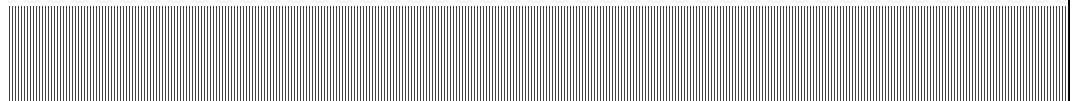


Carroll County
Wastewater Limitation Evaluation

Appendix A

Capacity Management Planning Worksheet Summary



Wastewater Treatment Capacity

Facility...	Freedom		Hampstead		Manchester		Mount Airy		New Windsor		Taneytown		Union Bridge		Westminster	
	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)	A. Calculations (gpd)	B. Values (gpd)
1 National Pollutant Discharge Elimination System (NPDES) Permitted Flow (list in column B1)		3,500,000		900,000		500,000		1,200,000		94,000		1,100,000		200,000		5,000,000
2 2003 Daily Average Flow of Wastewater (list in column A1)	2,710,000		736,000		259,568		916,000		92,000		956,000		146,100		4,824,000	
3 2002 Daily Average Flow of Wastewater (list in column A1)	2,080,000		505,000		237,318		679,000		67,000		605,000		95,500		3,081,000	
4 Estimated Inflow and Infiltration Flow impacting the Wastewater Treatment Facility (subtract line 3 from line 2; report in A4 and B4). Or the I&I analysis from in-pipe monitoring and hydraulic modeling.	300,000	630,000	231,000	231,000	-	22,250	-	237,000	-	25,000		351,000	50,600	50,600	-	1,743,000
5 Remaining capacity for existing and future wastewater flow. (subtract B4 from B1; report in column B5)		2,870,000		669,000		477,750		963,000		69,000		749,000		149,400		3,257,000
Calculating Existing and Encumbered S-1 Infill Flow																
6 Existing (current flow without I&I) S-1 Flow (use Planning Sheet provided as Figure 1 to calculate)	1,530,000		397,000		270,269		659,000		22,716		502,333		127,367		2,687,000	
7 Estimated encumbered flow approved S-1 building permits not connected. (# of EDUs X flow rate per EDU) Add additional large commercial and/or industrial flow. (use Planning Sheet provided as Figure 1 to calculate)	21,488		19,932		41,250		65,500		7,250		32,750		7,000		139,825	
8 Estimated encumbered flow approved S-1 record plats for Infill Lots having no building permits. (# of EDUs X flow rate per EDU) Add additional large commercial and/or industrial flow. (use Planning Sheet provided as Figure 1 to calculate)	472,635		18,924		39,270		46,230		14,700		36,170		94,900		257,470	
9 Allocated Capacity for Existing and Potential Infill Flow (Total S-1 Flow less I&I, and report in A9 and B9)	2,024,123	2,024,123	435,856	435,856	350,789	350,789	770,730	770,730	44,666	44,666	571,253	571,253	229,267	229,267	3,084,295	3,084,295
10 Subtract B9 from B5, and report current remaining capacity in B10.		845,877		233,144		126,961		192,270		24,334		177,747		(79,867)		172,705
Estimating Future S-2 and S-3 Flow																
11 Estimated future flows from S-2 and S-3 classified areas. (# of EDUs X flow rate per EDU) Add additional large commercial and/or industrial flow. (use Planning Sheet provided as Figure 1 to calculate)	1,077,130		259,011		94,250		390,170		232,000		821,450		609,640		204,770	
12 Add A9 + A11; report in A12.	3,101,253		694,867		445,039		1,160,900		276,666		1,392,703		838,907		3,289,065	
13 Estimated I&I Flow or I&I Analysis Value (report value provided from B4)	630,000		231,000		22,250		237,000		25,000		351,000		50,600		1,743,000	
14 Determine Future Capacity Needs: Add A12 and A13. (If value exceeds B1, report over-allocation in B14.)	3,731,253		925,867		467,289		1,397,900		301,666		1,743,703		889,507		5,032,065	
15 Report Available Capacity: Subtract A14 from B1. (If A14 exceeds B1, report 0 in B15 and see notification below.)	(231,253)		(25,867)		32,711		(197,900)		(207,666)		(643,703)		(689,507)		(32,065)	
Report Over-Allocation (Subtract A14 from B1)																

Note: If there is a reported negative value for the remaining capacity allocation, please contact MDE for assistance.

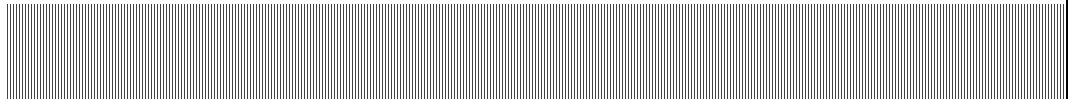
	Current remaining capacity	Future capacity available	Additional Planned Growth Demand	Demand Amount	Capacity Available for Future & Planned Growth
Freedom	845,877	(231,253)	(1,663,390)	2167+3163 DU + 9.2 C + 399 I 733+407 DU + 4.9+14.6 C + 359.7+50.7 I	(1,894,643)
Hampstead	233,144	(25,867)	(626,970)		(652,837)
Manchester	126,961	32,711	(370,520)	845 DU + 27 AC C 2+2 DU + 0 C + 0	(337,809)
Mount Airy	192,270	(197,900)	(1,000)	I	(198,900)
New Windsor	24,334	(207,666)	(3,800)	0+0 DU + 3.6 C + 1.6 I	(211,466)
Taneytown	177,747	(643,703)	(750)	2+1 DU + 0 C + 0 I 10+6 DU + 0 C +	(644,453)
Union Bridge	(79,867)	(689,507)	(38,490)	45.6 I 678 DU PLY + 514	(727,997)
Westminster	172,705	(32,065)	(673,840)	Ex DU + 8 C + 462.8 I	(705,905)
Totals	1,693,171	(1,995,250)	(3,378,760)		(5,374,010)

Carroll County
Wastewater Limitation Evaluation

Appendix B

NPDES Permit Fact Sheets

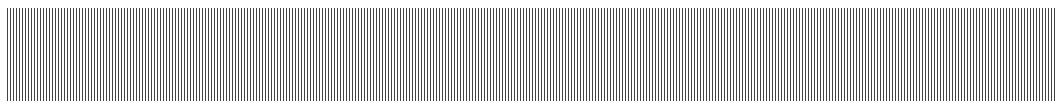
- 1. Westminster WWTP**
- 2. Freedom District WWTP**
- 3. Taneytown WWTP**
- 4. Hampstead WWTP**
- 5. Manchester WWTP**
- 6. Union Bridge WWTP**
- 7. New Windsor WWTP**
- 8. BTR-Hampstead**
- 9. Congoleum Corp.**



NPDES PERMIT FACT SHEET

1

Westminster WWTP



1. Description of Receiving Waters:

Outfall 001 discharges into Little Pipe Creek which flows into Double Pipe Creek, which is designated as use IVP waters protected for adult trout for put and take fishing and water supply.

Point of Discharge:

River Mile: About 19.80 mile point of discharge from confluence of the Double Pipe Creek

Basin Codes:

Major Basin Sub Segment

02 - 14 - 03 - 04

Water Type:

Non-tidal

Tidal

Intermittent

Tidal River

Perennial

Estuary

Impoundment

Atlantic Ocean/Chesapeake Bay

Designated Use:

Use IVP which is protected as recreational trout waters and public water supply.

Receiving stream 7-day, 10-year low flow: about 2.50 cfs

Maryland Coordinates:

East Grid

North Grid

789.1

628.4

2. Description of Process Discharging into Outfalls: The plant provides a tertiary treatment using Biological Nitrogen Removal (BNR) treatment process. The plant also provides phosphorus removal with chemical addition. The plant primarily consists of bar screens; grit and grease removal facility; aeration tanks with anaerobic, aerobic, and switch zones; secondary clarifiers; and effluent disinfection using chlorine and dechlorination. The work is in progress to replace chlorination and dechlorination system with liquid hypochlorite and bysulfite system; and post aeration. The plant disposes its sludge using aerobic sludge digestion, de-watering with belt filter press, and lime stabilization. The plant also provides odor control equipment using masking mist.

Discharge Type: --- Planned ___ Intermittent _x_ Continuous

Discharge Period: 12 months

Description of discharge:

Flow: 4.66 mgd Average 12.07 mgd Maximum 5.0 mgd Design

pH range: Maximum 7.1-7.8 Minimum 6.5-6.9

<u>Parameter</u>	<u>Concentration,</u> mg/l*	<u>Loading Rate,</u> kg/d(lbs/day)
BOD ₅	5.03	89 (196)
TSS	5.8	102 (225)
Nitrite + Nitrate-N	3.9	69 (152)
Ammonia-N	0.24	4.2 (9.3)
Organic Nitrogen-N	1.4	25 (54)
TKN	1.6	28 (62)
Ortho-Phosphorus	0.63	11 (25)
Total Phosphorus	0.62	11 (24)
Fecal Coliform	34 MPN/100 ml	
TRC	<0.1 mg/l	
D O	5.3	
Copper	0.009	

(Performance period is from 01/03-06/04).

* Except as noted

3. Proposed Effluent Limitations:

Parameter	Daily Max. Concentrations	Monthly Avg. Concentrations	Weekly Avg. Concentrations	Daily Loading Rate	Monthly Loading Rate	Weekly Loading Rate
-----	-----	-----	-----	-----	-----	-----
	mg/l*	mg/l*	mg/l*	kg/d(lbs/d)	kg/d(lbs/d)	kg/d(lbs/d)
a. BOD ₅ (5/1-9/30)	N/A	30	30	N/A	570 (1300)	850 (1900)
b. TSS	N/A	30	45	N/A	570 (1300)	850 (1900)
c. NH ₃ -N (5/1-9/30)	20	2.9	N/A	379(834)	55 (121)	N/A
(10/1-4/30)	20	5.5	N/A	379(834)	104 (229)	N/A
d. TP as P (1)(2)	N/A	2.0	3.0	N/A	38 (83)	57 (125)
e. TN as N (1)(2)						
f. Fecal Coliform (3)		200 MPN/100 ml maximum monthly log mean value				
g. E. Coli (3)		126/100 ml monthly log mean steady state geometric mean indicator density.				
h. TRC		0.012 mg/l maximum at any time.				
i. DO		5.0 mg/l minimum at any time.				
j. pH		6.5-8.5				
k. Flow		5.0 mgd (5,000,000 gpd)				

Rationale(s): Limitations are set to comply with following regulations:

- a. BOD₅: COMAR 26.08.02.03-3 F (2)
- b. TSS: Same COMAR(s) as BOD₅ and, in addition, COMAR 26.08.02.03-3 A (5).
- c. NH₃-N: COMAR 26.08.02.03-2. A, COMAR 26.08.02.03-2.H and COMAR 26.08.02.03-2.I
- d. TP- P COMAR 26.08.03.01.B (3)
- e. TN- N Same COMAR(s) as TP

- (1) The above effluent limitations may be revised to incorporate future Total Maximum Daily Loads (TMDLs) requirements for Double Pipe Creek watershed. The permit may be reopened to incorporate these TMDLs requirements.
- (2) Nutrient load goals have been established for the upgraded facility under MDE's Enhanced Nutrient Removal (ENR) Policy. The permittee shall make every effort to optimize the current BNR operation, and plan for installation of ENR to meet load allocation of 60,900 lbs/yr total nitrogen and 4,570 lbs/yr total phosphorus.
- (3) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E. coli limit shall take effect one year after the issuance date of the permit. The permittee, however, may request that the switch from fecal coliform to E. coli limitation take place more quickly.

3. Proposed Effluent Limitations, continued:

- f. Fecal Coliform COMAR 26.08.02.03-3 A (1)(a).
- g. E. Coli: COMAR 26.08.02.03-3A(5)(a).
- h. TRC: COMAR 26.08.03.06A(2)(e).
- i. DO: Same COMAR(s) as BOD₅.
- j. pH: COMAR 26.08.02.03- 3A(4).
- k. Flow: Rationale included in the setting of respective parameter concentrations and loadings.

General Discussion and Rationale

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

Discussion and Rationale for Effluent Limitations

Recommended effluent limitations for BOD₅, suspended solids, and dissolved oxygen for the renewal permit for a flow 5.0 mgd (5,000,000 gpd) are based upon the waste load allocation analysis done in 1985. The effluents limits estimated in 1985 were confirmed in 1993 evaluation. The evaluation of the recent water quality data collected upstream and downstream of the discharge point showed no significant impact of the effluent discharge to the receiving waters. The current plant was upgraded to Biological Nitrogen Removal (BNR) plant, which is treating the wastewater to tertiary level. Based on this analysis, no new waste load allocation analysis was done for the renewal permit. Accordingly, the effluent limitations estimated in 1985 for BOD₅, TKN, and DO are recommended for the renewal permit. The ammonia limits were set to protect Little Pipe Creek and its tributaries, the receiving waters, water quality criteria for ammonia with current level of treatment for a flow of 5.0 mgd. It was concluded that the plant with current level of treatment for a flow of 5.0 mgd should meet consistently the proposed ammonia limits. Total phosphorus (TP) limits are recommended as per recommendations of Tributary Strategy for Nutrient Reductions for the Chesapeake Bay. The limitations for E. Coli, and pH were set in accordance with applicable water quality criteria as cited in the current COMARs. Nutrient load goals have been established for the upgraded facility under MDE's Enhanced Nutrient Removal (ENR) Policy. The permittee is advised to make every effort to optimize the current BNR operation, and plan for installation of Enhanced Nutrient Removal (ENR) to meet load allocation of 60,880 lbs/yr total nitrogen and 4,570 lbs/yr total phosphorus. The Receiving water was also visually inspected for any water quality impairment.

Watershed segments 02-13-03-04, is 303d listed water body segment impaired for sediments. The State plans to establish a Total maximum Daily Load (TMDL) for Little Pipe Creek watershed for the pollutants that the water body can receive without violating water quality standards. Implementation of the TMDL may affect the effluent limitations of this permit. At that time, the permit may be reopened and the limits modified if necessary.

3. Proposed Effluent Limitations, continued:

Discussion and Rationale for Toxics

The plant effluent was tested for acute and chronic toxicity from 1997 to 2001. The effluent did not violate the State Toxic Substance Criteria. The renewal permit is for maximum flow of 5.0 mgd. Accordingly, a biomonitoring language is recommended based on the Department's "Effluent Biototoxicity Testing Protocol for Industrial and Municipal Effluents" and "Reporting requirements for Priority Pollutant Analytical Data".

Toxic analysis for metals was done to estimate the numerical limits for the detected pollutants, such as aluminum, copper, cadmium, cyanide, nickel, selenium, silver, and zinc as indicated in the permit renewal application. The analysis indicated no violation of State Toxic Substance Criteria by aluminum, cyanide, nickel, silver, and zinc. However, the concentration of selenium and cadmium based on the limited sampling of one sample exceeds the State Toxic Substance Criteria. Accordingly, no numerical limit for these metals is recommended until the additional sampling. However, monitoring for selenium and cadmium is recommended as per the Department's current policy.

Discussion and Rationale for Demonstration of 85% Reduction of BOD and SS

Section 133.102 of the Federal Clean Water Act requires a minimum level of secondary treatment for all POTWs. This is defined as achieving a maximum of 30 mg/l monthly average BOD and SS, and a minimum of 85% removal of BOD and SS. Westminster WWTP treats its wastewater to a tertiary level. Plant's data shows an influent BOD averaging 185 mg/l and effluent BOD averaging 5 mg - a 97% reduction. SS averaged 180 mg/l in the influent and 6 mg/l in the effluent - a 96% reduction. Therefore, the technology-based 85% removal requirement is not necessary in the permit due to the more strict nutrient removal requirements for the facility which result in much greater than 85% BOD and SS removal.

4. Proposed Monitoring Requirements, Outfall 001

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
BOD ₅	1x Day	24 hr. composite
Total Suspended Solids	1x Day	24 hr. composite
TKN (5/1-9/30)	1x Day	24 hr. composite
Total Nitrogen+	2x Month	24 hr. composite
Ammonia +	2x Month	24 hr. composite
Organic - N+	2x Month	24 hr. composite
(NO ₃ + NO ₂) - N+	2x Month	24 hr. composite
Ortho - P+	2x Month	24 hr. composite
Total Phosphorus	1x Day	24 hr. composite
Fecal Coliform (1)	3x Week	Grab
E. Coli (1)	3x Week	Grab
Total Residual Chlorine (2)	3x Day ++	Grab
Dissolved Oxygen	3x Day ++	Grab
pH	3x Day ++	Grab
Hardness for receiving stream, upstream Of outfall, and WWTP effluent (3)	1x Month	24 hr. composite
Cadmium (total recoverable) +, +++	1x Month	24 hr. composite
Selenium +, +++	1x Month	24 hr. composite
Flow	Continuous	Recorded

- + Monitor only- parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-I) as a monthly average concentration and monthly average loading value. All nitrogen parameters shall be measured on the same daily sample. Samples shall be collected at least 7 days apart.
 - ++ If the plant is operating at three (3) shifts rotation, the monitoring frequency shall be one per shift. If the plant is manned for less than three shifts in a day, the monitoring shall be evenly distributed at the beginning, middle and end of the working shift(s) of the day.
 - +++ Monitor only parameter shall be analyzed and reported in accordance with General Condition III.A.2.c on page 11. After the completion of sampling for one year, the Department shall evaluate whether continued monitoring or numerical permit limitations are needed.
 - ++++ All toxic chemical monitoring required by this permit shall be performed in accordance with MDE's Water Management Administration Toxic Substance Analytical Protocol. This includes analytical methodology, detection levels, holding times, preservation methods, sample types and reporting.
- (1) The fecal coliform monitoring shall be needed until the E. coli limit takes effect, at which time the E. coli monitoring shall be required. The two recommended testing methods for E. coli are the multiple tube technique using presumptive media and EC-MUG media, and the Colilert Test Procedure with Quanti-tray 2000s.
 - (2) The minimum level for reporting purposes is 0.10 mg/l. All results below this minimum level shall be reported as <0.10 mg/l.
 - (3) Monitor only parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-I) as a monthly average concentration. After the completion of sampling for one year, the Department shall evaluate whether continued monitoring is needed.

Monitoring Rationale: Measuring frequency and sample type are set in accordance with the table of "Minimum Monitoring Requirements" established by the State to comply with COMAR 26.08.04.03 A.

5. Pretreatment Program:

The permittee is not authorized to receive the discharge of any type or quantity of substances which may cause interference with the operation of the treatment works unless, at the discretion of the Department, the permittee develops and receives approval by the Department of an industrial pretreatment program in accordance with COMAR 26.08.08. The permittee is required to comply with COMAR 26.08.08 upon accepting any such discharge for treatment. The permittee is required to notify the Pretreatment Section of the Department, in writing, within thirty days if any user discharges such wastes to the permittee for treatment without prior notification. Prior to allowing a significant industrial user to discharge to the POTW regulated by this permit, the permittee shall notify the Pretreatment Section of the Department, in writing.

Under no circumstances shall the permittee allow introduction of the following wastes into the waste treatment system:

- 1) Pollutants which cause pass through or interference;
- 2) Pollutants which create a fire hazard or explosion hazard in the sewerage system, including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;
- 3) Pollutants which will cause corrosive structural damage to the sewerage system; but in no case, discharges with pH less than 5.0, unless the works is specifically designed to accommodate such discharges;
- 4) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the sewerage system resulting in interference;
- 5) Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment plant;
- 6) Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference; but in no case, heat in such quantities that the temperature at the treatment plant exceeds 90 degrees Fahrenheit (32 degrees Centigrade) unless the Pretreatment Section of the Department, upon request of the permittee, approves alternate temperature limits;
- 7) Pollutants which result in the presence of toxic gases, vapors or fumes within the sewerage system in a quantity that may cause acute worker health and safety problems; and
- 8) Any trucked or hauled pollutants, except at discharge points designated by the permittee.

Annually, on or before the fifteenth day of February, the permittee shall submit to the Department a list of all SIUs within the entire service area which discharge to the POTW regulated by this permit. Information on this list shall include the legal name of the industry, type of industry, street address, follow, type of wastewater being discharged into the sanitary sewer, contact and telephone number. The report shall also include a listing of the dates and results of any SIU inspections, SIU monitoring activities, and enforcement actions against SIUs. The report shall cover the period from January 1 through December 31 of the previous year. The permittee shall send the Department a copy of all notices of violation and other enforcement actions taken against its SIUs within five calendar days of issuance.

Rationale: COMAR 26.08.08

6. BIOMONITORING PROGRAM

- a. Within three months of the effective date of the permit, the permittee shall submit to the Department for approval a study plan to evaluate wastewater toxicity at Outfall 001 by using biomonitoring. The study plan should include a discussion of:
 1. wastewater and production variability
 2. sampling and sampling handling
 3. sources and age of test organisms
 4. source of dilution water
 5. testing procedures/experimental design
 6. data analysis
 7. quality assurance/quality control
 8. report preparation
 9. testing schedule
- b. The testing program shall consist of four sets of chronic tests. This testing shall be initiated no later than three months following the Department's acceptance of the study plan. The testing shall include two chronic tests conducted quarterly by the Permittee after permit issuance and two more during the last year before the permit reapplication is due.
 1. Each quarterly testing shall include the Ceriodaphnia survival and reproduction test and the fathead minnow larval survival and growth test.
 2. If the receiving water is estuarine, the permittee shall substitute estuarine species for those species specified above. Approved estuarine species for chronic testing are sheepshead minnow, inland silversides, and mysid shrimp. In all cases, testing must include one vertebrate species and one invertebrate species.
- c. The samples used for biomonitoring shall be collected at the same time and location as the samples analyzed for the effluent limitations and monitoring requirements for this outfall. For chlorinated effluents, samples shall be collected after dechlorination.
- d. The following EPA documents discuss the appropriate methods:
 1. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms Third Edition, EPA-821-R-02-014, October 2002
 2. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms Fourth Edition, EPA-821-R-02-013, October, 2002.
- e. Test results shall be submitted to the Department within one month of completion of each set of tests.
- f. Test results shall be reported in accordance with MDE/WMA "Reporting Requirements for Effluent Biomonitoring Data," 3/21/03
- g. As a minimum, the reported chronic results shall be expressed as NOEC, LOEC, ChV, and IC₂₅.

6. BIOMONITORING PROGRAM, Continued

- h. If significant mortality occurs during the first 48 hours of the chronic test, 48-hour LC50s shall be calculated and reported along with the chronic results.
- i. If testing is not performed in accordance with Department-approved study plan, additional testing may be required by the Department.
- j. If the test results of any two consecutive valid toxicity tests conducted within any 12-month period show acute or chronic toxicity, the permittee shall repeat the test within 30 days to confirm the findings of acute or chronic toxicity. If acute and/or chronic toxicity is confirmed, the permittee shall:
 - 1. Eliminate the source of toxicity through operational changes as soon as possible but in any case not longer than within three months, or
 - 2. Perform a TRE. If the permittee repeats the toxicity testing as stated above and the results of the repeat test do not confirm the acute or chronic toxicity, the Department will require the permittee to repeat the toxicity testing as stated above to reconfirm a finding of no acute or chronic toxicity. After reconfirmation, the permittee shall complete any remaining quarterly testing required.
- k. If plant processes or operations change so that there is a significant change in the nature of the wastewater, the Department may require the permittee to conduct a new set of tests.
- l. If a significant industrial user locates within the service area so that significant change in the nature of the wastewater might be anticipated, the Department may require the permittee to conduct a new set of tests.
- m. Submit all Biomonitoring related materials to:

Maryland Department of the Environment
Water Management Administration
Compliance Program
Montgomery Park Business Center
1800 Washington Boulevard, STE 425
Baltimore, Maryland 21230-1708

7. TOXIC CHEMICAL TESTING

- a. Concurrent with the biomonitoring study plan, the permittee shall submit to the Department for approval, a study plan to perform analytical testing for toxic chemicals.
- b. The toxic chemical testing study plan shall include a description of:
 1. sampling methods;
 2. analytical methods;
 3. practical detection levels; and
 4. quality control procedures.
- c. Concurrently with the first toxicity test and the last two biomonitoring tests during the final year of the discharge permit, the permittee shall perform analytical testing for the toxic chemicals identified in the Department's "Toxic Substance Analytical Protocol".
- d. Toxic chemical testing shall be performed in accordance with 40 CFR Part 136 and the Department-approved toxic chemical testing plan.
- e. Substances other than those identified in Section 3 above may be detected in the effluent. If so, the permittee shall identify and quantify the ten present in highest concentration for those compounds for which standards are available.
- f. Testing results shall be submitted to the Department with the results of the first toxicity test.
- g. Toxic chemical testing results shall be reported in accordance with the Department's "Reporting Requirements for Priority Pollutant Analytical Data.
- h. If testing is not performed in accordance with the Department's approved study plan, additional testing may be required by the Department.
- i. Submit all toxic chemical testing related materials to:

Maryland Department of the Environment
Water Management Administration
Compliance Program
Pretreatment Data
Montgomery Park Business Center
1800 Washington Boulevard, STE 425
Baltimore, Maryland 21230-1708

8. TOXICITY REDUCTION EVALUATION (TRE)

The permittee shall conduct a Toxicity Reduction Evaluation (TRE) when a review of toxicity test data by the Department indicates unacceptable acute or chronic effluent toxicity. A TRE is an investigation conducted to identify the causative agents of effluent toxicity, isolate the source(s), determine the effectiveness of control options, implement the necessary control measures and then confirm the reduction in toxicity.

- a. Within 90 days of notification by the Department that a TRE is required, the permittee shall submit a plan of study and schedule for conducting a TRE. The permittee shall conduct the TRE study consistent with the submitted plan and schedule.
- b. This plan should follow the framework presented in Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants (EPA/600/2-88/062).
- c. Beginning 60 days from the date of the Department's acceptance of the TRE study plan and every 60 days thereafter, the permittee shall submit progress reports including all relevant test data to the Department. This shall continue until completion of the toxicity reduction confirmation.
- d. Within 60 days of completion of the toxicity identification, or the source identification phase of the TRE, the permittee shall submit to the Department a plan and schedule for implementing those measures necessary to eliminate acute toxicity and/or reduce chronic toxicity to acceptable levels. The implementation of these measures shall begin immediately upon submission of this plan.
- e. Within 60 days of completing the implementation of the control measures to eliminate or reduce toxicity, the permittee shall submit to the Department, for approval, a study plan to confirm the elimination or reduction of toxicity using biomonitoring.
- f. If, for any reason, the implemented measures do not result in compliance with the Department's toxicity limitations, the permittee shall continue the TRE.
- g. Submit all TRE-related materials to:

Maryland Department of the Environment
Water Management Administration
Compliance Program
Montgomery Park Business Center
1800 Washington Boulevard, STE 425
Baltimore, Maryland 21230

9. MAP SHOWING LOCATION OF OUTFALL-001

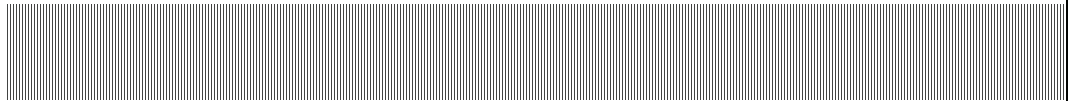
10. Chronological Log of Meetings, Plant Visits, and Telephone Calls (reports are in official file):

- 5/5/04 Letter from the permittee requesting permit renewal for a flow of 5.0 mgd.
- 5/10/04 Letter from MDE acknowledging the receipt of permit renewal application for 5.0 mgd
- 5/12/04 Memo from Steve Luckman, Municipal Permits Division, MDE to Ray C. Dintaman, Jr., Department of Natural Resources (DNR) Power Plant & Environmental Review Division seeking comment and conformance of discharge permit renewal request with the division's policies.
- 5/12/04 Memo from Steve Luckman, Municipal Permits Division, MDE to MDE, Compliance and Inspection Program seeking comment on permit renewal request.
- 5/12/04 Memo from Steve Luckman, Municipal Permits Division, MDE to Planning Division requesting comment and conformance of discharge permit with county water and sewer plans and State's Smart Growth initiatives.
- 5/14/04 Response from MDE's Planning Division stating that project is consistent with county water and sewer plans and State's Smart Growth initiatives.
- 5/14/04 Letter from Jeff Rein, Municipal Permits Division, MDE to the permittee indicating the publication of public notice for the receipt of discharge permit renewal request.
- 5/14/04 Letter from Jeff Rein, Municipal Permits Division, MDE to Mr. Ed Merrifield, Potomac River Keeper, indicating the publication of public notice for the receipt of discharge permit renewal request.
- 5/14/04 Letter from Jeff Rein, Municipal Permits Division, MDE to Ms. Victoria Woodward indicating the publication of public notice for the receipt of discharge permit renewal request.
- 8/24/04 Site visit to the treatment plant. The current plant provides an advanced level of treatment using BNR treatment process. The treatment plant primarily consists of mechanical bar screens, grit and grease removal, equalization basin, aeration units, secondary clarifiers, chlorination, dechlorination, and post aeration, aerobic digestors, sludge stabilization with lime, and belt filter press. Currently, the plant is providing biological nitrogen removal (BNR). Each aeration train contains 1 anaerobic zone, one anoxic zone, 1 anoxic/aerobic switch zone, and an aeration zone with nitrate recycle pumps and automated D.O. control.
- 09/02/04 A fax from Mr. John Rawlings, the plant Superintendent, enclosing the metal analysis data.
- 09/09/04 Email from Mr. John Rawlings, the plant Superintendent, enclosing the stream and effluent hardness data.
- 9/ /04 Letter to EPA for Joint Review
- 9/ /04 Letter to permittee for review and providing any comments of the proposed draft permit.

NPDES PERMIT FACT SHEET

2

Freedom District WWTP



1. Description of Receiving Waters:

The facility discharges treated effluent through Outfall 001 into an unnamed tributary which flows into South Branch Patapsco River, which is designated as use IV waters protected for adult trout for put and take fishing. South Branch Patapsco River segments, 02-13-09-08 are 303d listed water body segments impaired for biological and nutrients. The State plans to establish a Total Maximum Daily Loads (TMDLs) of these pollutants that the water body can receive without violating water quality standards.

Point of Discharge:

River Mile: About 0.70 mile point of discharge from confluence of the South Branch Patapsco River

Basin Codes:

Major	Basin	Sub	Segment
02 -	13 -	09 -	08

Water Type:

<input type="checkbox"/> Non-tidal	<input type="checkbox"/> Tidal
<input type="checkbox"/> Intermittent	<input type="checkbox"/> Tidal River
<input checked="" type="checkbox"/> Perennial	<input type="checkbox"/> Estuary
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Atlantic Ocean/Chesapeake Bay

Designated Use:

Use I waters which is protected for water contact recreation and aquatic life.

Receiving stream 7-day, 10-year low flow: about 3.46 cfs for the South Branch Patapsco River
and about 0.042 cfs for unnamed tributary.

Maryland Coordinates:

East Grid	North Grid
815.0	556.3

2. Description of Process Discharging into Outfalls: The plant provides an advanced treatment using Biological Nitrogen Removal (BNR) activated sludge treatment process. The plant also provides phosphorus removal. The plant primarily consists of a screen and grit removal facility, equalization basin, primary clarifier, aeration basins (BNR) with aerobic and anoxic units, secondary clarifiers followed by filtration, U.V. disinfection, and post-aeration by cascades. The plant disposes its sludge using gravity sludge thickeners, aerated sludge holding tanks, de-watering with belt filter press, and lime stabilization.

Discharge Type: --- Planned ___ Intermittent x Continuous

Discharge Period: 12 months

Description of discharge:

Flow: 2.53 mgd Average 3.04 mgd Maximum 3.50 mgd Design

pH range: Maximum 7.7-8.3 Minimum 6.6-6.8

<u>Parameter</u>	<u>Concentration,</u> mg/l*	<u>Loading Rate,</u> kg/d(lbs/day)
BOD ₅	2.2	21 (46)
TSS	6.0	58 (127)
Nitrite + Nitrate-N	6.6	63 (139)
Ammonia-N	0.03	0.29 (0.63)
Organic Nitrogen-N	0.73	7.0 (15)
Total Nitrogen	7.4	71 (156)
Total Phosphorus	0.62	6.0 (13)
Fecal Coliform	21 MPN/100 ml	
TRC	N/A	
D O	7.2	

(Performance period is from 01/03-12/04).

* Except as noted

3. Proposed Effluent Limitations:

<u>Parameter</u>	<u>Monthly Loading Rate</u>	<u>Weekly Loading Rate</u>	<u>Daily Loading Rate</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
	kg/d (lbs/d)	kg/d(lbs/d)	kg/d (lbs/d)	mg/l	mg/l	mg/l
a. BOD ₅ (4/1-9/30)	200 (440)	310 (670)	N/A	15	23	N/A
(10/1-3/31)	400 (880)	600 (1300)	N/A	30	45	N/A
b. TSS	400 (880)	600 (1300)	N/A	30	45	N/A
c. NH ₃ -N (4/1-9/30)	13 (29)	N/A	94 (210)	1.0	N/A	7.1
(4/1-9/30)	36 (79)	N/A	133 (292)	2.7	N/A	10
d. TP as P (1)(2)	27 (58)	40 (88)	N/A	2.0	3.0	N/A
e. TN as N (1)(2)						
f. Fecal Coliforms (3)	200 MPN/100 ml maximum monthly log mean value.					
g. E. Coli (3)	126 MPN/100 ml monthly geometric mean					
h. TRC (4)	0.011 mg/l.					
i. DO	6.0 mg/l minimum at any time.					
j. pH	6.5-8.5					
k. Flow	3.5 mgd (3,500,000 gpd)					
Rationale(s):	Limitations are set to comply with following regulations:					
a. BOD ₅ :	COMAR 26.08.02.03-3 A (6)					
b. TSS:	Same COMAR(s) as BOD ₅ and, in addition, COMAR 26.08.02.03-3 A (9).					
c. NH ₃ - N:	COMAR(s) 26.08.03.02 and EPA document 822-R-98-008					
d. TP- P	COMAR 26.08.03.01C (3)					
e. TN- N	Same COMAR(s) as TP					

- (1) The above effluent limitations may be revised to incorporate future Total Maximum Daily Loads (TMDLs) requirements for South Branch Patapsco River watershed. The permit may be reopened to incorporate these TMDLs requirements.
- (2) (a) Nutrient load goals have been established for this facility under Maryland's Enhanced Nutrient Removal (ENR) Policy. Upon completion of the upgrade, the permittee shall make a best effort to achieve annual concentration goals of 3 mg/l for nitrogen and 0.3 mg/l for phosphorus. The permittee shall also make a best effort to achieve a load goal of 42,638 lbs/year for nitrogen and a load goal of 3,198 lbs/year for phosphorus.
- (b) When a Total Maximum Daily Load (TMDL) for the South Branch Patapsco River is completed, the nutrient limitations may be revised to incorporate any Total Maximum Daily Load (TMDL) requirements. The permit may also be reopened to incorporate nitrogen and phosphorus load allocations and/or goals for South Branch Patapsco River contained in Patapsco - Back River Tributary Strategy.
- (3) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E. coli limit shall take effect one year after the issuance date of the permit. The permittee, however, may request that the switch from fecal coliform to E. coli limitation take place more quickly.
- (4) The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level is <0.10 mg/l.

3. Proposed Effluent Limitations, continued:

- f. Fecal Coliform: COMAR 26.08.02.03-3A(1)(a).
- g. E. Coli. COMAR 26.08.02.03-3A(5)(a).
- h. TRC: COMAR 26.08.02.03-3A (11), COMAR 26.08.02.03-2 G (1).
- i. DO: Same COMAR(s) as BOD₅.
- j. pH: COMAR 26.08.02.03- 3A(8).
- k. Flow: Rationale included in the setting of respective parameter concentrations and loadings.

General Discussion and Rationale

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

Discussion and Rationale for Effluent Limitations

Recommended effluent limitations for BOD₅, suspended solids, and dissolved oxygen for the renewal permit for a flow 3.5 mgd (3,500,000 gpd) are based upon the waste load allocation analysis done in 1999 using mathematical model for free flowing stream. The current plant is a Biological Nitrogen Removal (BNR) plant, which is treating the wastewater to tertiary level. No recent water quality data is available on the receiving stream. Based on this analysis, no new waste load allocation analysis was done for the renewal permit. Accordingly, the effluent limitations estimated in 1999 for BOD₅, TKN, and DO are recommended for the renewal permit. The ammonia limits were set to protect unnamed tributary of the South Branch Patapsco River, the receiving waters, water quality criteria for ammonia with current level of treatment for a flow of 3.5 mgd. It was concluded that the plant with current level of treatment for a flow of 3.5 mgd should meet consistently the proposed ammonia limits. Total phosphorus (TP) limits are recommended as per recommendations of Tributary Strategy for Nutrient Reductions for the Chesapeake Bay. The limitations for E. Coli, and pH were set in accordance with applicable water quality criteria as cited in the current COMARs. Nutrient load goals have been established for the upgraded facility under MDE's Enhanced Nutrient Removal (ENR) Policy. The permittee is advised to make every effort to optimize the current BNR operation, and plan for installation of Enhanced Nutrient Removal (ENR) to meet load allocation of 42,638 lbs/yr total nitrogen and 3,198 lbs/yr total phosphorus. The Receiving water was also visually inspected for any water quality impairment.

Watershed segments 02-13-04-08, is 303d listed water body segment impaired for biological and nutrients. The State plans to establish a Total maximum Daily Load (TMDL) for South Patapsco River watershed for the pollutants that the water body can receive without violating water quality standards. Implementation of the TMDL may affect the effluent limitations of this permit. At that time, the permit may be reopened and the limits modified if necessary.

3. Proposed Effluent Limitations, continued:

Discussion and Rationale for Toxics

The plant effluent was tested for acute and chronic toxicity from 1992 to 2001. The effluent chronic toxicity to fish species was noted in 2001, however, the follow-up test in the same quarter did not confirm this toxicity. Accordingly, there are no needs for additional monitoring beyond the required in the standard biomonitoring and toxicity reduction language based on the Department's "Effluent Biotoxicity Testing Protocol for Industrial and Municipal Effluents" and "Reporting requirements for Priority Pollutant Analytical Data".

All available priority pollutants scan for both inorganic and inorganic pollutants and metal analysis test results were reviewed and analyzed for reasonable potential to violate State Toxic Substance Criteria. Except for copper the analysis indicated no violation of State Toxic Substance Criteria by any other pollutant. However, the concentration of copper does not exceed much the State Toxic Substance Criteria for copper. Accordingly, no numerical limit for copper is recommended in the renewal permit, however, monitoring for copper is to be continued in the renewal permit as per the Department's current policy.

Discussion and Rationale for Demonstration of 85% Reduction of BOD and SS

Section 133.102 of the Federal Clean Water Act requires a minimum level of secondary treatment for all POTWs. This is defined as achieving a maximum of 30 mg/l monthly average BOD and SS, and a minimum of 85% removal of BOD and SS. Freedom District WWTP treats its wastewater to a tertiary level. Plant's data shows an influent effluent BOD averaging 200 mg/l and effluent BOD averaging 2.2 mg - a 98% reduction. SS averaged 180 mg/l in the influent and 6 mg/l in the effluent - a 97% reduction. Therefore, the technology-based 85% removal requirement is not necessary in the permit due to the more strict nutrient removal requirements for the facility which result in much greater than 85% BOD and SS removal.

4. Proposed Monitoring Requirements, Outfall 001

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
BOD ₅	2x Week	24 hr. composite
Total Suspended Solids	2x Week	24 hr. composite
Ammonia- N	2x Week	24 hr. composite
Total Nitrogen (1)(2)	2x Month	24 hr. composite
Organic – N (1)	2x Month	24 hr. composite
(NO ₃ + NO ₂) – N (1)	2x Month	24 hr. composite
Ortho – P (1)	2x Month	24 hr. composite
Total Phosphorus (2)	2x Week	24 hr. composite
Fecal Coliform (3)	2x Week	Grab
E. Coli (3)	2x Week	Grab
Total Residual Chlorine (4)	3x Day (5)	Grab
Dissolved Oxygen	3x Day (5)	Grab
pH	3x Day (5)	Grab
Hardness for receiving stream water upstream of discharge point and of effluent at the discharge location (6)	1x Month	24 hr. composite
Total recoverable copper (7)(8)	1x Month	24 hr. composite
Flow	Continuous	Recorded

- (1) Monitor only- parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-I) as a monthly average concentration and monthly average loading value. All nitrogen parameters shall be measured on the same daily sample. Samples shall be collected at least 7 days apart.
- (2) To establish performance with respect to Enhanced Nutrient Removal (ENR) Nutrient loading goals, the permittee shall report on each monthly Discharge Monitoring Report, the cumulative total nitrogen (TN) and total phosphorus (TP) load for the calendar year in question. The cumulative load is calculated by summing the monthly loading values for each month in that calendar year. Nitrogen and phosphorus concentrations will also be reported as a monthly average. Total nitrogen is the sum of ammonia-N, organic nitrogen-N, and (nitrite+nitrate)-N based on the same 24 hour composite.
- (3) The fecal coliform monitoring shall be needed until the E. coli limit takes effect, at which time the E. coli monitoring shall be required. The permittee shall use either of the following two approved testing methods for E. coli, the multiple tube technique using presumptive media and EC-MUG media, and the Colilert Test Procedure with Quanti-tray 2000s.
- (4) Total residual chlorine monitoring is required only, if chlorine or chlorine containing compounds are used in any treatment process. The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level is <0.10 mg/l.
- (5) If the plant is operating at three (3) shifts rotation, the monitoring frequency shall be one per shift. If the plant is manned for less than three shifts in a day, the monitoring shall be evenly distributed at the beginning, middle and end of the working shift(s) of the day.
- (6) Monitor only parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-I) as a monthly average concentration. After the completion of sampling for one year, the Department shall evaluate whether continued monitoring is needed.
- (7) Monitor only parameter shall be analyzed and reported in accordance with General Condition III.A.2.c on page 11. After the completion of sampling for one year, the Department shall evaluate whether continued monitoring or numerical permit limitations are needed.
- (8) All toxic chemical monitoring required by this permit shall be performed in accordance with MDE's Water Management Administration Toxic Substance Analytical Protocol. This includes analytical methodology, detection levels, holding times, preservation methods, sample types and reporting.

Monitoring Rationale:

Measuring frequency and sample type are set in accordance with the table of "Minimum Monitoring Requirements" established by the State to comply with COMAR 26.08.04.03 A.

5. Pretreatment Program:

In order to assure that pass-through and interference at the POTW from industrial discharges into the sanitary sewer do not occur, the permittee shall:

- a. Prior to allowing a significant industrial user (SIU) to discharge to the POTW regulated by this permit:
 1. For significant non-categorical industrial users, at the discretion of the Department, the permittee shall either issue a permit or enter into an agreement which describes the responsibilities of the significant industrial user to assure that the quality of its discharge to the POTW will not cause interference or pass through or otherwise violate State and Federal pretreatment requirements as defined in COMAR 26.08.08 and 40 CFR Part 403. All permits and agreements between the permittee and SIUs shall be subject to approval by the Department prior to issuance.
- b. For industrial users subject to Federal categorical standards:
 1. The permittee shall notify the Department, in writing, of the intent of an industrial user potentially subject to Federal categorical standards to discharge process wastewaters into POTW.
 2. The Department, after being notified of the categorical industrial user's intent to discharge process wastewaters to the POTW, shall notify the industry and/or the permittee (in the case where the Department independently determines that an industrial user plans to locate in the sewer service area of the POTW), in writing, and shall draft a permit based on the applicable Federal Categorical Standards. Upon review by the permittee and categorical industrial user the permit shall be issued by the Department.
- c. Annually, on or before the fifteenth day of February, the permittee shall submit to the Department a list of all SIUs within the entire service area which discharge to the POTW regulated by this permit. Information on this list shall include the legal name of the industry, type of industry, street address, flow, type of wastewater being discharged into the sanitary sewer, contact and telephone number. The report shall also include a listing of the dates and results of any SIU inspections, SIU monitoring activities, and enforcement actions against SIUs. The report shall cover the period from January 1 through December 31 of the previous year.
- d. The permittee shall send the Department a copy of all notices of violation and other enforcement actions taken against its SIUs within five calendar days of issuance.
- e. Modify its Sewer Use Ordinance, if necessary as determined by the Department, to incorporate authorities adequate to implement essential pretreatment requirements as required under 40 CFR Part 403.

Rationale: COMAR 26.08.08

6. BIOMONITORING PROGRAM

- a. Within three months of the effective date of the permit, the permittee shall submit to the Department for approval a study plan to evaluate wastewater toxicity at Outfall 001 by using biomonitoring. The study plan should include a discussion of:
 1. wastewater and production variability
 2. sampling and sampling handling
 3. sources and age of test organisms
 4. source of dilution water
 5. testing procedures/experimental design
 6. data analysis
 7. quality assurance/quality control
 8. report preparation
 9. testing schedule
- b. The testing program shall consist of definitive testing for four quarters. Three of the quarters shall have acute testing and one of the quarters shall have chronic testing. The first two testing events shall be conducted once per quarter during the first two quarters after approval of the study plan. One of these first two quarters shall include the chronic tests. This testing shall be initiated no later than three months following the Department's acceptance of the study plan. The remaining two quarterly testing events shall be conducted during the last two quarters of the fourth year of the Permit.

Each quarterly testing shall include the Ceriodaphnia survival and reproduction test and the fathead minnow larval survival and growth test.
- c. The samples used for biomonitoring shall be collected at the same time and location as the samples analyzed for the effluent limitations and monitoring requirements for this outfall. For chlorinated effluents, samples shall be collected after dechlorination.
- d. The following EPA document discusses the appropriate methods:

Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms Third Edition, EPA-821-R-02-014, October 2002
- e. Test results shall be submitted to the Department within one month of completion of each set of tests.
- f. Test results shall be reported in accordance with Department's "Reporting Requirements for Effluent Biomonitoring Data" 3/21/03.
- g. As a minimum, the reported chronic results shall be expressed as NOEC, LOEC, ChV, and IC₂₅.
- h. If significant mortality occurs during the first 48 hours of the chronic test, 48-hour LC50s shall be calculated and reported along with the chronic results.
- i. If testing is not performed in accordance with Department-approved study plan, additional testing may be required by the Department.

6. BIOMONITORING PROGRAM, Continued

- j. If the test results of any two consecutive valid toxicity tests conducted within any 12-month period show acute or chronic toxicity, the permittee shall repeat the test within 30 days to confirm the findings of acute or chronic toxicity. If acute and/or chronic toxicity is confirmed, the permittee shall:
 - 1. Eliminate the source of toxicity through operational changes as soon as possible but in any case not longer than within three months, or
 - 2. Perform a TRE. If the permittee repeats the toxicity testing as stated above and the results of the repeat test do not confirm the acute or chronic toxicity, the Department will require the permittee to repeat the toxicity testing as stated above to reconfirm a finding of no acute or chronic toxicity. After reconfirmation, the permittee shall complete any remaining quarterly testing required.
- k. If plant processes or operations change so that there is a significant change in the nature of the wastewater, the Department may require the permittee to conduct a new set of tests.
- l. If a significant industrial user locates within the service area so that significant change in the nature of the wastewater might be anticipated, the Department may require the permittee to conduct a new set of tests.
- m. Submit all Biomonitoring related materials to:

WMA- Compliance Program
Maryland Department of the Environment
1800 Washington Boulevard, STE 420
Baltimore, Maryland 21230-1708

Rationale: COMAR 26.08.03.07.A

7. TOXIC CHEMICAL TESTING

- a. Concurrent with the biomonitoring study plan, the permittee shall submit to the Department for approval, a study plan to perform analytical testing for toxic chemicals.
- b. The toxic chemical testing study plan shall include a description of:
 1. sampling methods;
 2. analytical methods;
 3. practical detection levels; and
 4. quality control procedures.
- c. Concurrently with the first toxicity test and the last two biomonitoring tests during the final year of the discharge permit, the permittee shall perform analytical testing for the toxic chemicals identified in the Department's "Toxic Substance Analytical Protocol".
- d. Toxic chemical testing shall be performed in accordance with 40 CFR Part 136 and the Department-approved toxic chemical testing plan.
- e. Substances other than those identified in Section 3 above may be detected in the effluent. If so, the permittee shall identify and quantify the ten present in highest concentration for those compounds for which standards are available.
- f. Testing results shall be submitted to the Department with the results of the first toxicity test.
- g. Toxic chemical testing results shall be reported in accordance with the Department's "Reporting Requirements for Priority Pollutant Analytical Data.
- h. If testing is not performed in accordance with the Department's approved study plan, additional testing may be required by the Department.
- i. Submit all toxic chemical testing related materials to:

Attention: Toxic chemical Data
WMA- Compliance Program
Maryland Department of the Environment
1800 Washington Boulevard, STE 420
Baltimore, Maryland 21230-1708

Rationale: COMAR 26.08.03.07.A

8. TOXICITY REDUCTION EVALUATION (TRE)

The permittee shall conduct a Toxicity Reduction Evaluation (TRE) when a review of toxicity test data by the Department indicates unacceptable acute or chronic effluent toxicity. A TRE is an investigation conducted to identify the causative agents of effluent toxicity, isolate the source(s), determine the effectiveness of control options, implement the necessary control measures and then confirm the reduction in toxicity.

- a. Within 90 days of notification by the Department that a TRE is required, the permittee shall submit a plan of study and schedule for conducting a TRE. The permittee shall conduct the TRE study consistent with the submitted plan and schedule.
- b. This plan should follow the framework presented in Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants (EPA/600/2-88/062).
- c. Beginning 60 days from the date of the Department's acceptance of the TRE study plan and every 60 days thereafter, the permittee shall submit progress reports including all relevant test data to the Department. This shall continue until completion of the toxicity reduction confirmation.
- d. Within 60 days of completion of the toxicity identification, or the source identification phase of the TRE, the permittee shall submit to the Department a plan and schedule for implementing those measures necessary to eliminate acute toxicity and/or reduce chronic toxicity to acceptable levels. The implementation of these measures shall begin immediately upon submission of this plan.
- e. Within 60 days of completing the implementation of the control measures to eliminate or reduce toxicity, the permittee shall submit to the Department, for approval, a study plan to confirm the elimination or reduction of toxicity using biomonitoring.
- f. If, for any reason, the implemented measures do not result in compliance with the Department's toxicity limitations, the permittee shall continue the TRE.
- g. Submit all TRE-related materials to:

WMA- Compliance Program
Maryland Department of the Environment
1800 Washington Boulevard, STE 420
Baltimore, Maryland 21230-1708

9. MAP SHOWING LOCATION OF OUTFALL-001

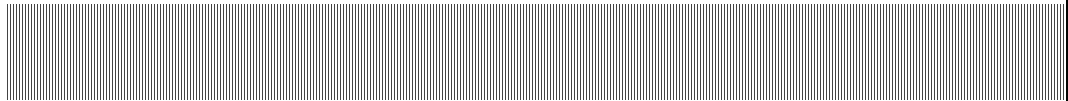
10. Chronological Log of Meetings, Plant Visits, and Telephone Calls (reports are in official file):

- 5/10/2004 Letter from the permittee requesting permit renewal for a flow of 3.5 mgd.
- 5/12/2004 Memo from Steve Luckman, Municipal Permits Division, MDE to Ray C. Dintaman, Jr., Department of Natural Resources (DNR) Power Plant & Environmental Review Division seeking comment and conformance of discharge permit renewal request with the division's policies.
- 5/12/2004 Memo from Steve Luckman, Municipal Permits Division, MDE to MDE, Compliance and Inspection Program seeking comment on permit renewal request.
- 5/12/2004 Memo from Steve Luckman, Municipal Permits Division, MDE to Planning Division requesting comment and conformance of discharge permit with county water and sewer plans.
- 5/14/2004 Response from MDE's Planning Division stating that project is consistent with county water and sewer plans.
- 5/14/2004 Letter from Jeff Rein, Municipal Permits Division, MDE to Ms. Jaclyn M. Schreiber, Maryland Environmental service, indicating the publication of public notice for the receipt of discharge permit renewal request.
- 5/27/2004 Letter from Jeff Rein, Municipal Permits Division, MDE to Ms. Jaclyn Schreiber, Maryland Environmental Service (MES), indicating the publication of public notice for the receipt of discharge permit renewal request in the correct newspaper.
- 3/31/2005 Site visit to the WWTP: The current plant provides an advanced treatment using Biological Nitrogen Removal (BNR) activated sludge treatment process. The plant also provides phosphorus removal. The plant primarily consists of a screen and grit removal facility, equalization basin, primary clarifier, aeration basins (BNR) with aerobic and anoxic units, secondary clarifiers followed by filtration, U.V. disinfection, and post-aeration by cascades. The plant stabilizes its sludge using gravity sludge thickeners, aerated sludge holding tanks, de-watering with belt filter press, and lime stabilization. The stabilized sludge is hauled by a contractor to Virginia.
- 4/12/2005 Email from Jagdish Chawla, Municipal Permits Division, MDE to Gary Kelman, Industrial Permits Division, MDE, concerning the pretreatment language for the renewal permit.
- 4/13/2005 Response from Gary Kelman, Industrial Permits Division, MDE, indicating that the pretreatment language of the current permit looked fine for the renewal permit.
- 4/20/2005 Email from Jagdish Chawla, Municipal Permits Division, MDE to Jay Janney, MES, concerning the metal monitoring data.
- 4/21/2005 Response from Jay Jenny, MES, indicating the metal monitoring data.
- 4/26/2005 Letter from Steve Luckman, Municipal Permits Division, MDE to EPA for Joint Review
- 5/11/2005 E-mail from Mary Letzkus of EPA indicating no comments on the draft permit.
- 5/12/2005 Memo to file from Jagdish Chawla, Municipal Permits Division, MDE indicating no comments on the proposed draft permit renewal from David Coale, the plant Superintendent.

NPDES PERMIT FACT SHEET

3

Mount Airy WWTP





**MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
SURFACE DISCHARGE PERMITS DIVISION
1800 Washington Boulevard • Baltimore, Maryland 21230
Phone: (410) 537-3671**

**Robert L. Ehrlich
Governor**

**Kendl P. Philbrick
Secretary**

**Michael S. Steele
Lt. Governor**

**Jonas A. Jacobson
Deputy Secretary**

SUMMARY REPORT & FACT SHEET

Application Numbers: State: 05-DP-0641

NPDES: MD0022527

Name: Mount Airy Wastewater Treatment Plant

Mailing Address: The Town of Mount Airy
P.O. Box 50
Mount Airy, Carroll County, Maryland 21771

Facility Location: 7245 Ridge Road, Mount Airy, Carroll County, Maryland 21771

Facility organization: Mount Airy Mayor and Council

Company contact: Mr. Tom Robertson, Plant Superintendent, (301) 829- 2674

Applicant is engaged in the treatment of domestic waste

Number of outfalls: 001

SIC Codes: 4952

MDE Engineer: Jagdish C. Chawla

Date Completed: June 1, 2005

Reviewed by: _____
Section Chief **Date**

Accepted by: _____
Stephen Luckman, Chief, Permits Division **Date**

EPA joint review? yes _____ no **Date Sent** _____ N/A _____

Date State/EPA comment/agreement received: N/A

1. Description of Receiving Waters:

Outfall 001 discharges to South Branch Patapsco River, which is designated as Use III Waters- Natural Trout Waters.

Point of Discharge:

River Mile: 2.84 mile point of discharge from the mouth of the South Branch Patapsco River

Basin Codes:

Major	Basin	Sub	Segment
02 -	13 -	09 -	08

Water Type:

<input type="checkbox"/> Non-tidal	<input type="checkbox"/> Tidal
<input type="checkbox"/> Intermittent	<input type="checkbox"/> Tidal River
<input checked="" type="checkbox"/> Perennial	<input type="checkbox"/> Estuary
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Atlantic Ocean/Chesapeake Bay

Designated Use:

Use III waters, which is protected as Natural Trout Waters.

Receiving stream 7-day, 10-year low flow: 0.344 cfs

Maryland Coordinates:

East Grid	North Grid
764.2	558.0

2. Description of Process Discharging into Outfalls: The current plant provides an advanced level of treatment using activated sludge treatment process. The plant also removes nutrients using Biological Nitrogen Removal (BNR) process. The plant has been designed to remove additional phosphorus by chemical addition, if needed.

Discharge Type: --- Planned ____ Intermittent x Continuous

Discharge Period: 12 months

Description of discharge:

Flow: 0.724 mgd Average 1.68 mgd Maximum 1.2 mgd Design

pH range: Maximum 7.3-7.6 Minimum 6.7-6.9

<u>Parameter</u>	<u>Concentration,</u> mg/l*	<u>Loading Rate,</u> kg/d(lbs/day)
BOD ₅	3.5	9.6 (21)
TSS	3.5	9.6 (21)
TP	0.7	1.9 (4.2)
TKN (5/1-9/30)	2.3	6.3 (14)
Ammonia as N	0.5	1.4 (3.0)
Nitrate + Nitrite as N	3.9	11 (24)
Organic Nitrogen	1.8	4.9 (11)
TN as N	6.2	17 (37)
Copper	0.009	0.025 (0.05)
Fecal Coliform	4.1 MPN/100 ml	
TRC	N/A	N/A
D O (min)	7.2 (min)	
D O (av)	7.3 (av.)	

(Performance period is from 03/04-02/05)

** Except as noted

3. Proposed Effluent Limitations, Continued: -see footnotes (1)(2)(3)

Parameter	Monthly Loading Rate		Weekly Loading Rate		Monthly Average	Weekly Average
		kg/d (lbs/d)		kg/d(lbs/d)	mg/l	mg/l
a. BOD ₅	(5/1-9/30)	46 (100)		68 (150)	10	15
	(10/1-4/30)	137 (300)		205 (450)	30	45
b. TSS		137 (300)		205 (450)	30	45
c. TKN	(5/1-9/30)	14(30)		21 (45)	3.0	4.5
d. NH ₃ as N	(5/1-9/30)	12 (26)		N/A	2.6	N/A
	(10/1-4/30)	26 (57)		N/A	5.7	N/A
e. TP		9.1 (20)		14 (30)	2.0	3.0
f. TN (1)(2)						
g. Fecal Coliforms (3)		200 MPN/100 ml maximum monthly log mean value.				
h. E. coli (3)		126 MPN/100 ml monthly geometric mean				
i. Total Residual Chlorine		The use of chlorine or chlorine containing compounds in the treatment of wastewater is prohibited.				
j. Dissolved Oxygen		5.0 mg/l minimum at any time. 6.0 mg/l minimum daily average				
k. pH		6.5-8.5				
l. Flow		1.2 mgd (1,200,000 gpd)				

 * Except as Noted

Rationale(s): Limitations are set to comply with following regulations :

- a. BOD₅: COMAR 26.08.02.03-3D(2).
- b. TSS: Same COMAR(s) as BOD₅ and, in addition, COMAR 26.08.02.03-3 D(5)
- (1) The permit may also be reopened to be issued in accordance with the requirements of MDE's Watershed Permitting Plan under which all discharge permits in a watershed are issued the same year.
- (2) (a) Nutrient load goals have been established for this facility under Maryland's Enhanced Nutrient Removal (ENR) Policy. Upon completion of the upgrade, the permittee shall make a best effort to achieve annual concentration goals of 3 mg/l for nitrogen and 0.3 mg/l for phosphorus. The permittee shall also make a best effort to achieve a load goal of 14,612 lbs/year for nitrogen and a load goal of 1,096 lbs/year for phosphorus.
- (b) When a Total Maximum Daily Load (TMDL) for the South Branch Patapsco River is completed, the nutrient limitations may be revised to incorporate any Total Maximum Daily Load (TMDL) requirements. The permit may also be reopened to incorporate nitrogen and phosphorus load allocations and/or goals for South Branch Patapsco River contained in Patapsco - Back River Tributary Strategy.
- (3) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E. coli limit shall take effect one year after the issuance date of the permit. However, the permittee may request in writing that the E. coli limitation become effective sooner.

3. Proposed Effluent Limitations, Continued:

- c. TKN: Same COMAR(s) as BOD₅.
- d. NH₃- N COMAR 26.08.02.03-3D(8).
- e. TP-P: COMAR 26.08.04.04C(3).
- f. TN-N: Same COMAR (s) as TP.
- g. Fecal Coliform: COMAR 26.08.02.03-3A(1)(a).
- h. E. Coli. COMAR 26.08.02.03-3D(1).
- i. TRC: COMAR 26.08.02-3D (7).
- j. DO: Same COMAR(s) as BOD₅.
- k. pH: COMAR 26.08.02.03- 3D(4).
- l. Flow: Rationale included in the setting of respective parameter concentrations and loadings.

General Discussion and Rationale

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

General Discussion and Rationale for Effluent Limitations

Recommended effluent limitations for BOD₅, suspended solids, and dissolved oxygen for the renewal permit for a flow 1.2 mgd (1, 200,000 gpd) are based upon the waste load allocation analysis done in 1999 using mathematical model for free flowing stream. The current plant is a Biological Nitrogen Removal (BNR) plant, which is treating the wastewater to tertiary level. No recent water quality data is available on the receiving stream. Based on this analysis, no new waste load allocation analysis was done for the renewal permit. Accordingly, the effluent limitations estimated in 1999 for BOD₅, TKN, and DO are recommended for the renewal permit. The ammonia limits were set to protect the South Branch Patapsco River, the receiving waters, water quality criteria for ammonia with current level of treatment for a flow of 1.2 mgd. Total phosphorus (TP) limits are recommended as per recommendations of Tributary Strategy for Nutrient Reductions for the Chesapeake Bay. The limitations for E. Coli, and pH were set in accordance with applicable water quality criteria as cited in the current COMARs. Nutrient load goals have been established for the upgraded facility under MDE's Enhanced Nutrient Removal (ENR) Policy. The permittee is advised to make best effort to achieve annual concentration goals of 3 mg/l nitrogen and 0.3 mg/l for phosphorus and plan for installation of Enhanced Nutrient Removal (ENR) to meet load allocation of 14,612 lbs/yr total nitrogen and 1096 lbs/yr total phosphorus. The Receiving water was also visually inspected for any water quality impairment. The impact of effluent temperature to the receiving waters was estimated using 2004 data. After reviewing the data it was concluded that potential temperature exceedances would most likely occur between July and September. Accordingly, continued monitoring for temperature for the plant's effluent and receiving stream waters recommended. This recommendation is the result of Department's current policy requiring monitoring, without limits, of temperature for the plant's effluent and receiving stream waters.

Watershed segments 02-13-04-08, is 303d listed water body segment impaired for biological and nutrients. The State plans to establish a Total maximum Daily Load (TMDL) for South Patapsco River watershed for the pollutants that the water body can receive without violating water quality standards. Implementation of the TMDL may affect the effluent limitations of this permit. At that time, the permit may be reopened and the limits modified if necessary.

3. Proposed Effluent Limitations, Continued:

Discussion and Rationale for Toxics

The plant effluent was tested both for acute and chronic toxicity in 1992, 1995 and 2000, respectively. No acute and chronic toxicity was detected by these tests. The renewal permit is for maximum flow of 1.2 mgd. Biomonitoring language is recommended based on the Department's "Effluent Biotoxicity Testing Protocol for Industrial and Municipal Effluents" and "Reporting requirements for Priority Pollutant Analytical Data".

All available priority pollutants scan for both inorganic and inorganic pollutants and metal analysis test results were reviewed and analyzed for reasonable potential to violate State Toxic Substance Criteria. However, the average concentration of copper of 8.9 ug/l is less than the target in-stream copper concentration of 10 ug/l but it is more than half the target concentration. Accordingly, no numerical limit for copper is recommended in the renewal permit, however, monitoring for copper is to be continued in the renewal permit as per the Department's current policy.

Discussion and Rationale for Demonstration of 85% Reduction of BOD and SS

Section 133.102 of the Federal Clean Water Act requires a minimum level of secondary treatment for all POTWs. This is defined as achieving a maximum of 30 mg/l monthly average BOD and SS, and a minimum of 85% removal of BOD and SS. Mount Airy WWTP treats its wastewater to a tertiary level. Plant's data shows an influent BOD averaging 275 mg/l and effluent BOD averaging 4.8 mg - a 98% reduction. SS averaged 200 mg/l in the influent and 4.8 mg/l in the effluent - a 97% reduction. Therefore, the technology-based 85% removal requirement is not necessary in the permit due to the more strict nutrient removal requirements for the facility which result in much greater than 85% BOD and SS removal.

5. Proposed Monitoring Requirements- outfall 001

B. Monitoring Requirements, Outfall 001-see footnotes (1)(2)(3)(4)(5)(6)(7)(8)(9)(10)

The effluent characteristics listed below shall be monitored as follows:

<u>Measurement Effluent Characteristics</u>	<u>Sample Frequency</u>	<u>Type</u>
BOD ₅	2x Week	24 hr. composite
Total Suspended Solids	2x Week	24 hr. composite
TKN (5/1- 9/30)	2x Week	24 hr. composite
Total Nitrogen (1)(2)	2x Month	24 hr. composite
Ammonia – N (1)	2x Month	24 hr. composite
Organic – N (1)	2x Month	24 hr. composite
(NO ₃ + NO ₂) – N (1)	2x Month	24 hr. composite
Ortho – P (1)	2x Month	24 hr. composite
Total Phosphorus (2)	2x Week	24 hr. composite
Fecal Coliform (3)	2x Week	Grab
E. coli (3)	2x Week	Grab
Dissolved Oxygen	3x Day (4)	Grab
pH	3x Day (4)	Grab
Hardness and pH for receiving stream upstream of outfall and of WWTP effluent (5)	1x Month	Grab
Total recoverable copper (6)(7)	1x Quarter	24 hr. composite
Temperature (April 1- Nov. 30 only) (8)(9)	1x Week	Grab (on 2 days/week, one set of measurements shall be taken between 7:00- 10:00 A.M., and another set between 2:00- 5:00 P.M.)
Flow (10)		
Continuous	Recorded	

5. Proposed Monitoring Requirements- outfall 001, Continued

- (1) Monitor only- parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-1) as a monthly average concentration and monthly average loading value. All nitrogen parameters shall be measured on the same daily sample. Samples shall be collected at least 7 days apart.
- (2) To establish performance with respect to Enhanced Nutrient Removal (ENR) Nutrient loading goals, the permittee shall on each monthly Discharge Monitoring Report, the cumulative total nitrogen (TN) and phosphorus (TP) load for the calendar year in question. The cumulative load is calculated by summing the monthly loading values for each month in that calendar year. Nitrogen and phosphorus concentrations will also be reported as a monthly average. Total nitrogen is the sum of total Kjeldahl nitrogen, and (nitrite+nitrate)-N based on the same 24-hour composite samples.
- (3) The fecal coliform monitoring shall be needed until the E. coli limit takes effect, at which time the E. coli monitoring shall be required. The permittee shall use either of the following two approved testing methods for E. coli, the multiple tube technique using presumptive media and EC-MUG media, and the Colilert Test Procedure with Quanti-tray 2000s.
- (4) If the plant is operating at three (3) shifts rotation, the monitoring frequency shall be one per shift. If the plant is manned for less than three shifts in a day, the monitoring shall be evenly distributed at the beginning, middle and end of the working shift(s) of the day.
- (5) Monitor only parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-1) as a maximum value. After the completion of sampling for one year, the Department shall evaluate whether continued monitoring is needed.
- (6) Monitor only parameter shall be analyzed and reported in accordance with General Condition III.A.2.c on page 11. Parameter shall be reported on monthly operating report as individual result and on Discharge Monitoring Report (EPA Form 3320-1) as a maximum concentration and maximum loading value. After the completion of sampling for one year, the Department shall evaluate whether continued monitoring or numerical permit limitations are needed.
- (7) All toxic chemical monitoring required by this permit shall be performed in accordance with MDE's Water Management Administration Toxic Substance Analytical Protocol. This includes analytical methodology, detection levels, holding times, preservation methods, sample types and reporting.
- (8) Each set of measurements shall consist of plant effluent measurement, an upstream measurement, to be taken in the South Branch Patapsco River at a representative mid-stream location 20'- 50' upstream of the discharge point, and a downstream measurement to be taken at a representative mid-stream location 100'- 200' downstream of the discharge point. Upstream and downstream temperature monitoring are not mandatory, and are optional at the discretion of the permittee.
- (9) Monitor only- parameters, shall be reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-1) as a monthly average concentration.
- (10) For flows less than 1 mgd, average flows should be reported to at least the nearest 1,000 gallons. For example, a flow of 332,900 gpd should be reported as 0.333 mgd. For flows between 1 and 99 mgd, average flows should be reported to at least the nearest 10,000 gallons.

Rationale: COMAR 26.08.02.03-2G

6. Pretreatment Program:

The permittee is not authorized to receive the discharge of any type or quantity of substances which may cause interference with the operation of the treatment works. The permittee is required to comply with COMAR 26.08.08 upon accepting any such discharge for treatment. The permittee is required to notify the Pretreatment Section of the Department, in writing, within thirty days if any user discharges such wastes to the permittee for treatment without prior notification. Prior to allowing a significant industrial user to discharge to the POTW regulated by this permit, the permittee shall notify the Pretreatment Section of the Department, in writing.

Under no circumstances shall the permittee allow introduction of the following wastes into the waste treatment system:

- a. Pollutants which cause pass through or interference;
- b. Pollutants which create a fire hazard or explosion hazard in the sewerage system, including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;
- c. Pollutants which will cause corrosive structural damage to the sewerage system; but in no case, discharges with pH less than 5.0, unless the works is specifically designed to accommodate such discharges;
- d. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the sewerage system resulting in interference;
- e. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment plant;
- f. Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference; but in no case, heat in such quantities that the temperature at the treatment plant exceeds 90 degrees Fahrenheit (32 degrees Centigrade) unless the Pretreatment Section of the Department, upon request of the permittee, approves alternate temperature limits;
- g. Pollutants which result in the presence of toxic gases, vapors or fumes within the sewerage system in a quantity that may cause acute worker health and safety problems; and
- h. Any trucked or hauled pollutants, except at discharge points designated by the permittee. Prior to allowing a significant industrial user to discharge, either by direct connection or by truck or rail, to the POTW regulated by this permit, the permittee shall, at the discretion of the Department, either enter into a State approved agreement with the industry or obtain the Department's approval of a pretreatment program. If a pretreatment program is required, the permittee shall comply with COMAR 26.08.08 and 40 CFR Part 403 within one year of notification.

7. BIOMONITORING PROGRAM

- a. Within three months of the effective date of the permit, the permittee shall submit to the Department for approval a study plan to evaluate wastewater toxicity at Outfall 001 by using biomonitoring. The study plan should include a discussion of:
1. wastewater and production variability
 2. sampling and sampling handling
 3. sources and age of test organisms
 4. source of dilution water
 5. testing procedures/experimental design
 6. data analysis
 7. quality assurance/quality control
 8. report preparation
 9. testing schedule
- b. The testing program shall consist of four quarters of definitive quarterly chronic testing. The first two testing events shall be conducted once per quarter during the first two quarters after approval of the study plan. This testing shall be initiated no later than three months following the Department's acceptance of the study plan. The remaining two quarterly testing events shall be conducted during the last two quarters of the fourth year of the Permit.
- Each quarterly testing shall include the Ceriodaphnia survival and reproduction test and the fathead minnow larval survival and growth test.
- c. The samples used for biomonitoring shall be collected at the same time and location as the samples analyzed for the effluent limitations and monitoring requirements for this outfall. For chlorinated effluents, samples shall be collected after dechlorination.
- d. The following EPA document discusses the appropriate methods:
- Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms Third Edition, EPA-821-R-02-013, October 2002.
- e. Test results shall be submitted to the Department within one month of completion of each set of tests.
- f. Test results shall be reported in accordance with Department's "Reporting Requirements for Effluent Biomonitoring Data" 3/21/03.
- g. As a minimum, the reported chronic results shall be expressed as NOEC, LOEC, ChV, and IC₂₅.
- h. If significant mortality occurs during the first 48 hours of the chronic test, 48-hour LC50s shall be calculated and reported along with the chronic results.
- i. If testing is not performed in accordance with Department-approved study plan, additional testing may be required by the Department.

7. BIOMONITORING PROGRAM, Continued

- j. If the test results of any two consecutive valid toxicity tests conducted within any 12-month period show acute or chronic toxicity, the permittee shall repeat the test within 30 days to confirm the findings of acute or chronic toxicity. If acute and/or chronic toxicity is confirmed, the permittee shall:
 - 1. Eliminate the source of toxicity through operational changes as soon as possible but in any case not longer than within three months, or
 - 2. Perform a TRE. If the permittee repeats the toxicity testing as stated above and the results of the repeat test do not confirm the acute or chronic toxicity, the Department will require the permittee to repeat the toxicity testing as stated above to reconfirm a finding of no acute or chronic toxicity. After reconfirmation, the permittee shall complete any remaining quarterly testing required.
- k. If plant processes or operations change so that there is a significant change in the nature of the wastewater, the Department may require the permittee to conduct a new set of tests.
- l. If a significant industrial user locates within the service area so that significant change in the nature of the wastewater might be anticipated, the Department may require the permittee to conduct a new set of tests.
- m. Submit all Biomonitoring related materials to:

WMA- Compliance Program
Maryland Department of the Environment
1800 Washington Boulevard, STE 420
Baltimore, Maryland 21230-1708

Rationale: COMAR 26.08.03.07.A

8. TOXIC CHEMICAL TESTING

- a. Concurrent with the biomonitoring study plan, the permittee shall submit to the Department for approval, a study plan to perform analytical testing for toxic chemicals.
- b. The toxic chemical testing study plan shall include a description of:
 1. sampling methods;
 2. analytical methods;
 3. practical detection levels; and
 4. quality control procedures.
- c. Concurrently with the first toxicity test and the last two biomonitoring tests during the final year of the discharge permit, the permittee shall perform analytical testing for the toxic chemicals identified in the Department's "Toxic Substance Analytical Protocol".
- d. Toxic chemical testing shall be performed in accordance with 40 CFR Part 136 and the Department-approved toxic chemical testing plan.
- e. Substances other than those identified in Section 3 above may be detected in the effluent. If so, the permittee shall identify and quantify the ten present in highest concentration for those compounds for which standards are available.
- f. Testing results shall be submitted to the Department with the results of the first toxicity test.
- g. Toxic chemical testing results shall be reported in accordance with the Department's "Reporting Requirements for Priority Pollutant Analytical Data.
- h. If testing is not performed in accordance with the Department's approved study plan, additional testing may be required by the Department.
- i. Submit all toxic chemical testing related materials to:

Attention: Toxic chemical Data
WMA- Compliance Program
Maryland Department of the Environment
1800 Washington Boulevard, STE 420
Baltimore, Maryland 21230-1708

Rationale: COMAR 26.08.03.07.A

9. TOXICITY REDUCTION EVALUATION (TRE)

The permittee shall conduct a Toxicity Reduction Evaluation (TRE) when a review of toxicity test data by the Department indicates unacceptable acute or chronic effluent toxicity. A TRE is an investigation conducted to identify the causative agents of effluent toxicity, isolate the source(s), determine the effectiveness of control options, implement the necessary control measures and then confirm the reduction in toxicity.

- a. Within 90 days of notification by the Department that a TRE is required, the permittee shall submit a plan of study and schedule for conducting a TRE. The permittee shall conduct the TRE study consistent with the submitted plan and schedule.
- b. This plan should follow the framework presented in Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants (EPA/600/2-88/062).
- c. Beginning 60 days from the date of the Department's acceptance of the TRE study plan and every 60 days thereafter, the permittee shall submit progress reports including all relevant test data to the Department. This shall continue until completion of the toxicity reduction confirmation.
- d. Within 60 days of completion of the toxicity identification, or the source identification phase of the TRE, the permittee shall submit to the Department a plan and schedule for implementing those measures necessary to eliminate acute toxicity and/or reduce chronic toxicity to acceptable levels. The implementation of these measures shall begin immediately upon submission of this plan.
- e. Within 60 days of completing the implementation of the control measures to eliminate or reduce toxicity, the permittee shall submit to the Department, for approval, a study plan to confirm the elimination or reduction of toxicity using biomonitoring.
- f. If, for any reason, the implemented measures do not result in compliance with the Department's toxicity limitations, the permittee shall continue the TRE.
- g. Submit all TRE-related materials to:

WMA- Compliance Program
Maryland Department of the Environment
1800 Washington Boulevard, STE 420
Baltimore, Maryland 21230-1708

10. MAP SHOWING LOCATION OF OUTFALL- 001

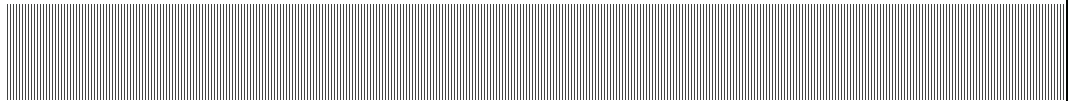
11. Chronological Log of Meetings, Plant Visits, and Telephone Calls (reports are in official file):

- 12/09/2004 Letter from the permittee requesting permit renewal for a flow of 1.2 mgd.
- 12/09/2004 Memo from Steve Luckman, Municipal Permits Division, MDE to Ray C. Dintaman, Jr., Department of Natural Resources (DNR) Power Plant & Environmental Review Division seeking comment and conformance of discharge permit renewal request with the division's policies.
- 12/09/2004 Memo from Steve Luckman, Municipal Permits Division, MDE to MDE, Compliance and Inspection Program seeking comment on permit renewal request.
- 12/09/2004 Memo from Steve Luckman, Municipal Permits Division, MDE to Planning Division requesting comment and conformance of discharge permit with county water and sewer plans.
- 12/15/2004 Response from MDE's Planning Division stating that project is consistent with county water and sewer plans.
- 12/15/2004 Letter from Edwal Stone, Acting Program Manager, MDE to Mr. Wendi W. Peters, Town of Mount Airy, indicating the publication of public notice for the receipt of discharge permit renewal request.
- 12/15/2004 Letter from, Edwal Stone, Acting Program Manager, MDE to Ms. Victoria Woodward, Attorney, indicating the publication of public notice for the receipt of discharge permit renewal request in the correct newspaper.
- 04/26/2005 Site visit to the WWTP: The current plant provides an advanced treatment using Biological Nitrogen Removal (BNR) activated sludge treatment process. The plant also provides phosphorus removal. The plant primarily consists of a screen and grit removal facility, aeration basins (BNR) with aerobic and anoxic units, secondary clarifiers followed by U.V. disinfection, and post-aeration. The plant stabilizes its sludge using, aerated sludge holding tanks, de-watering with belt filter press, and lime stabilization. The stabilized sludge is hauled by a contractor (about 70% to farms and 30% landfills).
- 05/12/2005 Email from Marya Levelev, MDE, concerning ENR goals, which will be revised based on 1.2 mgd flow.

NPDES PERMIT FACT SHEET

4

Taneytown WWTP



1. Description of Receiving Waters:

The facility discharges treated effluent through Outfall 001 into the Piney Creek, a tributary of Upper Monocacy River, which is designated as Use IV P waters. Upper Monocacy River watershed segment 02140303 is a 303d listed water body impaired for nutrients, biological, bacteria, and sediments. The State has established the Total Maximum Daily Loads (TMDLs) for bacteria, which was submitted to the EPA Region III on September 27, 2007. Total Maximum Daily Loads (TMDLs) for nutrient and sediment are under development by the State.

Point of Discharge:

River Mile: About 5.20 mile point of discharge from the confluence of Upper Monocacy River.

Basin Codes:

Major	Basin	Sub	Segment	
02 -	14 -	03 -	03	(Upper Monocacy River Watershed)

Water Type:

Non-tidal	Tidal
<input type="checkbox"/> Intermittent	<input type="checkbox"/> Tidal River
<input checked="" type="checkbox"/> Perennial	<input type="checkbox"/> Estuary
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Atlantic Ocean/Chesapeake Bay

Designated Use:

Use IV P: Recreation Trout Waters and Public Water Supplies, which have the potential for or are capable of holding or supporting adult trout for put-and take fishing, and managed as a special fishery by periodic stocking and seasonal catching and use as a public water supply.

Receiving stream 7-day, 10-year low flow: about 2.52 cfs

Maryland Coordinates:

East Grid	North Grid
743.8	662.2

Latitude	Longitude
<u>39° 39.80'</u>	<u>77° 12.12'</u>

Description of Process Discharging into Outfalls: The current plant is a Biological Nitrogen Removal (BNR) plant and provides an advanced level treatment using coarse screens, fine screens, aerated grit removal, two BNR units consisting of sequential batch reactors and aerobic sludge digesters, chlorination and dechlorination basins, and post aeration with cascades.

Discharge Type: --- Planned _____ Intermittent x Continuous

Discharge Period: 12 months

Description of discharge:

Flow: 0.756 mgd Average 1.46 mgd Maximum 1.1 mgd Design

pH range: Maximum 7.1-7.8 Minimum 6.7-7.1

<u>Parameter</u>	<u>Concentration,</u> mg/l*	<u>Loading Rate,</u> lbs/day
BOD ₅	5.0	32
TSS	6.5	41
NH ₃ - N	0.8	5.0
Org- N	1.6	10
(NO ₂ + NO ₃) - N	1.8	11
TN	4.6	29
TP	1.8	11
Ortho- P	1.5	9.5
Fecal Coliform	29 MPN/100 ml	
TRC	< 0.1 mg/l	
D O	5.3	

(Performance period is from 01/06-08/07)

* Except as noted

3. **Proposed Effluent Limitations:** see footnotes ^{(1)(2)(3)(4) (5)(6)(7)(98)}

The quality of effluent discharged from the facility shall be limited at all times as shown below:

Effluent Characteristics	Monthly Loading Rate lbs/d	Weekly Loading Rate lbs/d	Daily Loading Rate lbs/d	Monthly Average mg/l	Weekly Average mg/l	Daily Maximum Average mg/l
a. BOD ₅ (5/1-10/31)	101	147	N/A	11	16	N/A
(11/1-4/30)	275	413	N/A	30	45	N/A
b. TSS	275	413	N/A	30	45	N/A
c. Total Phosphorus ⁽¹⁾	18 ⁽¹⁾	28 ⁽¹⁾	N/A	2.0 ⁽¹⁾	3.0 ⁽¹⁾	N/A
d. NH ₃ (5/1-10/31)	32	N/A	82	3.5	N/A	9.0
(11/1-4/30)	37	N/A	101	4.0	N/A	11

Effluent Characteristics	Monthly Loading Limit lbs/ month Report	Annual Max. Loading Limit lbs/year	Monthly Average mg/l Report	Weekly Average mg/l Report
e. Total Nitrogen ⁽³⁾	Report	13,400 ⁽⁴⁾	Report	Report
f. Total Phosphorus ⁽³⁾	Report	1,005 ⁽⁴⁾	Report	Report
g. Fecal Coliforms ⁽⁶⁾	200 MPN/100 ml maximum monthly log mean value.			
h. E. Coli ⁽⁶⁾	126 MPN/ 100ml monthly geometric mean			
i. Total Residual Chlorine	0.021 mg/l ⁽⁷⁾			
j. Dissolved Oxygen	5.0 mg/l minimum at any time			
k. pH	6.5-8.5			
l. flow	1.1 mgd (1,100,000 gpd)			

An average flow of 1.1 mgd was used in waste load allocation calculations and the unit of mgd shall be used when reporting on the Discharge Monitoring Report form. Notification to be provided to the Department at least 180 days before the flow is expected to exceed this flow. If a permit modification is required, the Department will initiate the public participation NPDES process.

The permittee shall report the total cumulative flow for the each calendar year for this facility. The total annual cumulative flow should be reported in million gallons for the entire calendar year to the nearest ten thousand gallons. The annual total cumulative flow determination shall be provided to the Department by January 28 of the following year to the address below:

Attention: Calendar Year Total Cumulative Flow
 WMA – Wastewater Discharge Permits Program
 Maryland Department of the Environment
 1800 Washington Boulevard, STE-455
 Baltimore, MD 21230-1708

A Wastewater Capacity Management Plan must be submitted by January 28 of each calendar year if the most recent three year average flow is over 80% of its design capacity, or if it is anticipated to exceed 80% in the next year. The Department has published a “Wastewater Capacity Management Plans” guidance document, which can be found on the Department’s web site as indicated below:

<http://www.mde.state.md.us/assets/document/water/WastewaterCapacityMgmtGuidance.pdf>

(See footnotes on next page)

3. Proposed Effluent Limitations: see footnotes ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾⁽⁷⁾

- (1) The monthly and weekly total phosphorus limits remain in effect until June 30, 2013
- (2) a. The permittee plans to enter into a grant agreement with the Department to upgrade the wastewater treatment facility in order to achieve Enhanced Nutrient Removal. Until completion of the upgrade the permittee shall make every effort to meet the total nitrogen goal of 8 mg/l as an annual average. The BNR process of the facility is to be operated on a year round basis. Upon completion of the upgrade, the permittee shall operate the enhanced nutrient removal facility in a manner that optimizes the nutrient removal capability of the facility as stipulated in the Grant Agreement For Enhanced Nutrient Removal. The upgrade shall be completed according to the following schedule:
 - (1) Start Design – June 2009
 - (2) Start Construction January 2011
 - (3) Complete Construction- January 2013
- b. When a Total Maximum Daily Load (TMDL) for the Upper Monocacy River is completed, the nutrient limitations may be revised to incorporate any Total Maximum Daily Load (TMDL) requirements. The permit may also be reopened to incorporate nitrogen and phosphorus load allocations and/or goals for the Upper Monocacy River contained in the Upper Monocacy River Tributary Strategy.
- (3) The permit Annual Maximum Loading Rate limits for total nitrogen and total phosphorus become effective July 1, 2013. The loading cap for 2013 shall be prorated on the 6 months from July through December 2013, and shall be 6,700 lbs for total nitrogen and 503 lbs for total phosphorus. The permittee shall operate the enhanced nutrient removal facility in a manner that optimizes the nutrient removal capability of the facility as stipulated in the Grant Agreement For Enhanced Nutrient Removal. The first exceedance of the permit limit shall be counted and reported as daily exceedances beginning from the first exceedance, determined to the nearest day, through December 31. In addition, after any such exceedance, the permittee shall demonstrate to the Department's satisfaction that the facility is optimizing its nutrient removal capability, and neither the arrival of the next calendar year nor the issuance of a permit renewal during a period of noncompliance shall obviate continuance of any noncompliance status related to treatment optimization requirements.
- (4) The Annual Maximum Loading Rate is a calculated parameter to be reported monthly as the sum of the Monthly Loading Rates from January through December of the current calendar year. At the end of each calendar year, beginning January 1, 2013, the permittee shall calculate, report and comply with the *concentration-based* Annual Maximum Loading Rate limitation(s) defined below or the *Tributary Strategy-based* loading rate limitation in the above table, whichever is lower:

Total Nitrogen Limitation (lbs/year): $4 \text{ mg/l} \times \text{annual total flow (calendar year based in million gallons per year)} \times 8.34$. To the extent that the permittee alleges that temperature levels of 12 degrees C or lower have diminished the treatment system's capability of complying with this *concentration-based* loading rate limitation for Total Nitrogen, the permittee shall provide notification beginning with the calendar year report under the "Upset" provision in Section III.B.6 of this permit. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Total Phosphorus Limitation (lbs/year): $0.3 \text{ mg/l} \times \text{annual total flow (calendar year based in million gallons per year)} \times 8.34$.

The details and results of all required annual calculations shall be submitted to the Department with the Discharge Monitoring Report for December.

The *concentration-based* loading requirements may be revised if the limits or schedule are determined to be impracticable based on actual performance and the Department re-opens the permit as a major modification (which includes a public participation process) to impose (an) alternate effluent limitation(s) or revised schedule.

- (5) This permit may be reopened and the requirements revised to allow for effluent trading consistent with the terms of any final Maryland trading approach.
- (6) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E. coli limit shall take effect one year after the issuance date of the permit. However, the permittee may request in writing that the E. coli limitation become effective sooner.
- (7) The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level as <0.10 mg/l.

3. Proposed Effluent Limitations, continued:

Rationale(s):	Limitations are set to comply with following regulations
a. BOD ₅ :	COMAR 26.08.02.03-3 F (2)
b. TSS:	Same COMAR(s) as BOD ₅
c. TP:	COMAR 26.08.03.01 C (3), COMAR 26.08.04.04 C (3), Previous Chesapeake Bay Tributary Nutrient Reduction Strategies.
d. NH ₃	COMAR 26.08.02.03-2.H
e. TN:	Chesapeake Bay Tributary Nutrient Reduction Strategies, and Enhanced Nutrient Reduction Strategy
f. TP:	COMAR 26.08.03.01 C (3), COMAR 26.08.04.04 C (3), Chesapeake Bay Tributary Nutrient Reduction Strategies, and Enhanced Nutrient Reduction Strategy.
g. Fecal Coliform:	COMAR 26.08.04.02-1 A (1) (a)
h. E.Coli:	COMAR 26.08.02.03-3 A (1)(a) and COMAR 26.08.02.03-3 G (1).
i. TRC:	COMAR(s) 26.08.02.03- 1, COMAR(s) 26.08.02.03- 2, COMAR(s) 26.08.02.03- 3 A (7)(a), COMAR(s) 26.08.02.05, COMAR(s) 26.08.02.03- 3 G (2) (a)(b)
j. DO:	Same COMAR(s) as BOD ₅ and COMAR(s) 26.08.02.03- 3 G (1)
k. pH:	COMAR 26.08.02.03- 3 A.(4).
l. Flow:	Flow is not a permit limitation, however, it is used in setting BOD ₅ , TSS, and NH ₃ -N loadings

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

General Discussion and Rationale

303(d) List

Section 303(d) of the federal Clean Water Act directs States to identify and list waters, known as water quality limited segments (WQLSs), in which current required controls of a specified substance are inadequate to achieve water quality standards. For each WQLS, the State is to establish a Total Maximum Daily Load (TMDL) of the specified substance that the water body can receive without violating water quality standards. The Upper Monocacy River (02-14-03-03) was identified on the State's 1996 list of WQLSs because of nutrients, bacteria, and sediments.

3. Proposed Effluent Limitations (Continued):

General Discussion and Rationale (Continued):

The State has established the Total Maximum Daily Loads (TMDLs) for bacteria, which was submitted to the EPA Region III on September 27, 2007. Total Maximum Daily Loads (TMDLs) for nutrient and sediment are under development by the State.

Discussion and Rationale for BOD₅, & DO

Effluent limitations for BOD₅ and dissolved oxygen for the renewal permit for a flow of 1.1 mgd are based upon the current permit limitations and the waste load allocation analysis done in 1998. Available water quality data on the receiving stream was reviewed to evaluate any significant impact of the discharge to the receiving waters.

For TSS:

The secondary TSS limits are established as per regulations.

Discussion and Rationale for Ammonia

Seasonal ammonia toxicity analysis was performed to estimate the seasonal ammonia limits for the renewal permit. The ammonia limits were set to protect receiving waters, Piney Creek, water quality criteria for ammonia with current level of treatment for a flow of 1.1 mgd. The estimated seasonal limitations are not significantly different than the current permitted limitations. Accordingly, the current seasonal limitations are recommended for the renewal permit for a flow of 1.1 mgd. Proposed seasonal ammonia limitations for a flow of 1.1 mgd may be achieved consistently by the plant with the current level of treatment as shown by the plant's performance data of the plant for year 2006-2007.

Discussion and Rationale for Fecal Coliforms, E. Coli, pH, and TRC

The recommended effluent limitations for Fecal Coliform, E. Coli, and pH were set equal to the receiving stream standards for discharges to Designated Use IV-P Waters. The total residual chlorine limit was determined using the division's total residual chlorine and ammonia spreadsheet and the requirements of COMAR(s) 26.08.02.03- 1, COMAR 26.08.03.06 C (5).

Discussion and Rationale for Nutrients

A State-wide Tributary Strategy was developed to achieve and maintain Maryland's nutrient reduction goals in accordance with the 2000 Chesapeake Bay Agreement. The Point Source Strategy was developed as part of the Tributary Strategy. The Point Source Strategy established nutrient loading caps for point sources. The Taneytown WWTP total phosphorus load limit was set at 1,005 lb/yr and the total nitrogen cap was set at 13,400 lb/yr. The concentration TP limit of 2 mg/l is based upon the current permit limitations, which was based on the previous Chesapeake Bay tributary nutrient reduction strategies.

3. Proposed Effluent Limitations (Continued):

Discussion and Rationale for Toxics

Since the last renewal of the permit, additional data for metal toxicity analysis was reviewed and analyzed for any violation of State Toxic Substances. Based on the results of the analysis, no violation of the criteria was noted. Accordingly, no change in the "Toxic Chemical Testing" language of the current permit is recommended. Whole effluent toxicity analysis for acute and chronic toxicity was done in 1992, 1995, 2000, 2001, 2003, 2006 and 2007. Acute toxicity was found in 6/10/2003 sample but not confirmed by subsequent sample of 9/9/2003. No acute or chronic toxicity was noted in the remaining samples. Based on the results of past whole effluent toxicity tests, the standard biomonitoring and toxicity reduction language based on the MDE's Water Management Administration "Effluent Biotoxicity Testing Protocol for Industrial and Municipal Effluents" is recommended for the renewal permit for a flow of 1.1 mgd.

Discussion and Rationale for Demonstration of 85% Reduction of BOD and TSS

Section 133.102 of the Federal Clean Water Act requires a minimum level of secondary treatment for all POTWs. This is defined as achieving a maximum of 30 mg/l monthly average BOD and SS, and a minimum of 85% removal of BOD and SS. The City of Taneytown WWTP is proposed to design to treat its wastewater to a tertiary level with inclusion of ENR to remove at least 90 % of BOD and TSS. Plant data from January/2006 through August/2007 shows an effluent BOD₅ averaging 5.0 mg/l and TSS averaging 6.5 mg/l. Therefore, the technology-based 85% removal requirement is not necessary in the permit due to the more strict nutrient removal requirements which result in much greater than 85% BOD and TSS removal.

For Capacity Management Plans

Under Environment Article § 9-512 it is the local government's responsibility to ensure that water supply and sewerage systems have adequate capacity to meet the needs of existing customers and proposed development. To assist the local jurisdictions in making flow allocation determinations, the Department prepares and distributes sewage flow summary tables, for each county/jurisdiction. Submission of the total cumulative flow for the each calendar year is required to enable the Department to prepare the next update of the tables. The Department has published a "Wastewater Capacity Management Plans" guidance document, which can be found on the Department's web site as indicated below:

<http://www.mde.state.md.us/assets/document/water/WastewaterCapacityMgmtGuidance.pdf>

The document will assist the local jurisdictions in meeting this important and legal responsibility.

4. **Proposed Monitoring Requirements, Outfall 001-** see footnotes ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾

Parameter	Measurement <u>Frequency</u>	Sample <u>Type</u>
BOD ₅	2x Week	8 hr. composite (1)
TSS	2x Week	8 hr. composite (1)
Total ammonia as N	2x Week	8 hr. composite (1)
Total Phosphorus ⁽²⁾	2x Week	24 hr. composite
Total Nitrogen ⁽²⁾⁽³⁾	2x Month *	24 hr. composite
	2x Week **	24 hr. composite
Ortho Phosphorus ⁽³⁾	2x Month *	24 hr. composite
	2x Week **	24 hr. composite
NO ₂ + NO ₃ as N ⁽³⁾	2x Month *	24 hr. composite
	2x Week **	24 hr. composite
Organic Nitrogen as N ⁽³⁾	2x Month *	24 hr. composite
	2x Week **	24 hr. composite
Fecal Coliform ⁽⁴⁾	1x Week	Grab
E. Coli ⁽⁴⁾	1x Week	Grab
TRC ⁽⁵⁾	2x Day	Grab
DO	2x Day	Grab
pH Flow ⁽⁶⁾	2x Day	Grab
	Continuous	Recorded

- (1) The permittee may substitute 24 hr. composite sample for 8 hr composite sample.
- (2) Beginning July 1, 2011, the permittee shall on each monthly Discharge Monitoring Report, the cumulative total nitrogen (TN) and phosphorus (TP) load for the calendar year in question. The cumulative load is calculated by summing the monthly loading values for each month in that calendar year. Nitrogen and phosphorus concentrations will also be reported as a monthly average. Total nitrogen is the sum of total Kjeldahl nitrogen, and (nitrite+nitrate)-N based on the same 24-hour composite samples.
- (3) Monitor only parameter shall be analyzed and reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-I) as a monthly average concentration and monthly average loading value. All nitrogen parameters shall be measured on the same daily samples. Samples shall be collected at least 7 days apart.
- (4) The fecal coliform monitoring shall be needed until the E. coli limit takes effect, at which time the E. coli monitoring shall be required. The permittee shall use either of the following two approved testing methods for E. coli: the multiple tube technique using presumptive media and EC-MUG media, and the Colilert Test Procedure with Quanti-tray 2000s..
- (5) Total residual chlorine monitoring is required when chlorine or chlorine compounds are used in any treatment process. The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level as <0.10 mg/l.
- (6) For flows less than 1 mgd, average flows should be reported to at least the nearest 1,000 gallons. For example, a flow of 332,900 gpd should be reported as 0.333 mgd.

* Until June 30, 2013

** After June 30, 2013

Monitoring Rationale:

Measuring frequency and sample type are set in accordance with the table of "Minimum Monitoring Requirements" established by the State to comply with COMAR 26.08.04.03 A.

5. Reapplication For A Permit:

The permit reapplication date is set according the watershed year cycle to fulfill the watershed permit schedule.

6. Pretreatment Program

The MDE's Pretreatment Section develops the pretreatment discharge language for all WWTPs to meet requirements of the COMAR 26.08.08 (Pretreatment Requirements to control Industrial Users of POTWs). As this facility is a non-pretreatment POTW, the standard language (revised on January 28, 2003) for the non-pretreatment POTW is incorporated in the permit.

7. Protection of Water Quality

In addition to the effluent limitations as listed in the Section- III, the standard language, which prohibits the discharge of pollutants not listed, is included to meet the COMARs 26.08.03.01A and 26.08.08 requirements for the water quality protection.

8. MAP SHOWING DISCHARGE POINT LOCATION

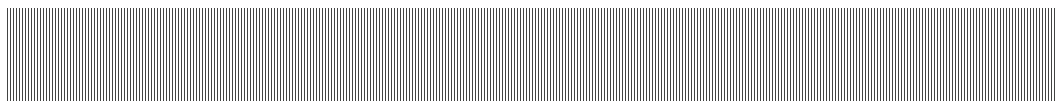
9. Chronological Log of Meetings, Plant Visits, and Telephone Calls (reports are in official file):

- 6/9/2007 Letter from the permittee requesting permit renewal for a flow of 1.1 mgd.
- 8/6/2007 Memo from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to Ray C. Dintaman, Jr., Department of Natural Resources (DNR) Power Plant & Environmental Review Division seeking comment and conformance of discharge permit renewal request with the division's policies.
- 8/6/2007 Memo from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to MDE, Compliance and Inspection Program seeking comment on permit renewal request.
- 8/6/2007 Memo from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to Planning Division requesting comment and conformance of discharge permit with county water and sewer plans.
- 8/9/2007 Response from MDE's Planning Division stating that project is consistent with county water and sewer plans.
- 8/14/2007 Letter from Edwal Stone, Wastewater Permits Program Manager, MDE to Ms. Victoria Woodward indicating the publication of public notice for the receipt of discharge permit renewal request
- 8/14/2007 Letter from Edwal Stone, Wastewater Permits Program Manager, MDE to Mr. James L. Schumacher, City Manager, City of Taneytown, indicating the publication of public notice for the receipt of discharge permit renewal request.
- 8/14/2007 Letter from Edwal Stone, Wastewater Permits Program Manager, MDE to Ms. Jenn Aiosa, Chesapeake Bay Foundation, indicating the publication of public notice for the receipt of discharge permit renewal request
- 8/14/2007 Letter from Edwal Stone, Wastewater Permits Program Manager, MDE to Mr. Ed Merrifield, Potomac River Keeper indicating the publication of public notice for the receipt of discharge permit renewal request
- 8/17/2007 Letter from Ms. Jenn Aiosa, Chesapeake Bay Foundation, to Steve Luckman, Municipal Surface Discharge Permits Division, MDE, requesting information regarding permit renewal and a copy of the draft renewal permit when it becomes available.
- 8/17/2007 Response from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to Ms. Jenn Aiosa, Chesapeake Bay Foundation confirming the addition of her name in the interest list.
- 8/21/2007 Response from MDE's Compliance Program indicating the performance of treatment plant from 2003 to 2006.
- 12/4/2007 Letter from CDM enclosing a copy of 2003, 2006, and 2007 toxic chemical testing results.
- 12/19/2007 Email From Mike Mayenschein, MDE to Brian Lubenow, CDM, commenting on toxic chemical testing results for MDT limits for antimony and toxaphen.
- 12/19/2007 Site Visit to Taneytown WWTP. The current plant is a Biological Nitrogen Removal (BNR) plant and provides an advanced secondary level treatment using activated sludge treatment process. The plant primarily consists of mechanical screen, sequential batch reactors, aerobic sludge digesters, chlorination, dechlorination, and post aeration. The sludge is dewatered using filter press.
- 12/20/2007 Response of Brian Lubenow of CDW concerning antimony and toxaphene
- 12/26/2007 Email From Mike Mayenschein, MDE to Brian Lubenow, CDM
- 12/26/2007 Fax from City of Taneytown concerning Water Hardness Tests Results
- 02/26/2008 Letter from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to Peter Weber, EPA Region III, for review of the proposed draft renewal permit.
- 02/ 26/2008 Letter from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to the permittee for review of the proposed draft renewal permit
- 04/04/2008 Email from Peter Weber, EPA Region III, indicating the EPA's conditional approval of the proposed draft discharge permit.

NPDES PERMIT FACT SHEET

5

Hampstead WWTP



STATE OF MARYLAND

DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway, Baltimore, Maryland 21224 (301) 631-3671
~~201 W. PRESTON STREET BALTIMORE, MARYLAND 21201 (301) 333-1061~~

William Donald Schaefer, Governor

SUMMARY REPORT & FACT SHEET

Application Numbers:

State: 88-DP-0594 Federal: MD0022446

Name: Hampstead Waste Water Treatment Plant

Mailing Address: Carroll County Department of Public Works
Bureau of Utilities

225 N Coulter Street Westminster, Carroll County
Maryland 21157

Facility Location: 801 Conting Street, Hampstead, Carroll County

Facility owner/organization: Carroll County Department of Public Works

Company contact: Mr Wayne E. Lewis

Phone: 857-2164 DOE Engineer: Yasenda S. Dupuis Division: Municipal Permits

Date Completed: Dec. 28, 1988

Applicant is engaged in: treating domestic waste

Number of outfalls: 001-003 SIC Codes: 4952

Reviewed by: _____
Chief, EM/WH Section Date

Accepted by: J. Jackson
Chief, Permits Division Date 1/3/89

EPA joint review? yes _____ no _____ Date Sent

Date State/EPA comment/agreement received: _____

PAGE NO. 2

Application No. 88-DP-0594

Outfall(s): 001

1. Description of Receiving Waters:

Outfall(s) 001 discharge(s) into Piney Run which flows into Loch Raven Reservoir which is classified as class III water, protected for the growth and propagation of trout.

Point of Discharge:

River Mile: 15.7 (mile point of discharge from Loch Raven Reservoir)

Basin Codes:

Major Basin Sub Segment 02 - 13 - 08 - 05

Water Type:

Non-tidal Tidal Intermittent Tidal River Perennial Estuary Impoundment Atlantic Ocean/Chesapeake Bay

Classified as:

Class III which is protected for the growth and propagation of trout

Receiving stream 7-day, 10-year low flow: 0.16 cfs

Maryland Coordinates:

East Grid North Grid 847 642.0

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Application No. 88-DR-0594

Outfall(s): _____

2. Description of Process Discharging into Outfalls: Activated sludge, phosphorus removal by ~~flow~~ disinfection with UV.

Discharge Type: _____ Planned _____ Intermittent Continuous

Discharge Period: 12 (see code list)

Description of discharge:

Flow: 0.297 _{mgd} Average 0.87 Maximum 0.9 Design

pH range: Maximum 7.4 Minimum 7.0

Parameter	Concentration, mg/l*	Loading Rate, kg/day (lb/day)
BOD5	10	—
TSS	21	—
FC	109 MPN/100 ml	—
TKN	1.2	—
Total P	0.6	—

5

6.

* Except as noted

is based upon August

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Application No. 88-DP-0594

Outfall(s): 001

3. Proposed Effluent Limitations:

Parameter	Monthly Avg. Concentrations mg/l*	Weekly Avg. Concentrations mg/l*	Monthly Loading Rate Kg/D (lbs/D)	Weekly Loading Rate Kg/D (lbs/D)
1. BOD5	May to Sept 20 Oct to April 30	30 45	30 (83.2) 57 (130)	57 (130) 85 (190)
2. TSS	30	45	57 (130)	85 (190)
3. TKN as N	May to Sept 15 Sept 15	22	28 (63)	42 (92)
4. Total P as P	1	1.5	1.9 (4.2)	2.8 (6.2)
5. Total N as N	(N/A)			
6. Fecal Coliforms	200 MPN/100 ml maximum monthly log mean value.			
7. TRC	Discharge of effluent treated with chlorine or chlorine compounds is prohibited.			
8. DO	6.0 ms/l minimum at any time.			
9. pH	Not less than 6.5 nor greater than 8.5			
10. Flow	0.5 mgd.			

Rationale(s): Limitations are set to comply with following regulations not crossed out:

- BOD5: ~~COMAR 10.50.01.02 D (3)(b), COMAR 10.50.01.02 D (4)(c)~~
~~COMAR 10.50.01.02 D (5)(b), COMAR 10.50.01.02 D (6)(c)~~
~~COMAR 10.50.01.08 J (3)(a).~~
- TSS: Same COMAR(s) as BOD5 and, in addition, ~~COMAR 10.50.01.02 D (3)(a), COMAR 10.50.01.02 D (4)(c), COMAR 10.50.01.02 D (5)(a), COMAR 10.50.01.02 D (6)(a).~~
- TKN: Same as COMAR(s) as BOD5.
- Total P: COMAR 10.50.01.05 B (3), COMAR 10.50.01.08 J (3)(c)
COMAR 10.50.01.08 J (3)(d).
- Total N: Same COMAR(s) as Total P.
- Fecal Coliforms: ~~COMAR 10.50.01.02 D (3)(a), COMAR 10.50.01.02 D (4)(c)~~
COMAR 10.50.01.02 D (5)(a), ~~COMAR 10.50.01.02 D (6)(a)~~

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Application No. 88- DP-0574

Outfall(s):

Proposed Effluent Limitations (Con't.)

- 7. TRC: ~~COHAR 10.50.01.08 H (3), COHAR 10.50.01.08 J (3)(a)(i)~~
~~COHAR 10.50.01.08 J (3)(a)(ii), COHAR 10.50.01.08~~
~~(3)(E)(ii), COHAR 10.50.01.02 D (5)(f) (House Bill No~~
~~570) COHAR 10.50.01.02 D (5)(f).~~
- 8. DO: Same COHAR(s) as BOD5.
- 9. pH: ~~COHAR 10.50.01.02 D (3)(a), COHAR 10.50.01.02 D (4)(d)~~
~~COHAR 10.50.01.02 D (5)(a), COHAR 10.50.01.02 D (6)(d).~~
- 10. Flow: Rationale included in the setting of respective parameter concentrations and loadings.

*Except as noted.

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Application No. 88-DP-0594

Outfall(s): 201

4. Proposed Monitoring Requirements:

Parameter	Measurement Frequency	Sample Type
BOD5	Two per week	8 hr Composite, One grab/hr
Total Suspended Solids	Two per week	8 hr Composite, One grab/hr
TKN (May to Sept)	Two per week	8 hr Composite, One grab/hr
Total Phosphorus	Two per week	8 hr Composite, One grab/hr
Ortho Phosphorus	One per month	24 hr Composite, One grab/hr
Ammonia Nitrogen	One per month	24 hr Composite, One grab/hr
NO ₃ +NO ₂ Nitrogen	One per month	24 hr Composite, One grab/hr
Organic Nitrogen	One per month	24 hr Composite, one grab.
Fecal Coliforms	One per week	Grab.
Dissolved Oxygen	Two per day	grab.
pH	Two per day	grab.
Flow	Continuous	Recorded.

Monitoring Rationale:

Measuring frequency and sample type are set in accordance with the table of "Minimum Monitoring Requirements" established by the State to comply with CONAR 10.50.01.08 I(1).

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Application No. 88-DP-0594

Outfall(s): _____

5. Bypasses or Overflows

a. Point sources 002 through 003 listed below, as well as any pump station or sewer overflow structure not listed below, represent potential overflows discharging untreated wastewater into the waters of the State. Pursuant to General Conditions 11A5, the bypass of treatment facilities is prohibited unless the conditions of 11A5a are satisfied. Each point source shall be monitored for cause, frequency, duration and quantity of flow. These monitoring results are to be reported quarterly as an attachment to the Discharge Monitoring Report forms which are submitted on compliance with the requirements of 9b.

b. Point sources 1* through * listed below have been identified by the Department as a health hazard and are to be eliminated in accordance with the Schedule of Compliance listed in 7a.

c. Diameter of Point Source Pipe Receiving Stream

002 - West Pumping Station	6"	Indian Run
003 - Shiloh Pumping Station	8"	Indian Run

* None of the above listed point sources have been identified by the Department as a health hazard at the time of issuance of permit. However, the requirements of 5b will be applicable to any such bypasses or overflows which subsequently come to the knowledge of the Department.
 Rationale: 40 CFR 122.60 (g)

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Application No. 88-DP-0574
Outfall(s): 001

6. Proposed Special Conditions For Outfall(s):

N/A

Rationale:

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Application No. 88-DP-0594

7. Schedule of Compliance:

- a. The permittee shall achieve compliance with the preceding limitations specified for discharges in accordance with the following schedule:

On the effective date of the permit.

Rationale: COMAR 10.50.01.08 H (3)

- b. No later than 14 calendar days following each date identified in the above schedule of compliance, the permittee shall submit the required written report of progress or, in the case of specific steps required by identified dates, a written notice of compliance or noncompliance, as appropriate. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled step.

Rationale: COMAR 10.50.01.08 H (3)

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8. Pretreatment Program

Prior to allowing a major contributing industry or one that may violate the general or specific prohibitions listed in 40 CFR 403.5(a) and (b) to discharge to the POTW regulated by this permit, the POTW shall either enter into and enforce a State approved agreement with the industry or obtain State approval and implement a pretreatment program, unless the permittee is already implementing a pretreatment program that has been approved by the State. If the later option is required, it shall comply with 40 CFR 403 and the pretreatment requirements of State regulations
 COMAR 26.08.08.

... existing *significant industrial user* and these which currently violate the general and specific prohibitions listed in 40 CFR 403.5(a) and (b) must be regulated in a similar manner within six (6) months of the issue date of this permit.

A *Significant industrial user* is defined as one that:

1. Has a flow of *25,000* gallons or more of industrial waste per average work day, or
2. Has a flow of more than 5% of the maximum POTW operating capacity as determined by the Department, or
3. Has toxic concentrations of Priority Pollutants described in Section 307(a) of the Clean Water Act, or
4. Causes singly or in combination with other contributors the POTW to violate any of the terms of this permit, or
5. Is considered a Federal Categorical Industry as listed in Appendix C of 40 CFR 403.

Rationale: COMAR ~~10.50.01.08~~ *26.08.08* J-1

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9. Monitoring and Reporting

a. Representative sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

Rationale: COMAR 10.50.01.08 I(1)

b. Reporting

Monitoring results obtained during the previous months shall be summarized for each month and reported on Discharge Monitoring Report Forms (EPA No. 3320-1) postmarked no later than the 28th day of the month following the completed reporting period. Reporting periods shall end on the last day of the following months: March, June, September, and December. The first report is due on ----- Duplicate signed copies of these and all other reports required herein, shall be submitted to: The State of Maryland...

Rationale: COMAR 10.50.01.09 I(3)

c. Sampling and analysis methods

The analytical and sampling methods used shall conform to test procedures for the analysis of pollutants as identified in Title 40 CFR, Part 136-"Guidelines Establishing Test Procedures for the Analysis of Pollutants", and published in the Federal Register, Volume 41, No. 232 - Wednesday, December 1, 1976.

Rationale: COMAR 10.50.01.08 I(1)

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d. Monitoring equipment maintenance

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation to insure accuracy of measurements.

Rationale: COMAR 10.50.01.08 I(1)

e. Recording of results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The date, exact place and time of sampling or measurements;
- b. The person(s) who performed the sampling or measurements;
- c. The dates analyses were performed;
- d. The person(s) who performed each analysis;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

Rationale: COMAR 10.50.01.08 I(2)

f. Additional monitoring by permittee

IF the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

Rationale: COMAR 10.50.01.08 I(1)

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g. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation shall be retained for three (3) years. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Department of the Environment.

Rationale: COHAR 10.50.01.08 1(2)

10. Management Requirements

a. Change in discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit or in the application submitted for this permit, including any formally submitted application revisions that are not authorized, applied for or specifically identified in this permit, shall constitute a violation of the terms and conditions of this permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharge of pollutants application at least 180 days prior to the commencement of the changed discharge or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Department. Following such notice, the permit may be modified by the Department to specify and limit any pollutants not previously limited.

Rationales: COHAR 10.50.01.01 B (56)
COHAR 10.50.01.05 A (1)
COHAR 10.50.01.08 B (4)
COHAR 10.50.01.08 C (4)

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b. Noncompliance notification

1. If for any reason the permittee does not comply with or will be unable to comply with any effluent limitations specified in this permit, the permittee shall immediately notify the Department by telephone at 301-225-6385 during work hours and at 301-243-8700 during evenings, weekends and holidays and provide the Department with the following information in writing within five days of such notification:

i. A description of the non-complying discharge including its impact upon the receiving waters;

ii. Cause of non-compliance;

iii. Anticipated time the condition of non-compliance is expected to continue or if such condition has been corrected, the duration of the period of non-compliance;

iv. Steps taken by the permittee to reduce and eliminate the non-complying discharge;

v. Steps to be taken by the permittee to prevent recurrence of the condition of non-compliance;

vi. A description of the accelerated or additional monitoring to determine the nature and impact of the non-complying discharge.

- Rationales: 40 CFR 122.7 (1) (2)
 40 CFR 122.7 (1) (6)
 40 CFR 122.7 (1) (7)
 40 CFR 122.60 (E) (1)

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2. In the case of any discharge subject to any toxic pollutant effluent standard under Section 307 (a) of the Clean Water Act of 1977, the Department shall be notified within 24 hours of the time the permittee becomes aware of the noncomplying discharge. Notification shall include information as described in paragraph 2 (a) above. If such notification is made orally, a written submission must follow within five (5) days of the time the permittee becomes aware of the non-complying discharge.

Rationale: 40 CFR 122.62 (g)

c. Facility operation and quality control

All waste collection, control, treatment and disposal facilities shall be operated in a manner consistent with the following:

1. At all times, all facilities shall be operated as efficiently as possible in a manner which will minimize upsets and discharges of excessive pollutants.
2. The permittee shall provide an adequate operating staff, as determined by the Department which is duly qualified to carry out the operation, maintenance and testing functions required to insure compliance with the conditions of this permit. A duly qualified superintendent and operator are ones who are certified by The Board of Certification, Water and Wastewater Superintendents, located at 201 West Preston Street, Baltimore, Maryland. Certification of the operator or superintendent for this facility must be obtained within six (6) months from the date of issuance of this permit.
3. Maintenance of treatment facilities adversely affecting the discharge quality shall be scheduled during noncritical water quality periods. The permittee shall follow the reporting procedures listed in this permit for Non-Compliance Notification.

Rationales: 40 CFR 122.7 (e)
COMAR 10.50.01.08 H (1) (a)

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d. Adverse impact

The permittee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

Rationale: 40 CFR 122.7 (d)

e. Bypassing

1. Any bypass of treatment facilities is prohibited unless:

- a. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. ("Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. It does not economic loss caused by delays in production.); and
- b. There are no feasible alternatives to the bypass, such as the use of auxiliary facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- c. If a bypass pursuant to i and ii occurs, then the Department must be notified in the following manner:

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1. Anticipated bypass. IF the permittee know in advance of the need for a bypass, notification shall be submitted to the Department for approval, if possible, at least ten (10) days before the date of the bypass.
 2. All other bypasses. Notification of all other bypasses shall be submitted to the Department by the permittee within 24 hours of the occurrence of the bypass. IF notification is orally submitted, then the permittee shall follow it up with a written submission within five (5) days of the permittee's becoming aware of the bypass. Copies of the written submission shall also be included as an attachment to the Discharge Monitoring Report Forms which are submitted in compliance with the requirements of ID2.
2. The Department may approve an anticipated bypass, after considering its adverse effects, if it determines that the bypass will meet conditions listed above.

Rationale: 40 CFR 122.60 (g)

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f. Removed substances

Wastes such as solids, sludges, or other pollutants removed from or resulting from treatment or control of wastewaters, or facility operations shall be disposed of in a manner to prevent any removed substances or runoff from such substances from entering or from being placed in a location where they may enter the waters of the State.

1. Within 90 days of the effective day of this permit the permittee shall submit to the Department, on a form provided, the following information:
 - i. Locate, on a suitable map, all areas used for the disposal of any Removed Substances;
 - ii. The physical, chemical and biological characteristics of any Removed Substances handled and the method of disposal;
 - iii. If disposal is handled by other than the permittee, identify the contractor or subcontractor, mailing addresses, and the information specified in a and b above.
2. Prior to the use of new or additional disposal areas or contractors or subcontractors the permittee shall notify, in writing, the Department.

Rationale: CDHAR: 10.50.01.08 D (2) (d)

g. Power Failures

In order to maintain compliance with the effluent limitations and all other terms and conditions of this permit, the permittee shall either:

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1. In accordance with the SCHEDULE OF COMPLIANCE contained in I, provide an alternative power source sufficient to operate the wastewater collection and treatment facilities;

or if such alternative power source is not inexistence, and no date for its implementation; appears in I,

2. Halt, reduce or otherwise control production and all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater collection and treatment facilities.

Rationale: COHAR 10.50.01.08 H (1)(a)(i) -

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Application No. 88-DP-0594**11. Responsibility****a. Right of Entry**

The permittee shall allow the Secretary, Department of the Environment, the Regional Administrator for the Environmental Protection Agency, and their authorized representatives, upon the presentation of credentials:

1. To enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit;
2. To have access to and to copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;
3. To inspect, at reasonable times, and monitoring equipment or monitoring method required in this permit; or
4. To sample at reasonable times any discharge of pollutants.

Rationale: 40 CFR 122.7 (1)

b. Availability of reports

Except for data determined to be confidential under COHAR 10.50.01.08 all such data shall be available for public inspection at the office of the Department of the Environment and the Regional Administrator of the Environmental Protection Agency. Effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Clean Water Act of 1977.

Rationale: COHAR 10.50.01.08 F

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c. Transfer of ownership and control

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if the permittee:

1. Notifies the Department, in writing, of the proposed transfer;
2. A written agreement, indicating the specific date of proposed transfer of permit coverage and acknowledging responsibilities of current and new permittees for compliance with a liability for the terms and conditions of this permit, is submitted to the Department.
3. The Department within thirty (30) days does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

Rationale: 40 CFR 122.14 (b)

d. Reapplication for a permit

At least 180 days before the expiration date of this permit, unless permission for a later date has been granted by the Department, the permittee shall submit a new application for a permit or notify the Department of the intent to cease discharging by the expiration date. In the event that a timely and sufficient reapplication has been submitted and the Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

Rationale: CONAR 10.50.01.08 C (4);
Article 41, Subsection 250 A, Annotated
Code of Maryland

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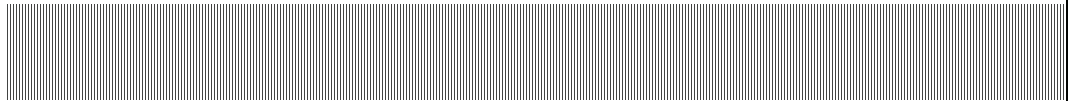
12. Chronological Log of Meetings, Plant Visits, and Telephone Calls (reports are in official file):

- 1/ Permit 88-DP-0594 expires on 12/31/1988
- 2/ Effluent toxicity report June 24, 1987
- 3/ Received application for the renewal of the permit 5/9/88
- 4/ Comments from planning 6/9/88
- 5/ Notice of application received - 5/12/88
- 6/ Comments from Compliance & Monitoring Division 8/15/88
- 7/ Pretreatment language for the permit 12/24/88

NPDES PERMIT FACT SHEET

6

Manchester WWTP



1. **Description of Receiving Waters:** Outfall 001 discharges into the Georges Run, which flows into Prettyboy Reservoir, which is designated as Use III-P waters protected as Natural Trout Waters and for public water supply. Prettyboy Reservoir watershed segment 02130806 is a 303d listed water body impaired for nutrients, mercury, bacteria, and biological. The State established the Total Maximum Daily Loads (TMDLs) for nutrients and mercury, which were approved by the EPA Region III on March 27, 2007 and August 16, 2004 respectively.

Point of Discharge:

River Mile: Discharge point 001 is located about 8.30 mile point of discharge from Prettyboy Reservoir confluence

Basin Codes:

Major Basin Sub Segment

02 - 13 - 08 - 06

Water Type:

Non-tidal

Tidal

Intermittent

Tidal River

Perennial

Estuary

Impoundment

Atlantic Ocean/Chesapeake Bay

Designated Use:

Use III P: Non-tidal Cold Water and Public Water Supplies, which have the potential for or are suitable for the growth and propagation of trout, capable of supporting self-sustaining trout populations and their associated food organisms and use as a public water supply.

Receiving stream 7-day, 10-year low flow: about 0.066 cfs (winter period)

Maryland Coordinates:

East Grid

North Grid

834.0

664.2

Latitude

Longitude

39^o 39.47'

76^o 52.73'

2. **Description of Process Discharging into Outfall 001:** The current plant provides an advanced secondary level treatment using activated sludge treatment process. The plant primarily consists of mechanical screens, grit removal, and two stabilization tanks of 250,000 gpd capacity, U. V. disinfection, and sludge dewatering. The plant discharges its treated effluent to Georges Run through outfall 001 from December 1 thru March 31. Surface discharge to the stream is allowed during March if spray irrigation is prohibited due to severe cold conditions.

Outfall 001

Discharge Type: ___ Planned x Intermittent ___ Continuous

Discharge Period: 3 months (December to February)

Description of discharge:

Flow: 0.328 mgd Average 0.422 mgd Maximum 0.50 mgd Design

pH range: Maximum 7.3-8.4 Minimum 6.5-6.8

<u>Parameter</u>	<u>Concentration,</u> mg/l*	<u>Loading Rate,</u> lbs/day
BOD ₅	5.4	15
TSS	6.4	18
Nitrite + Nitrate-N	17	47
Ammonia-N	2.1	5.7
Organic Nitrogen-N	1.2	3.3
Total Nitrogen- N	21	57
Ortho-Phosphorus	0.6	1.7
Total Phosphorus	0.8	2.2
Fecal Coliform	11 MPN/100 ml	
TRC	<0.1 mg/l	
D O	7.9	

(Performance period is from 1/06 - 3/07).

* Except as noted

3. Proposed Effluent Limitations for outfall 001: see footnotes ⁽¹⁾⁽²⁾⁽³⁾

The limitations shall be applicable from **December through March only**. No discharge is permitted from **April through November**. Surface discharge to the stream is allowed during **March** if spray irrigation is prohibited due to severe cold conditions.

<u>Effluent Characteristics</u>	<u>Daily Loading Rate</u> lbs/d	<u>Weekly Loading Rate</u> lbs/d	<u>Monthly Loading Rate</u> lbs/d	<u>Daily Max. Average</u> mg/l	<u>Weekly Average</u> mg/l	<u>Monthly Average</u> mg/l	<u>Annal Max. Loading Rate</u> lbs/year
a. BOD ₅	N/A	188	125	N/A	45	30	N/A
b. TSS	N/A	188	125	N/A	45	30	N/A
c. Total NH ₃ as N	58	N/A	19	14	N/A	4.6	N/A
d. TP ⁽¹⁾ TP ⁽²⁾	N/A	6.3	4.2	N/A	1.5	1.0	506

<u>Effluent Characteristics</u>	<u>Maximum</u>	<u>Minimum</u>
g. Fecal Coliforms ⁽³⁾	200 MPN/100 ml monthly log mean value	N/A
h. E.Coli ⁽³⁾	126 MPN/ 100ml monthly geometric mean	N/A
i. Total Residual Chlorine	The use of chlorine or chlorine containing compounds in the treatment of wastewater is prohibited.	
j. Dissolved Oxygen	N/A	6.0 mg/l minimum at any time
k. pH	8.5	6.5
l. Flow	0.5 mgd	

An average flow of 0.50 mgd was used in waste allocation calculations and the unit of mgd should be used when reporting on the Discharge Monitoring Report form. Notification to be provided to the Department at least 180 days before the flow is expected to exceed this flow. If a permit modification is required, the Department will initiate the public participation NPDES process. Because this facility is authorized to discharge only 4 months per year, the permitted flow is equivalent to a minor facility.

The permittee shall report the total cumulative flow for the each calendar year for this facility. The total annual cumulative flow should be reported in million gallons for the entire calendar year to the nearest thousand gallons. The annual total cumulative flow determination shall be provided to the Department by January 28 of the following year to the address below:

Attention: Calendar Year Total Cumulative Flow
 WMA – Wastewater Discharge Permits Program
 Maryland Department of the Environment
 1800 Washington Boulevard, STE-455
 Baltimore, MD 21230-1708

A Wastewater Capacity Management Plan must be submitted by January 28 of each calendar year if the most recent three year average flow is over 80% of its design capacity, or if it is anticipated to exceed 80% in the next year. The Department has published a “Wastewater Capacity Management Plans” guidance document, which can be found on the Department’s web site as indicated below:
<http://www.mde.state.md.us/assets/document/water/WastewaterCapacityMgmtGuidance.pdf>

3. Proposed Effluent Limitations, continued: see footnotes ⁽¹⁾⁽²⁾⁽³⁾

- (1) The concentration and annual maximum loading limits for total phosphorus are based on the Prettyboy Reservoir TMDL.
- (2) Under the Point Source Element of Maryland's Tributary Strategy, the Manchester WWTP has been assigned annual nutrient loads of 6,921 lbs/year total nitrogen (TN) and 192 lbs/year total phosphorus (TP). As long as the design flow of the WWTP does not increase, these loads will remain only goals, not limitations. The permittee, however, shall make an effort to optimize the operation of the existing WWTP to meet these goals. Under any future expansion, the WWTP will be given permit limits of 6100 lbs/year TN and 192 lbs/year TP.
- (3) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E. coli limit shall take effect one year after the issuance date of the permit. However, the permittee may request in writing that the E. coli limitation become effective sooner.

3. Proposed Effluent Limitations, continued:

Rationale(s):	Limitations are set to comply with following regulations:
a. BOD ₅ :	COMAR 26.08.02.03-3 D (2) and COMAR 26.08.02.03-3 E (2)(a)
b. TSS:	Same COMAR(s) as BOD ₅
c. NH ₃ - N:	COMAR 26.08.02.03-2.H
d. TP:	Table 1A of Prettyboy Reservoir Nutrients TMDL, COMAR 26.08.03.01 C. (3)
e. TN:	Maryland's Tributary Strategy, COMAR 26.08.03.01 C. (3)
f. TP:	Maryland's Tributary Strategy, COMAR 26.08.03.01 C. (3)
g. Fecal Coliform	COMAR 26.08.02.03-3 D (2) and COMAR 26.08.02.03-3 E (2)(a)
h. E. Coli:	COMAR 26.08.02.03-3 A (1)(a) and COMAR 26.08.02.03-3 E (2)(a)
i. TRC:	COMAR 26.08.02.03-3 D (7) and COMAR 26.08.02.03-3 E (2)(a)
j. DO:	Same COMAR(s) as BOD ₅ .
k. pH:	COMAR 26.08.02.03- 3 A.(4) and COMAR 26.08.02.03-3 E (2)(a)
l. Flow:	Rationale included in the setting of respective parameter concentrations and loadings.

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

General Discussion and Rationale

For BOD₅, and Dissolved Oxygen:

Wintertime effluent limitations for BOD₅ and dissolved oxygen for the renewal permit for a flow of 500,000 gpd are based upon the current permit limitations, which were estimated in 1981, 1985, and 1995 for a flow of 500,000 gpd. These limitations are also based on the State established Total Maximum Daily Loads (TMDLs) for nutrients, which was approved by the EPA Region III on March 27, 2007. Wintertime discharge will help to eliminate much nutrient loading to the Prettyboy Reservoir. The rest of the year, the wastewater will be disposed of the spray irrigation to the ground waters of the State.

3. Proposed Effluent Limitations, continued:

General Discussion and Rationale, continued

For TSS:

The secondary TSS limits are established as per regulations. MDE expects that the current treatment level will remove TSS lower than secondary level limits.

For Ammonia and TRC:

Seasonal ammonia toxicity analysis was performed to estimate the seasonal ammonia limits for the renewal permit. The ammonia limits were set to protect receiving waters, Georges Run, water quality criteria for ammonia with current level of treatment for a flow of 0.5 mgd. The estimated seasonal limitations are not significantly different than the current permitted limitations. Accordingly, the current seasonal limitations are recommended for the renewal permit for a flow of 0.5 mgd. Proposed seasonal ammonia limitations for a flow of 0.5 mgd may not be achieved consistently by the plant with the current level of treatment as shown by the plant's performance data of the plant for year 2006-2007. A consent Order may be needed to upgrade or modify this plant unless the permittee decides to use an alternative method for treated effluent disposal. The plant uses U.V. disinfection for treated wastewater.

For pH, E-coli, Fecal Coliform:

The effluent limitations for pH, fecal coliform, and E. Coli are set in accordance with applicable water quality criteria as cited in the current COMARs.

For Nutrients:

The annual maximum nitrogen load goal of 6921 lbs/ year is in accordance with MDE's most updated ENR strategy loads. Prettyboy Reservoir nutrient TMDL did not conclude total nitrogen (TN) as significant impairing pollutant. The significant impairing pollutant of total phosphorus (TP) is included in the Prettyboy Reservoir TMDL for nutrients, which was approved by the EPA on March 27, 2007. The annual nutrient limitations of 506 lbs/year for total phosphorus for seasonal surface discharge from December 1 through March 31 is indicated in Table 1A of the Technical Memorandum of the Prettyboy Reservoir TMDL for nutrients. The concentration limit of 1.0 mg/l of total phosphorus is based on TMDL load limit of 506 lbs/year for a seasonal discharge from December 1 through March 31. The annual load goal of 192 lbs/year for total phosphorus for seasonal surface discharge from December 1 through March 31 is based on the assumption of achievable load by the plant at the current level of treatment. Accordingly, the annual maximum total phosphorus load limit of 506 lbs/year and annual maximum load goal of 192 lbs/year are recommended for renewal permit. The annual maximum load goal of 6921 lbs/ year for nitrogen and 192 lbs/year for phosphorus are based on a total nitrogen concentration of 18 mg/l, a total phosphorus concentration of 0.5 mg/l, and a year 2020 flow of 0.384 mgd.

It was estimated that about 2002 lbs/year ($10 \text{ mg/l} \times 0.5 \text{ mgd} \times 240 \text{ days/yr} \times 8.34 \times 40 \% \times 50\%$) of total nitrogen load from groundwater discharge would reach to the Chesapeake Bay. This estimate is based on the assumptions, that the total nitrogen in groundwater discharge is 10 mg/l (max.), 40% of groundwater discharge reach to surface water and 50% of surface water reach to the Bay. It was also assumed that 50% of surface wastewater discharge from Manchester WWTP would reach to the Bay (the other is used for the drinking water supply to the Baltimore City Montebello Water Treatment plant), which will contribute about $6921/2 = 3460$ lbs/year of total nitrogen. Based on the above assumptions, the total nitrogen contribution from the Manchester WWTP discharge is $3460 + 2002 = 5462$ lbs/year, which is less than the Maryland's Tributary Strategy load of 6921 lbs/year.

3. Proposed Effluent Limitations, continued:

General Discussion and Rationale, continued

For Toxic Substances

MDE tested the plant effluent for acute and chronic toxicity from 1998 through 2000. No acute or chronic toxicity was found. The discharge permit will authorize flows up to 0.50 MGD and the facility does not have any SIU contributors. Since the last renewal permit, no priority pollutant scan is available for review. Consequently, the wastewater effluent from the facility is not believed to have a potential for toxicity. Therefore, biotoxicity and priority pollutant testing requirements were not included in the draft renewal permit. The State established the Total Maximum Daily Loads (TMDLs) for mercury, which was approved by the EPA Region III on August 16, 2004. Mercury TMDL has established that the Manchester wastewater flow is not significant relative to the total flow through the Prettyboy Reservoir. TMDL also indicated that Manchester WWTP is not expected to receive or generate significant amounts of mercury, so there is no reasonable potential for this discharge to cause or contribute to the impairment of its receiving waters. TMDL also estimated that Manchester would account for less than two percent of the estimated current load. Accordingly, monitoring or effluent limit for Mercury was not recommended for Manchester WWTP discharge for the renewal permit.

For Effluent Temperature

The plant primarily discharges during winter period, accordingly, no temperature limitation is recommended for the renewal permit. However, the monitoring for temperature is recommended, which is the result of department's current policy requiring effluent and receiving stream temperature monitoring to establish a database for future permit renewals. The Department recommended to relax the current monitoring frequency of one set per week to one set per month. This recommendation is based on the available monitored temperature data upstream and downstream of the discharge point.

For Demonstration of 85% Reduction of BOD and TSS

Section 133.102 of the Federal Clean Water Act requires a minimum level of secondary treatment for all POTWs. This is defined as achieving a maximum of 30 mg/l monthly average BOD and SS, and a minimum of 85% removal of BOD and SS. The Manchester WWTP is designed to treat its wastewater to an advanced secondary level to remove at least 90 % of BOD and TSS. Plant data from 01/2005 through 12/2006 shows an effluent BOD₅ averaging 5.4 mg/l and TSS averaging 6.4 mg/l. Therefore, the technology-based 85% removal requirement is not necessary in the permit due to the more strict nutrient removal requirements which result in much greater than 85% BOD and TSS removal.

For Capacity Management Plans

Under Environment Article § 9-512 it is the local government's responsibility to ensure that water supply and sewerage systems have adequate capacity to meet the needs of existing customers and proposed development. To assist the local jurisdictions in making flow allocation determinations, the Department prepares and distributes sewage flow summary tables, for each county/jurisdiction. Submission of the total cumulative flow for the each calendar year is required to enable the Department to prepare the next update of the tables. The Department has published a "Wastewater Capacity Management Plans" guidance document, which can be found on the Department's web site as indicated below:

<http://www.mde.state.md.us/assets/document/water/WastewaterCapacityMgmtGuidance.pdf>

The document will assist the local jurisdictions in meeting this important and legal responsibility.

4. **Proposed Monitoring Requirements, Outfall 001-** see footnotes ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾

Parameter	Measurement <u>Frequency</u>	Sample <u>Type</u>
BOD ₅	2x Week	8 hr. composite ⁽¹⁾
TSS	2x Week	8 hr. composite ⁽¹⁾
Ammonia as N	2x Week	8 hr. composite ⁽¹⁾
Total Phosphorus ⁽²⁾	2x Week	8 hr. composite ⁽¹⁾
Total Nitrogen ⁽²⁾⁽³⁾	1x Month	24 hr. composite
Ortho Phosphorus ⁽³⁾	1x Month	24 hr. composite
NO ₂ + NO ₃ as N ⁽³⁾	1x Month	24 hr. composite
Organic Nitrogen as N ⁽³⁾	1x Month	24 hr. composite
Fecal Coliform ⁽⁴⁾	1x Week	Grab
E. Coli ⁽⁴⁾	1x Week	Grab
DO	2x Day	Grab
pH	2x Day	Grab
Temperature ⁽⁵⁾	1 set per month	Grab (one sample shall be taken between 7:00-10 A.M. and the other between 2:00-5:00 P.M.)
Flow ⁽⁶⁾	Continuous	Recorded

- ⁽¹⁾ The permittee may substitute 24 hr. composite sample for 8 hr composite sample.
- ⁽²⁾ The permittee shall on each monthly Discharge Monitoring Report, the cumulative total nitrogen (TN) and total phosphorus (TP) load for the calendar year in question. The cumulative load is calculated by summing the monthly loading values for each month in that calendar year. Nitrogen and phosphorus concentrations will also be reported as a monthly average. Total nitrogen is the sum of total Kjeldahl nitrogen, and (nitrite+nitrate)-N based on the same 24-hour composite samples.
- ⁽³⁾ Monitor only parameter shall be analyzed and reported on monthly operating report as individual results and on Discharge Monitoring Report (EPA Form 3320-I) as a monthly average concentration and monthly average loading value. All nitrogen parameters shall be measured on the same daily samples.
- ⁽⁴⁾ The fecal coliform monitoring shall be needed until the E. coli limit takes effect, at which time the E. coli monitoring shall be required. The permittee shall use either of the following two approved testing methods for E. coli: the multiple tube technique using presumptive media and EC-MUG media, and the Colilert Test Procedure with Quanti-tray 2000s.
- ⁽⁵⁾ Monitor only parameter shall be reported on the monthly operating report as individual result. Each set of measurement shall consist of a plant effluent measurement, an upstream measurement and downstream measurement, to be taken in Georges Run, the receiving stream, at a representative midstream location 10'-20' upstream and downstream of discharge confluence with the receiving stream. Upstream and downstream temperature monitoring are not mandatory, and are optional at the discretion of the permittee.
- ⁽⁶⁾ For flows less than 1 mgd, average flows should be reported to at least the nearest 1,000 gallons. For example, a flow of 332,900 gpd should be reported as 0.333 mgd. The flow rates must be reported as daily average on the Monthly Operating Reports and on the Discharge Monitoring Reports as monthly average and monthly maximum.

Monitoring Rationale:

Measuring frequency and sample type are set in accordance with the table of "Minimum Monitoring Requirements" established by the State to comply with COMAR 26.08.04.03 A.

5. Reapplication For A Permit:

The permit reapplication date is set according the watershed year cycle to fulfill the watershed permit schedule.

6. Pretreatment Program

The MDE's Pretreatment Section develops the pretreatment discharge language for all WWTPs to meet requirements of the COMAR 26.08.08 (Pretreatment Requirements to control Industrial Users of (POTWs). As this facility is a non-pretreatment POTW, the standard language (revised on January 28, 2003) for the non-pretreatment POTW is incorporated in the permit.

7. Protection of Water Quality

In addition to the effluent limitations as listed in the Section- III, the standard language, which prohibits the discharge of pollutants not listed, is included to meet the COMARs 26.08.03.01A and 26.08.08 requirements for the water quality protection

8. MAP SHOWING DISCHARGE POINT LOCATION

SUMMARY REPORT & FACT SHEET FOR GROUNDWATER DISCHARGE

9. Description of Receiving Water for Groundwater Discharge

Basin Codes:

Major	Basin	Sub	Segment
02 -	13 -	08 -	06

Receiving Water Name: Groundwater Type I aquifer

Maryland Coordinates:

East Grid	North Grid
835.0-840.0	662.0-666.0

10. Description of Process Discharging into Outfalls 002: From March to November 30 the treated effluent is sent to holding pond through outfall 002 where it is chlorinated before spray irrigation to ground waters of the State. Surface discharge to the stream is allowed during March if spray irrigation is prohibited due to severe cold conditions.

Outfall 002

Discharge Type: ___ Planned x Intermittent ___ Continuous

Discharge Period: 9 months (March to November)

Description of discharge:

Flow: 0.480 mgd Average 0.50 mgd Maximum 0.50 mgd Design

pH range: Maximum 7.5-8.2 Minimum 6.8-7.2

<u>Parameter</u>	<u>Concentration,</u>	<u>Loading Rate,</u>
	mg/l*	lbs/day
BOD ₅	9	36
TSS	13	52
Fecal Coliform	33 MPN/100 ml	
D O	7.1	

* Except as noted ,(Performance period is from 3/06 - 7/07).

11. Pretreatment Flow Diagram for Groundwater Discharge

**Sewage Influent -----> Extended Aeration -----> Sedimentation ----->
 Chlorination-----> Spray Irrigation**

12. Assimilative Capacity for Groundwater Discharge

<u>Limiting Parameter (s)</u>	<u>Loading Rate</u>	<u>Land Required</u>
Hydraulic Loading	2" per week	81 acres (65 acres + 16 acres reserved)
Nitrogen Loading (W)	2.25 per week	81 acres

$$W = [4.43 C + a (P-ET) - cP] / [(y-a)-y (d +n)]$$

$$= [4.43 \times 250 + 10(41.86-28.07) - 0.5 \times 41.86] / (30-10-30 \times 0.2)$$

$$= 87" \text{ per year or } 2.25" \text{ per week for } 39 \text{ weeks spray irrigation time.}$$

- W = Allowable wastewater loading (inch/yr)
- C = Removal of nitrogen by crop (lb/acre/yr)
- a = Allowable nitrogen concentration in percolate (mg/l)
- P = Infiltration due to precipitation (inch/yr)
- ET = Potential evaporation (inch/yr)
- c = Concentration of nitrogen in precipitation (mg/l)
- y = Concentration of nitrogen in wastewater (mg/l)
- d = Fraction of nitrogen denitrified
- n = Fraction of nitrogen volatilized as ammonia

13. Groundwater System

Aquifer Name: Wissahickon Formation Type: I

Estimated Aquifer Transmissivity: 575 to 700 ft² /day *

Estimated Aquifer Permeability: Not Available

Estimated Total Dissolved Solids Concentration: 42-286 mg/l *

Other Properties: Well yield 40 – 300 gallons per minute **

Present Use: The Wissahickon formation is an important aquifer in Carroll County. A large percent of the domestic and farm water supplies are obtained from wells and springs in this formation **

Project Impact: Review of the nitrogen balance of the sewage effluent to be sprayed on the proposed site indicated that the hydraulic loading rate (2'/wk) will not cause the ground water quality to exceed the drinking water standards.

* from "Aquifer Identification and Injection Well Inventory, State of Maryland, May, 1981", The Johns Hopkins University.

** from "Carroll and Frederick Counties Water Resource Bulletin 22, 1958"

14. Proposed Effluent Limitations for Groundwater Discharge: – see footnotes (1)(2)(3)

The quality of effluent discharged from the facility shall be limited at all times as shown below :

Parameter	Monthly Avg. Concentrations	Weekly Avg. Concentrations	Monthly Loading Rate	Weekly Loading Rate
-----	-----	-----	-----	-----
	mg/l*	mg/l*	kg/d(lbs/d)	kg/d(lbs/d)
a. BOD ₅	70	N/A	N/A	N/A
b. TSS	90	N/A	N/A	N/A
c. Fecal Coliform	200 MPN/100ml maximum monthly log mean value			
d.	pH	6.5-8.5		
e. Flow	0.5 mgd (500,000 gpd)			

Rationale(s): Limitations are set to comply with following regulations

- a. BOD₅: COMAR 26.04.01 and 26.08.02.09-C(1)
- b. TSS: Same COMAR(s) as BOD₅
- c. Fecal Coliform: COMAR 26.08.02.03-3 A (1)(a).
- d. pH: Same COMAR(s) as BOD₅

- (1) Prior to discharge at spray irrigation site, all wastewater shall be treated to produce an effluent, which does not exceed the above-mentioned limitations.
- (2) The permitte is authorized to discharge treated wastewater via spray irrigation to groundwaters of the State from March 1 through November 30 at the site shown on attached maps. Surface discharge during the month of March is allowed only when spray irrigation is prohibited due to severe cold conditions. For surface discharge limitations refer page 4.
- (3) Screening device may be needed at intake structure to prevent excessive solids from clogging sprinkler nozzles

15. Proposed Monitoring Requirements for Groundwater Discharge-outfall 002- see footnotes (1)(2)

Parameter	<u>Measurement Frequency</u>	<u>Sample Type</u>
BOD ₅	1x Week	8 hr. composite
Total Suspended Solids	1x Week	8 hr. composite
Fecal Coliform	1x Week	Grab
pH	1x Day	Grab
Flow	Continuous	Recorded

- (1) Grab samples for BOD₅ and suspended solids are permissible if the lagoon time is 30 days or more.
- (2) Grab samples shall be obtained from the effluent line just prior to spray irrigation.

16. MAP SHOWING LOCATION OF OUTFALL 002 FOR LAND APPLICATION FACILITY (MAP A)

17. MAP SHOWING LOCATION OF THE LAND APPLICATION SITE (MAP B)

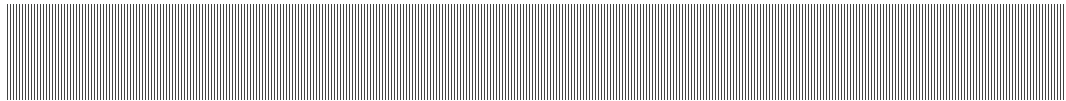
18. Chronological Log of Meetings, Plant Visits, and Telephone Calls (reports are in official file):

- 03/07/2007 Letter from the permittee requesting permit renewal for a flow of 0.50 mgd.
- 03/20/2007 Memo from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to Ray C. Dintaman, Jr., Department of Natural Resources (DNR) Power Plant & Environmental Review Division seeking comment and conformance of discharge permit renewal request with the division's policies.
- 03/20/2007 Memo from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to MDE, Compliance and Inspection Program seeking comment on permit renewal request.
- 03/20/2007 Memo from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to Planning Division requesting comment and conformance of discharge permit with county water and sewer plans.
- 4/16/2007 Letter from Edwal Stone, Wastewater Permits Program Manager, MDE to Ms. Victoria Woodward indicating the publication of public notice for the receipt of discharge permit renewal request
- 4/16/2007 Letter from Edwal Stone, Wastewater Permits Program Manager, MDE to Mr. Donald L. Nott, Jr., Director, Dept. of Public Works, Town of Manchester, indicating the publication of public notice for the receipt of discharge permit renewal request.
- 04/18/2007 Response from MDE's Planning Division stating that project is consistent with county water and sewer plans.
- 04/30/2007 Letter from Ms. Jenn Aiosa, Chesapeake Bay Foundation, to Steve Luckman, Municipal Surface Discharge Permits Division, MDE, requesting all the future information concerning permit renewal for Manchester WWTP.
- 06/06/2007 Email from Steve Luckman, Municipal Surface Discharge Permits Division, MDE, to Simin Rezai, Surface Discharge Permits Division, MDE, concerning results of effluent (Reservoir) samples.
- 06/08/2007 Email from Bill Limpert, MDE Compliance Program, to Steve Luckman, Municipal Surface Discharge Permits Division, MDE, indicating comments on the permit renewal application.
- 06/12/2007 Response of Steve's email by Simin Rezai
- 06/14/2007 Letter from Mr. Steven Miller, Town Administrator, Town of Manchester, to Secretary Shari T. Wilson, regarding wastewater disposal from Manchester WWTP.
- 09/14/2007 Response by Secretary Shari Wilson to Mr. Steven Miller, Town Administrator, Town of Manchester, regarding wastewater disposal from Manchester WWTP.
- 10/23/2007 Letter from Mr. Steven Miller, Town Administrator, Town of Manchester, to Secretary Shari T. Wilson, regarding proposed TP limit indicated in Secretary Wilson's letter of 9/14/2007.
- 11/13/2007 Site visit to the treatment plant. The current plant provides an advanced secondary level treatment using activated sludge treatment process. The plant primarily consists of a mechanical screens, grit removal, two stabilization tanks of 250,000 gpd capacity, U. V. disinfection, and sludge dewatering. The plant discharges its treated effluent to Georges Run through outfall 001 from December 1 thru March 31. Surface discharge during the month of March is allowed only when spray irrigation is prohibited due to severe cold conditions. From March to November 30 the treated effluent is sent to holding pond through outfall 002 where it is chlorinated before spray irrigation to ground waters of the State.
- 11/30/2007 Memo to file concerning proposed load goal limit for total phosphorus (TP)
- 11/ /2007 Letter from Steve Luckman, Municipal Surface Discharge Permits Division, MDE to the permittee for any comments on the proposed discharge permit.
- / /2007 Email from EPA for completion of the Joint Review of the proposed draft permit.

NPDES PERMIT FACT SHEET

7

Union Bridge WWTP



1. Description of Receiving Waters:

The facility discharges treated effluent through Outfall- 001 into Little Pipe Creek, which flows into the Double Pipe Creek designated as Use IV-P (Recreational Trout Waters)- protected for adult trout for put-and-take fishing, periodic stocking and seasonal catching, and as a public water supply.

Point of Discharge:

River Mile: 8.0 miles (From Point of Discharge to confluence with the Double Pipe Creek)

Basin Codes:

<u>Major</u>	<u>Basin</u>	<u>Sub</u>	<u>Segment</u>	
02	-	14	-	03 - 04 (Middle Potomac River Area- Double Pipe Creek Drainage Basin)

Water Type:

<u>Non-tidal</u> _____	<u>Tidal</u> _____
_____ Intermittent	_____ Tidal River
<u>X</u> Perennial	_____ Estuary
_____ Impoundment	_____ Atlantic Ocean/Chesapeake Bay

Designated Use:

Use IV-P (Recreational Trout Waters)- protected for adult trout for put-and-take fishing, periodic stocking and seasonal catching, and as a public water supply.

Estimated Receiving stream low flows:

7-Day, 10-Year Low Flow (7Q10) =	<u>8.660</u> cfs
30-Day, 5-Year Low Flow (30Q5) =	<u>11.685</u> cfs

Maryland Coordinates:

East Grid	North Grid
<u>748.0</u>	<u>631.6</u>

2. Description of Treatment Process Discharging into Outfall: 001

The sequence of units to provide wastewater treatment is as follows: rotary screen, activated sludge processing with extended aeration basin (Two units operated parallel), settling basins, secondary clarifiers, aerated chlorine contact chamber for wastewater disinfection, and SO₂ gas feeder at the head of final effluent collection chamber for dechlorination.

Discharge Type: Planned Intermittent Continuous

Discharge Period: 12 (see code list)

Description of discharge:

The following plant performance summary is based on the Discharge Monitoring Reports of January' 2001 through August' 2002:

Flow, mgd: Average, 0.097 Maximum, 0.12 Design, 0.2

pH: Minimum- 7.2, Maximum- 7.5

<u>Parameter</u>	<u>Concentration, mg/l⁽¹⁾</u>	<u>Loading Rate Kg/D (lbs/D)</u>
BOD₅	4.1 monthly average	0.45 (4.0)
	6.1 weekly average	0.91 (6.2)
TSS	5.8 monthly average	0.45 (5.7)
	10.1 weekly average	1.36 (9.9)
Fecal Coliform	3 MPN/100 ml maximum monthly log mean value	
Total Residual Chlorine	0.07 mg/l maximum	
Dissolved Oxygen	8.4 minimum average	-
	7.3 minimum	-

⁽¹⁾ Except as noted.

3. Proposed Effluent Limitations ⁽¹⁾

The quality of effluent discharged from the facility shall be limited at all times as shown below ⁽²⁾:

<u>Parameter</u>	<u>Parameter Concentration, mg/l</u>			<u>Parameter Loading Rate, kg/d (lbs/d)</u>		
	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
a. BOD ₅	30	45	N/A	23 (50)	34 (75)	N/A
b. TSS	30	45	N/A	23 (50)	34 (75)	N/A
c. TKN	----- Not applicable -----					
d. Total Ammonia-N ⁽³⁾	14.7	N/A	N/A	11.1 (24.5)	N/A	N/A
e. Total Phosphorus-P	----- Not applicable -----					
f. Total Nitrogen-N	----- Not applicable -----					
g. Fecal Coliform	200 MPN/100 ml maximum monthly log mean value					
h. TRC	Dechlorination shall be required to reduce the total chlorine concentration to nondetectable level (less than 0.1 mg/l).					
i. DO	5.0 mg/l minimum at anytime					
j. pH	Not less than <u>6.5</u> and greater than <u>8.5</u>					
k. Flow ⁽³⁾	0.2 million gallons per day (mgd)					

⁽¹⁾ When this permit is renewed, the new limitations may not be equal to the above limitations.

⁽²⁾ There shall be no discharge of floating solids or visible foam other than trace amounts.

⁽³⁾ If the facility is not capable of meeting the above ammonia limits, the limitation will be effective upon upgrade of the facility to meet the ammonia limit, but in any case no later than three years from the issuance date of the permit. Every six months the permittee shall submit to the Department a status report detailing current plans for meeting the ammonia limit. This report is due six months after the issuance date of the permit and every six months thereafter until the ammonia limit has been met.

⁽⁴⁾ A flow is used in waste allocation calculations and is not to be considered a limitation. Notification is to be provided to the Department at least 180 days before the annual average flow is expected to exceed this flow.

3. Proposed Effluent Limitations, Continued

Rationale(s): The effluent limitations are established to comply with following regulations:

- a. BOD₅: COMAR 26.08.02.03-3G(1)(2), COMAR 26.08.04.04C(1), COMAR 26.08.01.01B(80).
- b. TSS: Same COMAR(s) as for BOD₅, and in addition, COMAR 26.08.02.03-3G(1)(5) and 40 CFR §133.105.
- c. TKN: ----- Not applicable -----
- d. Ammonia as N: COMAR 26.08.02.03-2H.
- e. Total P: ----- Not applicable -----
- f. Total N: ----- Not applicable -----
- g. Fecal Coliform: COMAR 26.08.02.03-3G(1)(1).
- h. TRC: COMAR 26.08.02.03-2G, COMAR 26.08.03.06C(2)(e), COMAR 26.08.03.06D, COMAR 26.08.03.06F.
- i. DO: COMAR 26.08.02.03-3G(1)(2).
- j. pH: COMAR 26.08.03-3G(1)(4).
- k. Flow: Design flow included in the wasteload allocation calculation for BOD₅, TSS and ammonia as N.

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

GENERAL DISCUSSION AND RATIONALE

The previous analysis predicted that the secondary effluent limits for BOD₅ and Total suspended solids should be enough to protect the stream. The effluent limits for other parameters (total residual chlorine, fecal coliform, dissolved oxygen and pH) are set to comply with the applicable water quality criteria for Use IV-P waters.

As per the regulations for ammonia toxicity criteria, the preliminary ammonia toxicity analysis was performed to check requirements of ammonia control in the effluent discharge from the facility. Based on the analysis results, it is required to set ammonia limits for summer months only.

4. Proposed Monitoring Requirements

The effluent characteristics shall be monitored as follows:

<u>Parameter</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
BOD ₅	One per week	8 hour composite
Total Suspended Solids	One per week	8 hour composite
Ammonia as N	One per week	8 hour composite
Fecal Coliform	One per week	Grab
Total Residual Chlorine	One per day	Grab
Dissolved Oxygen	One per day	Grab
pH	One per day	Grab
Flow	Continuous	recorded

Rationale:

Minimum Monitoring Requirements Guidelines as revised by memo of 7/24/96.

5. Protection of Water Quality

It is a violation of this permit to discharge any substance not otherwise listed under the permit's "Effluent Limitations and Monitoring Requirements" special conditions at a level which would cause or contribute to any exceedance of the numerical water quality standards in COMAR 26.08.02.03 unless the level and the substance were disclosed in writing in the permit application prior to the issuance of the permit. If a discharge regulated by this permit causes or contributes to an exceedance of the water quality standards in COMAR 26.08.02.03, including but not limited to the general water quality standards, the Department is authorized to exercise its powers to modify, suspend or revoke this permit.

6. Chronological Log of Meetings, Site Visits, Telephone Calls, etc. (Reports are in official file):

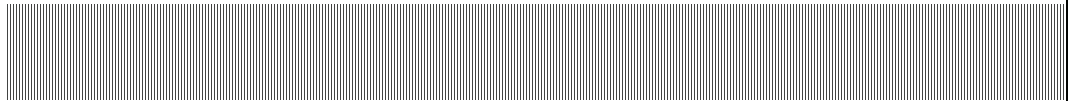
- 04/18/00: Received Application for a discharge permit renewal.
- 04/19/00: Letter of acknowledgement to the applicant for receipt of the application.
- 04/26/00: Notified applicant by a letter for a Notice of application to be published on 05/04 and 05/11/2000.
- 04/26/00: Letter to Mr. David Bookbinder providing a copy a Notice of application to be published on 05/04 and 05/11/2000.
- 04/27/00: Transmitted copies of application to Mr. Ray Anderson of Planning Section, Mr. Ray Dintaman of Power Plant and Environmental Review Division, , and Mr. Paul Stoner of Compliance Program, for their review and comments on the permit application.
- 04/27/00: Received Memo from Water and Sewerage Planning Section. The permit is consistent with the Carroll County Water and Sewer Plan.
- 10/25/02: Narrative Summary of Site Visit of 10/21/02 and photographs taken during the site visit.
- 10/18/02: Summary of Plant Performance based on DMRs of January'01 to August' 02.
- 10/30/02: Summary to provide justification of effluent limit for permit renewal.

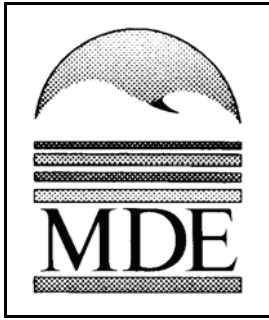
7. MAP SHOWING POINT OF DISCHARGE LOCATION

NPDES PERMIT FACT SHEET

8

New Windsor WWTP





MARYLAND DEPARTMENT OF THE ENVIRONMENT

Water Management Administration

Municipal NPDES Permits Division
1800 Washington Boulevard
Baltimore, Maryland 21230
Phone: (410) 537-3671

Robert L. Ehrlich
Governor

Kendl P. Philbrick
Secretary

SUMMARY REPORT & FACT SHEET

Application Numbers:

State: 05-DP-0640

NPDES: MD 0022586

Name: New Windsor WWTP

Mailing Address: Town of New Windsor
211 High Street
New Windsor, MD 21176

Facility Location: Water Street
New Windsor, MD

Name of Owner/organization: Town of New Windsor

Company contact: Sam Pierce, Mayor
Phone No: (410) 635-6695

Applicant is engaged in: Treatment of domestic wastewater

Number of outfalls: 001 SIC Codes: 4952

MDE Engineer: Yen-Der Cheng **Revised (10/17/06) for addition of nutrient goal and limits**

Reviewed by: _____ Section Chief Date _____

Accepted by: _____ Stephen Luckman, Chief, Permits Division Date _____

EPA joint review: yes _____ no ; Date Sent _____

Date State/EPA comment/agreement received: _____ NA _____

1. Description of Receiving Waters:

Outfall - 001 discharges into Dickenson Run which flows into Little Pipe Creek, which is designated use-IVP- protected as recreational trout waters and public drinking water supply.

Point of Discharge:

River Mile: 0.1 (mile from point of discharge from the Little Pipe Creek).

Basin Codes:

Major	Basin	Sub	Segment
02	14 -	03 -	04

Water Type:

Non-tidal	Tidal
<input type="checkbox"/> Intermittent	<input type="checkbox"/> Tidal River
<input checked="" type="checkbox"/> Perennial	<input type="checkbox"/> Estuary
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Atlantic Ocean
<input type="checkbox"/> Long Cove	

Designated Use: Use-IV-P water which is protected as recreational trout waters and public water supply.

Receiving stream 7-day, 10-year low flow: 0.48 CFS

Maryland Coordinates:

East Grid	North Grid
<u>768.0</u>	<u>623.2</u>

2 Description of Process Discharging into Outfall: 001[#]

Aerated Lagoon, Chlorine Disinfection, Cascade Aeration

Discharge Type: Planned Intermittent Continuous

Discharge Period: 12 (see code list)

Flow (MGD): Average: 0.083 Maximum: 0.122 Design: 0.094

pH range: Maximum 8.3 Minimum 6.6

<u>Parameter</u>	<u>Concentration, mg/l* ⁽¹⁾</u>	<u>Loading Rate, kg/day (lb/day) ⁽¹⁾</u>
BOD ₅	12.8	5.0 (11)
Suspended Solids	19.5	12 (26)
Dissolved Oxygen	8.6	N/A
Total Residual Chlorine	0.0	N/A
Fecal Coliform	3.0 MPN/100 ml	N/A

* Except as noted
(1). Average value

The above plant performance is based upon DMR data from 06/2004 to 05/2005

3. Proposed Effluent Limitations ⁽¹⁾⁽²⁾:

Parameter	Monthly Avg. Concentration- mg/l*	Weekly Avg. Concentrations mg/l*	Daily Average Concentrations mg/l*	Monthly Loading Kg(lb)/day	Weekly Loading Kg(lb)/day	Daily Loading Kg(lb)/day
a. BOD ₅	30	45		11 (23)	16 (35)	
b. TSS ⁽³⁾	90	N/A		32 (71)		
c. Ammonia-N ⁽⁴⁾						
5/1-10/31	5.1	-		1.8 (4.0)		
11/1-4/30	8.4	-		3.0 (6.6)		
d. Total Nitrogen	see footnote ⁽⁵⁾					
e. Total Phosphorus	see footnote ⁽⁵⁾					
f. Fecal Coliform ⁽⁶⁾	200 MPN/100 ml monthly log mean value					
g. E. coli ⁽⁶⁾	126 MPN/100 ml monthly geometric mean					
h. TRC ⁽⁷⁾	0.032 mg/l					
i. DO	5.0 mg/l minimum at any time					
j. pH	Between 6.5 to 8.5 range					
k. Flow	0.094 MGD					

*Except as Noted

- (1) When this permit is renewed or replaced, the new limitations may not be equal to the above limitations.
- (2) There shall be no discharge of floating solids or visible foam other than trace amounts.
- (3) The suspended solids limitation of 90 mg/l and loading rate of 44 kg/day (98 lbs/day) are for a lagoon wastewater treatment facility which does not utilize sludge recycle. If an alternative form of wastewater treatment is used, the monthly and weekly TSS limitations will be 30mg/l and 45 mg/l. The monthly and weekly loading rate would be 11 kg/day (23 lbs/day) and 16 kg/day (35 lbs/day).
- (4) The ammonia limitations will be effective no later than three years from the issuance date of the permit. Every six months the permittee shall submit to the Department a status report detailing current plans for meeting these limits. This report is due six months after the issuance date of the permit and every six months thereafter until these limits have been met.
- (5) The following nutrient load goals have been established for the facility under State’s Tributary Strategy. The permittee shall make a best effort to achieve a loading goal of 2,834 lbs/year for nitrogen and 472 lbs/year for phosphorus. To establish performance with respect to the goals, the permittee will report the cumulative total nitrogen and phosphorus loads to MDE on a monthly basis. The monthly cumulative nutrient load is calculated by multiplying monthly average nutrient concentration (mg/l) with monthly total flow (million gallon per month) and conversion factor (8.34). These annual loading goals will become maximum annual loading limits upon the facility’s completion of flow upgrade to 0.13 MGD.
- (6) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E.coli limit shall take effect one year after the issuance date of the permit. However, the permittee may request in writing that the E. coli limitation become effective sooner.
- (7) The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level as <0.10 mg/l.

An annual flow of 0.094 million gallons per day was used in waste allocation limitation calculations. If the permittee can demonstrate to the Department’s satisfaction using current flow volumes that the facility is able to treat a monthly average flow of 0.13 MGD and meet all permit limits indicated under 3.A on page 6, the limits under 3.A applied in lieu of this condition. The methodology of a plant demonstration shall be approved by the Department.

3. Proposed Effluent Limitations (Continued):

Rationale(s): Limitations are set to comply with following regulations not crossed out:

- a. BOD₅: COMAR 26.08.02.03-3 G (1), COMAR 26.08.02.03-3 F(2),
- b. TSS: Same COMAR (s) as BOD₅
- c. Ammonia COMAR 26.08.02.03-2H, COMAR 26.08.02.03-2I
- d. Total Nitrogen COMAR(s) 26.08.03.01C(3), COMAR 26.08.04.04 C(3), Chesapeake Bay Nutrient Reduction Strategy, and Enhanced Nutrient Reduction Strategy
- e. Total Phosphorus Same COMAR(s) and rationales as Total Nitrogen
- f. Fecal Coliform: COMAR 26.08.02.03-3 A (1)
- g. E. coli: COMAR 26.08.02.03-3 A (1)
- h. TRC: COMAR 26.08.02.03-1, COMAR 26.08.02.03-2, COMAR 26.08.02.03-3G(2), COMAR 26.08.02.05
- i. DO: Same COMAR(s) as BOD₅
- j. pH: COMAR 26.08.02.03-3G(1), COMAR 26.08.02.03-3F(4)
- k. Flow: Rationale included in the setting of respective parameter concentrations and loadings.

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

General Discussion and Rationale

The discharge limits for this facility were determined based on calculations performed in 1985 and 1990 using free-flow stream model. The results indicated that the New Windsor WWTP had minimal impact on the Little Pipe Creek dissolved oxygen thus would not cause any violations of Maryland dissolved oxygen water quality standard. Ammonia effluent limits are established for both 0.094 and 0.13 MGD. There is no toxic substance data available for the determination of potential risk. The receiving stream, Dickenson Run, is a tributary of Double Pipe Creek, which is currently on the 303(D) list for nutrient, sediment and biological impairments. An analysis has been performed to estimate the nutrients and sediment contributions from this facility and its background drainage area into the receiving stream (based on GIS land use information and Bay Program Model scenario). The results suggest that NPS is the major contributor for nutrients and sediment into the receiving stream. [The decision for the addition of nutrient loading goals to the current flow is based on the plant's plan for expansion to 0.13 MGD in the near future, which will require nutrient loading limits to be in accordance with the Maryland Nutrient Reduction Strategy for minor facility expanding its capacity over 0.11 MGD.](#)

3A. Proposed Effluent Limitations ⁽¹⁾⁽²⁾:

Parameter	Monthly Avg. Concentration- mg/l*	Weekly Avg. Concentrations mg/l*	Daily Average Concentrations mg/l*	Monthly Loading Kg(lb)/day	Weekly Loading Kg(lb)/day	Annual Max. Loading Kg(lb)/day
a. BOD ₅	30	45	-	15 (33)	22 (49)	
b. TSS ⁽³⁾	90	-	-	44 (98)	-	
c. Ammonia-N ⁽⁴⁾						
5/1-10/31	4.4	-	-	2.2 (4.8)		
11/1-4/30	7.3	-	-	3.6 (7.9)		
d. Total Nitrogen ⁽⁵⁾	-	-	-	Report	Report	1,287 (2,834)
e. Total Phosphorus ⁽⁵⁾	-	-	-	Report	Report	214 (472)
f. Fecal Coliform ⁽⁶⁾	200 MPN/100 ml monthly log mean value.					
g. E. coli ⁽⁶⁾	126 MPN/100 ml monthly geometric mean					
h TRC ⁽⁷⁾	0.026 mg/l					
i. DO	5.0 mg/l minimum at any time					
j. pH	Between 6.5 to 8.5 range					
k. Flow	0.130 MGD					

*Except as Noted

- (1) When this permit is renewed or replaced, the new limitations may not be equal to the above limitations.
- (2) There shall be no discharge of floating solids or visible foam other than trace amounts.
- (3) The suspended solids limitation of 90 mg/l and loading rate of 44 kg/day (98 lbs/day) are for a lagoon wastewater treatment facility which does not utilize sludge recycle. If an alternative form of wastewater treatment is used, the monthly and weekly TSS limitations will be 30mg/l and 45 mg/l. The monthly and weekly loading rate would be 15 kg/day (33 lbs/day) and 22 kg/day (49 lbs/day).
- (4) The ammonia limitations will be effective no later than three years from the issuance date of the permit. Every six months the permittee shall submit to the Department a status report detailing current plans for meeting these limits. This report is due six months after the issuance date of the permit and every six months thereafter until these limits have been met.
- (5) The Annual Maximum Loading Rate is a calculated parameter to be reported monthly as the sum of the Monthly Loading Rates from January through December of the current calendar year. The monthly cumulative nutrient load is calculated by multiplying monthly average nutrient concentration (mg/l) with monthly total flow (million gallon per month) and conversion factor (8.34). These limitations becomes effective upon the facility's flow upgrade to 0.13 MGD. The first exceedance of the permit limit shall be counted and reported as daily exceedances beginning from the first exceedance, determined to the nearest day, through December 31.
- (6) The fecal coliform limit shall be in effect until the E. coli limit becomes effective. The E.coli limit shall take effect one year after the issuance date of the permit. However, the permittee may request in writing that the E. coli limitation become effective sooner.
- (7) The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level as <0.10 mg/l.
- (8) This permit may be reopened and the requirements revised to allow for effluent trading consistent with the terms of any final Maryland trading approach.

An annual flow of 0.130MGD was used in waste allocation calculations. These limits are applicable when the plant has been assigned a design capacity rating of 0.130 MGD by the Department. Notification to be provided to the Department at least 180 days before the flow is expected to exceed this flow.

3A. Proposed Effluent Limitations, Continued

Rationale(s): Limitations are set to comply with following regulations:

- a. BOD₅: COMAR 26.08.02.03-3 G (1), COMAR 26.08.02.03-3 F(2),
- b. TSS: Same COMAR (s) as BOD₅
- c. Ammonia COMAR 26.08.02.03-2H, COMAR 26.08.02.03-2I
- d. Total Nitrogen COMAR(s) 26.08.03.01C(3), COMAR 26.08.04.04 C(3), Chesapeake Bay Nutrient Reduction Strategy, and Enhanced Nutrient Reduction Strategy.
- e. Total Phosphorus Same COMAR(s) and Rationales as Total Nitrogen
- f. Fecal Coliform: COMAR 26.08.02.03-3 A (1)
- g. E. coli: COMAR 26.08.02.03-3 A (1)
- h. TRC: COMAR 26.08.02.03-1, COMAR 26.08.02.03-2, COMAR 26.08.02.03-3G(2), COMAR 26.08.02.05
- i. DO: Same COMAR(s) as BOD₅
- j. pH: COMAR 26.08.02.03-3G(1), COMAR 26.08.02.03-3F(4)
- k. Flow: Rationale included in the setting of respective parameter concentrations and loadings.

Section 402 of the Clean Water Act provides authority for NPDES Permit issuance. Applicable regulations are published in 40 CFR parts 122, 123, 124, and 125. The Department of the Environment administers the NPDES program as a part of its own discharge permit system in accordance with Environmental Article, Title 9, Annotated Code of Maryland, Chapter 26.08.04 of COMAR, and the Clean Water Act.

General Discussion and Rationale

The discharge limits for this facility were determined based on calculations performed in 1985 and 1990 using free-flow stream model. The results indicated that the New Windsor WWTP had minimal impact on the Little Pipe Creek dissolved oxygen thus would not cause any violations of Maryland dissolved oxygen water quality standard. Ammonia effluent limits are established for both 0.094 and 0.13 MGD. There is no toxic substance data available for the determination of potential risk. The receiving stream, Dickenson Run, is a tributary of Double Pipe Creek, which is currently on the 303(D) list for nutrient, sediment and biological impairments. An analysis has been performed to estimate the nutrients and sediment contributions from this facility and its background drainage area into the receiving stream (based on GIS land use information and Bay Program Model scenario). The results suggest that NPS is the major contributor for nutrients and sediment into the receiving stream. [The decision for the addition of nutrient loading limits is to be in accordance with the Maryland Nutrient Reduction Strategy for minor facility expanding its capacity over 0.11 MGD.](#)

4. Monitoring Requirements for Outfall –001

The effluent characteristics established in 3 and 3A shall be monitored as follow

<u>Effluent Characteristics</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
BOD ₅	One/week	Grab ⁽¹⁾
Total Suspended Solids	One/week	Grab ⁽¹⁾
Ammonia as N	One/week	Grab ⁽¹⁾
Total Phosphorus as P ⁽²⁾⁽³⁾	One/month	Grab ⁽¹⁾
Total Nitrogen as N ⁽²⁾⁽³⁾	One/month	Grab ⁽¹⁾
Nitrate + Nitrite as N ⁽²⁾⁽³⁾	One/month	Grab ⁽¹⁾
Organic Nitrogen as N ⁽²⁾⁽³⁾	One/month	Grab ⁽¹⁾
Orthophosphate as P ⁽²⁾⁽³⁾	One/month	Grab ⁽¹⁾
Fecal Coliform ⁽⁴⁾	One/week	Grab
E. coli ⁽⁴⁾	One/week	Grab
Total Residual Chlorine ⁽⁵⁾	One/day	Grab
Dissolved Oxygen	One/day	Grab
pH	One/day	Grab
Flow ⁽⁶⁾	Continuously	Recorded

- (1) Grab samples are applicable as long as the treatment method is a lagoon with at least 30 days detention time; otherwise an 8-hour composite sampling method will be required.
- (2) Monitoring only parameters shall be reported on the monthly operating report as individual results and on the Discharge Monitoring Report (EPA form 3320-1) as a monthly average concentration and monthly average loading rates. All nitrogen and all phosphorus parameters shall be measured on the same daily sample.
- (3) Upon the facility's upgrade to 0.13 MGD, The permittee shall report on each monthly Discharge Monitoring Report the cumulative total nitrogen (TN) and total phosphorus (TP) load for the calendar year in question. The cumulative load is calculated by summing the monthly loading values for each month in that calendar year. Nitrogen and phosphorus concentrations will be reported as a monthly average. Total nitrogen is the sum of total Kjeldahl nitrogen, and (nitrite+nitrate)-N based on the same 8 hour composite samples.
- (4) The fecal coliform monitoring shall be needed until the E.coli limit take effect, at which time the E.coli monitoring shall be required. The permittee shall use either of the following two approved testing methods for E. coli, the multiple tube technique using presumptive media and EC-MUG media, and the Colilert Test Procedure with Quanti-tray 2000s.
- (5) The minimum level (quantification level) for total residual chlorine is 0.10 mg/l. The permittee may report all results below the minimum level as <0.10 mg/l.
- (6) For flows less than 1 mgd, average flows should be reported to at least the nearest 1,000 gallons. Example, a flow of 332,900 gpd should be reported as 0.333 mgd.

Rationale: COMAR 26.08.04.03 A.

5. Pretreatment Program

The permittee is not authorized to receive the discharge of any type or quantity of substances, which may cause interference with the operation of the treatment works. The permittee is required to comply with COMAR 26.08.08 upon accepting any such discharge for treatment. The permittee is required to notify the Pretreatment Section of the Department, in writing, within thirty days if any user discharges such wastes to the permittee for treatment without prior notification. Prior to allowing a significant industrial user to discharge to the POTW regulated by this permit, the permittee shall notify the Pretreatment Section of the Department, in writing.

Under no circumstances shall the permittee allow introduction of the following wastes into the waste treatment system:

1. Pollutants which cause pass through or interference;
2. Pollutants which create a fire hazard or explosion hazard in the sewerage system, including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;
3. Pollutants which will cause corrosive structural damage to the sewerage system; but in no case, discharges with pH less than 5.0, unless the works is specifically designed to accommodate such discharges;
4. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the sewerage system resulting in interference;
5. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment plant;
6. Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference; but in no case, heat in such quantities that the temperature at the treatment plant exceeds 90 degrees Fahrenheit (32 degrees Centigrade) unless the Pretreatment Section of the Department, upon request of the permittee, approves alternate temperature limits;
7. Pollutants which result in the presence of toxic gases, vapors or fumes within the sewerage system in a quantity that may cause acute worker health and safety problems; and
8. Any trucked or hauled pollutants, except at discharge points designated by the permittee.

Rationale: COMAR 26.08.08

6. Special Facility Operation Requirement

In addition to the facility and quality control conditions required in General Condition III. B.3 in the permit, the permittee shall also install alarm system to notify personnel during the event of operational problem such as pump station failure.

Rational: This requirement was recommended by field inspector after routine scheduled facility inspection on 05/017/2005.

7. Protection of Water Quality

It is a violation of this permit to discharge any substance not otherwise listed under the permit's "Effluent Limitations and Monitoring Requirements" special conditions at a level which would cause or contribute to any exceedance of the numerical water quality standards in COMAR 26.08.02.03 unless the level and the substance were disclosed in writing in the permit application prior to the issuance of the permit. If a discharge regulated by this permit causes or contributes to an exceedance of the water quality standards in COMAR 26.08.02.03, including but not limited to the general water quality standards, the Department is authorized to exercise its powers to modify, suspend or revoke this permit.

8. Chronological Log of Meetings, Plant Visits, and Telephone calls (reports are in official file):

- 09/01/04 The Environmental Permits Service Center (EPSC) received completed discharge permit renewal application for New Windsor WWTP, from Mr. Sam Pierce, Mayor of New Windsor.
- 09/02/04 Letter from MDE's EPSC to Mr. Sam M. Pierce, acknowledging receipt of the discharge permit renewal application.
- 09/02/04 The Municipal Discharge Permits Division received a copy of discharge permit renewal application via EPSC for New Windsor WWTP.
- 09/03/04 Memo from Steve Luckman of Municipal Discharge Permits Division to Ray Anderson of Water and Sewerage Planning Division, forwarding the renewal application for review and comment.
- 09/03/04 Memo from S. Luckman to Paul Stoner of Compliance Program seeking comments on the discharge permit renewal request.
- 09/03/04 Memo from Steve Luckman to Ray C. Dintaman of Power Plant & Environmental Review Division, DNR seeking comments and conformance with Agency's policies.
- 09/08/04 Letter from J. James Dieter, Program Administrator of Water/Wastewater Permit Program to Mayor Sam Pierce, regarding application received public notice that will be published in "The Carroll County Time" on September 15 and 22, 2004.
- 09/08/04 Letter from J. James Dieter, Program Administrator of Water/Wastewater Permit Program to Ms. Victoria Woodard, informing the renewal of the discharge permit for New Windsor WWTP.
- 09/08/04 Letter from J. James Dieter, Program Administrator of Water/Wastewater Permit Program to Mr. Ed Merrifield of the Potomac River Keeper, informing the renewal of the discharge permit for New Windsor WWTP.
- 09/08/04 The Municipal Discharge Permits Division received response from Water and Sewerage Planning Division stating that project is consistent with County water & sewer Plan.
- 07/08/05 The Municipal Discharge Permits Division received field inspection reports from Compliance Division on New Windsor WWTP.
- 09/13/05 Site visit was made to review plant treatment processes and to evaluate the effluent receiving water body conditions.
- 09/21/05 Letter from Jay Janney (Maryland Environmental Service) request flow re-rating for New Windsor WWTP from 0.094 MGD to 0.13 MGD.
- 09/21/05 Letter from Carroll County to Mayor Pierce regarding issues in New Windsor WWTP flow re-rating proposal.

8. Chronological Log of Meetings, Plant Visits, and Telephone calls (continued)

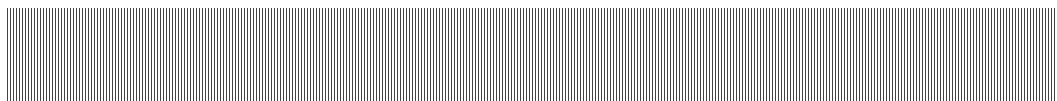
- 01/13/06 Received voluntary monitoring data for ammonia in effluent from Jay Janney from Maryland Environmental Service.
- 03/08/06 Meeting requested by Mayer Pierce with MDE's compliance and permitting staffs regarding future flow re-rating and upgrade issues for New Windsor WWTP.
- 04/11/06 PIA request from citizen Erich Boner. The notice was sent to the division by Wendy Donaldson, the PIA coordinator.
- 09/08/06 Permit modification was done with additions of nutrient discharge (goals/limits) to comply with MD Tributary Strategy requirements.
- 10/17/06 Permit modification draft was sent to Mr. Sam Pierce, Mayor of New Windsor, for comments on the newly proposed nutrient goals and limits in the draft permit.
- 11/17/06 Comments received from Mr. Sam Pierce, Mayor of New Windsor, with agreement on the newly proposed nutrient goals and limits in the draft permit.

9. Map Showing Discharge Point Location for New Windsor WWTP

NPDES PERMIT FACT SHEET

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BTR-Hampstead



MARYLAND DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway - Baltimore, Maryland 21224
INDUSTRIAL DISCHARGE PERMITS DIVISION-WATER MANAGEMENT ADMINISTRATION

SUMMARY REPORT AND FACT SHEET

Discharge to surface water xx Discharge to groundwater

new permit renewal permit xx revoke & reissue other

State Application No. 02-DP-0022 EPA No. MD0001881

Legal Name: AG/GFI Hampstead
Mailing Address: 626 Hanover Pike, Hampstead, Maryland 21074

Facility Name: Black & Decker (U.S.) Inc.
Location: 626 Hanover Pike, Hampstead, Maryland 21074

Facility Contact: David Friedman, P.E., Program Manager (610) 701-7403

Billing Address: same as above

County: Carroll

SIC Code(s): 4225 (general warehousing & storage), 3499 fabricated metal products

To discharge from: a facility operating a groundwater remediation system and using the treated wastewater for noncontact cooling and sanitary purposes

Via Outfall(s): 001

Basin Code: 02.13.09.07

Receiving Water Name (Use): unnamed tributary to Deep Run, (tributary to the North Branch Patapsco River); Use I-P

Current Permit Expiration Date: 12/30/04

Scheduled Watershed Cycle Year and Month: Group 3, Quarter 4

MD Coordinates: East 842.5 North 639.0

Date of Site Visit: 5-12-99 Subject to EPA Review: No

Application Rec'd: 2-24-99 Date Assigned: 4-5-99

Project Manager: John McGillen Phone: (410) 631-3631

Date Submitted: March 29, 2002 Reviewed by: Date:

Revision Dates:

I. FACILITY DESCRIPTION/REGULATORY BACKGROUND

Business activities: warehousing and distribution of power driven hand tools and appliances including limited manufacturing of powdered metal tool parts

Manufacturing process/wastewater generation: manufacturing consists of a powdered metal pressing operation which generates wastewater through noncontact cooling water. A small line where parts were cleaned in caustic, rinsed and treated with a rust-prevention solution has been eliminated. Wastewater is also generated from a groundwater remediation project (pump & treat to control off-site migration of volatile organics) and sanitary uses

Seasonal fluctuations: no significant fluctuations identified.

Compliance issues: none identified.

Special regulatory issues: intermittent stream

Wastes not authorized for discharge: none

Multimedia issues: the groundwater remediation project is performed in accordance with an administrative consent order from the Department's Waste Management Administration (April 1995)

II. RECEIVING WATER/WATERSHED INFORMATION

Surface water discharges

Fresh xx Salt Brackish

Perennial Intermittent xx Storm drain Tidal

Minimum flows: 7Q10: zero 30Q5: N/A Annual average flow: N/A

Receiving stream description: The permittee has impounded the very upper end of an unnamed, intermittent tributary to create a 16 million gallon reservoir. The effluent from the reservoir has been designated as Outfall 001 is the entire flow in the intermittent stream at the point of discharge. This flow travels across a large field for a distance of approximately 1000 feet before entering Deep Run.

TMDL status: The watershed for the receiving stream is on the State's 303(d) list for nutrients, suspended sediments, chromium and lead. No TMDL has been developed at this time.

III. WASTEWATER CHARACTERIZATION INFORMATION

Type(s) of wastewater: once through noncontact cooling water, sanitary wastewater, treated groundwater, storm water runoff

Treatment of Wastewater: groundwater is treated by air stripping, sanitary wastewater is biologically treated in an extended aeration system followed by clarification/filtration/chlorination, all wastewaters enter a final reservoir which is pH adjusted (when necessary) with sulfuric acid, discharge from the

reservoir passes aerators immediately upstreams of the Outfall 001 overflow weir to provide further protection against the discharge of chlorine and/or volatile organics.

Wastewater characteristics (from permit application):

Outfall 001

Parameter	Maximum	Average	
Flow	1.226 MGD	.178 MGD	
BOD	9 mg/l	3.5 mg/l	
total suspended solids	19 mg/l	8.7 mg/l	
total residual chlorine	<0.1 mg/l	<0.1 mg/l	
fecal coliform	<2 MPN	--	(monitored at internal point 101)
tetrachloroethylene	11 µg/l	.92 µg/l	(monitored at internal point 201)
1,1,1- trichloroethane	<5 µg/l	<5 µg/l	(monitored at internal point 201)
1,2-trans-dichloroethylene	<5 µg/l	<5 µg/l	(monitored at internal point 201)
trichloroethylene	<5 µg/l	<5 µg/l	(monitored at internal point 201)
pH	6.1 – 8.4 (range of minimum and maximum values)		
metals	marked as "believed absent" on application		

biomonitoring results: acute testing in 1999 by MDE indicated no toxicity.

IV. TENTATIVE PERMIT LIMITATIONS

Rationale for Effluent Limitations:

BOD/Total Suspended solids: These limits are continued from the existing permit and are based on best professional judgment. They are more stringent than secondary treatment requirements established in COMAR 26.08.04C(1).

Oil & grease: This limit is continued from the existing permit and is based on best professional judgment.

Total residual chlorine: This limit is based on water quality criteria for Class I waters from COMAR 26.08.02.03-2.

pH: This limit is based on water quality standards for Class I waters (COMAR 26.08.02.03 (A)(4)).

Tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene: These limits are continued from the existing permit and are based on maximum contaminant levels for drinking water. Monitoring without limits is also required at monitoring point 201 in order to evaluate the effectiveness of treatment prior to dilution with other wastestreams

Fecal coliform: continued from existing permit; based on water quality standards for Class I waters (COMAR 26.08.02.03-3); this requirement is imposed at internal point 101 to ensure the effluent from the sanitary waste treatment system has been effectively disinfected.

Loading Requirements for toxic substances and nutrients: Based on the description of contributing wastestreams and their volumes, there is little potential for the discharge of significant amounts of toxic substances or nutrients (on a mass loading basis). Therefore, no requirements to report loadings are proposed.

V. SPECIAL CONDITIONS

Special Condition B: Definitions - standard for all permits

Special Condition C: Toxic Pollutant Reporting - standard for all permits

Special Condition D: Removed Substances - standard for all permits

Special Condition E: Analytical Laboratory - standard for all permits

Special Condition F: Wastewater Operator Certification - required because the facility operates a treatment system for sanitary wastewater and contaminated groundwater

Special Condition G: Flow Monitoring - standard for all permits

Special Condition H: Flow Basis for Annual Discharge Fee - standard for all permits

Special Condition I: Future Watershed-Based Permitting Requirements – standard for all permits

Special Condition J: Biomonitoring Program – not required since prior tests indicate no toxicity

Special Condition K: Toxicity Reduction Evaluation - standard for all permits

Special Condition L: Notification and Approval of Tenant Discharge - requires prior notification to the Department of tenant discharges not currently authorized by the permit to allow the Department an opportunity to determine if permit modification is required

Special Condition N: Storm Water Associated With Industrial Activity – provides coverage for storm water discharges which is required based on industrial category (industrial inorganic chemicals)

VI. CHANGES FROM PREVIOUS PERMIT

1. total residual chlorine limit has been modified to reflect water quality criteria
2. added notification requirement of tenant discharge
3. reduced monitoring frequency for organics

Site Visit Questions/Observations:

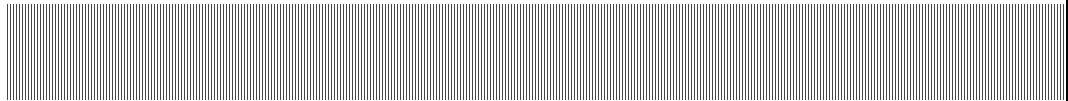
1. powdered metal manufacturing process? heat treatment? cleaning and treatment for rust prevention? ...any wastestreams?
2. verify flow diagram
3. description of receiving stream
4. description/location of monitoring points
5. number of employees
6. why post-treatment of sanitary wastewater by physical/chemical?
7. why the need for acid addition of holding pond?
8. seasonal fluctuations?
9. boiler blowdown?, cooling tower? additives for either

10. types of wastewater: treated groundwater
 - boiler blowdown
 - once thru nccw
 - ctb
 - sanitary wastewater
 - storm water
 - anything else?
11. treatment: air stripping, any other pretreatment associated with it for metals, solids?
extended aeration system consisting of
12. water treatment chlorine, soda ash, acid?
13. current limits
 - 001: BOD – 15; TSS – 20/30; O&G – 15; TRC - <0.1; 111 TCA, tetrachlorethylene and trichloroethylene - .005; pH 6.0 to 8.5 with monthly for all except pH 2/week at outfall from process reservoir
 - 101: fecal coliform of 200 at 1/week at discharge weir at phy/chem plant
 - 201: monitoring w/o limits for 111 tca, tetra and tce
 - chemical additives limited to chlorine and soda ash
 - biomonitoring
 - swp2
 - resumption of manufacturing notification

NPDES PERMIT FACT SHEET

10

Congoleum Corp.



MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway - Baltimore, Maryland 21224
INDUSTRIAL DISCHARGE PERMITS DIVISION-WATER MANAGEMENT ADMINISTRATION
SUMMARY REPORT AND FACT SHEET

Discharge to surface water, permit renewal

CURRENT F.S.

State Application No. 02-DP-0422

EPA No. MD0001384

Legal Name: Congoleum Corporation

Mailing Address: 4401 Ridge Rd
Trainer, PA 19061

Facility Name: Congoleum Corporation

Location: 2700 Emory Rd.
Finksburg, MD

Facility Contact: T.C. Garrod

Phone: 800 234-8811x8835

Billing Address: same as above

County: Carroll

SIC Code(s): 2661, Felts, Dry

Via Outfalls: 001, and 002,

Basin Code: 02.13.09.07

Receiving Water Name (Use): North Branch Patapsco River, Use IV-P which is protected for water contact recreation, fishing, aquatic life (recreational trout waters), and wildlife.

Scheduled Watershed Cycle Year and Month: Group 3, Quarter 3

MD Coordinates: East 832.5 North 608.0

Subject to EPA Review: Yes

Application Rec'd: 07-09-2001 Date Assigned: 7-10-2001

Project Manager: David Fluke Phone: (301) 791-4787

Date Submitted: 9-11-01 Reviewed by: Date:

Revision Dates: 5/24/02
7/9/02

I. FACILITY DESCRIPTION/REGULATORY BACKGROUND

The Congoleum Corporation in Finksburg manufactures flooring felts which are used as a backing for vinyl flooring. They are produced from limestone, wood fibers, and mineral fillers. In preparation, the mineral fiber and paper is reduced to a slurry, called stock, by agitation. It is applied to a moving mesh called a wire and dried by squeezing, vacuuming, and steam heating. After drying, the felt is cut and rolled.

Water is applied to the wire for cleaning after the felt is removed. The cleaning water along with drainage from the drying process flows to a save-all where fibers are recycled back into the stock. The remaining wastewater along with sanitary wastewater is treated in a series of lagoons and two trickling filters before discharge through Outfall 001.

Congoleum owns and operates the boiler that is located across the river in a building owned by another company. Blowdown from this boiler is piped across the river to Congoleum's wastewater treatment system. Formerly, this blowdown was discharged as Outfall 002 which has been eliminated.

Changes to the existing permit: The previous permit authorized a number of storm water outfalls. Any outfall discharging only storm water runoff unaffected by industrial operations is now included in the storm water pollution prevention plan maintained by the permittee. The permittee has identified several discharges of water unaffected by their industrial process. They are now authorized by the permit, but no monitoring or limitations are required. They are as follows:

1. There is an occasional discharge from a 120,000 gallon tank on site. Weekly it is filled with river water that is heated before use. The expansion caused by this heating sometimes causes a slight overflow of untreated river water. It is contained by the concrete wall that controls all storm water runoff from the north side of the plant.
2. There are a series of fire drains and air conditioner condensate drains along the north side of the plant. The fire drains are flushed once per quarter to ensure the fire suppression system works if needed. The discharges from the fire drains and the condensate are all contained by the concrete wall on the north side of the plant. Water is only discharged from this wall during extremely wet periods. Usually it is allowed to infiltrate. Any discharge from this wall would be performed manually and would consist of mostly storm water runoff. Since these discharges are of water unaffected by the process, it is unlikely to be contaminated

II. RECEIVING WATER/WATERSHED INFORMATION

Surface water discharges

Fresh XX Salt ___ Brackish

Perennial xx Intermittent ___ Storm drain ___ Tidal

Minimum flows: 7Q10: 8.9 cfs* 30Q5: 14 cfs* Annual average flow: 65.2 cfs*

* These values are those obtained for the US Gauging Station, # 01586000, located at Cedarhurst, Md.

Receiving stream description: The North Branch Patapsco River at this site is about 30 feet wide with a gravel and cobble bottom. There is a 4' diversion dam just upstream of their main discharge.

xx TMDL has not been calculated yet.

III. WASTEWATER CHARACTERIZATION INFORMATION

Type(s) of wastewater in outfall 001 wastewater consists of process wastewater and boiler blowdown

Outfall 001

<u>Parameter</u>	<u>Maximum</u>	<u>Average</u>
The following data obtained from discharge monitoring reports for the past 2 years		
Flow	0.602MGD	0.269 MGD
BOD	87 mg/l	7.3 mg/l
Total Suspended Solids	32 mg/l	9 mg/l
Total Residual Chlorine	<0.1	
Fecal Coliform	240 MPN/100 ml	7 MPN/100 ml
pH	6.5 – 7.6	
Temperature (summer)	74°F	
Zinc	0.08 mg/l	
Phosphorus	1.9mg/l	0.85

The following data is taken from the renewal application (mg/l unless noted otherwise)

COD	74	
TOC	15.8	
Ammonia	2.5	
color	3 NTU	
Surfactants	0.79	
Arsenic	0.008	
Selenium	<0.002	
Thallium	<0.004	
Chloroform	0.031	0.017.7

Biomonitoring results: This discharge has intermittent toxicity. The permittee has agreed to construct a new treatment plant to eliminate the toxicity. This renewal includes a whole effluent toxicity limit.

TENTATIVE PERMIT LIMITATIONS

Rationale for Effluent Limitations: Outfall 001

BOD and TSS – These limitations have been retained from the pervious permit. “The daily maximum winter BOD limitation of 627 lb/day is based on a mathematical model of the receiving stream using the Streeter-Phelps equation. This model showed that the dissolved oxygen in the receiving stream might

drop below 5.0 mg/l if greater amounts of BOD were discharged from this facility. More stringent summer limitations are imposed because the trickling filter treatment system operates more efficiently during warmer weather. The BOD and TSS limitations are more stringent than limitations derived by applying 40 CFR 430.102 for the builders Paper and board mills point source category. BOD and TSS limitations based on these guidelines and the maximum production from the period of February 1999 through January 2000 (269092 lb/day) would be a maximum of $269 \times 5 = 1345$ lbs/day and ~~an average of~~ $269 \times 3 = 807$ lbs/day, respectively,

Dissolved Oxygen – This limitation is necessary to ensure compliance with COMAR 26.08.02.03-3G(1) in the vicinity of the outfall. This level of D.O. was also used in the mathematical modeling. At a lower D.O., compliance downstream is not assured.

Total Residual Chlorine (TRC) – The above TRC limitation will ensure compliance with COMAR 26.08.03.06C(2)(e) which prohibits the discharge of chlorine compounds into water of the State. 0.1 is the minimum detection limit for TRC. Therefore the limit must be less than 0.1.

Fecal Coliform – This fecal coliform limit will ensure compliance with COMAR 26.08.02.03-3g(1). In the past two years, the permittee has had one reading above the 200 MPN/100ml standard. It was 240. Therefore the average was well below the 200 MPN/100 ml geometric mean. Therefore, monthly sampling will continue to be sufficient.

Temperature – In the past two years, the maximum temperature of this outfall was 75°F. However, to ensure continued compliance with COMAR 26.08.02.03-3G(1), the permit will continue to require temperature monitoring upstream and downstream of the outfall. The Baltimore Metropolitan Watershed Protection Agreement of 1984 set phosphorus at 2.0 mg/l for existing dischargers. Therefore this limit will be retained for this renewal. The permittee failed to meet this limit once in the past 2 years,

Ammonia – The application originally listed 2.5 mg/l for ammonia in Outfall 001. After reviewing the ammonia monitoring that was collected for nutrient monitoring during the past 3 years, the permittee was able to prove that the 2.5 mg/l was an error and they revised the application to the data from the previous analyses. Two were less than 0.5 mg/l and the third was 0.582. Since all of these values are below the proposed water quality criteria of 0.627 mg/l average and 2.14 mg/l maximum, no limits or monitoring will be required with this renewal. Mixing in the receiving stream will provide a large safety factor for this discharge

Phosphorus – The Baltimore Metropolitan Watershed Protection Agreement of 1984 set phosphorus at 2.0 mg/l for existing dischargers. Therefore, this limit will be retained for this renewal at the same interval.

Total Nitrogen – In addition to phosphorus, the permittee is required to test the effluent from this outfall annually for total nitrogen to monitor the amount of nutrients discharged from this facility. Total nitrogen is a sum of ammonia-N, organic-N and (nitrate and nitrite)-N

Settleable solids – The monitoring for this limitation required by 40 CFR 431.12 Subpart A has been retained for this renewal. The frequency, 1/year is sufficient since the TSS has not exceeded 32 mg/l.

Pentachlorophenol and Trichlorophenol – These limitations were calculated according to 40 CFR 430.102. Pentachlorophenol, $269 \times 0.0017 = 0.457$ lb/day, Trichlorophenol, $269 \times 0.0006 = 0.161$ lb/day. This regulation also allows the alternative allowed by the footnote.

pH – These limitations are a continuation from the proceeding permits. They will ensure that the conditions of COMAR 26.08.02.03-3G(1) are met.

Whole Effluent Toxicity (WET) - This facility has exhibited intermittent toxicity for about 8 years. Because of the intermittent nature of this toxicity, the permittee has had difficulty identifying the cause of the problem. To rectify this problem, the permittee has agreed to design and construct a new treatment plant to replace the system they have been using for many years. To allow time for the design and construction, this limit will not go into effect for 2 years.

III. WASTEWATER CHARACTERIZATION INFORMATION

Type(s) of wastewater in outfall 002 consists of noncontact cooling water

<u>Parameter</u>	<u>Maximum</u>	<u>Average</u>
The following data obtained from discharge monitoring reports for the past 2 years		
Flow	0.274 MGD	0.086 MGD
Temperature (summer)	74.8°F	

The following data is taken from the renewal application (mg/l unless noted otherwise)

BOD	<2
COD	7.2
TOC	2.4
TSS	6.3

Biomonitoring Not required. Noncontact cooling water with no additives has little chance for contamination

TENTATIVE PERMIT LIMITATIONS

Rationale for Effluent Limitations: Outfall 002

Temperature – This outfall did not exceed the temperature criteria for Class IV waters found in COMAR 26.08.02.03-3G(1). However, it was close. Therefore continued monitoring will be required during the summer months

RATIONALE FOR SPECIAL CONDITIONS

Temperature Monitoring COMAR 26.08.02.03-3G(1) requires “The maximum temperature outside the mixing zone ... may not exceed 75°F or the ambient temperature of the surface waters whichever is greater. The maximum flows of outfalls 001 and 002 combined represent over 10% of the 7Q10 low flow in the receiving stream. If the temperature of these outfalls is significantly above 75°F, they could raise the temperature of the receiving stream. Weekly monitoring of the receiving stream during the

summer months will ensure that this criteria is not exceeded.

Sludge Disposal Federal hazardous waste regulations require that all industrial wastes must be shown to be non-hazardous as determined by a TCLP test before disposal. This facility has not disposed of any sludge for several years. The sludge must pass this test before being removed from the sludge storage lagoon.

Special Condition B: Definitions - standard for all permits

Special Condition C: Toxic Pollutant Reporting - standard for all permits

Special Condition D: Removed Substances - standard for all permits

Special Condition E: Analytical Laboratory - standard for all permits.

Special Condition F: Wastewater Operator Certification - required because the facility treats some wastewater using lagoons and trickling filters

Special Condition G: Flow Monitoring - standard for all permits

Special Condition H: Flow Basis for Annual Discharge Fee - standard for all permits

Special Condition I: Future Watershed-Based Permitting Requirements – standard for all permits

Special Condition J Biomonitoring Program- Standard for all majors

Special Condition K: Toxicity Reduction Evaluation – standard for all permits.

Special Condition L: Temperature Monitoring Allows permittee extra methods to meet State water quality standards for Temperature.

Special Condition M: New treatment plant: To eliminate the toxicity in the effluent, the permittee has agreed to construct a new treatment plant. The permittee is now looking at various treatment options which will eliminate the toxicity. This condition will ensure the permittee constructs the new treatment plant in a timely manner, and the Department receives information regarding the effluent as soon as the effluent stabilizes

Special Condition N: Other Discharges – These are discharges which must be authorized by this permit. Since the chance of significant contamination is low, no limitations or monitoring is required

Special Condition O Water Treatment Additives – The permittee adds these chemicals to water to help with the intended use or to aid treatment. They are all added in amounts that will not create a toxic discharge. The permittee is required to notify the Department of other chemicals so we may determine if they will cause toxic discharges.

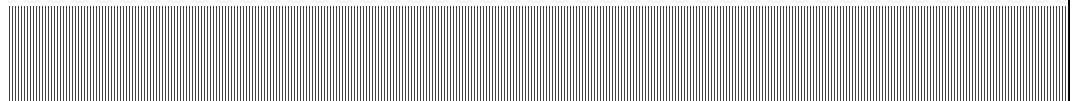
Special Condition P: Reopener Clause. This condition identifies several situations where the Department

could require the permittee to reopen the permit to address conditions which have changed since the permit was issued.

Special Condition Q: Storm Water Discharges Associated with Industrial Activity – The existing permit for this facility includes many outfalls of storm water. These outfalls are not included in this permit. Instead, the permittee is required by this condition to include these outfalls in their stormwater pollution prevention plan. This plan requires them to develop a plan addressing all possible contamination of the stormwater including ways of controlling its quality.

Appendix C

Septic System Numbers and Loads by Watershed



EXISTING SCENARIO

HUC	Name	Residential Septic Systems	Residential Septic Load [lbs N/yr]	Non-Residential Septic Load [lbs N/yr]	Total Septic Load [lbs N/yr]
2050301	Conewago Creek	283	3,226	56	3,283
2130805	Loch Raven Reservoir	184	2,098	5,334	7,432
2130806	Prettyboy Reservoir	2,413	27,508	20,641	48,149
2130906	Patapsco River Lower North Branch	13	148	--	148
2130907	Liberty Reservoir	11,539	131,545	250,683	382,228
2130908	South Branch of the Patapsco River	4,990	56,886	113,328	170,214
2140302	Lower Monocacy River	909	10,363	8,438	18,801
2140303	Upper Monocacy River	851	9,701	25,183	34,884
2140304	Double Pipe Creek	6,342	72,299	107,495	179,794
CARROLL COUNTY		27,524	313,774	531,159	844,933

FUTURE/PRIORITY SCENARIO

HUC	Name	Residential Septic Systems	Residential Septic Load [lbs N/yr]	Non-Residential Septic Load [lbs N/yr]	Total Septic Load [lbs N/yr]
2050301	Conewago Creek	459	5,233	71	5,303
2130805	Loch Raven Reservoir	228	2,599	1,588	4,187
2130806	Prettyboy Reservoir	4,721	53,819	14,856	68,676
2130906	Patapsco River Lower North Branch	53	604	--	604
2130907	Liberty Reservoir	19,076	217,466	110,869	328,335
2130908	South Branch of the Patapsco River	7,205	82,137	38,272	120,409
2140302	Lower Monocacy River	1,113	12,688	7,328	20,017
2140303	Upper Monocacy River	1,826	20,816	8,175	28,991
2140304	Double Pipe Creek	10,779	122,881	54,703	177,583
CARROLL COUNTY		45,460	518,244	235,861	754,105

GROWTH SCENARIO

HUC	Name	Residential Septic Systems	Residential Septic Load [lbs N/yr]	Non-Residential Septic Load [lbs N/yr]	Total Septic Load [lbs N/yr]
2050301	Conewago Creek	459	5,233	71	5,303
2130805	Loch Raven Reservoir	224	2,554	1,445	3,999
2130806	Prettyboy Reservoir	3,410	38,874	9,276	48,150
2130906	Patapsco River Lower North Branch	--	--	--	--
2130907	Liberty Reservoir	11,121	126,779	48,521	175,300
2130908	South Branch of the Patapsco River	4,980	56,772	31,214	87,986
2140302	Lower Monocacy River	1,113	12,688	7,328	20,017
2140303	Upper Monocacy River	1,823	20,782	8,175	28,957
2140304	Double Pipe Creek	10,174	115,984	45,694	161,678
CARROLL COUNTY		33,304	379,666	151,724	531,390