TDS shall be monitored and reported as a monthly average and daily maximum on both a concentration and mass loading basis.

The existing monitoring frequency of **once per six months** is being retained from the existing permit along with a 24 hour composite sample type.

5.79 MGD

The Department routinely imposes effluent limitations for TDS for expanded dischargers. In order to determine the need for WQBELs for the expanded flow of 5.79 MGD, the Department has analyzed the facility's effluent data from January 2009 through December 2013. An updated analysis is appropriate since the analysis performed in the 2011 permit was based on only 30% of the receiving waterbody flow. While these limitations were imposed in the 2011 permit, they have never been effective since the 5.79 MGD flow has yet to be triggered.

After review of the applicable data set, TDS was found to be discharged in quantifiable amounts in the effluent. Therefore, a cause analysis was conducted using the procedures specified in the USEPA TSD in accordance with N.J.A.C. 7:14A-13.5. The cause analysis consists of a comparison between the pollutant's maximum effluent concentration value and the pollutant's applicable site specific wasteload allocation (WLA).

Using the steady state mass balance equation, WLAs were developed utilizing the applicable criteria specified in the New Jersey SWQS at N.J.A.C. 7:9B, the permittee's final stage flow value of 5.79 MGD, the MA7CD10 (7Q10) stream design low flow value of 4.2 cfs, and an upstream concentration value of 337 mg/L. This upstream concentration value is based on the final water quality study entitled "Musconetcong River Water Quality Characterization Study – Musconetcong Sewerage Authority", dated February 20, 2004, and submitted by Omni Environmental Corporation on behalf of the permittee.

As a result of the cause analysis, the discharge of TDS in the facility's effluent was found to cause an excursion of the SWQS for the flow of 5.79 MGD. Therefore, WQBELs are proposed in the draft permit for TDS in accordance with N.J.A.C. 7:14A-13.6(a). Refer to Table A at the back of the Fact Sheet for a summary of the WQBEL analysis.

WQBEL Derivation Procedures:

For the flow of 5.79 MGD, the WQBEL monthly limitation (AML) has been set equal to the WLA in accordance with the Procedures in USEPA's TSD. Consistent with the requirements of N.J.A.C. 7:14A-13.15(a)2, weekly average concentration limitations have been calculated. The Department has utilized a factor of 1.5 to calculate the weekly average limitations from the monthly average limitations. This procedure is modeled after that which is specified at N.J.A.C. 7:14A-13.15(a)5. In accordance with N.J.A.C. 7:14-A-13.14(a)2, effluent limitations are expressed as concentration and mass loading.

The effluent concentration limitations are 576 mg/L as a monthly average and 864 mg/L as a weekly average, while the loading effluent limitations are 12,623 kg/day as a monthly average and 18,935 kg/day as weekly average.

The existing monitoring frequency for the flow of 5.79 MGD of **twice per week** is being carried forward from the existing permit along with a **24 hour composite** sample type.

5. pH:

The effluent limitations for 4.31 MGD and 5.79 MGD are based on the definition of secondary treatment at 40 CFR 133.102(c) and N.J.A.C. 7:14A-12.2 (f). These limitations are consistent with the existing permit.

The existing monitoring frequencies for the flow of 4.31 MGD of **once per day** and for the flow of 5.79 MGD of **three per day** are being carried forward from the existing permit. The sample types for both flows shall be a **grab** sample type.

6. Temperature:

As described previously, a thermal study entitled "Study of Potential Thermal Impacts within the Musconetcong River" dated May 31, 2005 was submitted by Najarian Associates on behalf of the permittee. The requirement to perform this study was included in Part IV Section D.3. of the final major modification permit action issued on July 18, 2003 with an effective date of August 1, 2003.

The purpose of the study was to (1) evaluate the current thermal impacts of the permittee's effluent discharge on the receiving waterbody and (2) provide baseline data for use in a future assessment that will address the thermal impacts of the permittee's discharge up to the proposed design flow of 5.79 MGD. In summary, temperature data was collected continuously (recorded every 30 minutes) at five (5) different locations from November 6, 2003 through November 4, 2004. Station 1 was located about 50 feet upstream of the discharge while Station 2 was located 50 feet downstream of the discharge. Station 3, representing a location outside of the regulatory mixing zone, was located 550 feet downstream of the discharge. Station 4 was located at the outfall of the permittee's wastewater treatment plant and Station 5 represented air temperatures taken near the outfall channel.

In November 19, 2009, the Department readopted the State's SWQS at N.J.A.C. 7:9B. As identified at N.J.A.C. 7:9B-1.14(d)11., the current SWQS for temperature in FW2-TM waters (into which the permittee discharges) is as follows:

"Temperatures shall not exceed a daily maximum of 25 degrees Celsius or rolling seven-day average of the daily maximum of 23 degrees Celsius, unless due to natural conditions."

After a review of the data, it was determined that excursions of both the daily maximum and the rolling 7-day daily maximum average temperature criteria were experienced upstream of the permittee's discharge. Although the information provided by the water quality study demonstrates that the SWQS are being exceeded upstream of the discharge, "end-of-pipe" effluent limitations are not appropriate for the discharger at this time consistent with the Response to Comment 27 and 28, 38 N.J.R. 4453 (October 16, 2006) which explains as follows:

"The temperature criteria are unique. The Department recognizes that, in addition to point and nonpoint sources, temperature increases may be due to natural conditions such as solar radiation, lack of a stream canopy and flow conditions. For this reason, the Department does not apply the temperature criteria as an 'end of pipe' effluent limitation."

As described in the letter dated December 9, 2013 from Marco Alebus of the Department of James Schilling of Musconetcong Sewerage Authority, the information provided by the water quality study suggests that the upstream excursions may be due to natural conditions. First, each of the events where excursions of the SWQS occurred upstream of the discharge were initiated by air temperatures greater than the applicable SWQS. This suggests that the excursions upstream of the discharge may have been due to the affects of solar radiation. Second, since the next closest upstream wastewater discharger from the permittee is more than five (5) miles away, any anthropogenic affects due to point source dischargers upstream of the permittee's discharge are minimal. Third, under conditions where the SWQS are being exceeded upstream of the

discharge, ambient water temperatures experience a gradual increase the further downstream from the discharge you travel. This again suggests natural solar radiation may have caused the SWQS excursions that were observed upstream of the discharge.

As indicated in the letter cited above, effluent temperatures at the facility for the period described have not exceeded the applicable SWQS. In addition, any excursions of the applicable SWQS observed downstream of the discharge during the water quality study appear to be directly attributed to upstream temperatures that exceeded the SWQS due to natural conditions. Furthermore, the water quality study data demonstrates that, during conditions where the applicable SWQS are exceeded upstream of the discharge, the permittee's discharge provides localized cooling of ambient temperatures which, to some degree, improves compliance with the applicable SWQS downstream of the discharge. Lastly, as the effluent flow increases from the currently discharged flow to 5.79 MGD, the Department does not expect a significant, if any, increase in effluent temperatures discharged from the facility. In fact, the Department expects that an increase in effluent flow up to 5.79 MGD will only enhance the localized cooling affect that occurs downstream of the discharge during conditions where the upstream ambient temperatures exceed the applicable SWQS. Therefore, consistent with the provisions of N.J.A.C. 7:14A-13.5, the Department has concluded that under the effluent design flows of 4.31 and 5.79 MGD, the facility's effluent does not cause or have the reasonable potential to cause exceedances of the applicable SWQS. As such, water quality based effluent limitations (WQBELs) for temperature are not appropriate for the flows of 4.31 and 5.79 MGD at this time.

As authorized by N.J.A.C. 7:14A-6.2(a)14, monitoring and reporting requirements for temperature are included in the permit.

The monitoring frequency for the flow of 4.31 MGD of twice per day has been reduced to **once per day** based on the findings of the letter cited above. The monitoring frequency for the flow of 5.79 MGD of **three per day** is being carried forward from the existing permit and is consistent with N.J.A.C. 7:14A-14.2. The sample types for both flows is a **grab** sample.

7. Bacterial Indicator: Fecal Coliform and E. Coli:

As discussed in the September 19, 2005 proposal for amendments to the SWQS at N.J.A.C. 7:9B-1.14(d)1, fecal coliform historically had been the preferred indicator of fecal matter in ambient water by the USEPA and the Department. However, USEPA no longer supports the use of fecal coliform as a reliable indicator of human illness risk from primary contact recreation. The USEPA now recommends the use of E. coli and enterococcus as pathogen indicators for fresh waters and enterococcus for marine waters (USEPA's draft *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*, November 2003). Therefore, the Department has replaced the fecal coliform criteria for those waters designated for primary contact recreation (FW2, SE1 and SC classifications) at N.J.A.C. 7:9B-1.14(c)1ii(1) and (2) with enterococcus (SE1 and SC waters) and E. coli indicators (FW2 waters), respectively.

Based on the monitoring data from the DMRs from January 2009 through December 2013 the monthly average fecal coliform discharge from this facility was 30.3 colonies per 100 mL. This value is significantly below the effluent standard of 200 colonies per 100 mL found at N.J.A.C. 7:14A-12.5. The limitations of 200 colonies per 100 mL as a monthly geometric average and 400 colonies as a weekly geometric average were imposed in the existing permit.

The sample results (7 samples) from January 2012 through October 2013 for E. coli discharged from the facility are a monthly geometric average of 13.29 colonies per 100 mL and a weekly geometric average of 170 colonies per 100 mL. The SWQS specify 126 colonies per 100 mL as a monthly geometric average. Based on the average data results, the permittee can consistently meet the SWQS for E. Coli.

The Department has determined that monitoring for fecal coliform is no longer necessary based on the repealed criteria for fecal coliform and the new criteria for E. Coli. Therefore, the requirements for fecal coliform are being removed from the permit.

The limitations are being replaced with an effluent limitation for E. Coli of 126 colonies per 100 mL as a monthly geometric mean. The permittee shall also monitor and report for the instantaneous maximum. E. Coli is the appropriate indicator parameter for bacteria consistent with N.J.A.C. 7:9B-1.14(d)1. This is consistent with the Department's antidegradation policies as E. coli is considered to be an equivalent bacterial indicator.

The existing monitoring frequencies for the flow of 4.31 MGD of **twice per month** and for the flow of 5.79 MGD of **eight per month** are being carried forward from the existing permit. The sample types for both flows shall be a **grab** sample type.

8. Dissolved Oxygen (DO):

The daily average minimum limit is carried forward from the previous permit based on the provisions at N.J.A.C. 7:14A-13.19. As authorized by N.J.A.C. 7:14A-6.2(a)14, a weekly average monitoring and reporting requirement has been retained in this permit action based on the existing permit conditions. The daily average minimum dissolved oxygen effluent limitations and weekly average minimum monitoring conditions for 4.31 MGD and 5.79 MGD are based on the report entitled "Phase Two Study Report – Impact Analysis of Wastewater Discharge on the Water Quality of the Upper Musconetcong River – February 1993", performed by Najarian Associates on behalf of the Musconetcong Sewerage Authority.

The existing monitoring frequencies for the flow of 4.31 MGD of **three per month** and for the flow of 5.79 MGD of **twice per week** are being carried forward from the existing permit. The sample types for both flows shall be a **grab** sample type.

9. Oil and Grease:

The effluent limitations for 4.31 MGD and 5.79 MGD are retained from the existing permit and are based on N.J.A.C. 7:14A-12.8(c).

The existing monitoring frequency of **once per month** for both flows is being carried forward from the existing permit. The sample types shall be **grab**.

10. Chlorine Produced Oxidants (CPO):

New information has been provided since the last permit was issued. The permittee presently uses UV disinfection at the facility and no longer chlorinates the effluent. Furthermore, effluent data has consistently been non-detectable (<0.1 mg/L from the monitoring period of January 2009 through present). Therefore, no effluent limitation for CPO has been proposed in this permit at this time and the monitoring only requirement is being removed from the permit during this permit action.

11. Ammonia (Total as N):

Ammonia-N in water exists in two forms: NH_3 and NH_4^+ . As NH_3 , ammonia-N is called "un-ionized"; as NH_4^+ , ammonia-N is called "ionized". Generally, the un-ionized fraction is considered more toxic than the ionized fraction. The relative proportion that is found in each fraction is primarily dependent on the temperature and the pH of the solution. At a higher temperature and/or a higher pH, more ammonia-N exists in the un-ionized form as compared to a lower temperature and/or pH. Ammonia-N is usually measured as total ammonia-N, which includes both the ionized and the un-ionized fractions.

The current SWQS at N.J.A.C. 7:9B-1.14 set an instream limit on the concentration of un-ionized ammonia that may be allowed in the stream. The criteria may be expressed as calculations dependent on instream temperature and pH. Where this is the case the values for temperature and pH used to calculate the un-ionized ammonia criteria are those values that exist after any allowable mixing of the effluent and receiving water.

There are criteria values for both acute and chronic toxicity effects. Permit limits to protect against the toxic effects of ammonia instream are based on the more stringent calculated long term average.

Limit Derivation: The effluent limitations are calculated using the procedures in the TSD in accordance with N.J.A.C. 7:14A-13.6(a). The WLA (WLA) was calculated by solving a series of simultaneous equations for the carbonate and ammonia equilibria according to the following methodology. It is assumed that there is complete and total mixing with the receiving stream. The input data in the solution of the equilibrium equations were derived from the DMRs.

Carbonate Equilibrium: The simultaneous equilibrium (temperature corrected) for the first and second carbonate equilibrium for each pH value are solved to calculate the carbon species and the hydrogen ion concentrations. This is done separately for each stream, i.e. the effluent and the upstream receiving stream.

The downstream concentrations for the carbon fractions are then calculated by mass balance. The downstream final temperature is also calculated by mass balance.

The final downstream hydrogen ion concentration is then calculated by the carbonate equilibrium equations. The final pH is calculated from the final hydrogen ion concentration.

Equilibrium Equation:
 $\log K = -[A/T] + D - C \times T$
 $C = 0.032786$
 $D = 14.8435$
 $A = 3404.71$
 $T = \text{Temp in } ^\circ\text{K}$

Ammonia-N Equilibrium: Using the final pH and the final temperature, the ammonia equilibrium of the final mixed stream is calculated.

Equilibrium Equation:
 $\text{pK}_a = 0.09018 + 2729.92/T$
 $T = \text{Temp in degrees K}$

The final total ammonia-N WLA is calculated by mass balance from the instream un-ionized ammonia criteria. A "reserve capacity", or "margin of safety" is considered in setting the WLA in accordance with N.J.A.C. 7:15-7.1 and Section 4.2.1 of the TSD. In this permit, the Department has determined that the ammonia toxicity analysis is a subset of a parameter specific TMDL as identified in N.J.A.C. 7:15-7.1.

The QBEL analysis was conducted using the data shown in the table below. Effluent data was obtained from the most recent 36 months of DMR data. Except for salinity data, where default values were used for both upstream and effluent, all other upstream data was obtained from the existing permit.

Data Input for Equilibrium Equations and Calculation Results:

4.31 and 5.79 MGD FLOWS				
	Summer (a)		Winter (a)	
	Acute	Chronic	Acute	Chronic
Upstream Flow 1Q10, cfs	3.50	-	5.40	-
Upstream Flow 30Q10, cfs	-	5.20	-	10.00
Upstream pH (su)	7.06	7.00	7.09	7.04
Upstream temperature (°C)	20.82	20.16	14.10	13.17

Upstream alkalinity (mg/L)	50.00	50.00	50.00	50.00
Upstream salinity (mg/L)	0.20	0.20	0.20	0.20
Upstream NH3-N (mg/L)	0.15	0.15	0.15	0.15
Effluent flow 4.31 MGD (cfs)	6.67	6.67	6.67	6.67
Effluent flow 5.79 MGD (cfs)	8.96	8.96	8.96	8.96
Effluent pH (su)	7.06	7.00	7.09	7.04
Effluent temperature (°C)	20.82	20.16	14.10	13.17
Effluent alkalinity (mg/L)	50.00	50.00	50.00	50.00
Effluent salinity (mg/L)	0.20	0.20	0.20	0.20
4.31 MGD FLOW				
Criteria: Un-ionized NH3-N (mg/L)	0.118	0.030	0.074	0.019
Criteria: Equivalent total NH3 (mg/L)	15.97	4.10	16.27	3.89
Criteria: Reserve Capacity (%)	20	20	20	20
Criteria: Total NH3-Reserve	12.77	3.28	13.01	3.11
Wasteload Allocation (mg/L)	19.40	5.71	23.43	7.56
Maximum Data Value (MAX) from DMRs	0.70	0.70	0.92	0.92
Is MAX > WLA? If yes, then cause exists.	NO	NO	NO	NO
Coefficient of Variation	1.20	1.20	1.20	1.20
Number of Samples/Month	3	3	3	3
Long-Term Average (mg/L)	3.37	3.54	4.07	4.68
WQBEL avg. monthly (mg/L)	12.00	-	14.00	-
WQBEL max. daily (mg/L)	19.00	-	23.00	-
5.79 MGD FLOW				
Criteria: Un-ionized NH3-N (mg/L)	0.113	0.029	0.072	0.018
Criteria: Equivalent total NH3 (mg/L)	16.92	4.34	17.14	4.22
Criteria: Reserve Capacity (%)	20	20	20	20
Criteria: Total NH3-Reserve	13.53	3.48	13.71	3.37
Wasteload Allocation (mg/L)	18.76	5.41	21.89	6.97
Maximum Data Value (MAX) from DMRs	0.70	0.70	0.92	0.92
Is MAX > WLA? If yes, then cause exists.	NO	NO	NO	NO
Coefficient of Variation	1.20	1.20	1.20	1.20
Number of Samples/Month	8	8	8	8
Long-Term Average (mg/L)	3.26	3.34	3.80	4.31
WQBEL avg. monthly (mg/L)	8.00	-	9.00	-
WQBEL max. daily (mg/L)	19.00	-	22.00	-

- (a) Summer season spawning period is from May 1st through October 31st. Winter season non-spawning period is from November 1st through February 28/29th. March/April (the winter season spawning period months) have been analyzed separately and used if they are more stringent than the non-spawning winter period for use in the winter limitations.

As shown in the tables above for both flows, the maximum data value for both the summer and winter seasons does not exceed the WLAs for the summer and winter scenarios. Therefore, the effluent does not show cause to violate the SWQS for ammonia for any season and no WQBELs are applicable for this effluent discharge. Therefore, the existing seasonal effluent limitations as shown in the Permit Summary Table for both the 4.31 and 5.79 MGD flows are being carried forward during this permit renewal action in accordance with N.J.A.C. 7:14A-13.19.

The existing monitoring frequencies of **three per month** for the flow of 4.31 MGD and **eight per month** for the flow of 5.79 MGD are being carried forward from the existing permit. The sample type for both flows shall be a **24-hour composite**.

12. Phosphorus:

In accordance with N.J.A.C. 7:14A-13.6(a) and 13.5(a), a WQBEL shall be imposed when the Department has determined that the discharge causes an excursion above the SWQS. In the existing permit issued on October 14, 2011, effluent concentration limitations of 0.11 mg/L and 0.17 mg/L were established for monthly average and weekly average for both the 4.31 MGD and 5.79 MGD flows. Subsequent to the final permit issuance, a stay was issued dated June 8, 2012 that changed these limitations to a monitor and report only condition for the flow of 4.31 MGD only; therefore, these limitations were never effective. A summary of the extensive history relating to this parameter is included below.

Pursuant to New Jersey's 2008 Integrated Water Quality Monitoring and Assessment Report, which includes the 305(b) Report and the 303(d) List, the Musconetcong River was listed as impaired for phosphorus. However, based on an assessment of more recent phosphorus and dissolved oxygen data collected by Musconetcong Sewerage Authority, this impairment was removed and this information was transmitted via a letter dated April 25, 2010 from Debra Hammond, Chief, Bureau of Water Quality Standards and Assessment, to Howard S. Litwach of Najarian Associates. Thus, the Musconetcong River had been classified as impaired but the stream was then no longer listed as impaired for phosphorus. As a result of this change in the impairment status, the Department can now evaluate the in-stream data to determine whether or not phosphorus is rendering the waters unsuitable for the designated uses in the waterbody.

In order to perform this analysis, it is important to note that the Department recently modified the total phosphorus ("TP") assessment methodology it uses when reviewing in-stream data. Previously, the Department applied the principal of independent applicability of response indicators. Specifically, the Technical Manual for Phosphorus Evaluation used diurnal dissolved oxygen data, phytoplankton and periphyton biomass data (as chlorophyll a) where each of these three variables is assessed independent of each other. In the 2010/12 Method Document, however, the Department revised the narrative criteria to utilize a "weight of evidence" approach. Under this approach, phosphorus evaluation relies on the outcome of the diurnal dissolved oxygen assessment. For example, the assessment of periphyton biomass will not be required to be evaluated unless the diurnal fluctuations in dissolved oxygen levels is 3 mg/L or more which is indicative of photosynthetic activity.

Based on the above, the Department has reevaluated its conclusion of the Phosphorus Evaluation Study ("exit ramp study") as described in the letter dated June 29, 2005 addressed to . The purpose of the reevaluation was to determine whether or not TP is rendering the waters unsuitable for the designated uses. Based on its reevaluation, the Department determined that the exit ramp study indicated that the discharge of TP from the facility is **not** rendering the waters unsuitable for the designated uses.

Based on these findings, the Department will retain the existing phosphorus limitation of 0.9 mg/l for 4.31 MGD and 5.79 MGD which were originally based on the report entitled "Phase Two Study Report – Impact Analysis of Wastewater Discharge on the Water Quality of the Upper Musconetcong River – February 1993", performed by Najarian Associates on behalf of the Musconetcong Sewerage Authority. The concentration

limitations for 4.31 MGD and 5.79 MGD are 0.9 mg/L as monthly averages. The permittee shall also monitor and report for weekly average concentration and monthly average and weekly average loadings.

Despite the above findings, please be advised that if the Department in a future action adopts a total maximum daily limit (“TMDL”) for TP for the receiving water, the Department will develop and propose a draft NJPDES permit consistent with any WLA derived from the TMDL.

The existing monitoring frequencies for the flow of 4.31 MGD of **three per month** and for the flow of 5.79 MGD of **twice per week** are being carried forward from the existing permit. The sample types for both flows shall be a **24-hour composite** sample type.

13. Nitrate (Total as N):

For the flow of 4.31 MGD, the existing permit imposed WQBELs of monthly average and daily maximum concentration limits of 12 mg/L and 18 mg/L, respectively, and monthly average and daily maximum loading limits of 192 kg/day and 294 kg/day, respectively. For the flow of 5.79 MGD, the existing permit imposed WQBELs of monthly average and daily maximum concentration limits of 11.3 mg/L and 17.5 mg/L, respectively, and monthly average and daily maximum loading limits of 248 kg/day and 384 kg/day, respectively.

However, the existing WQBELs for the 4.31 MGD flow were stayed by the Department in a letter dated June 8, 2012. As stated in this letter, this stay was to remain effective until such time as there was a resolution of the adjudication of this issue or a subsequent permit action addressed this issue. The permittee was required to only monitor and report for nitrate during the time in which the limitations were stayed. No stay was given for the flow of 5.79 MGD as the current flows are significantly less than those flow levels and a stay is unnecessary at this time.

In preparing this renewal permit, the Department has revisited the nitrate limits. In accordance with N.J.A.C. 7:14A-13.6(a), a WQBEL shall be imposed when the Department has determined that the discharge of a pollutant causes an excursion above a SWQS. In order to determine the need for nitrate WQBELs, the Department has analyzed the facility’s effluent data from January 2009 through December 2013.

After review of the applicable data set, nitrate was found to be discharged in quantifiable amounts in the effluent. Therefore, a cause analysis was conducted using the procedures specified in the USEPA TSD in accordance with N.J.A.C. 7:14A-13.5. The cause analysis consists of a comparison between the pollutant’s maximum effluent concentration value and the pollutant’s applicable site specific WLA.

Using the steady state mass balance equation, a WLA was developed utilizing the applicable criteria specified in the New Jersey SWQS at N.J.A.C. 7:9B, a pollutant specific upstream concentration (when available), the permittee’s NJPDES flow values of 4.31 and 5.79 MGD, and the MA7CD10 (7Q10) stream design low flow value of 4.2.

As a result of the cause analysis, the discharge of Nitrate in the facility’s effluent was found to cause an excursion of the SWQS. Therefore, a WQBEL is proposed in the draft permit for Nitrate in accordance with N.J.A.C. 7:14A-13.6(a). Refer to Table A at the back of the Fact Sheet for a summary of the WQBEL analysis.

WQBEL Derivation Procedures:

Consistent with N.J.A.C. 7:14A-13.6(a), the WQBELs were calculated using the procedures set forth in the USEPA TSD (specifically Section 5.4.4). The calculated waste load allocation was set equal to the average monthly limitation (AML).

The maximum daily limitation (MDL) was calculated from the AML utilizing a multiplier of 1.5386 which is based on the ratio between maximum daily and average monthly permit limits. This multiplier, calculated in accordance with the equations set forth in Table 5-3 of the USEPA TSD, was determined using a site-specific Coefficient of Variation (CV) of 0.48 based on the lognormal distribution statistics consistent with the recommendations set forth in Appendix E of the USEPA TSD, a number of samples per month (n) equal to 4, and a 99th percentile exceedance probability for the MDL and AML. In accordance with N.J.A.C. 7:14-A-13.14(a)2, effluent limitations are expressed as concentration and mass loading.

The newly calculated effluent limitations for 4.31 MGD are a monthly average and daily maximum concentration limits of 15.8 mg/L and 24.3 mg/L, respectively, and monthly average and daily maximum loading limits of 258 kg/day and 396 kg/day, respectively. The newly calculated effluent limitations for 5.79 MGD are a monthly average and daily maximum concentration limits of 14.3 mg/L and 25.4 mg/L, respectively, and monthly average and daily maximum loading limits of 314 kg/day and 557 kg/day, respectively.

In accordance with N.J.A.C. 7:14A-6.4(a), a schedule to achieve compliance with these new effluent limitations has been included in this permit for the 4.31 MGD flow only. During the Initial phase the permittee is only monitor and report only for nitrate. The compliance schedule time period is established at 59 months to allow the permittee sufficient time to make the necessary changes to the treatment system to achieve compliance with the new limitations. Please refer to the Compliance Schedule section of this Fact Sheet for further details.

The existing monitoring frequencies for the flow of 4.31 MGD of **once per week** and for the flow of 5.79 MGD of **twice per week** are being carried forward from the existing permit. The sample types for both flows shall be a **24 hour composite** sample type.

As noted above, the Department is bound by existing regulations to impose a nitrate limitation. However, based on the fact that a Stipulation of Settlement is in progress which acknowledges that a stay of the existing nitrate limitations for the flow of 4.31 MGD will remain in effect until such time as a renewal permit becomes effective or until resolution of the adjudicatory hearing, the Department is going to continue, uninterrupted, to stay these nitrate limitations for the flow of 4.31 MGD. The permittee need not file a new adjudicatory hearing and stay request for the nitrate limits. This stay will remain in effect until such time as the permit is modified or renewed and/or until resolution of the adjudicatory hearing. The permittee must continue to monitor and report for nitrate for the flow of 4.31 MGD. Note that finalization of this permit action is contingent on the Stipulation of Settlement addressing the nitrate issue as described.

14. Whole Effluent Toxicity (WET):

Section 101(a) of the Clean Water Act (CWA) establishes a national policy of restoring and maintaining the chemical, physical and biological integrity of the Nation's waters. In addition, section 101(a)(3) of the CWA and the State's SWQS at N.J.A.C. 7:9B-1.5(a)4 state that the discharge of toxic pollutants in toxic amounts is prohibited. Further, 40 CFR 122.44(d) and N.J.A.C. 7:14A-13.6(a) require that where the Department determines using site-specific WET data that a discharge causes, shows a reasonable potential to cause, or contributes to an excursion above the SWQS, the permitting authority must establish effluent limits for WET. In order to satisfy the requirements of the CWA, the State's SWQS and the NJPDES Regulations, the need for a WQBEL for WET was evaluated for this discharge.

In order to determine the need for a WET WQBEL, the Department has analyzed all available WET effluent data. In general, an acceptable data set consists of, at a minimum, 10 data values including the most recent 2½ years of data collection. Based on the review of the applicable data set, the Department has concluded the following:

- After review of the applicable data set from April 2009 to October 2013, WET was found in quantifiable amounts in the effluent. Of the 18 samples in the data set, fourteen of them were non-detectable, i.e. values of $> 100\%$; while the remaining 4 samples had an average value of 66.4%. Therefore, further analyses have been conducted for WET.

Cause Analysis for 4.31 MGD:

For WET, a cause analysis was conducted in accordance with N.J.A.C. 7:14A-13.5. When the maximum effluent value (in toxic units) exceeds the applicable site specific WLA (in toxic units), the discharge is shown to cause an exceedance of the SWQS.

Using the steady state mass balance equation, acute and chronic WLAs of 0.46 TU_a s and 1.63 TU_c s respectively, were developed utilizing the narrative criteria for toxic substances (general) specified in the SWQS at N.J.A.C. 7:9B, the permittee's WQMP flow of 4.31 MGD, and MA1CD10 (1Q10) and MA7CD10 (7Q10) stream design low flows values of 3.5 cfs and 4.2 cfs respectively. The 7Q10 stream design flow is utilized for the chronic calculations, while the 1Q10 stream design flow is utilized for acute calculations. Consistent with the recommendations of section 2.3.3 of the TSD, values of 0.3 acute toxic unit (TU_a) and 1.0 chronic toxic unit (TU_c) were used to interpret the narrative water quality criteria for WET contained at N.J.A.C. 7:9B-1.14(c) (see Response to Comments 13-74 through 13-89, 29 NJR 1861, (May 5, 1997)).

Review of the chronic WET data set indicates the maximum effluent data value to be 2.03 TU_c s (i.e. an IC25 = 49 %). Since the maximum reported effluent data value exceeds the applicable site specific WLA of 1.63 TU_c s, the discharge causes an exceedance of the chronic interpretation of the narrative criteria for WET identified in the SWQS.

Water Quality Based Effluent Limitation Derivation for 4.31 MGD:

Since the discharge was found to cause an exceedance of the chronic interpretation of the narrative criteria for WET identified in the SWQS, a WQBEL has been calculated in accordance with N.J.A.C. 7:14A-13.6(a), 40 CFR 122.44(d), and USEPA's TSD.

To enable a comparison between acute and chronic WET limits, the acute WLA (WLA_a) was translated to equivalent chronic toxic units (WLA_{ac}) by multiplying the WLA_a by a default acute to chronic ratio (ACR) of 10.

The acute and chronic WLAs were then converted to an acute Long Term Average (LTA_{ac}) of 1.4689 TU_{ac} s and a chronic LTA (LTA_c) of 0.8597 TU_c s, using a default acute coefficient of variation (CV) of 0.6, a default chronic coefficient of variation (CV) of 0.6, and multipliers of 0.321 and 0.527 for the acute and chronic LTAs respectively. Those multipliers are based on the 99th percentile consistent with Response to Comments 13-74 through 13-89, 29 NJR 1861 and are found on Page 102 of the TSD. The resultant long term average values were evaluated and the more protective (e.g. lower) value selected for translation into a daily maximum WET limit using the applicable 99th percentile multiplier, as found on Page 103 of the TSD.

The daily maximum chronic WET limit of 2.68 TU_c s was then converted to a permit limitation expressed as an IC25. **The resultant applicable limitation is an IC25= 37 % effluent.**

Cause Analysis for 5.79 MGD:

For WET, a cause analysis was conducted in accordance with N.J.A.C. 7:14A-13.5. When the maximum effluent value (in toxic units) exceeds the applicable site specific WLA (in toxic units), the discharge is shown to cause an exceedance of the SWQS.

Using the steady state mass balance equation, acute and chronic WLAs of 0.42 TU_as and 1.47 TU_cs respectively, were developed utilizing the narrative criteria for toxic substances (general) specified in the New Jersey SWQS at N.J.A.C. 7:9B, the permittee's specified WQMP flow of 5.79 MGD, and MA1CD10 (1Q10) and MA7CD10 (7Q10) stream design low flows values of 3.5 cfs and 4.2 cfs respectively. The 7Q10 stream design flow is utilized for the chronic calculations, while the 1Q10 stream design flow is utilized for acute calculations. Consistent with the recommendations of section 2.3.3 of the TSD, values of 0.3 acute toxic unit (TU_a) and 1.0 chronic toxic unit (TU_c) were used to interpret the narrative water quality criteria for WET contained at N.J.A.C. 7:9B-1.14(c) (see Response to Comments 13-74 through 13-89, 29 NJR 1861, (May 5, 1997)).

Review of the chronic WET data set indicates the maximum effluent data value to be 2.03 TU_cs (i.e. an IC25 = 49 %). Since the maximum reported effluent data value exceeds the applicable site specific WLA of 1.47 TU_cs, the discharge causes an exceedance of the chronic interpretation of the narrative criteria for WET identified in the SWQS.

Water Quality Based Effluent Limitation Derivation for 5.79 MGD:

Since the discharge was found to cause an exceedance of the chronic interpretation of the narrative criteria for WET identified in the SWQS, a WQBEL has been calculated in accordance with N.J.A.C. 7:14A-13.6(a), 40 CFR 122.44(d), and USEPA's TSD.

To enable a comparison between acute and chronic WET limits, the acute WLA (WLA_a) was translated to equivalent chronic toxic units (WLA_{ac}) by multiplying the WLA_a by a default acute to chronic ratio (ACR) of 10.

The acute and chronic WLAs were then converted to an acute Long Term Average (LTA_{ac}) of 1.3396 TU_{ac}s and a chronic LTA (LTA_c) of 0.7747 TU_cs, using a default acute coefficient of variation (CV) of 0.6 a default chronic coefficient of variation (CV) of 0.6; and multipliers of 0.321 and 0.527 for the acute and chronic LTAs respectively. Those multipliers are based on the 99th percentile consistent with Response to Comments 13-74 through 13-89, 29 NJR 1861 and are found on Page 102 of the TSD. The resultant long term average values were evaluated and the more protective (e.g. lower) value selected for translation into a daily maximum WET limit using the applicable 99th percentile multiplier, as found on Page 103 of the TSD.

The daily maximum chronic WET limit of 2.41 TU_cs was then converted to a permit limitation expressed as an IC25. **The resultant applicable limitation is an IC25 = 41 % effluent.**

Monitoring Requirements For 4.31 and 5.79 MGD Flows:

The test species method to be used for chronic testing shall continue to be the *Ceriodaphnia dubia*, Survival and Reproduction Test, 40 CFR 136.3, method 1002.0. Such selection is based on the freshwater characteristics of the receiving stream, the existing permit, N.J.A.C. 7:9B-1.5 and the Department's "Chronic Toxicity Testing Specifications for Use in the NJPDES Permit Program" document. This document is included as Appendix A of this permit, in accordance with N.J.A.C. 7:14A-6.5, 7:14A-11.2(a)2.iv. and 40 CFR Part 136. The NJPDES Biomonitoring Report Form-Chronic Toxicity Test submitted to the DRBC shall include the Chronic Toxicity test results expressed as IC25 and NOEC to satisfy the requirements of the DRBC.

Effluent samples for conducting WET testing are to be collected after the last treatment step, consistent with the collection location for all other parameters.

The existing monitoring frequency of **semi-annually** is being carried forward from the existing permit for both flows. The sample type shall be **composite**.

Antibacksliding/Antidegradation:

The WET limitation contained in this renewal permit is numerically less stringent than the existing permit. The reevaluation of the limitation was prompted by new information including revised low stream flows as discussed in 6.B above and more recent chronic WET test results (coefficients of variation).

The methodology for development of WET limitations requires the use of stream low flow statistics, current effluent data and measurements of effluent variability. This input data has changed since the permit was last issued (For actual values, see the basis section above). The state regulations at N.J.A.C. 7:14A-13.19(a) and federal statutes at 40 CFR 122.44 allow for backsliding if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. In the case of this change, such a situation exists. Therefore, the Department is justified in modifying the WET limitation in this fashion.

The water quality criteria for toxicity in the SWQS does not establish an acceptable level of toxicity for a receiving water, but rather requires no toxics in toxic amounts. Since WET limitations are not expressed as concentrations or loadings that can be related to an instream concentration or mass, but rather as a measure of the aggregate toxicity of the effluent, any change in quality of the receiving waters must be measured using the SWQS directly. The WQBEL chronic WET limitation proposed in this draft renewal has been developed to assure that the SWQS continue to be met *and* met without an increase in instream toxicity.

The numerical difference in the limitations is a result of the refinement of the method for developing WET limits and new effluent and stream data. As such, there will be no change in instream toxicity as a result of the change in the effluent limitation so that the antidegradation requirements set forth in N.J.A.C. 7:9B-1.5(d) are satisfied and further antidegradation analysis is not required.

15. Foam: The narrative foam permit condition is based on N.J.A.C. 7:14A-12.6.

16. Toxic Metals, Organic Compounds, and Cyanide:

In accordance with N.J.A.C. 7:14A-13.6(a), a WQBEL shall be imposed when the Department determines pursuant to N.J.A.C. 7:14A-13.5 that the discharge of a pollutant causes an excursion above a SWQS.

In order to determine the need for toxic pollutant specific WQBELs, the Department has analyzed all effluent data sets made available to the Department. Acceptable data sets generally consist of, at a minimum, 10 data values including the most recent 2½ years of data collection. A pollutant is considered discharged in “quantifiable amounts” when an exact amount of that pollutant is measured equal to or above the detection level reported by a laboratory analysis (refer to the “Monitoring Report Form (MRF) Reference Manual” for further information). Based on the review of the data sets, the Department has concluded the following:

- All priority pollutants, with the exception of those listed below, were not found to be discharged in the effluent. As a result, these toxic pollutants do not have effluent limitations proposed in the draft permit at this time. However, monitoring and reporting requirements have been included in this permit action based on N.J.A.C. 7:14A-13.5(k)3 and the need to re-evaluate the necessity for WQBELs upon renewal of the permit (based on the recommendations of section 3.1 of the EPA TSD). The monitoring frequency for all priority pollutants is **annual**.
- After review of the applicable data sets, **Copper, Zinc, Barium, and Nickel** were found to be discharged in quantifiable amounts in the effluent. Therefore, further analyses have been conducted on these pollutants. The existing permit included effluent limits for copper with an effective date of

November 1, 2016. Because these copper limits were stayed in a subsequent action and never became effective, an antibacksliding analysis is not necessary.

Quantified Pollutant Analysis Methodology:

For each pollutant discharged in quantifiable amounts in the effluent, a cause analysis was conducted using the procedures specified in the USEPA TSD in accordance with N.J.A.C. 7:14A-13.5. The cause analysis consists of a comparison between the pollutant's maximum effluent concentration value (or average value of a long term data set in the case of criteria with an averaging period longer than one year) and the pollutant's applicable site specific WLA.

Using the steady state mass balance equation, WLAs were developed utilizing the applicable SWQS, pollutant specific upstream concentrations (when available), the permittee's specified WQMP flows of 4.31 and 5.79 MGD, and MA1CD10 (1Q10), MA7CD10 (7Q10), and/or 75th percentile stream design low flows values of 3.5, 4.2, and 15 respectively. The 7Q10 stream design flow is utilized for all chronic and human health non-carcinogenic calculations, while the 1Q10 and 75th percentile stream design flows are utilized for acute and human health carcinogenic calculations respectively.

For the applicable pollutants (Copper, Nickel, Zinc), the applied criteria is based on the site specific hardness values shown below and a water effect ratio (WER) of 1.0.

Flow	Acute Hardness	Chronic Hardness
4.31 MGD	214	211
5.79 MGD	218	215

For the applicable metals, default or site specific translators were utilized to convert total recoverable data to its dissolved equivalent for the cause analyses for aquatic criteria, and, if applicable, to convert the dissolved long term averages to total recoverable values for determining WQBELs. Translator values for the parameters listed below, if not site specific, are based on the conversion factors for dissolved metals at 40 CFR Part 131 and N.J.A.C. 7:9B-1.5(c)6. The default or site-specific metal translators used in the analyses are as follows:

Metal	Fresh Water	
	Translator (acute)	Translator (chronic)
Copper (Site-Specific)	0.888	0.888
Nickel	0.8460	0.8460
Zinc	0.9500	0.9500

Quantified Pollutant Analysis Results:

Cause analyses were conducted on **Copper, Zinc, Barium, and Nickel**. As a result of the cause analyses, none of the parameters were found to cause an excursion of the SWQS. The Department's conclusions and results are listed below. Refer to Table A at the back of the Fact Sheet for a summary of the effluent limitation analysis for the Toxic Metals, Organic Compounds, and/or Cyanide.

- Since the discharge of **Copper, Zinc, Barium, and Nickel** in the permittee's effluent were not found to cause an excursion of the SWQS, WQBELs are not proposed in the draft permit for the parameters at this time. Therefore, the existing effluent limitations for copper for both flows are being removed from the permit since they are not warranted and were never effective. However, monitoring and reporting requirements have been included in this permit action based on N.J.A.C. 7:14A-13.5(k)3 and the need to re-evaluate the necessity for WQBELs upon renewal of the permit (based on the recommendations of section 3.1 of the EPA TSD).

The monitoring frequency for copper shall be **monthly**, while the monitoring frequency for zinc, barium, and nickel shall be **semi-annual**. The sample type for all parameters shall be **24-hour composite**. Consistent with the intent of 40 CFR 122.45(c) and N.J.A.C. 7:14A-13.14(b), monitoring data for toxic metals shall be expressed as total recoverable.

C. Influent and Effluent Monitoring Requirements:

In order to calculate percent removals, influent monitoring is required for BOD₅ and TSS in accordance with N.J.A.C. 7:14A-6.5(b) and 11.2(a) 2. Consistent with the intent of 40 C.F.R. 403.5 and as authorized by the provisions of N.J.A.C. 7:14A-6.3(a), the monitoring requirements for influent pH and temperature are included in the permit.

D. Recommended Quantitation Levels Policy (RQLs):

The Department developed the RQLs to insure that useful data is provided to the Department in order to characterize the discharger's effluent. The Department recommends that the permittee achieve detection levels that are at least as sensitive as the RQLs found in Part III. The Department has determined that the quantitation levels listed therein can be reliably and consistently achieved by most state certified laboratories for most of the listed pollutants using the appropriate procedures specified in 40 CFR Part 136. FAILURE TO ATTAIN A QUANTITATION LEVEL AS SENSITIVE AS A LISTED RQL IS NOT A VIOLATION OF THE PERMIT, BUT DOES TRIGGER SOME ADDITIONAL REPORTING REQUIREMENTS FOR THE PERMITTEE AS SPECIFIED IN PART IV OF THE PERMIT.

E. Reporting Requirements:

All data requested to be submitted by this permit shall be reported on the Discharge Monitoring Reports (DMRs), Waste Characterization Reports (WCR), and Residual Transfer Reports (RTR) as appropriate and submitted to the Department as required by N.J.A.C. 7:14A-6.8(a).

F. General conditions:

In accordance with N.J.A.C. 7:14A-2.3 and 6.1(b), specific rules from the New Jersey Administrative Code have been incorporated either expressly or by reference in Part I and Part II.

G. Operator Classification Number:

The operator classification requirement is no longer included in the permit. To obtain or determine the appropriate licensed operator classification for the treatment works specified, the permittee shall contact the Bureau of Licensing and Pesticide Operations at (609) 984-6507.

H. Flow Related Conditions:

All flow related conditions are incorporated into the permit to implement the Treatment Works Approval Program (N.J.A.C. 7:14A-22), the Capacity Assurance Program (N.J.A.C. 7:14A-22.16), the Sewer Ban Program (N.J.A.C. 7:14A-22.17), the applicable Water Quality Management Plan (N.J.A.C. 7:15), and the Sludge Quality Assurance Regulations (N.J.A.C. 7:14C).

Since each stage flow has its own set of limitations, the permittee must notify the Department when the current approved stage flow is exceeded so that the next set of stage limitations may be activated. Please note that activation of the final stage flow of 5.79MGD is based upon Departmental approval. Refer to Part IV.E for specific activation requirements.

The numerical value used for flow as a permit condition is consistent with the Upper Delaware Water Quality Management Plan in accordance with N.J.A.C. 7:14A-15.4(b).

I. Pretreatment Conditions:

The pretreatment conditions as specified in this permit are consistent with the requirements under N.J.A.C. 7:14A-19.3.

J. Residuals/Sludge Conditions:

All treatment works with a discharge regulated under N.J.A.C. 7:14A must have permits that implement applicable technical standards for residuals management. All applicable conditions for residuals management are included in NJPDES Permit No. NJG0200921; and thus, have been removed from this permit renewal.

K. Reclaimed Water for Beneficial Reuse (RWBR):

This draft permit contains conditions allowing the Musconetcong Sewage Authority to beneficially reuse treated effluent identified as RWBR provided the effluent is in compliance with the criteria specified for the particular use. There are two main types of RWBR uses, Public Access Use and Restricted Access Use. Conditions applicable to both types of RWBR are included herein. However, currently approved types of RWBR are included in Appendix A of this permit. As specified in Part IV, the permittee must obtain approval from the Department for each additional RWBR application prior to implementation. Approval shall be granted via a minor modification to the permit for any newly requested applications and included in Appendix B of this permit.

1. Effluent Limitations and Monitoring Requirements for Distribution of Reclaimed Water for Beneficial Reuse for Public Access

When the permittee distributes RWBR to an approved reuse location, the surface water discharge effluent limitations contained in Part III of this permit and requirements for Public Access reuse identified in Part IV of this permit shall be met. In addition, the following system, operational and monitoring conditions shall be applicable.

Reclaimed water shall not exceed 5.0 mg/L of Total Suspended Solids (TSS) at a point before application of disinfection. The sample type shall be grab. The facility shall provide continuous on-line monitoring for turbidity before application of disinfection. These requirements are consistent with the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse" and EPA document entitled, "Municipal Wastewater Reuse, Selected Readings on Water Reuse", EPA # 430/09-91-022, September 1991 and the EPA Manual, "Guidelines for Water Reuse", EPA document # 625R-92/004, September 1992.

Where ultraviolet light is utilized for disinfection, a design UV dose of 100 mJ/cm² under maximum daily flow shall be used. This dose shall also be based on continuous monitoring of UV lamp intensity, UV transmittance and UV flow rate. All aspects of the UV system shall meet the requirements of the December 2000 National Water research Institute's Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse and the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse."

Fecal coliform concentrations shall not exceed 14 fecal coliforms per 100 mL at any given time (as an instantaneous maximum level). Fecal coliform concentrations shall also meet a weekly (7 day) median value of 2.2 fecal coliforms per 100 mL. This is consistent with a report entitled

“Regulations Governing Agricultural Use of Municipal Wastewater and Sludge”, National Academy Press, Washington, D.C. 1996, Department’s “Technical Manual for Reclaimed Water for Beneficial Reuse” and the EPA Manual, “Guidelines for Water Reuse”, EPA document # 625R-92/004, September 1992.

RWBR limitations shall not exceed a total nitrogen (NO₃ + NH₃) concentration of 10.0 mg/L. This is the Ground Water Quality Standard (as per N.J.A.C. 7:9-6) and consistent with the Department’s “Technical Manual for Reclaimed Water for Beneficial Reuse.” This requirement only applies when RWBR is land applied, however, this requirement does not apply to spray irrigation within a fenced perimeter or otherwise restricted area. The permittee may demonstrate that a concentration greater than 10 mg/l is protective of the environment by submitting and receiving approval of the information stated in the Engineering Report section of the “Technical Manual for Reclaimed Water for Beneficial Reuse.”

2. Effluent Limitations and Monitoring Requirements for Distribution of Reclaimed Water for Beneficial Reuse for **Restricted Access – Land Application and Non Edible Crops**

When the permittee distributes RWBR to an approved reuse location, the surface water discharge effluent limitations contained in Part III of this permit and requirements for Non Edible Crops reuse identified in Part IV of this permit shall be met. In addition, the following system, operational and monitoring conditions shall be applicable.

Where ultraviolet light is utilized for disinfection, a design UV dose of 100 mJ/cm² under maximum daily flow shall be used. This dose shall also be based on continuous monitoring of UV lamp intensity, UV transmittance and UV flow rate. All aspects of the UV system shall meet the requirements of the December 2000 National Water research Institute’s Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse and the Department’s “Technical Manual for Reclaimed Water for Beneficial Reuse.”

The effluent shall comply with the permit limitations for E. Coli as specified in the Effluent Limitations Table in Part III of the permit. This is consistent with a report entitled “Regulations Governing Agricultural Use of Municipal Wastewater and Sludge”, National Academy Press, Washington, D.C. 1996, Department’s “Technical Manual for Reclaimed Water for Beneficial Reuse” and the EPA Manual, “Guidelines for Water Reuse”, EPA document # 625R-92/004, September 1992.

RWBR limitations shall not exceed a total nitrogen (NO₃ + NH₃) concentration of 10.0 mg/L. This is the Ground Water Quality Standard (as per N.J.A.C. 7:9-6) and consistent with the Department’s “Technical Manual for Reclaimed Water for Beneficial Reuse.” This requirement only applies when RWBR is land applied, however, this requirement does not apply to spray irrigation within a fenced perimeter or otherwise restricted area. The permittee may demonstrate that a concentration greater than 10 mg/l is protective of the environment by submitting and receiving approval of the information stated in the Engineering Report section of the “Technical Manual for Reclaimed Water for Beneficial Reuse.”

3. Effluent Limitations and Monitoring Requirements for Distribution of Reclaimed Water for Beneficial Reuse for **Restricted Access – Construction and Maintenance Operations and Restricted Access – Industrial Systems**

When the permittee distributes RWBR to an approved reuse location, the surface water discharge effluent limitations contained in Part III of this permit and requirements for Construction and Maintenance Operation Systems and/or Industrial Systems reuse identified in Part IV of this permit shall be met.

Other Applicable Conditions for RWBR:

The following conditions are consistent with the requirements of the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse" and the EPA document entitled, "Municipal Wastewater Reuse, Selected Readings on Water Reuse" EPA # 430/09-91-022, September 1991 and the EPA Manual, "Guidelines for Water Reuse", EPA document # 625R-92/004, September 1992.

Only reclaimed water meeting high level treatment and the conditions detailed in the approved Operations Protocol shall be diverted for beneficial reuse. Diversion of acceptable quality reclaimed water to the reuse location shall occur only during periods of operator presence, unless other provisions for increased facility reliability are detailed in the Operations Protocol. The Operations Protocol must be reviewed and updated as required. Changes to the Operations Protocol must be submitted to the Department and approved by the Department prior to implementation. Reclaimed water produced at the treatment facility that fails to meet the criteria established in the Operations Protocol shall not be diverted for beneficial reuse and must instead, be discharged in compliance with the NJPDES/DSW permitted outfall.

The application of reclaimed water shall not produce surface runoff or ponding of the reclaimed water. Land application sites shall not be frozen or saturated when applying RWBR. All setback distances shall be consistent with the requirements of the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse".

The permittee must post advisory signs designating the nature of the project in the area where beneficial reuse is practiced. Examples of methods for notification are identified in the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse".

No cross-connections to potable water systems shall be allowed. All reuse system valves and outlets must be appropriately tagged or labeled to warn the public and employees that the water is not intended for drinking. All piping, pipelines, valves, and outlets must be color coded, or otherwise marked, to differentiate reclaimed water from domestic or other water, as detailed in the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse".

The permittee is required to submit a Beneficial Reuse Annual Report on February 1 of each year. The annual report shall compile the total flow of reuse water distributed to each approved reuse site for each approved type of reuse for the previous calendar year. Specific requirements for the annual report are identified in the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse". In addition a daily log noting the volume of water supplied, the name of the user, date of pick-up, the location and type of reuse (e.g. sewer jetting, landscape irrigation, etc...). and where it is being distributed shall be maintained on-site.

The permittee is required to submit a copy of all Reuse Supplier and User Agreements for existing reuses with its permit application package. Additional Reuse Supplier and User Agreements shall be submitted for each additional user prior to start-up of that use. A Reuse Supplier and User Agreement is a binding agreement between the permittee that supplies the RWBR and the entity that beneficially reuses this water. This agreement is required to ensure that all parties involved work to ensure that construction, operation, maintenance and monitoring of the RWBR system is in compliance with the Technical Manual, all applicable rules and regulations, this permit and the permittee's NJPDES discharge permit. A The requirement for submittal of this document is consistent with N.J.A.C. 7:14A-2.11(a). Please note that a Reuse Supplier and User Agreement is not required if the supplier of the RWBR and the user are the same entity.

The permittee is required to submit and receive approval of an Engineering Report in support of RWBR approval requests for new or expanded RWBR projects as detailed in the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse"

L. Compliance Schedule:

Since the permittee's effluent data indicates that they may be unable to consistently comply with the final effluent limitation for total nitrate, a schedule of compliance is included in the permit, including interim deadlines for progress or reports of progress towards compliance with the conditions of this permit, in accordance with N.J.A.C. 7:14A-6.4(a). The compliance schedule for total nitrate is established at 59 months from the effective date of the permit (EDP) to allow the permittee sufficient time to achieve compliance with the newly established effluent limitations. This schedule is provided in consideration of the time it would require for the permittee to undertake steps needed to modify or install treatment facilities, operations or other required measures.

Beginning on EDP + 1 year and every subsequent year after, until the final effluent limitations becomes effective, the permittee must submit a progress report to the Department on the steps taken towards compliance with the final effluent limitation(s). The progress report must include but is not limited to the following information:

- Investigative work as to what type of treatment options or other means of compliance are considered;
- Decision on the chosen method of treatment;
- Progress on design, bidding and construction schedule;
- The permittee's intent to do studies indicated in Part IV of this permit (to obtain site specific hardness, translator and WER values).

1. Compliance Schedule for Total Nitrate for 4.31 MGD Only:

- a. During the Initial Phase, from the effective date of the permit (EDP) to EDP + 59, the permittee shall only monitor and report for the above referenced parameter.
- b. During the Interim Phase, beginning EDP + 60 months, the permittee shall meet the final effluent limitations for the above referenced parameter.

7 Variances to Permit Conditions:

To date, the Department has not received a variance request from the permittee.

Procedures for modifying a WQBEL are found in the New Jersey SWQS, N.J.A.C. 7:9B-1.8 and 1.9. If a water quality based effluent limitation has been proposed in this permit action, the permittee may request a modification of that limitation in accordance with N.J.A.C. 7:14A-11.7(a). This request must be made prior to the close of the public comment period. The information that must be submitted to support the request may be obtained from the Bureau of Water Quality Standards and Assessment at (609) 777-1753.

8 Description of Procedures for Reaching a Final Decision on the Draft Action:

Please refer to the procedures described in the public notice that is part of the draft permit. The public notice for this permit action is published in the *Daily Record* and in the DEP Bulletin.

9 Contact Information

If you have any questions regarding this permit action, please contact Robert Hall, Bureau of Surface Water Permitting at (609) 292-4860.

10 Calculation Equations:

A. Steady State Mass Balance Equation: $C_d = C_i = (Q_{up} \times C_{up} + Q_w \times WLA) / (Q_{up} + Q_w)$

where, C_d = downstream concentration
 C_i = instream surface water criteria (from N.J.A.C. 7:9B)
 C_{up} = upstream concentration
 Q_{up} = upstream design low flow value, cfs
 Q_w = wastewater flow, cfs
WLA = wasteload allocation

B. Wasteload Allocation: $WLA = [C_i \times (Q_{up} + Q_w) - (Q_{up} \times C_{up})] / Q_w$

where, WLA = wasteload allocation
 C_i = instream surface water criteria (from N.J.A.C. 7:9B)
 C_{up} = upstream concentration
 Q_w = wastewater flow, cfs
 Q_{up} = upstream design low flow value, cfs

C. Long Term Average: $LTA = (WLA) \times [WLA \text{ multiplier (LTA)}]$

where, LTA = long term average
WLA = wasteload allocation
WLA multiplier (LTA) = wasteload allocation multiplier for long term average, the 99th percentile multiplier, (see Table 5-1 in TSD, page 102)

D. Maximum Daily Limitation: $MDL = (LTA) \times [LTA \text{ multiplier (MDL)}]$

where, MDL = maximum daily limitation
LTA = long term average
LTA multiplier (MDL) = long term average multiplier for the maximum daily limitation, the 99th percentile multiplier, (see Table 5-2 in TSD, page 103)

E. Average Monthly Limitation: $AML = (LTA) \times [LTA \text{ multiplier (AML)}]$

where, AML = average monthly limitation
LTA = long term average
LTA multiplier (AML) = long term average multiplier for the average monthly limitation, the 99th percentile multiplier, (see Table 5-2 in TSD, page 103)

11

Permit Summary Table: 4.31 MGD

Unless otherwise noted, all effluent limitations are expressed as maximums. Dashes (--) indicate there is no effluent data, no limitations, or no monitoring for this parameter depending on the column in which it appears.

PARAMETER	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/2009 – 12/2013	EXISTING LIMITS	INITIAL LIMITS	INTERIM LIMITS
					EDP to EDP + 59 months	EDP + 60 months to permit expiration
Flow	MGD	Monthly Avg. Daily Max.	2.38 5.72	MR MR	MR MR	MR MR
5 Day Biochemical Oxygen Demand (BOD ₅) Summer (1)	kg/d	Monthly Avg. Weekly Avg.	27.00 30.50	131 196	131 196	131 196
5 Day Biochemical Oxygen Demand (BOD ₅) Summer (1)	mg/L	Monthly Avg. Weekly Avg.	3.13 3.42	8.0 12	8.0 12	8.0 12
5 Day Biochemical Oxygen Demand (BOD ₅) Winter (1)	kg/d	Monthly Avg. Weekly Avg.	28.09 32.31	326 489	326 489	326 489
5 Day Biochemical Oxygen Demand (BOD ₅) Winter(1)	mg/L	Monthly Avg. Weekly Avg.	3.11 3.42	20 30	20 30	20 30
Influent BOD ₅	mg/L	Monthly Avg. Weekly Avg.	172.53 183.48	MR MR	MR MR	MR MR
BOD ₅ Minimum Percent Removal	%	Monthly Avg.	97.95	85	85	85
Total Suspended Solids (TSS)	kg/d	Monthly Avg. Weekly Avg.	22.28 30.23	489 734	489 734	489 734
Total Suspended Solids (TSS)	mg/L	Monthly Avg. Weekly Avg.	2.52 3.28	30 45	30 45	30 45
Influent Total Suspended Solids (TSS)	mg/L	Monthly Avg. Weekly Avg.	201.29 223.78	MR MR	MR MR	MR MR
TSS Minimum Percent Removal	%	Monthly Avg.	98.47	85	85	85
Total Dissolved Solids	kg/d	Monthly Avg. Weekly Avg.	8577.94 8577.9	MR MR	MR MR	MR MR
Total Dissolved Solids	mg/L	Monthly Avg. Weekly Avg.	942.45 942.45	MR MR	MR MR	MR MR
Nitrate (Total as N)	kg/d	Monthly Avg. Daily Max.	159.85 243	MR (2) MR(2)	MR MR	258 (3) 396 (3)
Nitrate (Total as N)	mg/L	Monthly Avg. Daily Max.	18.81 32.1	MR (2) MR(2)	MR MR	15.8 (3) 24.3 (3)
Phosphorus (Total as P)	kg/d	Monthly Avg. Weekly Avg.	3.14 3.68	MR (2) MR(2)	MR MR	MR MR
Phosphorus (Total as P)	mg/L	Monthly Avg. Weekly Avg.	0.34 0.38	MR (2) MR(2)	0.9 MR	0.9 MR
Fecal Coliform (geometric mean)	# per 100mL	Monthly Avg. Weekly Avg.	30.3 43.15	200 400	-- --	-- --
E. Coli (geometric mean)	# per 100mL	Monthly Avg. Instant Max	13.29 170	MR MR	126 MR	126 MR
Dissolved Oxygen (minimum)	mg/L	Daily Avg. Weekly Avg.	9.51 9.51	7.0 MR	7.0 MR	7.0 MR
Oil and Grease	mg/L	Monthly Avg. Instant Max. # Det/ # N.D.	7.95 8.45 2/29	10 15	10 15	10 15
Influent Temperature	°C	Instant. Min. Monthly Avg. Instant. Max.	7.0 15.12 22	MR MR MR	MR MR MR	MR MR MR

PARAMETER	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/2009 – 12/2013	EXISTING LIMITS	INITIAL LIMITS EDP to EDP + 59 months	INTERIM LIMITS EDP + 59 months to permit expiration
Effluent Temperature	°C	Instant. Min.	6.0	MR	MR	MR
		Monthly Avg.	14.92	MR	MR	MR
		Instant. Max.	23	MR	MR	MR
Influent pH	su	Instant. Min.	6.4	MR	MR	MR
		Instant. Max.	7.91	MR	MR	MR
Effluent pH	su	Instant. Min.	6.43	6.0	6.0	6.0
		Instant. Max.	9.0	9.0	9.0	9.0
Ammonia (Total as N)						
Summer (1)	kg/d	Monthly Avg.	4.32	13.9	13.9	13.9
		Daily Max.	8.72	27.2	27.2	27.2
Summer (1)	mg/L	Monthly Avg.	0.47	0.85	0.85	0.85
		Daily Max.	0.7	1.67	1.67	1.67
Winter (1)	kg/d	Monthly Avg.	5.92	39.2	39.2	39.2
		Daily Max.	18.06	75.0	75.0	75.0
Winter (1)	mg/L	Monthly Avg.	0.61	2.4	2.4	2.4
		Daily Max.	0.92	4.6	4.6	4.6
Chlorine Produced Oxidants						
Chlorine Produced Oxidants	mg/L	Month Avg.	<0.1	MR	--	--
		Daily Max.	<0.1	MR	--	--
Copper, Total Recoverable						
Copper, Total Recoverable	g/day	Monthly Avg.	134.37	MR (2)	MR	MR
		Daily Max.	237.77	MR(2)	MR	MR
Copper, Total Recoverable	µg/L	Monthly Avg.	15.59	MR (2)	MR	MR
		Daily Max.	26.2	MR(2)	MR	MR
Zinc, Total Recoverable						
Zinc, Total Recoverable	g/day	Monthly Avg.	--	--	--	--
		Daily Max.	--	--	--	--
Zinc, Total Recoverable	µg/L	Monthly Avg.	36.5	MR	MR (4)	MR (4)
		Daily Max.	43.4	MR	MR (4)	MR (4)
Chronic Toxicity, IC25						
Chronic Toxicity, IC25	% effluent	Minimum	66.4 (avg of 4 data points) >100 (14 data points)	51	37	37

Footnotes and Abbreviations:

MR Monitor and report only

- (1) Summer limitations effective from May 1 through October 31. Winter limitations effective from November 1 through April 30.
- (2) The “stayed” effluent limitations for a flow of 4.31 MGD are as follows: phosphorus (0.11 mg/L monthly average and 0.17 mg/L weekly average); nitrate (12 mg/L monthly average and 18 mg/L daily maximum); and copper (29 µg/L daily maximum and 473 kg/day daily maximum). This stay also pertains to all associated loading limitations.
- (3) The nitrate limitations will be stayed in the final permit consistent with the terms of the Stipulation of Settlement when finalized.
- (4) Monitoring is required as a Waste Characterization Requirement.

12

Permit Summary Table: 5.79 MGD

Unless otherwise noted, all effluent limitations are expressed as maximums. Dashes (--) indicate there is no effluent data, no limitations, or no monitoring for this parameter depending on the column in which it appears.

PARAMETER	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/2009 – 12/2013	EXISTING LIMITS	FINAL LIMITS
Flow	MGD	Monthly Avg. Daily Max.	2.38 5.72	MR MR	MR MR
5 Day Biochemical Oxygen Demand (BOD ₅) Summer (1)	kg/d	Monthly Avg. Weekly Avg.	27.00 30.50	175 263	175 263
5 Day Biochemical Oxygen Demand (BOD ₅) Summer (1)	mg/L	Monthly Avg. Weekly Avg.	3.13 3.42	8.0 12	8.0 12
5 Day Biochemical Oxygen Demand (BOD ₅) Winter (1)	kg/d	Monthly Avg. Weekly Avg.	28.09 32.31	438 657	438 657
5 Day Biochemical Oxygen Demand (BOD ₅) Winter(1)	mg/L	Monthly Avg. Weekly Avg.	3.11 3.42	20 30	20 30
Influent BOD ₅	mg/L	Monthly Avg. Weekly Avg.	172.53 183.48	MR MR	MR MR
BOD ₅ Minimum Percent Removal	%	Monthly Avg.	97.95	85	85
Total Suspended Solids (TSS)	kg/d	Monthly Avg. Weekly Avg.	22.28 30.23	657 986	657 986
Total Suspended Solids (TSS)	mg/L	Monthly Avg. Weekly Avg.	2.52 3.28	30 45	30 45
Influent Total Suspended Solids (TSS)	mg/L	Monthly Avg. Weekly Avg.	201.29 223.78	MR MR	MR MR
TSS Minimum Percent Removal	%	Monthly Avg.	98.47	85	85
Total Dissolved Solids	kg/d	Monthly Avg. Weekly Avg.	8577.94 8577.9	11,484 17,225	12,623 18,935
Total Dissolved Solids	mg/L	Monthly Avg. Weekly Avg.	942.45 942.45	524 786	576 864
Nitrate (Total as N)	kg/d	Monthly Avg. Daily Max.	159.85 243	248 384	314 557
Nitrate (Total as N)	mg/L	Monthly Avg. Daily Max.	18.81 32.1	11.3 17.5	14.3 25.4
Phosphorus (Total as P)	kg/d	Monthly Avg. Weekly Avg.	3.14 3.68	2.41 3.73	MR MR
Phosphorus (Total as P)	mg/L	Monthly Avg. Weekly Avg.	0.34 0.38	0.11 0.17	0.9 MR
Fecal Coliform (geometric mean)	# per 100mL	Monthly Avg. Weekly Avg.	30.3 43.15	200 400	-- --
E. Coli (geometric mean)	# per 100mL	Monthly Avg. Instant Max.	13.29 170	MR MR	126 MR
Dissolved Oxygen (minimum)	mg/L	Daily Avg. Weekly Avg.	9.51 9.51	7.0 MR	7.0 MR
Oil and Grease	mg/L	Monthly Avg. Instant Max. # Det/ # N.D.	7.95 8.45 2/29	10 15	10 15
Influent Temperature	°C	Instant. Min. Monthly Avg. Instant. Max.	7.0 15.12 22	MR MR MR	MR MR MR
Effluent Temperature	°C	Instant. Min. Monthly Avg. Instant. Max.	6.0 14.92 23	MR MR MR	MR MR MR
Influent pH	su	Instant. Min. Instant. Max.	6.4 7.91	MR MR	MR MR

PARAMETER	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/2009 – 12/2013	EXISTING LIMITS	FINAL LIMITS
Effluent pH	su	Instant. Min. Instant. Max.	6.43 9.0	6.0 9.0	6.0 9.0
Ammonia (Total as N) Summer (1)	kg/d	Monthly Avg. Daily Max.	4.32 8.72	15.34 35.06	15.34 35.06
Ammonia (Total as N) Summer (1)	mg/L	Monthly Avg. Daily Max.	0.47 0.7	0.7 1.6	0.7 1.6
Ammonia (Total as N) Winter (1)	kg/d	Monthly Avg. Daily Max.	5.92 18.06	40.54 89.85	40.54 89.85
Ammonia (Total as N) Winter (1)	mg/L	Monthly Avg. Daily Max.	0.61 0.92	1.85 4.1	1.85 4.1
Chlorine Produced Oxidants	mg/L	Month Avg. Daily Max.	<0.1 <0.1	MR MR	-- --
Copper, Total Recoverable	g/day	Monthly Avg. Daily Max.	134.37 237.77	MR 635	MR MR
Copper, Total Recoverable	µg/L	Monthly Avg. Daily Max.	15.59 26.2	MR 29	MR MR
Zinc, Total Recoverable	g/day	Monthly Avg. Daily Max.	-- --	MR MR	MR (2) MR (2)
Zinc, Total Recoverable	µg/L	Monthly Avg. Daily Max.	36.5 43.4	MR MR	MR (2) MR (2)
Chronic Toxicity, IC25	% effluent	Minimum	66.4 (avg of 4 data points) >100 (14 data points)	53	41

Footnotes and Abbreviations:

MR Monitor and report only

- (1) Summer limitations effective from May 1 through October 31. Winter limitations effective from November 1 through April 30.
- (2) Monitoring is required as a Waste Characterization Requirement.

The following items are used to establish the basis of the Draft Permit:

Rules and Regulations:

1. 33 U.S.C. 1251 et seq., Federal Water Pollution Control Act. [C]
2. 40 CFR Part 131, Federal Water Quality Standards. [A] [C]
3. 40 CFR Part 122, National Pollutant Discharge Elimination System. [C]
4. N.J.S.A. 58:10A-1 et seq., New Jersey Water Pollution Control Act. [A] [B]
5. N.J.A.C. 7:14A-1 et seq., New Jersey Pollutant Discharge Elimination System Regulations. [A] [B]
6. N.J.A.C. 7:9B-1 et seq., New Jersey Surface Water Quality Standards. [A] [B]
7. N.J.A.C. 7:15, Statewide Water Quality Management Planning Rules. [A] [B]
8. N.J.A.C. 7:14C, Sludge Quality Assurance Regulations. [B]
9. Delaware River Basin Commission: Administrative Manual – Part III Water Quality Regulations.

Guidance Documents / Reports:

1. "Field Sampling Procedures Manual", published by the NJDEP. [A]
2. "NJPDES Monitoring Report Form Reference Manual", updated December 2007, and available on the web at http://www.state.nj.us/dep/dwq/pdf/MRF_Manual.pdf.
3. "EPA Technical Support Document for Water Quality-based Toxics Control", EPA/505/2-90-001, March 1991. [A]
4. New Jersey's 2010 Integrated Water Quality Monitoring and Assessment Report (includes 305 (b) Report 303(d) List). [A] [B]
5. Draft "Technical Manual for Reclaimed Water for Beneficial Reuse", published by NJDEP, October 2002. [A] [B]

Permits / Applications:

1. NJPDES/DSW Permit Application dated October 5, 2006. [A]
2. Draft NJPDES/DSW Permit NJ0027821, issued February 17, 2011.
3. Existing NJPDES/DSW Permit NJ0027821, issued October 14, 2011 and effective December 1, 2011. [A]

Correspondences:

1. "Phase Two Study Report – Impact Analysis of Wastewater Discharge on the Water Quality of the Upper Musconetcong River – February 1993", performed by Najarian Associates on behalf of the Musconetcong Sewerage Authority.
2. "Musconetcong River Water Quality Characterization Study – Musconetcong Sewerage Authority", dated February 20, 2004, and submitted by Omni Environmental Corporation on behalf of the permittee.
3. "Stream Study for Total Phosphorus Musconetcong Sewerage Authority, Mt. Olive Township, Morris County", dated January 2005.
4. "Study of Potential Thermal Impacts within the upper Musconetcong River", dated May 31, 2005 and prepared by Najarian Associates on behalf of MSA.
5. Correspondence from Howard B. Tompkins of the Department to Steven Rattner of Musconetcong Sewerage Authority dated November 16, 2006, regarding a stay of the total phosphorus effluent limitations.
6. Correspondence from Pilar Patterson of the Department to Larry I. Kron of Nusbam, Stain, Goldstein, Bronstein & Kron, dated June 8, 2012, regarding a stay of effluent limitations for phosphorus, nitrate, and total dissolved solids.
7. Correspondence from Debra Hammond, Chief, Bureau of Water Quality Standards and Assessment, to Howard S. Litwach of Najarian Associates dated April 25, 2010 stating that the phosphorus impairment for the stream is being removed.
8. Correspondence from Marco Alebus of the Department to James Schilling of Musconetcong Sewerage Authority, dated December 9, 2013, regarding an amendment to the Department's conclusion of the Phosphorus Evaluation Study.

Meetings / Site Visits:

1. Site Visit on February 25, 2014.

Footnotes:

- [A] Denotes items that may be found in the NJPDES/DSW Administrative Record Library located in the NJDEP Central File Room, 401 East State Street, Trenton, New Jersey.
- [B] Denotes items that may be found on the New Jersey Department of Environmental Protection (NJDEP) website located at "<http://www.state.nj.us/dep/>".
- [C] Denotes items that may be found on the United States Environmental Protection Agency (USEPA) website at "<http://www.epa.gov/>".

Table A: Effluent limitation analysis for the Toxic Metals, Organic Compounds, Cyanide, and other pollutants; effluent flow of 4.31 and 5.79 MGD and stream hardness of 100 mg/L.

4.31 MGD

Parameter	Data set time period	Number of data points	Coefficient of variation (CV)	Maximum reported data value (µg/L) (1) *	Calculated instream WLA (µg/L) *	"Cause" Y = yes N = no A > B ?	Aquatic criteria LTA (µg/L) **	Water quality based limit, if applicable (µg/L) **
				A	B			
Total Nitrate	May 2009 to November 2013	(dt) = 60 (nd) = 0	0.48 (ca)	29.9 mg/L (max)	(h) = 15.8 mg/L	(h) = Y	NA	MDL = 24.3 mg/L AML = 15.8 mg/L
Total Recoverable Copper	March 2013 to October 2013	(dt) = 10 (nd) = 0	0.28 (ca)	23.3 (max)	(a) = 39.4 (c) = 25.8 (h) = 2118.5 (hc) = NA	(a) = N (c) = N (h) = N (hc) = NA	(a) = 24.4 (c) = 21.3	MDL = 38.6 AML = 29.0 NOT IMPOSED
Total Recoverable Barium	May 2009 to November 2013	(dt) = 7 (nd) = 1	0.6 (d)	33 (max)	(a) = NA (c) = NA (h) = 3260 (hc) = NA	(a) = NA (c) = NA (h) = N (hc) = NA	(a) = NA (c) = NA	MDL = 5355 AML = 3260 NOT IMPOSED
Total Recoverable Nickel	May 2009 to November 2013	(dt) = 4 (nd) = 1	0.6 (d)	5.8 (max)	(a) = 1152.1 (c) = 135.3 (h) = 815 (hc) = NA	(a) = N (c) = N (h) = N (hc) = NA	(a) = 437.3 (c) = 84.3	MDL = 263 AML = 160 NOT IMPOSED
Total Recoverable Zinc	May 2009 to November 2013	(dt) = 6 (nd) = 0	0.6 (d)	40.6 (max)	(a) = 330.7 (c) = 349.3 (h) = 12061.4 (hc) = NA	(a) = N (c) = N (h) = N (hc) = NA	(a) = 111.8 (c) = 194	MDL = 348.1 AML = 212 NOT IMPOSED

5.79 MGD

Parameter	Data set time period	Number of data points	Coefficient of variation (CV)	Maximum reported data value (µg/L) (*) A	Calculated instream WLA (µg/L) * B	"Cause" Y = yes N = no A > B ?	Aquatic criteria LTA (µg/L) **	Water quality based limit, if applicable (µg/L) **
Total Nitrate	May 2009 to November 2013	(dt) = 60 (nd) = 0	0.48 (ca)	29.9 (max)	(h) = 14.3 mg/L	(h) = Y	NA	MDL = 25.4 mg/L AML = 14.3 mg/L
Total Recoverable Copper	March 2013 to October 2013	(dt) = 10 (nd) = 0	0.28 (ca)	23.3 (max)	(a) = 36.6 (c) = 23.7 (h) = 1909.3 (hc) = NA	(a) = N (c) = N (h) = N (hc) = NA	(a) = 22.7 (c) = 19.5	MDL = 35.5 AML = 26.7 NOT IMPOSED
Total Recoverable Nickel	May 2009 to November 2013	(dt) = 4 (nd) = 1	0.6 (d)	5.8 (max)	(a) = 1067.3 (c) = 124 (h) = 734.5 (hc) = NA	(a) = N (c) = N (h) = N (hc) = NA	(a) = 405.1 (c) = 77.2	MDL = 240.5 AML = 146.4 NOT IMPOSED
Total Recoverable Barium	May 2009 to November 2013	(dt) = 7 (nd) = 1	0.6 (d)	33 (max)	(a) = NA (c) = NA (h) = 2938 (hc) = NA	(a) = NA (c) = NA (h) = N (hc) = NA	(a) = NA (c) = NA	MDL = 4826 AML = 2938 NOT IMPOSED
Total Recoverable Zinc	May 2009 to November 2013	(dt) = 6 (nd) = 0	0.6 (d)	40.6 (max)	(a) = 306.4 (c) = 319.8 (h) = 10869.9 (hc) = NA	(a) = N (c) = N (h) = N (hc) = NA	(a) = 103.6 (c) = 177.6	MDL = 322.5 AML = 196.3 NOT IMPOSED
Total Dissolved Solids	May 2009 to November 2013	(dt) = 51 (nd) = 0	NA	1390 mg/L (max)	576 mg/L	Yes	NA	WLA = AML = 576 mg/L

(1) For human health carcinogen (hc) water quality based calculations, the data set's long-term average equivalent is used instead of the maximum reported data value. For human health carcinogen (hc) existing effluent quality limitations, the maximum reported data value is used.

Footnotes and Abbreviations:

(dt) = Data values detected.
(nd) = Data values non-detected.
(d) = Default CV
(ca) = Calculated from data set.
(max) = Maximum
(LTAeq) = Long Term Average equivalent

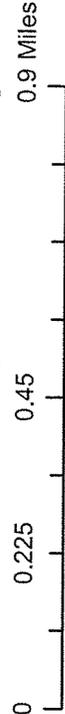
(a) = acute aquatic
(c) = chronic aquatic
(h) = human health non-carcinogen
(hc) = human health carcinogen
(*) = Dissolved
(**) = Total Recoverable

LTA = Long Term Average
WLA = Waste Load Allocation
MDL = Maximum Daily Limit
AML = Average Monthly Limit
EEQ = Existing Effluent Quality
N/A = Not Applicable

MR = Monitor and Report



USGS Topographical Map



PROJECT N
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 AIRPORT

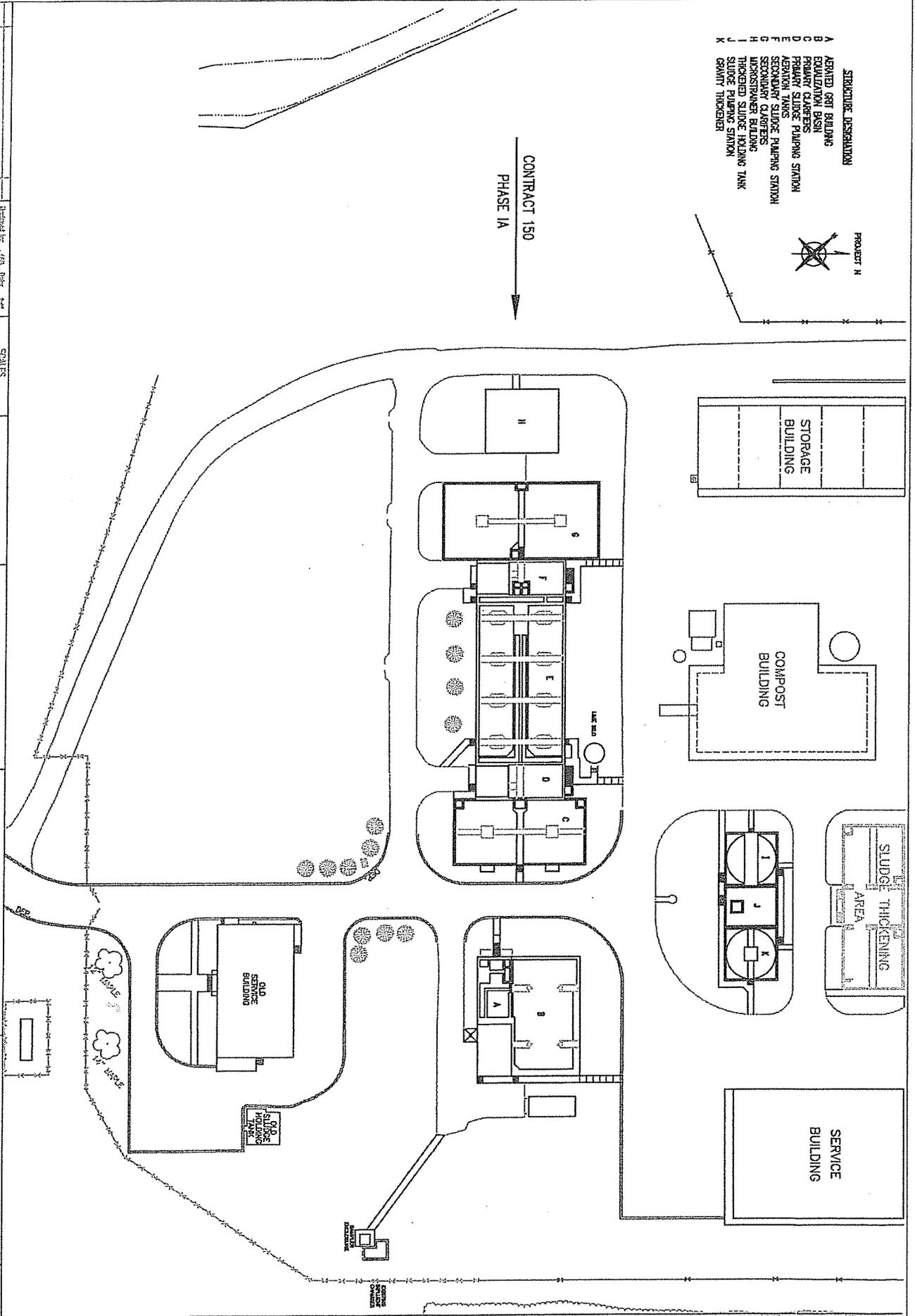
CONTRACT 125
 PHASE I
 CONTRACT 125A
 COMPOST FACILITY

SCALES
 1" = 50'
 1/4" = 10'
 1/8" = 5'
 1/16" = 2.5'
 1/32" = 1.25'
 1/64" = 0.625'
 1/128" = 0.3125'
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 1/446014903978858800243153

- STRUCTURE RESERVATION
- A AERATED GRT BUILDING
 - B EQUALIZATION BASIN
 - C PRIMARY CLARIFIERS
 - D PRIMARY SLUDGE PUMPING STATION
 - E AERATION TANKS
 - F SECONDARY SLUDGE PUMPING STATION
 - G SECONDARY CLARIFIERS
 - H AIRCRAFTPAVER BUILDING
 - I THICKENED SLUDGE HOLDING TANK
 - J SLUDGE PUMPING STATION
 - K CRAWLY THICKENER



CONTRACT 150
PHASE 1A



<p>DESIGNED BY: J. H. HENSON</p> <p>CHECKED BY: J. H. HENSON</p> <p>DATE: 11/15/00</p>	<p>SCALE: 1"=50'</p> <p>DATE: 11/15/00</p>	<p>PROJECT NO. 17143</p> <p>DATE: 11/15/00</p>	<p>LTP LARRY R. PURCELL ASSOCIATES CONSULTING ENGINEERS NEW JERSEY</p>	<p>MUSCONETCONG SEWERAGE AUTHORITY MORRIS COUNTY EXPANSION TO THE WATER POLLUTION CONTROL FACILITIES</p>	<p>PHASE 1A SITE PLAN CONTRACT 150</p>	<p>SHEET 004 DRAWING NO. 3836</p>
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NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM

The New Jersey Department of Environmental Protection hereby grants you a NJPDES permit for the facility/activity named in this document. This permit is the regulatory mechanism used by the Department to help ensure your discharge will not harm the environment. By complying with the terms and conditions specified, you are assuming an important role in protecting New Jersey's valuable water resources. Your acceptance of this permit is an agreement to conform with all of its provisions when constructing, installing, modifying, or operating any facility for the collection, treatment, or discharge of pollutants to waters of the state. If you have any questions about this document, please feel free to contact the Department representative listed in the permit cover letter. Your cooperation in helping us protect and safeguard our state's environment is appreciated.

Permit Number: NJ0027821

Draft: Surface Water Revoke & Reissue Permit Action

Permittee:

Musconetcong Sewer Authority
110 Continental Drive
Budd Lake, NJ 07828

Co-Permittee:

Property Owner:

Musconetcong Sewer Authority
110 Continental Drive
Budd Lake, NJ 07828

Location Of Activity:

Musconetcong Sewerage Authority
110 Continental Drive
Mount Olive, Morris County

Authorization(s) Covered Under This Approval	Issuance Date	Effective Date	Expiration Date
A - Sanitary Wastewater – Revoke/Reissue			

By Authority of:
Commissioner's Office

DEP AUTHORIZATION
Pilar Patterson, Chief
Bureau of Surface Water Permitting
Division of Water Quality

(Terms, conditions and provisions attached hereto)

Division of Water Quality

PART I GENERAL REQUIREMENTS: NJPDES

A. General Requirements of all NJPDES Permits

1. Requirements Incorporated by Reference

- a. The permittee shall comply with all conditions set forth in this permit and with all the applicable requirements incorporated into this permit by reference. The permittee is required to comply with the regulations, including those cited in paragraphs b. through e. following, which are in effect as of the effective date of the final permit.
- b. General Conditions
 - Penalties for Violations N.J.A.C. 7:14-8.1 et seq.
 - Incorporation by Reference N.J.A.C. 7:14A-2.3
 - Toxic Pollutants N.J.A.C. 7:14A-6.2(a)4i
 - Duty to Comply N.J.A.C. 7:14A-6.2(a)1 & 4
 - Duty to Mitigate N.J.A.C. 7:14A-6.2(a)5 & 11
 - Inspection and Entry N.J.A.C. 7:14A-2.11(e)
 - Enforcement Action N.J.A.C. 7:14A-2.9
 - Duty to Reapply N.J.A.C. 7:14A-4.2(e)3
 - Signatory Requirements for Applications and Reports N.J.A.C. 7:14A-4.9
 - Effect of Permit/Other Laws N.J.A.C. 7:14A-6.2(a)6 & 7 & 2.9(c)
 - Severability N.J.A.C. 7:14A-2.2
 - Administrative Continuation of Permits N.J.A.C. 7:14A-2.8
 - Permit Actions N.J.A.C. 7:14A-2.7(c)
 - Reopener Clause N.J.A.C. 7:14A-6.2(a)10
 - Permit Duration and Renewal N.J.A.C. 7:14A-2.7(a) & (b)
 - Consolidation of Permit Process N.J.A.C. 7:14A-15.5
 - Confidentiality N.J.A.C. 7:14A-18.2 & 2.11(g)
 - Fee Schedule N.J.A.C. 7:14A-3.1
 - Treatment Works Approval N.J.A.C. 7:14A-22 & 23
- c. Operation And Maintenance
 - Need to Halt or Reduce not a Defense N.J.A.C. 7:14A-2.9(b)
 - Proper Operation and Maintenance N.J.A.C. 7:14A-6.12
- d. Monitoring And Records
 - Monitoring N.J.A.C. 7:14A-6.5
 - Recordkeeping N.J.A.C. 7:14A-6.6
 - Signatory Requirements for Monitoring Reports N.J.A.C. 7:14A-6.9
- e. Reporting Requirements
 - Planned Changes N.J.A.C. 7:14A-6.7
 - Reporting of Monitoring Results N.J.A.C. 7:14A-6.8
 - Noncompliance Reporting N.J.A.C. 7:14A-6.10 & 6.8(h)
 - Hotline/Two Hour & Twenty-four Hour Reporting N.J.A.C. 7:14A-6.10(c) & (d)
 - Written Reporting N.J.A.C. 7:14A-6.10(e) & (f) & 6.8(h)
 - Duty to Provide Information N.J.A.C. 7:14A-2.11, 6.2(a)14 & 18.1
 - Schedules of Compliance N.J.A.C. 7:14A-6.4
 - Transfer N.J.A.C. 7:14A-6.2(a)8 & 16.2

PART II

GENERAL REQUIREMENTS: DISCHARGE CATEGORIES

A. Additional Requirements Incorporated By Reference

1. Requirements for Discharges to Surface Waters

- a. In addition to conditions in Part I of this permit, the conditions in this section are applicable to activities at the permitted location and are incorporated by reference. The permittee is required to comply with the regulations which are in effect as of the effective date of the final permit.
 - i. Surface Water Quality Standards N.J.A.C. 7:9B-1
 - ii. Water Quality Management Planning Regulations N.J.A.C. 7:15

B. General Conditions

1. Scope

- a. The issuance of this permit shall not be considered as a waiver of any applicable federal, state, and local rules, regulations and ordinances.

2. Permit Renewal Requirement

- a. Permit conditions remain in effect and enforceable until and unless the permit is modified, renewed or revoked by the Department.
- b. Submit a complete permit renewal application: 180 days before the Expiration Date.

3. Notification of Non-Compliance

- a. The permittee shall notify the Department of all non-compliance when required in accordance with N.J.A.C. 7:14A-6.10 by contacting the DEP HOTLINE at 1-877-WARNDEP (1-877-927-6337).
- b. The permittee shall submit a written report as required by N.J.A.C. 7:14A-6.10 within five days.

4. Notification of Changes

- a. The permittee shall give written notification to the Department of any planned physical or operational alterations or additions to the permitted facility when the alteration is expected to result in a significant change in the permittee's discharge and/or residuals use or disposal practices including the cessation of discharge in accordance with N.J.A.C. 7:14A-6.7.
- b. Prior to any change in ownership, the current permittee shall comply with the requirements of N.J.A.C. 7:14A-16.2, pertaining to the notification of change in ownership.

5. Access to Information

- a. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to enter upon a person's premises, for purposes of inspection, and to access / copy any records that must be kept under the conditions of this permit.

6. Operator Certification

- a. Pursuant to N.J.A.C. 7:10A-1.1 et seq. every wastewater system not exempt pursuant to N.J.A.C. 7:10A-1.1(b) requires a licensed operator. The operator of a system shall meet the Department's requirements pursuant to N.J.A.C. 7:10A-1.1 and any amendments. The name of the proposed operator, where required shall be submitted to the Department at the address below, in order that his/her qualifications may be determined prior to initiating operation of the treatment works.
 - i. Notifications shall be submitted to:
NJDEP
Examination and Licensing Unit
P.O. Box 417
Trenton, New Jersey 08625
(609)777-1012.
- b. The permittee shall notify the Department of any changes in licensed operator within two weeks of the change.

7. Operation Restrictions

- a. The operation of a waste treatment or disposal facility shall at no time create: (a) a discharge, except as authorized by the Department in the manner and location specified in Part III of this permit; (b) any discharge to the waters of the state or any standing or ponded condition for water or waste, except as specifically authorized by a valid NJPDES permit.

PART III LIMITS AND MONITORING REQUIREMENTS

MONITORED LOCATION: 001A Sanitary Outfall RECEIVING STREAM: Musconetcong River STREAM CLASSIFICATION: FW2-TM(C2) DISCHARGE CATEGORY(IES): A - Sanitary Wastewater

Location Description

Via a step aeration cascade unit and rip-rap, the permittee is authorized to discharge treated sanitary wastewater into the Musconetcong River, classified as FW2-TM (C2) waters, at a latitude of 40d, 54m, 49.7s and a longitude of 74d, 43m, 21s. Refer to Part IV Section A(1) for effluent and influent monitoring location information.

Contributing Waste Types
Sanitary

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

Parameter	Sample Point	PHASE Start Date:			PHASE End Date:			Units	Limit	Frequency	Sample Type
		Limit	Limit	Limit	Limit	Limit	Limit				
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	MGD	*****	*****	*****	*****	*****	Continuous	Metered	
	QL	***	REPORT Daily Maximum	***	***	***	***	***			
January thru December BOD, 5-Day (20 oC)	Raw Sew/influent	*****	*****	REPORT Monthly Average	MG/L	REPORT Monthly Average	3/Month	24 Hour Composite			
	QL	***	***	***	***	***	***	***			
January thru December BOD, 5-Day (20 oC)	Effluent Gross Value	131 Monthly Average	KG/DAY	*****	*****	*****	*****	*****	3/Month	24 Hour Composite	
	QL	***	196 Weekly Average	***	8.0 Monthly Average	***	12 Weekly Average	***	3/Month	24 Hour Composite	
May thru October BOD, 5-Day (20 oC)	Effluent Gross Value	326 Monthly Average	KG/DAY	*****	*****	*****	*****	*****	3/Month	24 Hour Composite	
	QL	***	489 Weekly Average	***	20 Monthly Average	***	30 Weekly Average	***	3/Month	24 Hour Composite	
November thru April	Effluent Gross Value	***	***	***	***	***	***	***			
	QL	***	***	***	***	***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: 1-"Initial"(4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
BOD, 5-Day (20 oC)	Percent Removal	*****	*****	*****	85 Monthly Av Minimum	*****	*****	PERCENT	*****	*****	*****	*****	PERCENT	3/Month	Calculated
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***
January thru December pH	Raw Sew/influent	*****	*****	*****	REPORT Instant Minimum	*****	*****	*****	*****	*****	*****	*****	SU	1/Day	Grab
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***
January thru December pH	Effluent Gross Value	*****	*****	*****	6.0 Instant Minimum	*****	*****	*****	*****	*****	*****	*****	SU	1/Day	Grab
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***
January thru December Solids, Total Suspended	Raw Sew/influent	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***
January thru December Solids, Total Suspended	Effluent Gross Value	489 Monthly Average	734 Weekly Average	KG/DAY	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***
January thru December Solids, Total Suspended	Percent Removal	*****	*****	*****	85 Monthly Minimum	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***
January thru December Oil and Grease	Effluent Gross Value	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	QL	***	***	***	***	***	***	***	***	***	***	***	***	***	***

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: 1-"Initial"(4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Limit	Frequency	Sample Type
Nitrogen, Ammonia Total (as N)	Effluent Gross Value	13.9 Monthly Average	27.2 Daily Maximum	KG/DAY	*****	0.85 Monthly Average	1.67 Daily Maximum	MG/L	3/Month	3/Month	24 Hour Composite
	QL	***	***		***	***	***				
Nitrogen, Ammonia Total (as N)	Effluent Gross Value	39.2 Monthly Average	75.0 Daily Maximum	KG/DAY	*****	2.4 Monthly Average	4.6 Daily Maximum	MG/L	3/Month	3/Month	24 Hour Composite
	QL	***	***		***	***	***				
November thru April											
Nitrogen, Nitrate Total (as N)	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	KG/DAY	*****	REPORT Monthly Average	REPORT Daily Maximum	MG/L	1/Week	1/Week	24 Hour Composite
	QL	***	***		***	***	***				
January thru December											
E. Coli	Effluent Gross Value	*****	*****	*****	*****	126 Monthly Average	REPORT Instant Maximum	#/100ML	2/Month	2/Month	Grab
	QL	***	***		***	***	***				
January thru December											
Solids, Total Dissolved (TDS)	Effluent Gross Value	REPORT Monthly Average	REPORT Weekly Average	KG/DAY	*****	REPORT Monthly Average	REPORT Weekly Average	MG/L	1/6 Months	1/6 Months	24 Hour Composite
	QL	***	***		***	***	***				
January thru December											
IC25 Staire 7day Chr Ceriodaphnia	Effluent Gross Value	*****	*****	*****	Report Per Minimum	*****	*****	%EFFL	1/6 Months	1/6 Months	Composite
	QL	***	***		***	***	***				
January thru December											
Temperature, oC	Raw Sew/influent	*****	*****	*****	REPORT Instant Minimum	REPORT Monthly Average	REPORT Instant Maximum	DEG.C	1/Day	1/Day	Grab
	QL	***	***		***	***	***				
January thru December											

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: 1 - "Initial" (4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Units	Limit	Units	Frequency	Sample Type
Temperature, oC	Effluent Gross Value	*****	*****	*****	REPORT Instant Minimum	REPORT Instant Maximum	DEG.C	1/Day	Grab		
		***	***		***	***					
January thru December	Effluent Gross Value	*****	*****	*****	7.0 Daily Minimum	REPORT Weekly Av Minimum	MG/L	3/Month	Grab		
		***	***		***	***					
January thru December	Effluent Gross Value	*****	*****	*****	*****	REPORT Weekly Average	MG/L	3/Month	24 Hour Composite		
		***	***		***	***					
January thru December	Effluent Gross Value	*****	*****	*****	*****	REPORT Daily Maximum	UG/L	1/Month	24 Hour Composite		
		163.1	163.1		***	10					

Table III - A - 2: Surface Water DMR Limits and Monitoring Requirements

PHASE: 2 - "Interim" (4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Units	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	*****	*****	*****	Continuous	Metered
		***	***		***	***					
January thru December	QL	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 2: Surface Water DMR Limits and Monitoring Requirements

PHASE:2- "Interim" (4.31) PHASE Start Date:

PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Limit	Limit	Units	Frequency	Sample Type
BOD, 5-Day (20 oC)	Raw Sew/influent	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	3/Month	24 Hour Composite
	QL	***	***										
January thru December BOD, 5-Day (20 oC)	Effluent Gross Value	131 Monthly Average	196 Weekly Average	KG/DAY	*****	*****	*****	*****	*****	*****	*****	3/Month	24 Hour Composite
	QL	***	***										
May thru October	QL	***	***										
BOD, 5-Day (20 oC)	Effluent Gross Value	326 Monthly Average	489 Weekly Average	KG/DAY	*****	*****	*****	*****	*****	*****	*****	3/Month	24 Hour Composite
	QL	***	***										
November thru April	QL	***	***										
BOD, 5-Day (20 oC)	Percent Removal	*****	*****	*****	*****	*****	85 Monthly Av Minimum	*****	*****	*****	*****	3/Month	Calculated
	QL	***	***										
January thru December	Raw Sew/influent	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	1/Day	Grab
January thru December	QL	***	***										
January thru December	Effluent Gross Value	*****	*****	*****	*****	*****	6.0 Instant Minimum	*****	*****	*****	*****	1/Day	Grab
	QL	***	***										
January thru December	Raw Sew/influent	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	3/Month	24 Hour Composite
	QL	***	***										

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 2: Surface Water DMR Limits and Monitoring Requirements

PHASE: 2- "Interim" (4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Limit	Units	Frequency	Sample Type
Solids, Total Suspended	Effluent Gross Value	489 Monthly Average	734 Weekly Average	KG/DAY	*****	30 Monthly Average	45 Weekly Average	MG/L	3/Month	3/Month	3/3	24 Hour Composite
	QL	***	***		***		***					
Solids, Total Suspended	Percent Removal	*****	*****	*****	85 Monthly Minimum	*****	*****	PERCENT	3/Month	3/Month	3/3	Calculated
	QL	***	***		***		***					
January thru December Oil and Grease	Effluent Gross Value	*****	*****	*****	*****	10 Monthly Average	15 Instant Maximum	MG/L	1/Month	1/Month	1/1	Grab
	QL	***	***		***		***					
January thru December Nitrogen, Ammonia Total (as N)	Effluent Gross Value	13.9 Monthly Average	27.2 Daily Maximum	KG/DAY	*****	0.85 Monthly Average	1.67 Daily Maximum	MG/L	3/Month	3/Month	3/3	24 Hour Composite
	QL	***	***		***		***					
May thru October Nitrogen, Ammonia Total (as N)	Effluent Gross Value	39.2 Monthly Average	75.0 Daily Maximum	KG/DAY	*****	2.4 Monthly Average	4.6 Daily Maximum	MG/L	3/Month	3/Month	3/3	24 Hour Composite
	QL	***	***		***		***					
November thru April Nitrogen, Nitrate Total (as N)	Effluent Gross Value	258 Monthly Average	396 Daily Maximum	KG/DAY	*****	15.8 Monthly Average	24.3 Daily Maximum	MG/L	1/Week	1/Week	1/1	24 Hour Composite
	QL	***	***		***		***					
January thru December E. Coli	Effluent Gross Value	*****	*****	*****	*****	126 Monthly Average	REPORT Instant Maximum	#/100ML	2/Month	2/Month	2/2	Grab
	QL	***	***		***		***					
January thru December	QL	***	***		***		***					

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 2: Surface Water DMR Limits and Monitoring Requirements

PHASE:2- "Interim" (4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Limit	Limit	Frequency	Sample Type
Solids, Total Dissolved (TDS)	Effluent Gross Value	REPORT Monthly Average	REPORT Weekly Average	KG/DAY	*****	REPORT Monthly Average	REPORT Weekly Average	MG/L	*****	REPORT Instant Maximum	1/6 Months	24 Hour Composite
	QL	***	***			***	***			***		
January thru December IC25 State 7day Chr Ceriodaphnia	Effluent Gross Value	*****	*****	*****	Report Per Minimum	*****	*****	%EFFL	37	*****	1/6 Months	Composite
	QL	***	***		***	***	***			***		
January thru December Temperature, oC	Raw Sew/influent	*****	*****	*****	REPORT Instant Minimum	REPORT Monthly Average	REPORT Instant Maximum	DEG.C	REPORT Instant Minimum	REPORT Instant Maximum	1/Day	Grab
	QL	***	***		***	***	***			***		
January thru December Temperature, oC	Effluent Gross Value	*****	*****	*****	REPORT Instant Minimum	REPORT Monthly Average	REPORT Instant Maximum	DEG.C	REPORT Instant Minimum	REPORT Instant Maximum	1/Day	Grab
	QL	***	***		***	***	***			***		
January thru December Oxygen, Dissolved (DO)	Effluent Gross Value	*****	*****	*****	7.0 Daily Minimum	REPORT Weekly Av Minimum	*****	MG/L	*****	*****	3/Month	Grab
	QL	***	***		***	***	***			***		
January thru December Phosphorus, Total (as P)	Effluent Gross Value	REPORT Monthly Average	REPORT Weekly Average	KG/DAY	*****	0.9 Monthly Average	REPORT Weekly Average	MG/L	*****	REPORT Weekly Average	3/Month	24 Hour Composite
	QL	***	***		***	***	***			***		

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 2: Surface Water DMR Limits and Monitoring Requirements

PHASE:2- "Interim" (4.31) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Copper Total Recoverable	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	GR/DAY	*****	REPORT Monthly Average	REPORT Daily Maximum	UG/L	1/Month	24 Hour Composite
	RQL	163.1	163.1		***	10	10			

Table III - A - 3: Surface Water DMR Limits and Monitoring Requirements

PHASE:3- "Final"(5.79) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	Continuous	Metered
	QL	***	***		***	***	***			
January thru December BOD, 5-Day (20 oC)	Raw Sew/influent	*****	*****	*****	REPORT Monthly Average	REPORT Weekly Average	REPORT Weekly Average	MG/L	2/Week	24 Hour Composite
	QL	***	***		***	***	***			
January thru December BOD, 5-Day (20 oC)	Effluent Gross Value	175 Monthly Average	263 Weekly Average	KG/DAY	*****	8.0 Monthly Average	12 Weekly Average	MG/L	2/Week	24 Hour Composite
	QL	***	***		***	***	***			
May thru October BOD, 5-Day (20 oC)	Effluent Gross Value	438 Monthly Average	657 Weekly Average	KG/DAY	*****	20 Monthly Average	30 Weekly Average	MG/L	2/Week	24 Hour Composite
	QL	***	***		***	***	***			
November thru April	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 3: Surface Water DMR Limits and Monitoring Requirements
PHASE:3-"Final"(5.79) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
BOD, 5-Day (20 oC)	Percent Removal	*****	*****	*****	85 Monthly Av Minimum	*****	*****	PERCENT	2/Week	Calculated
	QL	***	***		***	***	***			
January thru December pH	Raw Sew/influent	*****	*****	*****	REPORT Instant Minimum	*****	REPORT Instant Maximum	SU	3/Day	Grab
	QL	***	***		***	***	***			
January thru December pH	Effluent Gross Value	*****	*****	*****	6.0 Instant Minimum	*****	9.0 Instant Maximum	SU	3/Day	Grab
	QL	***	***		***	***	***			
January thru December Solids, Total Suspended	Raw Sew/influent	*****	*****	*****	*****	REPORT Monthly Average	REPORT Weekly Average	MG/L	2/Week	24 Hour Composite
	QL	***	***		***	***	***			
January thru December Solids, Total Suspended	Effluent Gross Value	657 Monthly Average	986 Weekly Average	KG/DAY	*****	30 Monthly Average	45 Weekly Average	MG/L	2/Week	24 Hour Composite
	QL	***	***		***	***	***			
January thru December Solids, Total Suspended	Percent Removal	*****	*****	*****	85 Monthly Minimum	*****	*****	PERCENT	2/Week	Calculated
	QL	***	***		***	***	***			
January thru December Oil and Grease	Effluent Gross Value	*****	*****	*****	*****	10 Monthly Average	15 Instant Maximum	MG/L	1/Month	Grab
	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 3: Surface Water DMR Limits and Monitoring Requirements

PHASE:3-"Final"(5.79) PHASE Start Date:

PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Limit	Limit	Units	Frequency	Sample Type
Nitrogen, Ammonia Total (as N)	Effluent Gross Value	15.34 Monthly Average	35.06 Daily Maximum	KG/DAY	*****	0.7 Monthly Average	1.6 Daily Maximum	MG/L	*****	1.6 Daily Maximum	MG/L	2/Week	24 Hour Composite
	QL	***	***		***								
Nitrogen, Ammonia Total (as N)	Effluent Gross Value	40.54 Monthly Average	89.85 Daily Maximum	KG/DAY	*****	1.85 Monthly Average	4.1 Daily Maximum	MG/L	*****	4.1 Daily Maximum	MG/L	2/Week	24 Hour Composite
	QL	***	***		***								
November thru April	QL												
Nitrogen, Nitrate Total (as N)	Effluent Gross Value	314 Monthly Average	557 Daily Maximum	KG/DAY	*****	14.3 Monthly Average	25.4 Daily Maximum	MG/L	*****	25.4 Daily Maximum	MG/L	2/Week	24 Hour Composite
	QL	***	***		***								
January thru December	QL												
E. Coli	Effluent Gross Value	*****	*****	*****	*****	126 Monthly Average	REPORT Instant Maximum	#/100ML	*****	REPORT Instant Maximum	#/100ML	8/Month	Grab
	QL	***	***		***								
January thru December	QL												
Solids, Total Dissolved (TDS)	Effluent Gross Value	12623 Monthly Average	18935 Weekly Average	KG/DAY	*****	576 Monthly Average	864 Weekly Average	MG/L	*****	864 Weekly Average	MG/L	2/Week	24 Hour Composite
	QL	***	***		***								
January thru December	QL												
IC25 State 7day Chr Ceriodaphnia	Effluent Gross Value	*****	*****	*****	Report Per Minimum	41	*****	%EFPL	41	*****	%EFPL	1/6 Months	Composite
	QL	***	***		***								
January thru December	QL												
Temperature, oC	Raw Sew/Influent	*****	*****	*****	Report Instant Minimum	REPORT Instant Minimum	REPORT Instant Maximum	DEG.C	REPORT Instant Minimum	REPORT Instant Maximum	DEG.C	3/Day	Grab
	QL	***	***		***								
January thru December	QL												

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Table III - A - 3: Surface Water DMR Limits and Monitoring Requirements

PHASE: 3 - "Final"(5.79) PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Units	Limit	Limit	Units	Frequency	Sample Type
Temperature, oC	Effluent Gross Value	*****	*****	*****	REPORT Instant Minimum	REPORT Monthly Average	DEG.C	REPORT Instant Maximum	REPORT Monthly Average	DEG.C	3/Day	Grab
		***	***	***	*****	***	***	***	***	***	***	
January thru December	Effluent Gross Value	*****	*****	*****	7.0 Daily Minimum	REPORT Weekly Av Minimum	MG/L	*****	REPORT Weekly Minimum	MG/L	2/Week	Grab
		***	***	***	***	***	***	***	***	***	***	
January thru December	Effluent Gross Value	*****	*****	*****	*****	REPORT Weekly Average	MG/L	*****	REPORT Weekly Average	MG/L	2/Week	24 Hour Composite
		***	***	***	***	***	***	***	***	***	***	
Phosphorus, Total (as P)	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	UG/L	*****	REPORT Monthly Average	UG/L	1/Month	24 Hour Composite
		***	***	***	***	***	***	***	***	***	***	
January thru December	Effluent Gross Value	*****	*****	*****	*****	REPORT Daily Maximum	UG/L	*****	REPORT Daily Maximum	UG/L	1/Month	24 Hour Composite
		***	***	***	***	***	***	***	***	***	***	
Copper, Total Recoverable	Effluent Gross Value	*****	*****	*****	*****	REPORT Daily Maximum	UG/L	*****	REPORT Daily Maximum	UG/L	1/Month	24 Hour Composite
		***	***	***	***	***	***	***	***	***	***	
January thru December	RQL	163.1	163.1	GR/DAY	163.1	163.1						

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** **PHASE End Date:**

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Cyanide, Total (as CN)	Effluent Gross Value	REPORT RQL = 40	UG/L	Grab	January thru December
Arsenic, Total (as As)	Effluent Gross Value	REPORT RQL = 8	UG/L	24 Hour Composite	January thru December
Beryllium, Total (as Be)	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Cadmium, Total (as Cd)	Effluent Gross Value	REPORT RQL = 4	UG/L	24 Hour Composite	January thru December
Chromium, Total (as Cr)	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Lead, Total (as Pb)	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Thallium, Total (as Tl)	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Silver, Total (as Ag)	Effluent Gross Value	REPORT RQL = 2	UG/L	24 Hour Composite	January thru December
Antimony, Total (as Sb)	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Selenium, Total (as Se)	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Mercury, Total (as Hg)	Effluent Gross Value	REPORT RQL = 1	UG/L	24 Hour Composite	January thru December
Acenaphthylene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Acenaphthene	Effluent Gross Value	REPORT RQL = 9.5	UG/L	24 Hour Composite	January thru December
Anthracene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Benzo(b)fluoranthene (3,4-benzo)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** **PHASE End Date:**

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Benzo(k)fluoranthene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Benzo(a)pyrene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Bis(2-chloroethyl) ether	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Bis(2-chloroethoxy) methane	Effluent Gross Value	REPORT RQL = 26.5	UG/L	24 Hour Composite	January thru December
Bis(2-chloroiso-propyl) ether	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Butyl benzyl phthalate	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Chrysene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Diethyl phthalate	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Dimethyl phthalate	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
1,2-Diphenyl-hydrazine	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Fluoranthene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Fluorene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Hexachlorocyclopentadiene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Hexachloroethane	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Indeno(1,2,3-cd)-pyrene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Isophorone	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
N-nitrosodi-n-propylamine	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
N-nitrosodiphenyl-amine	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
N-nitrosodimethyl-amine	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Nitrobenzene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Phenanthrene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Pyrene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Benzo(ghi)perylene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Benzo(a)anthracene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
1,2-Dichlorobenzene	Effluent Gross Value	REPORT RQL = 9	UG/L	Grab	January thru December
1,2,4-Trichloro-benzene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Dibenzo(a,h)anthracene	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
1,3-Dichlorobenzene	Effluent Gross Value	REPORT RQL = 9	UG/L	Grab	January thru December
1,4-Dichlorobenzene	Effluent Gross Value	REPORT RQL = 20	UG/L	Grab	January thru December
2-Chloronaphthalene	Effluent Gross Value	REPORT RQL = 9.5	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements**PHASE: Final** **PHASE Start Date:** **PHASE End Date:**

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Di-n-octyl Phthalate	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
2,4-Dinitrotoluene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
2,6-Dinitrotoluene	Effluent Gross Value	REPORT RQL = 9.5	UG/L	24 Hour Composite	January thru December
3,3'-Dichloro-benzidine	Effluent Gross Value	REPORT RQL = 60	UG/L	24 Hour Composite	January thru December
4-Bromophenyl phenyl ether	Effluent Gross Value	REPORT RQL = 9.5	UG/L	24 Hour Composite	January thru December
Naphthalene	Effluent Gross Value	REPORT RQL = 8	UG/L	24 Hour Composite	January thru December
Bis(2-ethylhexyl) phthalate	Effluent Gross Value	REPORT RQL = 30	UG/L	24 Hour Composite	January thru December
Di-n-butyl phthalate	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Benzidine	Effluent Gross Value	REPORT RQL = 50	UG/L	24 Hour Composite	January thru December
Malathion	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Demeton	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Hexachlorobenzene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Hexachlorobutadiene	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Mirex	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
1,3-Dichloropropene	Effluent Gross Value	REPORT RQL = 7	UG/L	Grab	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE:Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
1,2,4,5-Tetrachloro-benzene	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
N-nitrosodiethylamine	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
N-nitrosopyrrolidine	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Carbon Tetrachloride	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
1,2-Dichloroethane	Effluent Gross Value	REPORT RQL = 3	UG/L	Grab	January thru December
Bromoform	Effluent Gross Value	REPORT RQL = 8	UG/L	Grab	January thru December
Chloroform	Effluent Gross Value	REPORT RQL = 5	UG/L	Grab	January thru December
Toluene	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
Benzene	Effluent Gross Value	REPORT RQL = 7	UG/L	Grab	January thru December
Acrolein	Effluent Gross Value	REPORT RQL = 50	UG/L	Grab	January thru December
Acrylonitrile	Effluent Gross Value	REPORT RQL = 50	UG/L	Grab	January thru December
Chlorobenzene	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
Chlorodibromomethane	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
Ethylbenzene	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
Methyl Bromide	Effluent Gross Value	REPORT RQL = 9	UG/L	Grab	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE:Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Methyl Chloride	Effluent Gross Value	REPORT RQL = 10	UG/L	Grab	January thru December
Methylene Chloride	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
Tetrachloroethylene	Effluent Gross Value	REPORT RQL = 9	UG/L	Grab	January thru December
Trichlorofluoro- methane	Effluent Gross Value	REPORT RQL = 5	UG/L	Grab	January thru December
1,1-Dichloroethane	Effluent Gross Value	REPORT RQL = 23.5	UG/L	Grab	January thru December
1,1-Dichloroethylene	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
1,1,1-Trichloro- ethane	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
1,1,2-Trichloro- ethane	Effluent Gross Value	REPORT RQL = 6	UG/L	Grab	January thru December
1,1,2,2-Tetrachloro- ethane	Effluent Gross Value	REPORT RQL = 10	UG/L	Grab	January thru December
1,2-Dichloropropane	Effluent Gross Value	REPORT RQL = 5	UG/L	Grab	January thru December
1,2-trans-Dichloro- ethylene	Effluent Gross Value	REPORT RQL = 4	UG/L	Grab	January thru December
2-Chloroethyl Vinyl Ether (Mixed)	Effluent Gross Value	REPORT	UG/L	Grab	January thru December
Bromodichloromethane	Effluent Gross Value	REPORT RQL = 5	UG/L	Grab	January thru December
Vinyl Chloride	Effluent Gross Value	REPORT RQL = 10	UG/L	Grab	January thru December
Trichloroethylene	Effluent Gross Value	REPORT RQL = 5	UG/L	Grab	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** **PHASE End Date:**

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Methoxychlor	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
N-Nitrosodi-n-butylamine	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Chloroethane	Effluent Gross Value	REPORT	UG/L	Grab	January thru December
Parachloro-m-cresol	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Parathion	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Phenols	Effluent Gross Value	REPORT	UG/L	Grab	January thru December
2,4,5-Trichloro-phenol	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Delta BHC, Total (ug/l)	Effluent Gross Value	REPORT ROL = 0.02	UG/L	24 Hour Composite	January thru December
Endosulfan Sulfate	Effluent Gross Value	REPORT ROL = 0.08	UG/L	24 Hour Composite	January thru December
Beta Endosulfan	Effluent Gross Value	REPORT ROL = 0.04	UG/L	24 Hour Composite	January thru December
Alpha Endosulfan	Effluent Gross Value	REPORT ROL = 0.02	UG/L	24 Hour Composite	January thru December
Endrin Aldehyde	Effluent Gross Value	REPORT ROL = 0.1	UG/L	24 Hour Composite	January thru December
PCB-1016 (Arochlor 1016)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
2,3,7,8-Tetrachloro-dibenzo-p-dioxin	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
4,4'-DDT(p,p'-DDT)	Effluent Gross Value	REPORT ROL = 0.06	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
4,4'-DDD(p,p'-DDD)	Effluent Gross Value	REPORT RQL = 0.04	UG/L	24 Hour Composite	January thru December
4,4'-DDE(p,p'-DDE)	Effluent Gross Value	REPORT RQL = 0.04	UG/L	24 Hour Composite	January thru December
Aldrin	Effluent Gross Value	REPORT RQL = 0.04	UG/L	24 Hour Composite	January thru December
Alpha BHC	Effluent Gross Value	REPORT RQL = 0.02	UG/L	24 Hour Composite	January thru December
Beta BHC	Effluent Gross Value	REPORT RQL = 0.04	UG/L	24 Hour Composite	January thru December
Gamma BHC (lindane),	Effluent Gross Value	REPORT RQL = 0.03	UG/L	24 Hour Composite	January thru December
Chlordane	Effluent Gross Value	REPORT RQL = 0.2	UG/L	24 Hour Composite	January thru December
Dieldrin	Effluent Gross Value	REPORT RQL = 0.03	UG/L	24 Hour Composite	January thru December
Endosulfans, Total (alpha and beta)	Effluent Gross Value	REPORT RQL = 0.03	UG/L	24 Hour Composite	January thru December
Endrin	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Toxaphene	Effluent Gross Value	REPORT RQL = 0.04	UG/L	24 Hour Composite	January thru December
Heptachlor	Effluent Gross Value	REPORT RQL = 1	UG/L	24 Hour Composite	January thru December
Heptachlor Epoxide	Effluent Gross Value	REPORT RQL = 0.02	UG/L	24 Hour Composite	January thru December
PCB-1221 (Arochlor 1221)	Effluent Gross Value	REPORT RQL = 0.4	UG/L	24 Hour Composite	January thru December
PCB-1232 (Arochlor 1232)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
PCB-1242 (Arochlor 1242)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
PCB-1248 (Arochlor 1248)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
PCB-1254 (Arochlor 1254)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
PCB-1260 (Arochlor 1260)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Polychlorinated Biphenyls (PCBs)	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Chlorpyrifos	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
2-Chlorophenol	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
2-Nitrophenol	Effluent Gross Value	REPORT RQL = 18	UG/L	24 Hour Composite	January thru December
2,4-Dichlorophenol	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
2,4-Dimethylphenol	Effluent Gross Value	REPORT RQL = 13.5	UG/L	24 Hour Composite	January thru December
2,4-Dinitrophenol	Effluent Gross Value	REPORT RQL = 40	UG/L	24 Hour Composite	January thru December
2,4,6-Trichloro- phenol	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
4-Chlorophenyl phenyl ether	Effluent Gross Value	REPORT RQL = 21	UG/L	24 Hour Composite	January thru December
4-Nitrophenol	Effluent Gross Value	REPORT RQL = 12	UG/L	24 Hour Composite	January thru December
4,6-Dinitro-o-cresol	Effluent Gross Value	REPORT RQL = 60	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Annual Reporting Requirements:

Submit an Annual WCR: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 4: Surface Water WCR - Annual Limits and Monitoring Requirements

PHASE: Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Phenol Single Compound	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December
Pentachlorophenol	Effluent Gross Value	REPORT RQL = 30	UG/L	24 Hour Composite	January thru December
Pentachlorobenzene	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December
Guthion	Effluent Gross Value	REPORT	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Semi Annual Reporting Requirements:

Submit a Semi-Annual WCR: within twenty-five days after the end of every 6 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 5: Surface Water WCR - Semi Annual Limits and Monitoring Requirements

PHASE: Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Barium, Total Recoverable (as Ba)	Effluent Gross Value	REPORT RQL = 20	UG/L	24 Hour Composite	January thru December
Nickel, Total Recoverable	Effluent Gross Value	REPORT RQL = 10	UG/L	24 Hour Composite	January thru December

Surface Water WCR - Semi Annual Reporting Requirements:

Submit a Semi-Annual WCR: within twenty-five days after the end of every 6 month monitoring period beginning from the effective date of the permit (EDP).

Table III - A - 5: Surface Water WCR - Semi Annual Limits and Monitoring Requirements

PHASE: Final PHASE Start Date: PHASE End Date:

Parameter	Sample Point	Compliance Quantity	Units	Sample Type	Monitoring Period
Zinc, Total Recoverable	Effluent Gross Value	REPORT RQL = 30	UG/L	24 Hour Composite	January thru December

PART IV

SPECIFIC REQUIREMENTS: NARRATIVE

Sanitary Wastewater

A. MONITORING REQUIREMENTS

1. Standard Monitoring Requirements

- a. Each analysis required by this permit shall be performed by a New Jersey Certified Laboratory that is certified to perform that analysis.
- b. The Permittee shall perform all water/wastewater analyses in accordance with the analytical test procedures specified in 40 CFR 136, unless other test procedures have been approved by the Department in writing or as otherwise specified in the permit.
- c. The permittee shall utilize analytical methods that will ensure compliance with the Quantification Levels (QLs) listed in PART III. QLs include, but are not limited to, Recommended Quantification Levels (RQLs) and Method Detection Levels (MDLs). If the permittee and/or contract laboratory determines that the QLs achieved for any pollutant(s) generally will not be as sensitive as the QLs specified in PART III, the permittee must submit a justification of such to the Bureau of Surface Water Permitting. For limited parameters with no QL specified, the sample analysis shall use a detection level at least as sensitive as the effluent limit.
- d. All sampling shall be conducted in accordance with the Department's Field Sampling Procedures Manual, or an alternate method approved by the Department in writing.
- e. All monitoring shall be conducted as specified in Part III.
- f. All sample frequencies expressed in Part III are minimum requirements. Any additional samples taken consistent with the monitoring and reporting requirements contained herein shall be reported on the Monitoring Report Forms.
- g. Annual and semi-annual wastewater testing shall be conducted in a different quarter of each year so that tests are conducted in each of the four permit quarters of the permit cycle. Testing may be conducted during any month of the permit quarters.
- h. Monitoring for Wastewater Characterization Report parameters shall be conducted concurrently with the Whole Effluent Toxicity (WET) monitoring, when feasible.
- i. Any influent and effluent sampling for toxic pollutant analyses shall be collected concurrently.
- j. Flow shall be measured using a flow meter.

B. RECORDKEEPING

1. Standard Recordkeeping Requirements

- a. The permittee shall retain records of all monitoring information, including 1) all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation (if applicable), 2) copies of all reports required by this NJPDES permit, 3) all data used to complete the application for a NJPDES permit, and 4) monitoring information required by the permit related to the permittee's residual use and/or disposal practices, for a period of at least 5 years, or longer as required by N.J.A.C. 7:14A-20, from the date of the sample, measurement, report, application or record.
- b. Records of monitoring information shall include 1) the date, locations, and time of sampling or measurements, 2) the individual(s) who performed the sampling or measurements, 3) the date(s) the analyses were performed, 4) the individual(s) who performed the analyses, 5) the analytical techniques or methods used, and 6) the results of such analyses.

C. REPORTING

1. Standard Reporting Requirements

- a. The permittee shall submit all required monitoring results to the Department on the forms provided to them. The Monitoring Report Forms (MRFs) may be provided to the permittee in either a paper format or in an electronic file format. Unless otherwise noted, all requirements below pertain to both paper and electronic formats.
- b. Any MRFs in paper format shall be submitted to the following addresses:
 - i. NJDEP
Mail Code - 401-02B
Division of Water Quality
Office of Permit Management
P.O. Box 420
Trenton, New Jersey 08625-0420
 - ii. Delaware River Basin Commission (DRBC)
P. O. Box 7360
West Trenton, New Jersey 08628
 - iii. (if requested by the Water Compliance and Enforcement Bureau)
NJDEP: Northern Bureau of Water Compliance and Enforcement
7 Ridgedale Avenue
Cedar Knolls, New Jersey 07927-1112
- c. Any electronic data submission shall be in accordance with the guidelines and provisions outlined in the Department's Electronic Data Interchange (EDI) agreement with the permittee. Paper copies must be available for on-site inspection by DEP personnel or provided to the DEP upon written request.
- d. All monitoring report forms shall be certified by the highest ranking official having day-to-day managerial and operational responsibilities for the discharging facility.
- e. The highest ranking official may delegate responsibility to certify the monitoring report forms in his or her absence. Authorizations for other individuals to sign shall be made in accordance with N.J.A.C. 7:14A-4.9(b).
- f. Monitoring results shall be submitted in accordance with the current Discharge Monitoring Report Manual and any updates thereof.

- g. If monitoring for a parameter is not required in a monitoring period, the permittee must report "CODE=N" for that parameter.
- h. If there are no discharge events during an entire monitoring period, the permittee must notify the Department when submitting the monitoring results. This is accomplished by placing a check mark in the "No Discharge this monitoring period" box on the paper or electronic version of the monitoring report submittal form.

D. SUBMITTALS

1. Standard Submittal Requirements

- a. The permittee shall amend the Operation & Maintenance Manual whenever there is a change in the treatment works design, construction, operations or maintenance which substantially changes the treatment works operations and maintenance procedures.

2. Compliance Schedule Progress Reports

- a. In accordance with N.J.A.C. 7:14A-6.4(a), a schedule of compliance has been included for total nitrate for the flow of 4.31 MGD, including interim deadlines for annual progress reports that outline the progress towards compliance with the conditions of the permit.
 - i. Submit a Compliance Schedule Progress Report: within 12 months from the effective date of the permit (EDP).
 - ii. Submit a Compliance Schedule Progress Report: within 24 months from the effective date of the permit (EDP).
 - iii. Submit a Compliance Schedule Progress Report: within 36 months from the effective date of the permit (EDP).
 - iv. Submit a Compliance Schedule Progress Report: within 48 months from the effective date of the permit (EDP).
- b. The compliance schedule progress report(s) shall be submitted to the following Departmental entities:
 - i. NJDEP: Division of Water Quality
Mail Code - 401-02B
Bureau of Surface Water Permitting
P.O. Box 420
Trenton, New Jersey 08625-0420
 - ii. NJDEP: Northern Bureau of Water Compliance and Enforcement
7 Ridgedale Avenue
Cedar Knolls, New Jersey 07927-1112

E. FACILITY MANAGEMENT

1. Discharge Requirements

- a. The permittee shall discharge at the location(s) specified in PART III of this permit.
- b. The permittee shall not discharge foam or cause foaming of the receiving water that 1) forms objectionable deposits on the receiving water, 2) forms floating masses producing a nuisance, or 3) interferes with a designated use of the waterbody.

- c. The permittee's discharge shall not produce objectionable color or odor in the receiving stream.
- d. The discharge shall not exhibit a visible sheen.
- e. When quantification levels (QL) and effluent limits are both specified for a given parameter in Part III, and the QL is less stringent than the effluent limit, effluent compliance will be determined by comparing the reported value against the QL.
- f. When an average of three (3) consecutive rolling monthly average values of the committed flow (actual flow and approved allocated flow) reaches or exceeds 80% of 5.79 MGD (the permitted capacity of the facility), the permittee shall:
 - i. Develop a Capacity Assurance Program (CAP) in accordance with N.J.A.C. 7:14A-22.16.
 - ii. For more information concerning the CAP, please contact the Bureau of Engineering and Construction Permitting North at (609) 292-6894.
 - iii. Contact the Division of Watershed Management to discuss whether an amendment to the Water Quality Management Plan (WQMP) or Wastewater Management Plan (WMP) will be necessary.

2. Delaware River Basin Commission (DRBC)

- a. The permittee shall comply with the Delaware River Basin Commission (DRBC) "Water Quality Regulations." Compliance may be determined by the DRBC based on its own sampling events.

3. Applicability of Discharge Limitations and Effective Dates

- a. Surface Water Discharge Monitoring Report (DMR) Form Requirements
 - i. This permit includes multiple phases for DSN 001A.
The Initial Phase limitation and monitoring conditions apply to the flow of 4.31 MGD. Final limitation and monitoring conditions apply to the flow of 5.79 MGD.
 - ii. Upon completion of the following tasks, the facility shall be allowed to operate under the 5.79 MGD limitations and monitoring conditions.
 - a) The facility has received Stage II and III treatment works approval from the Bureau of Finance and Construction Permits: Engineering Section North. Stage III approval is dependent upon submittal of a signed and sealed WQM-005 engineer's certification for the upgraded flow of 5.79 MGD to the Bureau of Finance and Construction Permits: Engineering Section North.
 - b) The Bureau of Surface Water Permitting has received a formal request from the permittee specifying the date for which the 5.79 MGD permit conditions should be effective. "Final" phase limitations and monitoring conditions will become effective on the date specified in the formal request.
 - c) Permittee shall submit a request to activate alternate phase effluent limits 30 calendar days prior to the commencement of discharge at the higher flow. The Department will activate the higher flow through an administrative modification to the permit.
- b. Wastewater Characterization Report (WCR) Form Requirements
 - i. The final effluent monitoring conditions contained in PART III for DSN 001A apply for the full term of this permit action.

4. Operation, Maintenance and Emergency conditions

- a. The permittee shall operate and maintain treatment works and facilities which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit as specified in the Operation & Maintenance Manual.
- b. The permittee shall develop emergency procedures to ensure effective operation of the treatment works under emergency conditions in accordance with N.J.A.C. 7:14A-6.12(d).

5. Introduction to RWBR Requirements

- a. The following RWBR sections contain the conditions for the permittee to beneficially reuse treated effluent or Reclaimed Water for Beneficial Reuse (RWBR), provided the effluent is in compliance with the criteria specified for the particular use specified below.
- b. There are two levels of RWBR uses. Public Access and Restricted Access.

6. RWBR Requirements for Public Access

- a. The Public Access reuse types authorized by this permit are those approved in Appendix B. Other Public Access reuse types may be added by minor modification of this permit.
- b. The hydraulic loading rate for land application of RWBR shall not exceed 2 inches per week.
- c. Any water diverted for RWBR shall be monitored and comply with the high level treatment requirements listed below and the operational requirements in the approved Operations Protocol. If any of these requirements are not achieved, the effluent shall not be diverted for RWBR.
 - i. Total Suspended Solids (TSS): Instantaneous maximum of 5.0 mg/L prior to disinfection.
 - ii. Nitrogen, Total (NO₃ + NH₃): Daily maximum of 10.0 mg/L. This requirement only applies when RWBR is land applied.
 - iii. Fecal Coliform: 7-day median maximum of 2.2 colonies per 100 mL and an instantaneous maximum of 14 colonies per 100 mL.
 - iv. Ultraviolet Disinfection: If the permittee disinfects utilizing UV disinfection, a minimum design UV dose of 100 mJ/cm² under maximum daily flow must be used. All aspects of the UV system must meet the requirements of the May 2003 (or most recent) National Water Research Institute's Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, second edition.
 - v. Turbidity for UV systems: Instantaneous maximum of 2.0 NTU.
- d. Monitoring of the diverted public access RWBR shall be conducted in the following manner:
 - i. Sampling for TSS shall be immediately prior to disinfection. Monitoring for TSS shall be a grab sample once per week.

- ii. Sampling for Turbidity in systems shall be sampled immediately prior to disinfection. The permittee shall establish a correlation between Turbidity and TSS in their effluent as detailed in the Reuse Technical Manual. A statistically significant correlation between Turbidity and TSS shall be established prior to commencement of the RWBR program and shall be incorporated into the Operations Protocol and updated annually. The initial correlation should be done as part of a daily monitoring program for at least 30 days. To ensure continuous compliance with the 5.0 mg/L TSS level, Turbidity must be monitored continuously and achieve the level established in the Operations Protocol.
 - iii. For UV systems, UV lamp intensity, UV transmittance and UV flow rate shall be monitored continuously after full disinfection treatment.
 - iv. Monitoring for Fecal Coliform shall be a grab sample, taken in accordance with Part III, at least a minimum of once per week taken immediately after disinfection. Fecal coliform shall be monitored immediately after disinfection.
 - v. Monitoring for Total Nitrogen (NO₃ + NH₃) shall be a composite sample, taken in accordance with Part III, at least once per week taken prior to RWBR diversion. Total Nitrogen (NO₃ + NH₃) shall be monitored after the appropriate disinfection treatment is achieved.
- e. All monitoring results of the RWBR shall be reported each month on Wastewater Characterization Reports (WCR). Unless noted otherwise, the highest of all measured values for diverted RWBR shall be reported.
- i. If ultraviolet disinfection is used, the lowest sampling results obtained during the reporting month shall be reported for lamp intensity and UV transmittance.

7. RWBR Requirements for Restricted Access--Land Application and Non Edible Crops

- a. The Restricted Access--Land Application and Non Edible Crops reuse types authorized by this permit are those approved in Appendix B. Other Restricted Access--Land Application and Non Edible Crops reuse types may be added by minor modification of this permit.
- b. The hydraulic loading rate for land application of RWBR shall not exceed 2 inches per week.
- c. Any water diverted for RWBR shall be monitored and comply with the high level treatment requirements listed below and the operational requirements in the approved Operations Protocol. If any of these requirements are not achieved, the effluent shall not be diverted for RWBR.
- d. Nitrogen, Total (NO₃ + NH₃): Daily maximum of 10 mg/L. Frequency of sampling for Total Nitrogen shall be at a minimum monthly. The sample shall be collected as a composite sample taken prior to diversion for RWBR. Nitrogen, Total (NO₃ + NH₃) shall be monitored after the appropriate disinfection treatment time is achieved. This requirement only applies when RWBR is land applied, however, this requirement does not apply to spray irrigation within a fenced perimeter or otherwise restricted area.
- e. The effluent shall comply with the permit limitations for E. Coli as specified in the Effluent Limitations Tables at part III of the permit. The frequency for sampling for E. Coli shall be in accordance with Part III of this permit. The sample shall be collected as a grab sample taken immediately after disinfection.

- f. Ultraviolet Disinfection: For UV disinfection, a minimum design UV dose of 75 mJ/cm² under maximum daily flow must be used. This dose must also be based on continuous monitoring of UV lamp intensity, UV transmittance and UV flow rate. All aspects of the UV system must meet the requirements of the May 2003 (or most recent) National Water Research Institute's Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, second edition. UV lamp intensity, UV transmittance and UV flow rate shall be monitored continuously after full disinfection treatment.
- g. All monitoring results of the RWBR shall be reported each month on Wastewater Characterization Reports (WCR). Unless noted otherwise, the highest of all measured values for diverted RWBR shall be reported.

8. RWBR Requirements for Restricted Access--Construction and Maintenance Operations

- a. The Restricted Access--Construction and Maintenance Operations reuse types authorized by this permit are those approved in Appendix B. Other Restricted Access--Construction and Maintenance Operations reuse types may be added by minor modification of this permit.
- b. The effluent shall comply with the permit limitations for E. Coli as specified in the Effluent Limitations Tables at part III of the permit. The frequency for sampling for E. Coli shall be in accordance with Part III of this permit. The sample shall be collected as a grab sample taken immediately after disinfection.

9. RWBR Requirements for Restricted Access--Industrial Systems

- a. The Restricted Access--Industrial Systems reuse types authorized by this permit are those approved in Appendix B. Other Restricted Access--Industrial Systems reuse types may be added by minor modification of this permit.

10. RWBR Submittal Requirements

- a. For all types of RWBR, with the exception of sanitary sewer jetting and STP washdown water, the permittee shall submit and receive approval of an Operations Protocol or modify the existing Operations Protocol as detailed in the most recent version of the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse" (Reuse Technical Manual) prior to the commencement of any RWBR activity. A copy of the approved Operations Protocol shall be maintained onsite. Specific requirements for the Operations Protocol are identified in the Reuse Technical Manual.
- b. The permittee shall submit a copy of the Reuse Supplier and User Agreement with each request for authorization to distribute RWBR in which the user is a different entity than the supplier. Specific requirements for the Reuse Supplier and User Agreement are identified in the Reuse Technical Manual.
- c. For Public Access RWBR on Edible Crops, the permittee shall submit an annual inventory of edible crop irrigation with the Beneficial Reuse Annual Report. Specific requirements for the annual inventory are identified in the Reuse Technical Manual.
- d. Submit a Beneficial Reuse Annual Report: by February 1 of each year beginning from the effective date of the permit (EDP). The permittee shall compile the total volume of RWBR distributed to each type of authorized RWBR activity for the previous calendar year. Specific requirements for the Annual Reuse Report are identified in the Reuse Technical Manual.

- e. The permittee shall submit and receive approval of an Engineering Report in support of RWBR authorization requests for new or expanded RWBR projects as detailed in the most recent version of the Department's "Technical Manual for Reclaimed Water for Beneficial Reuse" (Reuse Technical Manual) prior to the commencement of this/these type/s of RWBR activity. A copy of the approved Engineering Report shall be maintained onsite. Specific requirements for the Engineering Report are identified in the Reuse Technical Manual.
- f. All submittals shall be mailed or delivered to: New Jersey Department of Environmental Protection, Division of Water Quality, Bureau of Surface Water Permitting, Mailcode 401-02B, P.O. Box 420, Trenton, New Jersey 08625-0420.

11. RWBR Operational Requirements

- a. Effluent that does not meet the requirements for RWBR established in Part III, Part IV and the operational requirements specified in the facility's approved Operations Protocol shall not be diverted for RWBR.
- b. The land application of RWBR shall not produce surface runoff or ponding.
- c. All setback distances shall be consistent with the distances outlined in the Reuse Technical Manual.
- d. Land application sites shall not be frozen or saturated when applying RWBR.
- e. A daily log noting the volume of RWBR distributed to each approved application site shall be maintained on-site by the permittee and made available to the Department upon request. The volume of RWBR to be distributed shall be determined through the use of a totalizing flow meter, or other means of accurate flow measurement.
- f. Any vehicle used to transport and/or distribute RWBR shall be appropriately marked. The vehicle shall not be used to transport water or other fluid that does not meet all limitations and requirements as specified in this permit for water diverted for RWBR, unless the tank has been emptied and adequately cleaned prior to the addition of the RWBR.
- g. The permittee shall post Access Control and Advisory Signs in accordance with the requirements of the Reuse Technical Manual.
- h. There shall be no cross-connections to potable water systems.
- i. All RWBR piping, pipelines, valves, and outlets shall be appropriately color coded, tagged or labeled to warn the public and employees that the water is not intended for drinking. Worker contact with RWBR shall be minimized.
- j. The issuance of this permit for the use of RWBR shall not be considered as a waiver of any applicable federal, state or local rule, regulation or ordinance.

12. Toxicity Testing Requirements - Chronic Whole Effluent Toxicity

- a. The permittee shall conduct toxicity tests on its wastewater discharge in accordance with the provisions in this section. Such testing will determine if appropriately selected effluent concentrations adversely affect the test species.
- b. Chronic toxicity tests shall be conducted using the test species and method identified in Part III of this permit.

- c. Any test that does not meet the specifications contained in the Department's "Chronic Toxicity Testing Specifications for Use in the NJPDES Program" document must be repeated within 30 days of the completion of the initial test. The repeat test shall not replace subsequent testing required in Part III.
- d. The permittee shall collect and analyze the concentration of ammonia-N in the effluent on the day a sample is collected for WET testing. This result is to be reported on the Biomonitoring Report Form.
- e. IC25 - Inhibition Concentration - Concentration of effluent which has an inhibitory effect on 25% of the test organisms for the monitored effect, as compared to the control (expressed as percent effluent).
- f. Test results shall be expressed as the IC25 for each test endpoint. Where a chronic toxicity testing endpoint yields IC25's from more than one test endpoint, the most sensitive endpoint will be used to evaluate effluent toxicity.
- g. The permittee shall resubmit a Chronic Methodology Questionnaire within 60 days of any change in laboratory.
- h. Submit a chronic whole effluent toxicity test report: within twenty-five days after the end of every 6 month monitoring period beginning from the effective date of the permit (EDP). The permittee shall submit toxicity test results on appropriate forms.
- i. Test reports shall be submitted to:
 - i. New Jersey Department of Environmental Protection
401-02B
Division of Water Quality
Bureau of Surface Water Permitting
401 East State Street
P.O. Box 420
Trenton, New Jersey 08625-0420

13. Toxicity Reduction Implementation Requirements (TRIR)

- a. The permittee shall initiate a tiered toxicity investigation if two out of six consecutive WET tests demonstrate that the effluent does not comply or will not comply with the toxicity limit or action level specified in Part III of this permit.
 - i. If the exceedence of the toxicity limit or action level is directly caused by a documented facility upset, or other unusual event which has been identified and appropriately remedied by the permittee, the toxicity test data collected during the event may be eliminated when determining the need for initiating a TRIR upon written Department approval.
- b. The permittee shall begin toxicity characterization within 30 days of the end of the monitoring period when the second toxicity test exceeds the toxicity limits or action levels in Part III. The monitoring frequency for toxicity testing shall be increased to monthly. Up to 12 additional tests may be required.
 - i. The permittee may return to the toxicity testing frequency specified in Part III if four consecutive toxicity tests conducted during the Toxicity Characterization do not exceed the toxicity limit or action level.

- ii. If two out of any six consecutive, acceptable tests again exceed the toxicity limit or action level in Part III, the permittee shall repeat the Toxicity Reduction Implementation Requirements.
- c. The permittee shall initiate a preliminary toxicity identification (PTI) upon the third exceedence of the toxicity limit or action level specified in Part III during toxicity characterization.
 - i. The permittee may return to the monitoring frequency specified in PART III while conducting the PTI. If more frequent WET testing is performed during the PTI, the permittee shall submit all biomonitoring reports to the DEP and report the results for the most sensitive species on the DMR.
 - ii. As appropriate, the PTI shall include:
 - (1) treatment plant performance evaluation,
 - (2) pretreatment program information,
 - (3) evaluation of ammonia and chlorine produced oxidants levels and their effect on the toxicity of the discharge,
 - (4) evaluation of chemical use and processes at the facility, and
 - (5) an evaluation of incidental facility procedures such as floor washing, and chemical spill disposal which may contribute to effluent toxicity.
 - iii. If the permittee demonstrates that the cause of toxicity is the chlorine added for disinfection or the ammonia concentration in the effluent and the chlorine and/or ammonia concentrations are below the established water quality based effluent limitation for chlorine and/or ammonia, the permittee shall identify the procedures to be used in future toxicity tests to account for chlorine and/or ammonia toxicity in their preliminary toxicity identification report.
 - iv. The permittee shall submit a Preliminary Toxicity Identification Notification within 15 months of triggering TRIR. This notification shall include a determination that the permittee intends to demonstrate compliance OR plans to initiate a CTI.
- d. The permittee must demonstrate compliance with the WET limitation or action level in four consecutive WET tests to satisfy the requirements of the Toxicity Reduction Investigation Requirements. After successful completion, the permittee may return to the WET monitoring frequency specified in PART III.
- e. The permittee shall initiate a Comprehensive Toxicity Investigation (CTI) if the PTI does not identify the cause of toxicity and a demonstration of consistent compliance with the toxicity limit or action level in Part III can not be made.
 - i. The permittee shall develop a project study plan identifying the party or parties responsible for conducting the comprehensive evaluation, establish a schedule for completing the study, and a description of the technical approach to be utilized.
 - ii. If the permittee determines that the PTI has failed to demonstrate consistent compliance with the toxicity limit or action level in Part III, a Comprehensive Toxicity Investigation Workplan must be prepared and submitted within 90 days.
 - iii. The permittee shall summarize the data collected and the actions taken in CTI Quarterly Reports. The reports shall be submitted within 30 calendar days after the end of each quarter.
 - iv. The permittee shall submit a Final CTI Report 90 calendar days after the last quarterly report. The final CTI report shall include the corrective actions identified to reduce toxicity and a schedule for implementing these corrective actions.

- f. Upon receipt of written approval from the Department of the corrective action schedule, the permittee shall implement those corrective actions consistent with that schedule.
- i. The permittee shall satisfy the requirements of the Toxicity Reduction Implementation Requirements and return to the original toxicity monitoring frequency after corrective actions are implemented and the permittee demonstrates consistent compliance with the toxicity limit or action level in Part III in four consecutive toxicity tests.
 - ii. If the implemented corrective measures do not result in consistent compliance with the toxicity limit or action level in Part III, the permittee shall submit a plan for resuming the CTI.
 - iii. Documents regarding Toxicity Investigations shall be sent to the following:
New Jersey Department of Environmental Protection
401-02B
Division of Water Quality
Bureau of Surface Water Permitting
401 East State Street
P.O. Box 420
Trenton, New Jersey 08625-0420

F. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

1. Requirement to Identify and Locate Industrial Users

- a. The Permittee shall identify all indirect users which meet the significant indirect user definition in N.J.A.C. 7:14A-1.2 or have reasonable potential to:
 - i. interfere with attainment of the effluent limitations contained in the permittee's NJPDES permit
 - ii. pass through the treatment works and impair the water quality of the receiving stream; or
 - iii. affect sludge quality so as to interfere with the use or management of the municipal sludge

2. Notification Requirements

- a. The permittee shall provide adequate notice to the NJDEP, Division of Water Quality, Bureau of Pretreatment and Residuals, of the name, address, telephone number and facility contact of all:
 - i. new SIUs at the time the proposed user applies to the permittee for connection to the permittee's system,
 - ii. any substantial change or proposed change in the volume or character of pollutants being introduced into the POTW by existing SIUs, or
 - iii. any substantial change or proposed change in the volume or character of pollutants being introduced into the POTW by a user that causes the user to become an SIU.
- b. For purposes of this subsection, adequate notice shall include information on the quality and quantity of effluent introduced into the POTW and any anticipated impact of such change on the quantity or quality of effluent to be discharged from the POTW.

3. Requirement to Develop Local Limits

- a. If necessary to ensure compliance with the requirements in paragraph ii following, the permittee shall perform a headworks analysis in order to develop local limits or demonstrate that local limits are not necessary. The headworks analysis and, if necessary, development of local limits shall:
 - i. be conducted in accordance with the Local Limits Development Guidance (July 2004, USEPA Office of Wastewater Management), including all supplements and amendments thereto, including: identifying the sources and pollutants which should be limited in order to address environmental protection criteria of paragraph ii.; characterizing industrial discharges; reviewing applicable environmental protection criteria and pollutant effects data; monitoring of IU discharges, POTW collection system and treatment plant; and calculating local limits for the identified pollutants of concern;
 - ii. ensure compliance with the following minimum environmental protection criteria: the numerical effluent limitations in the Part III; The local agency's process inhibition and upset criteria; the local agency's worker health and safety protection criteria; the sludge quality criteria for a chosen method(s) of sludge management; and the limitations in the local agency's Air Pollution Control permit, where applicable.

4. Submittal Requirements

- a. The permittee shall submit updates to its Local Sewer Use Ordinance within 30 days of modification.
- b. The permittee shall prepare a Annual Pretreatment Program Report which consists of a listing of all indirect users which meet the significant indirect user definition in N.J.A.C. 7:14A-1.2. The report shall include the name, address, and type of business for each facility. The report shall be on the forms provided by the Department. The forms are available on the Department's web site at: <http://www.nj.gov/dep/dwq/bpr.htm>.
- c. If there are no Significant Indirect Users discharging into its treatment works, the Pretreatment Program Report may take the form of a letter noting such.
- d. Submit the Annual Pretreatment Program Report: by November 1 of each year beginning from the effective date of the permit (EDP).
- e. The reports shall be submitted to: NJDEP, Mail Code - 401-02B, Bureau of Pretreatment and Residuals, 401 East State Street, P. O. Box 420, Trenton, NJ. 08625-0420

G. CONDITIONS FOR MODIFICATION

1. Notification requirements

- a. The permittee may request a minor modification for a reduction in monitoring frequency for a non-limited parameter when four consecutive test results of "not detected" have occurred using the specified QL.

2. Causes for modification

- a. The Department may modify or revoke and reissue any permit to incorporate 1) any applicable effluent standard or any effluent limitation, including any effluent standards or effluent limitations to control the discharge of toxic pollutants or pollutant parameters such as acute or chronic whole effluent toxicity and chemical specific toxic parameters, 2) toxicity reduction requirements, or 3) the implementation of a TMDL or watershed management plan adopted in accordance with N.J.A.C. 7:15-7.

- b. The permittee may request a minor modification to eliminate the monitoring requirements associated with a discharge authorized by this permit when the discharge ceases due to changes at the facility.
- 3. Removal or Modification of Final QBELs or Criteria End-of-Pipe Effluent Limitations for Chemical Specific Toxic Pollutants**
- a. The Department will consider proposing to remove or modify a toxic pollutant's newly imposed final effluent limitation from the permit if any or all of the information in item "b" below is submitted for Departmental review and consideration.
 - b. Items that will be considered include, but are not limited to:
 - i. Submission of additional effluent data (minimum of 2.5 consecutive years of monthly data) using an approved quantification level equal to or better than the Department's Recommended Quantification Level (RQL).
 - ii. Acceptable site-specific ambient data (e.g. hardness, pollutant specific data) collected in accordance with a NJDEP approved work plan.
 - iii. Acceptable site-specific translator values developed in accordance with a NJDEP approved work plan.
 - iv. Acceptable site-specific criteria developed in accordance with a NJDEP approved work plan.
 - v. Updated 1Q10, 7Q10, 75th percentile, and/or other appropriate stream flow values where applicable.
 - vi. Updated regulatory mixing zone dilution factors where applicable.
 - c. All studies require a NJDEP approved workplan that shall be submitted to the Department for approval on or before the effective date of the permit (EDP) + 6 months.
 - i. It is recommended that all ambient monitoring associated with the establishment of hardness values, pollutant concentrations, and site specific translator values be conducted under the confines of a single work plan.
 - d. All final study reports and/or additional information shall be submitted to the Department on or before EDP + 36 months.
 - e. The Department will review all submitted information and will either propose a permit action to remove/modify the final effluent limitation(s) or deny the modification request.

MUSCONETCONG SEWERAGE AUTHORITY, Mount Olive

Permit No. NJ0027821
DSW140001 Surface Water Revoke & Reissue Permit Action

APPENDIX A:

**CHRONIC TOXICITY TESTING SPECIFICATIONS
FOR USE IN THE NJPDES PERMIT PROGRAM**

Version 2.1

May 1997

TABLE OF CONTENTS

- I. AUTHORITY AND PURPOSE
- II. GENERAL CONDITIONS
 - A. Laboratory Safety and Glassware
 - B. Test Concentrations / Replicates
 - C. Dilution Water
 - D. Effluent Sample Collection
 - E. Physical Chemical Measurements
 - F. Statistics
- III. TEST ACCEPTABILITY CRITERIA
- IV. STANDARD REFERENCE TOXICANT TESTING
 - A. Initial Testing Requirements
 - B. Subsequent Testing Requirements
 - C. Changing an Established Reference Toxicant
 - D. Control Charts
 - E. Unacceptable SRT Results
 - F. Annual Submittals
- V. TEST CANCELLATION / RESCHEDULING EVENTS
- VI. REPORTING
- VII. METHODS SPECIFICATIONS
 - A. Fathead Minnow (*Pimephales promelas*), Larval Survival and Growth Test, method 1000.0
 - B. *Ceriodaphnia dubia*, Survival and Reproduction Test, method 1002.0
 - C. Algal, (*Selenastrum capricornutum*), Growth Test, method 1003.0
 - D. Sheepshead Minnow (*Cyprinodon variegatus*), Larval Survival and Growth Test, method 1005.0
 - E. Inland Silverside (*Menidia beryllina*), Larval Survival and Growth Test, method 1006.0
 - F. *Mysidopsis bahia*, Survival, Growth, and Fecundity Test, method 1007.0
 - G. *Champia parvula*, Sexual Reproduction Test, method 1009.0
- VIII. REFERENCES

Notice: Mention of trade names or commercial products do not constitute endorsement or recommendation for use.

I. AUTHORITY AND PURPOSE

These methods specifications for the conduct of whole effluent chronic toxicity testing are established under the authority of the NJPDES permitting program, N.J.A.C. 7:14A-6.5(a)2 and 40 CFR 136, for discharges to waters of the State. The methods referenced herein are included by reference in 40 CFR 136, Table 1.A. and, therefore, constitute approved methods for chronic toxicity testing. The information contained herein serves to clarify testing requirements not sufficiently clarified in those methods documents and also serves to outline and implement the interlaboratory Standard Reference Toxicant Program until a formal laboratory certification program is established under N.J.A.C. 7:18. As such these methods are intended to be used to determine compliance with discharge permits issued under the authority of the NJPDES permit program. Tests are to be conducted in accordance with the general conditions and test organism specific method specifications contained in this document. All other conditions and specifications can be found in 40 CFR 136 and USEPA methodologies.

Until a subchapter on chronic toxicity testing within the regulations governing the certification of laboratories and environmental measurements (N.J.A.C. 7:18) becomes effective, tests shall be conducted in conformance with the methodologies as designated herein and contained in 40 CFR 136. The laboratory performing the testing shall be within the existing acute toxicity testing laboratory certification program established under N.J.A.C. 7:18, as required by N.J.A.C. 7:9B-1.5(c)5.

Testing shall be in conformance with the subchapter on chronic toxicity testing within the N.J.A.C. 7:18 when such regulations become effective. The laboratory performing the toxicity testing shall be within the chronic toxicity testing laboratory certification program to be established under that subchapter, when it becomes effective.

These methods are incorporated into discharge permits as enforceable permit conditions. Each discharge permit will specify in Part IV of the permit, the test species specific methods from this document that will be required under the terms of the discharge permit. Although the test species specific methods for each permit are determined on a case-by-case basis, the purpose of this methods document is to assure consistency among dischargers and to provide certified laboratories with information on the universe of tests to be utilized so that they can make the necessary preparations, including completing the required Standard Reference Toxicant testing. Please note that these methodologies are required for compliance testing only. Facilities and/or laboratories conducting testing under the requirements of a Toxicity Identification Evaluation or for informational purposes are not bound by these methods.

This document constitutes the second version of the NJDEP's interim chronic methodologies. This version contains no significant changes to the test methods themselves. However, in keeping with the Department's continued emphasis on good laboratory practices and quality control, the areas addressing the Standard Reference Toxicant Program, data analysis and data reporting, have been significantly revised.

II. GENERAL CONDITIONS

A. LABORATORY SAFETY, GLASSWARE, ETC.

All safety procedures, glassware cleaning procedures, etc., shall be in conformance with 40 CFR 136 and USEPA's "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms" and N.J.A.C. 7:18.

B. TEST CONCENTRATIONS / REPLICATES

All testing is to be performed with a minimum of five effluent concentrations plus a dilution water control. A second reference water control is optional when a dilution water other than culture water is used. The use of both a 0.5 or 0.75 dilution factor is acceptable for the selection of test concentrations. If hypothesis testing will be used to determine the test endpoint, one effluent concentration shall be the chronic permit limitation, unless the existing data for the discharge indicate that the NOEC is expected to be significantly less than the permit limit. The use of the 0.5 dilution factor may require more than five dilutions to cover the entire range of effluent concentrations as well as the chronic permit limit, since the permit limit will often not be one of the nominal concentrations in a 0.5 dilution series. In such an instance, the 0.5 dilution series may be altered by including an additional test concentration equal to the permit limit in the dilution series, or by changing the concentration closest to the permit toxicity limit to be equal to that limit. The Department recommends the use of the 0.75 dilution factor using Table 1.0 to determine test concentrations. That table establishes test concentrations based on the chronic toxicity limitation.

For either the 0.5 or 0.75 dilution factor, there shall be at least one test concentration above the permit limitation and at least three test concentrations below the permit limit along with the dilution water control unless the permit limitation prohibits such (e.g., limitations greater than 75% effluent). An effort shall be made to bracket the anticipated test result.

To use Table 1.0, locate the permit limit in column 4. The dilution series becomes the row that corresponds to the permit limit in column 4. For example, a permit limit of 41 would require a dilution series of the dilution water control, 17%, 23%, 31%, 41% and 55% effluent.

The number of replicates used in the test must, at a minimum, satisfy the specifications of the applicable methods contained herein. Increased data sensitivity can be obtained by increasing the number of replicates equally among test concentrations and thus an increased number of replicates is acceptable. Further, the use of nonparametric statistical analysis requires a minimum of four replicates per test concentration. If the data for any particular test is not conducive to parametric analyses and if less than four replicates were included, the test may not be considered acceptable for compliance purposes.

The use of single concentration tests consisting of the permit limitation as a concentration and a control is not permitted for compliance purposes, but may be used by a permittee in the conduct of a Toxicity Investigation Evaluation (TIE) or for information gathering purposes. Such a test would be considered a "pass" if there was no significant difference in test results, using hypothesis testing methods.

Table 1.0: 0.75 DILUTION SERIES INDEXED BY PERMIT LIMIT

			Permit Limit					Permit Limit			
Col #	1	2	3	4	5	Col #	1	2	3	4	5
	0.4	0.6	0.8	1	1.3		22	29	38	51	68
	0.8	1.1	1.5	2	2.7		22	29	39	52	69
	1.3	1.7	2.3	3	4		22	30	40	53	71
	1.7	2.3	3	4	5.3		23	30	41	54	72
	2.1	2.8	3.8	5	6.7		23	31	41	55	73
	2.5	3.4	4.5	6	8		24	32	42	56	75
	3	4	5	7	9		24	32	43	57	76
	3	5	6	8	11		24	33	44	58	77
	4	5	7	9	12		25	33	44	59	79
	4	6	8	10	13		25	34	45	60	80
	5	6	8	11	15		26	34	46	61	81
	5	7	9	12	16		26	35	47	62	83
	5	7	10	13	17		27	35	47	63	84
	6	8	11	14	19		27	36	48	64	85
	6	8	11	15	20		27	37	49	65	87
	7	9	12	16	21		28	37	50	66	88
	7	10	13	17	23		28	38	50	67	89
	8	10	14	18	24		29	38	51	68	91
	8	11	14	19	25		29	39	52	69	92
	8	11	15	20	27		30	39	53	70	93
	9	12	16	21	28		30	40	53	71	95
	9	12	17	22	29		30	41	54	72	96
	10	13	17	23	31		31	41	55	73	97
	10	14	18	24	32		31	42	56	74	99
	11	14	19	25	33		32	42	56	75	100
	11	15	20	26	35	24	32	43	57	76	
	11	15	20	27	36	24	32	43	58	77	
	12	16	21	28	37	25	33	44	59	78	
	12	16	22	29	39	25	33	44	59	79	
	13	17	23	30	40	25	34	45	60	80	
	13	17	23	31	41	26	34	46	61	81	
	14	18	24	32	43	26	35	46	62	82	
	14	19	25	33	44	26	35	47	62	83	
	14	19	26	34	45	27	35	47	63	84	
	15	20	26	35	47	27	36	48	64	85	
	15	20	27	36	48	27	36	48	65	86	
	16	21	28	37	49	28	37	49	65	87	
	16	21	29	38	51	28	37	50	66	88	
	16	22	29	39	52	28	38	50	67	89	
	17	23	30	40	53	28	38	51	68	90	
	17	23	31	41	55	29	38	51	68	91	
	18	24	32	42	56	29	39	52	69	92	
	18	24	32	43	57	29	39	52	70	93	
	19	25	33	44	59	30	40	53	71	94	
	19	25	34	45	60	30	40	53	71	95	
	19	26	35	46	61	30	41	54	72	96	
	20	26	35	47	63	31	41	55	73	97	
	20	27	36	48	64	31	41	55	74	98	
	21	28	37	49	65	31	42	56	74	99	
	21	28	38	50	67	32	42	56	75	100	

* Select the dilution series by finding the row which contains the permit limit in column #4.
NOTE: All values are in units of "% effluent" not toxic units.

C. DILUTION WATER

1. Marine and Estuarine Waters

A high quality natural water, such as the Manasquan River Inlet is strongly recommended as the dilution water source for chronic toxicity testing with marine and estuarine organisms. The use of the receiving water as the dilution water source is not required. Saline waters prepared with hypersaline brine and deionized water may also be used as dilution water. Hypersaline brines shall be prepared from a high quality natural seawater and shall not exceed a concentration of 100 ppt. The type of a dilution water for a permittee may not be changed without the prior approval of the Department.

The standard test salinity shall be 25 ppt, except for *Champia parvula*, which shall be tested at 30 ppt. Since most effluents are freshwater based, in most cases it will be necessary to adjust the salinity of the test concentrations to the standard test salinity.

2. Fresh Waters

A high quality natural water, such as Round Valley Reservoir (if access is allowed) or Lake Hopatcong, is strongly recommended as the dilution water source for chronic toxicity testing with freshwater organisms. It is not required to perform the toxicity testing with the receiving water as dilution water. Tests performed with a reconstituted water or up to 20% Diluted Mineral Water (DMW) as dilution water is acceptable. For testing with *Ceriodaphnia dubia*, the addition of 5 µg/l selenium (2 µg/l selenium with natural water) and 1 µg/l vitamin B12 is recommended (Keating and Dagbusan, 1984; Keating, 1985 and 1988). The source of a dilution water for a permittee may not be changed without the prior approval of the Department. Reconstituted water and DMW should be prepared with Millipore Super Q^R or equivalent, meet the requirements of N.J.A.C. 7:18-6 and should be aerated a minimum of 24 hrs prior to use, but not supersaturated.

D. EFFLUENT SAMPLE COLLECTION

Effluent samples shall be representative of the discharge being regulated. For each discharge serial number (DSN), the effluent sampling location shall be the same as that specified in the NJPDES permit for other sampling parameters unless an alternate sampling point is specified in the NJPDES discharge permit. For industrial dischargers with a combined process/sanitary waste stream, effluent sampling shall be after chlorination, unless otherwise designated in the permit.

For continuous discharges, effluent sampling shall consist of 24 hour composite samples consisting either of equal volumes taken once every hour or of a flow-proportionate composite sample, unless otherwise approved by the Department. At a minimum, three samples shall be collected as specified above, one every other day. The first sample shall be used for test initiation and the first renewal. The second sample for the next two renewals. The third sample shall be used for the final three renewals. For the *Champia* and *Selenastrum* tests, a single sample shall be collected not more than 24 hours prior to test initiation. No effluent sample shall be over 72 hours old at the time of its use to initiate or renew solutions in a test. It is acceptable to collect samples more frequently for chronic WET testing and if samples are collected daily for acute toxicity testing conducted concurrently, available samples may be used to renew the test solutions as appropriate.

For all other types of discharges, effluent sampling shall be conducted according to specifications contained within the discharge permit, methodology questionnaire or as otherwise specified by the Department. The use of grab samples or other special sampling procedures will be based on time of occurrence and duration of intermittent discharge events.

If a municipal discharger has concerns that the concentrations of ammonia and/or chlorine in an effluent are adequate to cause violations of the permit limit for chronic toxicity testing, the permittee should conduct analyses, as specified in USEPA's toxicity investigation methods documents, to illustrate the relationship between chronic effluent toxicity and chlorine and/or ammonia as applicable. This data may then be submitted

to the Department as justification for a request to use modified test procedures, which account for ammonia and/or chlorine toxicity, in future chronic toxicity tests. The Department may, where adequate justification exists, permit the adjustment of these pollutants in the effluent sample if discharge limits for these pollutants are contained in the NJPDES permit and those permit limitations are adequate for the protection of water quality. Any proposed modified test procedures to adjust effluent chlorine and/or ammonia shall be approved by the Department prior to use of those test procedures for any compliance testing.

Except for filtration through a 2 mm or larger screen or an adjustment to the standard test salinity, no other adjustments to the effluent sample shall be made without prior written approval by the Department. Aeration of samples prior to test start shall be minimized where possible and samples shall not be aerated where adequate saturation exists to maintain dissolved oxygen.

E. PHYSICAL CHEMICAL MEASUREMENTS

At a minimum, the physical chemical measurements shall be as follows:

- pH and dissolved oxygen shall be measured at the beginning and end of each 24 hour exposure period, in at least one chamber, of the high, medium and low test concentrations and the control. In order to ensure that measurements for these parameters are representative of the test concentrations during the test, measurements for these parameters should be taken in an additional replicate chamber for such concentrations which contains no test organisms, but is subject to the same test conditions.
- Temperature shall either be monitored continuously, measured daily in at least two locations in the environmental control system, or measured at the beginning of each 24 hr exposure period in at least one replicate for each treatment.
- Salinity shall be measured in all salt water tests at the beginning of each 24 hour exposure period, in at least one replicate for each treatment.
- For all freshwater tests, alkalinity, hardness and conductivity shall be measured in each new sample (100% effluent) and control.
- Nitrite, nitrate and ammonia shall be measured in the control before each renewal in the mysid test only.
- For samples of discharges where concentrations of ammonia and/or chlorine are known or are suspected to be sufficient to cause toxicity, it is recommended that the concentrations of these pollutants be determined and submitted with the standardized report form. The laboratory is advised to consult with the permittee to determine if these parameters should be measured in the effluent. Where such measurements are deemed appropriate, measurements shall be conducted at the beginning of each 24 hour exposure period. Also, since a rise in the test pH can affect the toxicity of ammonia in the effluent, analysis of ammonia during the test may be appropriate if a rise in pH is accompanied by a significant increase in mortality.

F. STATISTICS

The use of both hypothesis testing techniques and point estimate techniques are currently in use by the Department or by permittees for compliance purposes. The NJPDES permit should be checked to determine which type of analysis is required and appropriate for each specific facility. It is not acceptable to simply evaluate any data by "visual data review" unless in the analysis of survival data, no mortality occurred in the test. All data sets must be appropriately statistically evaluated.

For hypothesis testing techniques, statistical analysis shall follow the protocols in USEPA (1988, 1989) to evaluate adverse effects. A significance level of 0.05 shall be utilized to evaluate such effects. Use of a protocol not contained in these documents must be accompanied by a reference and explanation addressing its

applicability to the particular data set. Please note the following when evaluating data using hypothesis testing techniques.

Special attention should be given to the omission and inclusion of a given replicate in the analysis of mysid fecundity data (USEPA 1994, p. 275) and *Ceriodaphnia* reproduction data (USEPA 1994, page 174).

Determination of acceptability criteria and average individual dry weight for the growth endpoints must follow the specifications in the applicable documents (e.g., p.84 for saltwater methods document.)

Use of nonparametric statistical analyses requires a minimum of four replicates per test concentration. If the data for any particular test are not conducive to parametric analyses and if less than four replicates were included, the test may not be acceptable to the Department.

Where hypothesis testing is used for compliance purposes, if the results of hypothesis testing indicate that a deviation from the dose response occurs such that two test concentrations are deemed statistically significant from the control but an intermediate test concentration is not, the test is deemed unacceptable and cannot be used for compliance testing purposes.

For point estimate techniques, statistical analysis should follow the protocol contained in "A Linear Interpolation Method for Sublethal Toxicity: The Inhibition Concentration (IC_p) Approach (Version 2.0), July 1993, National Effluent Toxicity Assessment Center Technical Report 03-93." Copies of the program can be obtained by contacting the Department. The linear interpolation estimate IC_p values and not the bootstrap mean IC_p, shall be reported for permit compliance purposes. The IC_p value reported on the Discharge Monitoring Report shall be rounded off as specified in the Department's "Discharge Monitoring Report (DMR) Instruction Manual, December 1993." IC₂₅ values shall be reported under the parameter code listed as "NOEC" on the DMR, until the DMR's are adjusted accordingly.

If the result reported by the IC_p method is greater than the highest concentration tested, the test result is reported as "greater than C" where "C" is the highest tested concentration. If the IC_p is lower than the lowest concentration tested, the test result is reported as "less than C" where "C" is the lowest tested concentration.

If separate NOEC's/IC₂₅'s can be calculated from multiple test endpoints, for example a reproductive endpoint and a growth endpoint, the lowest NOEC/IC₂₅ value expressed in units of "% effluent" will be used to determine permit compliance and should, therefore, be reported as the NOEC/IC₂₅ value for the test. If the NOEC value for growth and/or reproduction is not lower than that for survival, the NOEC/IC₂₅ value reported for the test shall be as survival. For saltwater tests, where additional controls are used in a test (i.e. brine and/or artificial sea salt control), a T-test shall be used to determine if there is a significant difference between the original test control and the additional controls. If there is a significant difference between any of the controls, the test may be deemed unacceptable and if so, will not be used for permit compliance.

III. TEST ACCEPTABILITY CRITERIA

Any test that does not meet these acceptability criteria will not be used by the Department for any purpose and must be repeated as soon as practicable, with a freshly collected sample.

1. Tests must be performed by a laboratory approved for the conduct of chronic toxicity tests and certified for acute toxicity testing under N.J.A.C. 7:18.
2. Test results may be rejected due to inappropriate sampling, including the use of less than three effluent samples in a test and/or use of procedures not specified in a permit or methodology questionnaire, use of frozen or unrefrigerated samples or unapproved pretreatment of an effluent sample.
3. Controls shall meet the applicable performance criteria specified in the Table 2.0 and in the individual method specifications contained herein.
4. Acceptable and applicable Standard Reference Toxicant Data must be available for the test.
5. No unapproved deviations from the applicable test methodology may be present.
6. When using hypothesis testing techniques, a deviation from the dose response as explained in the statistical portion of this document shall not be present in the data.

Table 2.0: CONTROL PERFORMANCE

TEST ORGANISM	MINIMUM SURVIVAL	MINIMUM WEIGHT GAIN	MINIMUM FECUNDITY/ REPRODUCTION
<i>Pimephales promelas</i>	80%	0.25 mg avg	N/A
<i>Ceriodaphnia dubia</i>	80%	N/A	Average of ≥ 15 young per surviving female
<i>Selenastrum capricornutum</i>	Density $\geq 2 \times 10^5$ cells/ml	N/A	Variability in controls not to exceed 20%.
<i>Cyprinodon variegatus</i>	80%	0.60 mg (unpreserved) avg 0.50 mg (preserved) avg	N/A
<i>Menidia beryllina</i>	80%	0.50 mg (unpreserved) avg 0.43 mg (preserved) avg	N/A
<i>Mysidopsis bahia</i>	80%	0.2 mg per mysid avg	egg production by 50% of control females if fecundity is used as an endpoint.
<i>Champia parvula</i>	100%	N/A	≥ 10 cystocarps per plant Plants in controls and lower test concentrations shall not fragment so that individual plants cannot be identified.

THE DETERMINATION OF A TEST AS UNACCEPTABLE DOES NOT RELIEVE THE FACILITY FROM MONITORING FOR THAT MONITORING PERIOD

IV. STANDARD REFERENCE TOXICANT TESTING

All chronic testing shall be accompanied by testing with a Standard Reference Toxicant (SRT) as a part of each laboratory's internal quality control program. Such a testing program should be consistent with the quality assurance/quality control protocols described in the USEPA chronic testing manuals. Laboratories may utilize the reference toxicant of their choice and toxicants such as cadmium chloride, potassium chloride, sodium dodecyl sulfate and copper sulfate are all acceptable. However, Potassium chloride has been chosen by several laboratories and is recommended by the Department. The concentration of the reference toxicant shall be verified by chemical analysis in the low and high test concentrations once each year or every 12 tests, whichever is less. It is not necessary to run SRT tests, for all species using the same SRT.

A. INITIAL STANDARD REFERENCE TOXICANT (SRT) TESTING REQUIREMENTS

At a minimum, this testing shall include an initial series of at least five SRT tests for each test species method. Acceptable SRT testing for chronic toxicity shall be performed utilizing the short term chronic toxicity test methods as specified herein. Reference toxicant tests utilizing acute toxicity testing methods, or any method other than those contained in this document are not acceptable. The laboratory should forward results of the initial SRT testing, including control charts, the name of the reference toxicant utilized, the supplier and appropriate chemical analysis of the toxicant to either address listed in the reporting requirements section herein. The initial series of a least five SRT tests for a specific test species method shall be completed and approved in writing by the Department prior to the conduct of any chronic toxicity testing for compliance purposes.

B. SUBSEQUENT SRT TESTING REQUIREMENTS

After receiving the initial approval from the Department to conduct chronic toxicity tests for compliance purposes, subsequent SRT testing shall be conducted as follows:

1. Where organisms used in testing are cultured at the testing laboratory, SRT testing should be conducted once per month for each species/method.
2. Where the laboratory purchases organisms from a laboratory certified in New Jersey for the conduct of acute toxicity testing and approved for the conduct of chronic toxicity testing for the test organism in question (i.e. the "supplier laboratory"), SRT data provided by the "supplier laboratory" for each lot of organisms purchased is acceptable as long as the SRT test result falls within the control limits of the control chart established by the "supplier laboratory" for that organism. The laboratory using purchased organisms is responsible for the results of any compliance tests they perform.
3. A testing laboratory purchasing organisms from a supplier laboratory must still perform SRT testing on a quarterly basis at a minimum, for each species they test with, in order to adequately document their own interlaboratory precision.
4. If a testing laboratory purchasing organisms elects not to use the SRT data from a "supplier laboratory" or such data is unavailable or where organisms are purchased from another organism supplier, the testing laboratory must conduct SRT testing on each lot of organisms purchased.
5. For industrial laboratories certified under N.J.A.C. 7:18 to conduct acute toxicity tests, only the SRT testing conditions specified in 2. through 4. above apply. Where that laboratory/facility cultures their own test organisms, the frequency of SRT testing required will be determined on a case by case basis, based on the frequency of testing for that facility.

NOTE: Based on these requirements, SRT data are considered applicable to a compliance test when the SRT test results are acceptable and the SRT test is conducted within 30 days of the compliance test, for the test species and SRT in question. Therefore, it is not necessary for an approved laboratory to run an SRT test every month if the laboratory is not conducting compliance tests for a particular species.

C. CHANGING OF AN ESTABLISHED REFERENCE TOXICANT

The SRT used for any species by a laboratory may be changed at any time provided that the following conditions have been satisfied:

1. A series of at least three reference toxicant tests are conducted with the new reference toxicant and the results of those tests are identified as satisfactory, in writing, by the Department.
2. Laboratories must continue using the already approved SRT in their ongoing QA/QC program, until such time as the letter referenced above, is received by the laboratory.

D. CONTROL CHARTS

Control charts shall be established from SRT test results in accordance with the procedures outlined in the USEPA methods documents. Control charts shall be constructed using IC25's using the following methods:

1. The upper and lower control limits shall be calculated by determining +/- two standard deviations above and below the mean.
2. SRT test results which exhibit an IC25 that is greater than the highest concentration tested or less than the lowest concentration tested (i.e. a definitive endpoint cannot be determined), shall not be used to establish control charts.
3. SRT tests which do not meet the acceptability criteria for a specific species shall not be used to establish control charts.
4. All values used in the control charts should be as nominal concentrations. However, the control charts shall be accompanied by a chart tabulating the test results as measured concentrations.
5. An outlier (i.e. values which fall outside the upper and lower control limits) should be included on the control chart unless it is determined that the outlier was caused by factors not directly related to the test organisms (e.g., test concentration preparation) as the source of variability would not be directly applicable to effluent tests. In such case, the result and explanation shall be reported to the Department within 30 days of the completion of the SRT test.

The control chart established for the initial series of SRT data submitted will be used by the laboratory and the Department to determine outliers from SRT test results reported in the "NJPDES Biomonitoring Report Form - Chronic Toxicity Test" submitted by the permittees for the test species. These initial control limits will remain unchanged until twenty SRT tests have been completed by the laboratory.

The following procedures shall be used for continually updating control charts after twenty acceptable SRT tests have been completed:

1. Once a laboratory has completed twenty acceptable SRT tests for a test species, the upper and lower control limits shall be recalculated with those twenty values.
2. For each successive SRT test conducted after these first twenty tests, a moving average shall be calculated and the control limits reevaluated using the last twenty consecutive test results.
3. The upper and lower control limits shall be reported on the "NJPDES Biomonitoring Report Form - Chronic Toxicity Tests" along with the SRT test result.

E. UNACCEPTABLE SRT TEST RESULTS

If a laboratory produces any SRT test results which are outside the established upper and lower control limits for a test species at a frequency greater than one test in any ten tests, a report shall be forwarded to the Department at the address contained herein. This report shall include any identified problem which caused the values to fall outside the expected range and the corresponding actions that have been taken by the laboratory. The Department may not accept or may require repeat testing for any toxicity testing that may have been affected by such an occurrence.

If a laboratory produces two consecutive SRT test results or three out of any ten test results which are outside the established upper and lower limits for a specific test species, the laboratory shall be unapproved to conduct chronic toxicity tests for compliance purposes for that test species. Reapproval shall be contingent upon the laboratory producing SRT test results within the established upper and lower control limits for that test species in two consecutive SRT tests. If one or both of those test results again fall outside the established control levels, the laboratory is unapproved for that test species until five consecutive test results within the established upper and lower control limits are submitted and approved by the Department.

F. ANNUAL SUBMITTALS

Control charts shall be forwarded to the Department on an annual basis, on the anniversary of approval for the test species.

The Department may request, at any time, any information which is essential in the evaluation of SRT results and/or compliance data.

V. TEST CANCELLATION / RESCHEDULING EVENTS

A lab may become aware of QA problems during or immediately following a test that will prevent data from being submitted or a lab may be unable to complete a tests due to sample collection or shipping problems. If for any reason a chronic toxicity test is initiated and then prematurely ended by the laboratory or at the request of the permittee, the laboratory shall submit the form entitled "Chronic Whole Effluent Toxicity Testing Test Cancellation / Rescheduling Event Form" contained herein. This form shall be used to detail the reason for prematurely ending the test. This completed form and any applicable raw data sheets shall be submitted to the appropriate biomonitoring program at the address above within 30 days of the cessation of the test.

Tests are considered to be initiated once test organisms have been added to all test chambers.

Submission of this form does not relieve the facility from monitoring for that monitoring period.

VI. REPORTING

The report form entitled "NJPDES Biomonitoring Report Form - Chronic Toxicity Tests" should be used to report the results of all NJPDES chronic compliance biomonitoring tests. Laboratory facsimiles are acceptable but must contain all information included on any recent revisions of the form by the Department. Statistical printouts and raw data sheets for all endpoints analyzed shall be included with the report submitted to the Department. Two copies of all chronic toxicity test report forms shall be submitted to the following address as applicable:

New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Surface Water Permitting
Mailcode 401-02B
PO Box 420
Trenton, NJ 08625-0420

It is not necessary to attach a copy of a test report form to the Discharge Monitoring Report (DMR) form when submitting this form to the Department. However, the results of all chronic toxicity tests conducted for compliance purposes must be reported on the DMR form under the appropriate parameter code in the monitoring period in which the test was conducted.

VII. METHOD SPECIFICATIONS

The following method specifications shall be followed as specified in the NJPDES permit. Any changes to these methods will not be considered acceptable unless they are approved in writing by the Department, prior to their use.

- A. Fathead Minnow (*Pimephales promelas*), Larval Survival and Growth Test, method 1000.0
- B. *Ceriodaphnia dubia*, Survival and Reproduction Test, method 1002.0
- C. Algal, (*Selenastrum capricornutum*), Growth Test, method 1003.0
- D. Sheepshead Minnow (*Cyprinodon variegatus*), Larval Survival and Growth Test, method 1005.0
- E. Inland Silverside (*Menidia beryllina*), Larval Survival and Growth Test, method 1006.0
- F. *Mysidopsis bahia*, Survival, Growth, and Fecundity Test, method 1007.0
- G. *Champia parvula*, Sexual Reproduction Test, method 1009.0

VIII. REFERENCES

1. Keating, K. 1985. The influence of Vitamin B12 deficiency on the reproduction of Daphnia pulex Leydig (Cladocera). *J. Crustacean Biology* 5:130-136.
2. Keating, K. 1988. N.J.D.E.P. Project C29589, Fiscal 1988 Third Quarter Summary Report. Producing Nutritionally Competent Daphnids for Use in Bioassay. 44p.
3. Keating, K., and B. Dagbusan. 1984. Effect of selenium deficiency on cuticle integrity in Cladocera (Crustacea). *Proc. Natl. Acad. Sci. USA* 81:3433-3437.
4. NJDEP, 1993. Discharge Monitoring Report (DMR) Instruction Manual.
5. USEPA. 1994. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA-600/4-91-003. July 1994. Second Edition.
6. USEPA. 1994. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-91/002. July 1994. Third Edition.

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAILCODE 401-02B
PO Box 420
TRENTON, NEW JERSEY 08625-0420
BIOMONITORING PROGRAM

**CHRONIC WHOLE EFFLUENT TOXICITY TESTING
TEST CANCELLATION / RESCHEDULING EVENT FORM**

**THIS FORM IS TO BE COMPLETED AND SUBMITTED TO THE DEPARTMENT DIRECTLY BY THE
LABORATORY CONDUCTING CHRONIC TOXICITY TESTS WHENEVER A CHRONIC TOXICITY TEST
IS PREMATURELY ENDED FOR ANY REASON**

FACILITY NAME: _____
LOCATION: _____
CONTACT: _____ PHONE: _____
NJPDES No.: _____

CANCELLATION EVENT:

LABORATORY NAME / NUMBER: _____
CONTACT: _____
TEST START DATE: ___ / ___ / ___ TEST END DATE: ___ / ___ / ___
REASON FOR CANCELLATION: _____

EFFLUENT SAMPLING:

SAMPLING POINT / DESCRIPTION OF SAMPLING SITE: _____

SAMPLING INITIATED: DATE: ___ / ___ / ___ TIME: _____
SAMPLING ENDED: DATE: ___ / ___ / ___ TIME: _____
NUMBER OF EFFLUENT SAMPLES COLLECTED: _____
SAMPLE TYPE (GRAB/COMPOSITE): _____
RECEIVED IN LAB BY/FROM: _____

METHOD OF SHIPMENT: _____

(ALL APPLICABLE RAW DATA SHEETS MUST BE ATTACHED)

c: Permittees authorized agent.

Masterfile #: 3578

PI #: 46474

RWBR Approval Status List

The permittee is only authorized to utilize RWBR for the specific category, type and location that has been approved in the table below.

RWBR Category	Specific RWBR Type	Location	Status
PA	Spray Irrigation (Golf Course)	None	Not Approved
PA	Spray Irrigation (Athletic Fields, Playgrounds)	None	Not Approved
PA	Spray Irrigation (Residential Lawns)	None	Not Approved
PA	Vehicle Washing	None	Not Approved
PA	Hydroseeding/Fertilizing	None	Not Approved
PA	Decorative Fountains	None	Not Approved
PA	Toilet Flushing	None	Not Approved
RA-LA	Sod Irrigation	None	Not Approved
RA-LA	Spray Irrigation within a fenced perimeter or otherwise restricted area	None	Approved
RA-LA	Spray Irrigation within a fenced perimeter or otherwise restricted area (Without NH3 + NO3)	None	Not Approved
RA-LA	Spray Irrigation (not fenced or restricted area)	None	Not Approved
RA-CM	Street Sweeping	MUA Sewer Service Area	Approved
RA-CM	Dust Control	None	Not Approved
RA-CM	Fire Protection	None	Not Approved
RA-CM	Vehicle Washing (at STP or DPW)	None	Not Approved
RA-CM	Composting	None	Not Approved
RA-IS	Sanitary Sewer Jetting	MUA Sewer Service Area	Approved
RA-IS	Non-Contact Cooling Water	None	Not Approved
RA-IS	Boiler Makeup Water	None	Not Approved
RA-IS	Road Milling	None	Not Approved
RA-IS	Hydrostatic Testing	None	Not Approved
RA-IS	Parts Washing	None	Not Approved
RA-IS	STP Washdown	Name of MUA	Approved

Categories:

PA Public Access
RA-LA Restricted Access-Land Application and Non-Edible Crops
RA-CM Restricted Access--Construction and Maintenance Operations
RA-IS Restricted Access--Industrial Systems

Abbreviations:

NH3 - Ammonia
NO3 - Nitrate
STP - Sewage Treatment Plant
DPW - Dept. of Public Works

Annual Reuse Report - SAMPLE

Any facility that has received an RWBR authorization is required to submit an Annual Reuse Report. The following information, at a minimum, shall be included in the report, due on February 1st of each year.

- (1) The total wastewater reused (R) by the facility in the previous calendar year. If no wastewater was reused in the previous calendar year, report R as zero and skip to (6) below;
- (2) The total wastewater discharged (D) by the facility in the previous calendar year; R = _____ gallons
- (3) The percent of wastewater reused (%R) by the facility in the previous calendar year, calculated as follows: D = _____ gallons

$$\%R = R/(R+D), \text{ expressed as a percent.}$$
%R = _____ percent
- (4) The total wastewater that was reused for **each reuse type** in the previous calendar year. This information should be provided in the chart format utilized in the RWBR Usage Table below;

RWBR Usage Table

RWBR Category	Specific RWBR Type	Location	Flow (gallons)
	<i>For Example:</i>		
<i>RA-CM</i>	<i>Street Sweeping</i>	<i>Local Township</i>	<i>42,000</i>
<i>RA-IS</i>	<i>Sanitary Sewer Jetting</i>	<i>Facility Sewer Service Area</i>	<i>15,000</i>
<i>RA-IS</i>	<i>STP Washdown</i>	<i>Sewage Treatment Plant</i>	<i>43,000</i>
		<i>Grand Total (R)</i>	<i>100,000</i>

Attach additional pages as necessary.

- (5) An update to the correlation between Total Suspended Solids and Turbidity, if necessary; Correlation = _____
- (6) Submit a completed copy of this form to:
 - For paper copies:
 - Mail Code 401 – 02B
 - Division of Water Quality
 - Bureau of Surface Water Permitting
 - P.O. Box 420
 - Trenton, NJ 08625-0420
 - For electronic copies:
 - ben.manhas@dep.state.nj.us