



**MARYLAND DEPARTMENT OF THE ENVIRONMENT**  
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Martin O'Malley  
 Governor

Robert M. Summers, Ph.D.  
 Secretary

Anthony G. Brown  
 Lieutenant Governor

## SUMMARY REPORT & FACT SHEET

**Permit Application Numbers:** State: 10-DP-0116 NPDES: MD0020834  
**Name of Facility:** Centreville Wastewater Treatment Plant  
**Mailing Address:** 101 Lawyers Row, Centreville, Maryland 21617  
**Facility's Location:** 116 Johnstown Lane, Centreville, Maryland 21617  
**Facility Organization:** Town of Centreville  
**Contact Person's Name:** Mr. Steve Walls  
**-Title:** Acting Town Manager  
**-Phone:** 410-758-1180  
**Applicant engaged in:** The treatment of wastewater  
**Number of outfalls:** 001- (Facility Effluent) SIC Code: 4952  
**MDE Engineer:** Mahendra Chawla **Completion Date:** 05/14/2012

**Revision Date:** 2/20/2013

Reviewed by: Curtis H. Dalton  
 Curtis H. Dalton, P.E., Acting Chief,  
 Technical Services Division

2/21/13

Date

Accepted by: Yen-Der Cheng  
 Yen-Der Cheng, Chief, Municipal Permits  
 Division

2/21/13

Date

Is EPA joint review required? Yes , Date sent: 7/20/2012 No   
 State/EPA comment/agreement received: Yes  Date received: 8/1/2012 N/A

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**I. Description of Facility, Outfall and Receiving Stream**

*Details for Effluent Receiving Stream*

|  |  |                     |                     |
|--|--|---------------------|---------------------|
| <b>Name of Stream</b>  | Ditch to Gravel Run which flows into the Corsica River thru Yellow Bank Stream.  |                     |                     |
| <b>Type of Stream</b>  | Ditch and Gravel Run are free flowing  |                     |                     |
| <b>Stream Use Designation</b>  | Gravel Run is designated as Use I stream<br>Corsica River is designated as Use II stream   |                     |                     |
| <b>River Mile</b>  | 0.62 Mile (from outfall 001 to confluence with Corsica River)<br>5.8 Mile (from outfall 001 to confluence with Chester River)  |                     |                     |
| <b>Watershed</b>   | 8-Digit Sub-watershed Code: 02-13-05-07<br>CBPSEG Code (Example: CHSMH- Lower Chester River Mesohaline)  |                     |                     |
| <b>Tier II Waters</b>  | Receiving stream(s) designated as Tier II water    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Tier II rules applicable to discharge                      Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>  |                     |                     |
| <b>Does the facility discharge into impaired waters included on (303(d) list)?</b> | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>As per the approved Integrated Report of Surface Water Quality (formerly known as the 303(d) List and 305(b) Report), the Corsica River is listed as impaired water body due to total suspended solids (TSS), nutrients, fecal coliform (all in 1996 list), polychlorinated biphenyls (PCBs) in fish tissue (2002 list), and impacts to biological communities (2004 list). |                     |                     |
| <b>Approved TMDL for concerned parameter(s)?</b>                                   | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Following TMDLs for the Corsica River watershed were approved by the USEPA: Nutrients in May 2000, Bacteria in November 2005, and PCBs in March 2011.   |                     |                     |
| <b>Background Stream Flows</b><br>(See PROJECT FILE for details):                  | Period   | 7Q10 Low-flow, cfs  | 30Q5 Low-flow, cfs  |
|  | 5/1 To 10/31   | 0.0547x13.23= 0.724 | 0.0916x13.23= 1.212 |
|  | 11/1 To 4/30   | 0.131x13.23= 1.733  | 0.2958x13.23= 3.913 |
|  | Annual   | 0.051x13.23= 0.675  | 0.0874x13.23= 1.156 |

**I. Description of Facility, Outfall and Receiving Stream****Plant Performance Evaluation:**

Source of Data: ICIS, Data Period: 1/07- 2/12

The plant performance is summarized as follows:

| <b>Parameter</b>              | <b>Concentration</b>         | <b>Quantity</b>                                  |
|-------------------------------|------------------------------|--|
| BOD <sub>5</sub>              | 2.2 mg/l                     | 6.8 lbs/day                                      |
| Total Suspended Solids (TSS)  | 2.2 mg/l                     | 6.8 lbs/day                                      |
| Total Ammonia Nitrogen as N   | 1.4 mg/l                     | 4.3 lbs/day                                      |
| Organic Nitrogen as N         | 0.96 mg/l                    | 3.0 lbs/day                                      |
| (Nitrite + Nitrate) as N      | 0.96 mg/l                    | 3.0 lbs/day                                      |
| Total Nitrogen as N           | 4.9mg/l                      | 15 lbs/day<br>356.1 lbs/month<br>1424.4 lbs/yeat |
| Orthophosphate as P           | 0.03 mg/l                    | 0.1 lbs/day                                      |
| Total Phosphorus as P         | 0.20 mg/l                    | 0.6 lbs/day<br>23.1 lbs/month<br>92.2 lbs/year   |
| Fecal Coliform                | 22.5 MPN/100ml               | N/A  |
| E. Coli                       | 5.6 MPN/100ml                | N/A  |
| Total Residual Chlorine (TRC) | 0.1 mg/l                     | N/A  |
| pH                            | 6.72 minimum<br>7.63 maximum | N/A<br>N/A                                       |
| Dissolved Oxygen (DO)         | 8.2 mg/l                     | N/A  |
| Flow                          | N/A                          | 0.372 MGD  |

**II. SPECIAL REQUIREMENTS & CONDITIONS**

**WWTP meeting at least 85% reduction of BOD<sub>5</sub> and TSS** Yes  No  N/A

Based on the plant performance records for 1/07 thru 2/12, the effluent BOD<sub>5</sub> and TSS are averaged 2.2 mg/l. Using BOD<sub>5</sub> and TSS concentration of 200 mg/l for typical raw-sewage influent (as stated in the technical manuals), this facility removes more than 99 % of BOD<sub>5</sub> and TSS during the treatment processes, far exceeding the minimum 85% removal requirement for POTWs with the secondary treatment.

Rationale: 40CFR, PART 133, §133.102

**Enhanced Nutrient Removal (ENR) Requirements:** ENR Limits  ENR Goal  N/A

As per the Chesapeake Bay Watershed Implementation Plan (WIP) and the Chesapeake Bay ENR strategy, Centreville WWTP has been assigned with the annual maximum Waste Load Allocations (WLAs) of 3,004 pounds/year for Total nitrogen (TN) and 751 pounds/year for Total Phosphorus (TP). Since the facility expanded, TP load is limited to 457 lbs/year. Also TN yearly loading based on the TMDL is greater than the TN loading based on the WIP, and therefore the more limiting WIP loading of 3,004 lbs/year is proposed.

The current plant operates the Biological Nutrient Removal (BNR) process on a year round basis and the Town is also authorized under groundwater permit GW 05-DP-3323 to operate the spray irrigation system 365 days a year. Consequently, the level of nutrient control that is achieved by the combined surface water and ground water systems is equivalent to Enhanced Nutrient Removal (ENR) level treatment and an ENR upgrade at this plant is not required.

Rationale: Maryland's Chesapeake Bay ENR Strategy for Point Sources and Chesapeake Bay Watershed Implementation Plan (Phase- I)

**TMDL Implementation Requirements:** Yes  No  N/A

The nutrients, bacteria and PCBs Waste Load Allocation (WLA) for the Centreville WWTP are as follows:

TN Load = 751 lbs/month and 9,132 lbs/yr

TP Load = 141 lbs/month and 1,712 lbs/yr

Fecal Coliform = 200 MPN/100 ml

PCBS = Limit not required in the permit

Rationale: WLA for total nitrogen (TN) load of 625 lbs/month for a flow 0.375 mgd, with a future allocation of 126 lbs/month, and an annual load of 7,598 lbs/year with a future allocation of 1,534 lbs/year. Similarly, this TMDL allocated a total phosphorus (TP) load of 117 lbs/month for a flow 0.375 mgd, with a future allocation of 24 lbs/month, and an annual load of 1,424 lbs/year with a future allocation of 288 lbs/year. The Upper Eastern Shore Tributary Basin cap for TN and TP is limited to 3,004 lbs/year and 751 lbs/year respectively. Since the WWTP has expanded from 0.375 mgd to 0.542 mgd, TP load is limited to 457 lbs/year. Also, lower of the two, TMDL and Basin cap loads per year, for TN and TP, have been used to set permit limits.

The WLA for fecal coliform for this point source, discharging flow of 0.500 mgd is 200 MPN/100 ml (200 MPN/100 ml fecal coliform standard is now replaced by E.coli of 126 MPN/100 ml per new regulations). The WLA for E.coli for the rerated plant flow 0.542 mgd translates to 116 MPN/100 ml.

The estimated WWTP tPCB Baseline Load is 1.28 g/year. At 0.2% of the TMDL, the Corsica River WWTP Baseline Load is considered *de minimis* because even its complete elimination would not result in any discernible improvement in water quality. Moreover, a possible future increase in this load (e.g., due to potential future development or expansion of plant capacity) is also not expected to have any significant impact on meeting the site specific tPCB water quality TMDL endpoints; even a 10-fold increase in WWTP tPCB load (up to 2% of the TMDL) is expected to increase the time it takes to reach the TMDL endpoints by only 3% or 95 days. Therefore, given that even a possible future increase in this load would not have any impact on meeting TMDL endpoints, no appreciable environmental benefit would be gained by reducing this load.

**II. SPECIAL REQUIREMENTS & CONDITIONS**

**Biotoxicity testing review for Whole Effluent Toxicity (WET)** Yes  No  N/A

**Are WET limits proposed?** Yes  No  N/A

*Rationale:* COMAR 26.08.03.07E

**Toxic substances testing review** Yes  No  N/A

No reasonable potential evaluation of the facility's potential to violate in-stream toxic substance criteria was made since toxic substance data for the facility is not available. No priority pollutant testing is recommended for the renewal discharge permit. Standard influent restriction requirements for a non-pretreatment minor facility is also recommended for the renewal discharge permit.

*Rationale:* Departmental Guidelines

**Capacity Management Plan Requirement** Yes  No  N/A

The facility serves the Town of Centreville. Average flow for the period from January 2007 thru February 2012 has been about 0.372 mgd, which is about 69% of the WWTP's "rated" design capacity of 0.542 mgd.

*Rationale:* Departmental Guidelines

**Pretreatment Program/Influent Restriction**

WWTP with approved pretreatment program  Non-pretreatment program WWTP

Does the non-pretreatment WWTP require the influent restriction? Yes  No  N/A

*Rationale:* COMAR 26.08.08 and Department Guidelines

**Reapplication Due Date for Next Permit Renewal**

Per the Departmental guidelines for the watershed permitting, the next renewal of a discharge permit for Centreville WWTP is scheduled for 2<sup>nd</sup> quarter, 2<sup>nd</sup> year in cycle with the projected renewal application date of 4/1/2015, and reissuance date of 7/1/2016. Because the reapplication due date of 4/1/2015 for the next permit renewal would not be within two years from the anticipated issuance date of 9/1/2012 for the proposed permit, the reapplication due date is set as 4/1/2015.

*Rationale:* COMAR 26.08.04.01 and Departmental Guidelines.

**Are temperature requirements included?** Yes  No

The Department recognizes that WWTP effluent may involve a thermal component. For this discharge, there is no reasonable potential for the temperature to exceed the 90°F or the ambient temperature of the surface waters criteria in COMAR 26.08.02.03-3; therefore, temperature limitations and monitoring are not required.

*Rationale:* COMAR 26.08.02.03-3

**Does the WWTP use lagoon(s) for wastewater treatment?** Yes  No

The lagoon is used to store the treated effluent year round.

*Rationale:* Department Policy.

**Is the emergency holding pond required?** Yes  No

*Rationale:* COMAR 26.08.04.04C(2)(c)

**III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The effluent limits and monitoring requirements, as listed below, are proposed to process the application for the discharge permit renewal. Refer to Appendix- A for the previous permit's effluent limitations and monitoring requirements. These limitations shall be applicable from December 1 through March 31 only. Nostream discharge is permitted from April 1 through November 30 from Outfall 001. Wintertime discharge will help to eliminate nutrient loading to the Chesapeake Bay. The rest of the year, the wastewater will be disposed of by spray irrigation to the ground waters of the State, as regulated by Groundwater Discharge Permit No. 05-DP-3323 issued on March 1, 2000 and reissued on September 1, 2007. The quality of the effluent discharged by the facility at the discharge location- 001<sup>(1)(2)(3)(8)</sup> shall be limited and/or monitored at all times as shown below:

| Effluent Characteristics                             | Requirements | Period    | Quantity             | Concentration           | Footnotes           |
|--|--------------|-----------|----------------------|-------------------------|---------------------|
| BOD <sub>5</sub>                                     | Limits       | 12/1-3/31 | 130 lbs/d (mo ave)   | 28 mg/l monthly average | (9)(19)             |
|  |              |           | 190 lbs/d (wkly ave) | 42 mg/l weekly average  |                     |
|  | Monitoring   |           | Frequency            | Sample Type             |                     |
|  |              |           | Two/week             | 24 hr. composite        |                     |
| Total Suspended Solids (TSS)                         | Limits       | 12/1-3/31 | 130 lbs/d (mo ave)   | 28 mg/l monthly average | (9)(19)             |
|  |              |           | 190 lbs/d (wkly ave) | 42 mg/l weekly average  |                     |
|  | Monitoring   |           | Frequency            | Sample Type             |                     |
|  |              |           | Two/week             | 24 hr. composite        |                     |
| Organic Nitrogen as N (Monitoring only parameter)    | Reporting    | 12/1-3/31 | N/A                  | REPORT mg/l (mo ave)    | (9)(10)(11)(12)(19) |
|  | Monitoring   |           | Frequency            | Sample Type             |                     |
|  |              |           | Two/week             | 24 hr. composite        |                     |
| Ammonia Nitrogen as N (Monitoring only parameter)    | Reporting    | 12/1-3/31 | N/A                  | REPORT mg/l (mo ave)    | (9)(10)(11)(12)(19) |
|  | Monitoring   |           | Frequency            | Sample Type             |                     |
|  |              |           | Two/week             | 24 hr. composite        |                     |
| (Nitrite + Nitrate) as N (Monitoring only parameter) | Reporting    | 12/1-3/31 | N/A                  | REPORT mg/l (mo ave)    | (9)(10)(11)(12)(19) |
|  | Monitoring   |           | Frequency            | Sample Type             |                     |
|  |              |           | Two/week             | 24 hr. composite        |                     |

**III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

| Effluent Characteristics                        | Requirements | Period    | Quantity        | Concentration                    | Footnotes                        |
|---|--------------|-----------|-----------------|----------------------------------|----------------------------------|
| Total Nitrogen as N                             | Limits       | 12/1-3/31 | 750 lbs/month   | 5.5 mg/l (mo ave)                | (4)(5)(6)<br>See page 6 for TMDL |
|   |              |           | 3004 lbs/yearly | N/A                              |                                  |
|   | Monitoring   |           | Frequency       | Sample Type                      | (9)(12) (13)                     |
|   |              |           | N/A             | Calculated                       |                                  |
| Orthophosphate as P (Monitoring only parameter) | Reporting    | 12/1-3/31 | N/A             | REPORT mg/l (mo ave)             | (9)(10)(11)(19)                  |
|   | Monitoring   |           | Frequency       | Sample Type                      |                                  |
|   |              |           | Two/week        | 24 hr. composite                 |                                  |
| Total Phosphorus as P                           | Limits       | 12/1-3/31 | 140 lbs/month   | 1.0 mg/l (mo ave)                | (4)(5)(6) See page for TMDL      |
|   |              |           | 457 lbs/yearly  |                                  |                                  |
|   | Monitoring   |           | Frequency       | Sample Type                      | (9)(11)(13)<br>(19)              |
|   |              |           | Two/week        | 24 hr. composite                 |                                  |
| E. Coli   | Limits       | 12/1-3/31 | N/A             | 116 MPN/100 ml (max mo geo mean) | See page 6 for TMDL              |
|   | Monitoring   |           | Frequency       | Sample Type                      | (9)                              |
|   |              |           | One/week        | Grab                             |                                  |
| Total Residual Chlorine (TRC)                   | Limits       | 12/1-3/31 | N/A             | See footnotes 7 and 13           | (7)                              |
|   | Monitoring   |           | Frequency       | Sample Type                      | (9)(14)(15)                      |
|   |              |           | Two/day         | Grab                             |                                  |
| pH  | Limits       | 12/1-3/31 | N/A             | 6.5 SU min<br>8.5 SU max         | N/A                              |
|   | Monitoring   |           | Frequency       | Sample Type                      | (9)(15)                          |
|   |              |           | Two/day         | Grab                             |                                  |

**III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

| Effluent Characteristics | Requirements | Period    | Quantity                                      | Concentration                | Footnotes           |
|--------------------------|--------------|-----------|---|------------------------------|---------------------|
| Dissolved Oxygen         | Limits       | 12/1-3/31 | N/A   | 5.0 mg/l minimum at any time | (9)(15)             |
|                          | Monitoring   |           | Frequency                                     | Sample Type                  |                     |
|                          |              |           | Two/day                                       | Grab                         |                     |
| Flow                     | Limits       | All Year  | REPORT mgd (mo ave)<br>REPORT mgd (daily max) | N/A                          | N/A                 |
|                          | Monitoring   |           | Frequency                                     | Sample Type                  | (9)(16)(17)<br>(20) |
|                          |              |           | Continuous                                    | Recorded                     |                     |
| Total Flow               | Reporting    | All Year  | REPORT Mgal/MO<br>(Monthly Total)             | N/A                          | (9)(18)(20)         |
|                          | Monitoring   |           | Frequency                                     | Sample Type                  |                     |
|                          |              |           | Monthly                                       | Calculated                   |                     |

Annual average flow of 0.542 million gallons per day (mgd) was used in waste load allocation calculations and this unit shall be used when reporting on the Discharge Monitoring Report (DMR) form. Notification is to be provided to the Department at least 180 days before the annual average flow is expected to exceed this flow level. If a permit modification is required, the Department will initiate the public participation NPDES process.

**Footnotes:**

*For Effluent Limitations*

- (1) When this permit is renewed, the new limitations may not be equal to the above limitations. There shall be no discharge of floating solids or visible foam other than trace amounts.
- (2) The permit may also be reopened in accordance with the requirements of MDE's Watershed Permitting Plan under which all discharge permits in a watershed are issued the same year.
- (3) The specific designated use of Corsica River of the Lower Chester River Mesohaline segment is Use II—Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting. The Maryland Department of the Environment (MDE) has identified the waters of the Corsica River of the Lower Chester River Mesohaline segment on the State's Integrated Report as impaired by the following pollutants (listing year and Integrated Report Assessment Unit Identification in parentheses): total suspended solids (1996; MD-CHSMH), nutrients (1996; MD-CHSMH), fecal coliform (1996; MD-CHSMH-Corsica\_River), and polychlorinated biphenyls (PCBs) in fish tissue (2002; MD-CHSMH-02130507) and impacts to biological communities (2004; MD-CHSMH).

**III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS****Footnotes:***For Effluent Limitations, continued*

(3) Continued

Nutrients, fecal coliform, and PCB TMDLs for the restricted shellfish harvesting portion of the Corsica River were approved by the US EPA in 2000, 2005, and 2011 respectively. This permit is in conformance with these TMDLs and the "Chesapeake Bay TMDL for Nitrogen, Phosphorus, and Sediment" established on December 29, 2010. When TMDLs for other remaining parameters are completed, limits may be imposed, after the public participation process, to incorporate any TMDL requirements.

(4) The loading caps for the Centreville WWTP for the seasonal stream discharge from December 1 through March 31, equal to 3,004 pounds for TN and 457 pounds for TP. The permittee shall also comply with the monthly loading cap limits of 750 lbs/month and 140 lbs/month for TN and TP respectively.

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 March 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 season (December 1 thru March 31) nor the issuance of a permit renewal during a period of noncompliance shall obviate continuance of any noncompliance status related to treatment optimization requirements.

(5) The current plant operates the Biological Nutrient Removal (BNR) process on a year round basis and the Town is also authorized under groundwater permit GW 05-DP-3323 to operate the spray irrigation system 365 days a year. Consequently, the level of nutrient control that is achieved by the combined surface water and ground water systems is equivalent to Enhanced Nutrient Removal (ENR) level treatment and an ENR upgrade at this plant is not required.

(6) The permittee may request that the permit be reopened and modified to include nutrient trading consistent with the most current "Maryland Policy for Nutrient Cap Management and Trading in Maryland's Chesapeake Bay Watershed" in effect at that time.

(7) Total residual chlorine limitation of 0.014 mg/l shall be applicable, when chlorine or any chlorine-containing compound is used in any treatment process, including but not limited to disinfection, that could become a potential constituent of the effluent discharged from the Centreville Wastewater Treatment Plant.

(8) See Special Condition II.C. on page 7 of the discharge permit.

### III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

#### *For Monitoring Requirements*

- (9) "STORET" (short for STOrage and RETrieval) is a widely-used repository for water quality data reporting and monitoring. The corresponding STORET codes for the effluent characteristics specified in Special Conditions II.A and II.B are: BOD<sub>5</sub> (00310), Total Suspended Solids (00530), TKN (00625), Total Ammonia Nitrogen as N (00610), Total Phosphorus as P (00665), Total Nitrogen as N (00600), (Nitrite + Nitrate) as N (00630), Organic Nitrogen as N (00605), Orthophosphate as P (04175), E. Coli (51040), Total Residual Chlorine (50060), Dissolved Oxygen (00300), pH (00400), Flow (50050), and Total monthly flow (82220).
- (10) This parameter (without effluent limitations) must be monitored, and it shall be reported on the Monthly Operating Report (MOR) as individual results and on the Discharge Monitoring Report (DMR) (EPA Form 3320-1) as monthly average concentrations.
- (11) The monitoring of total phosphorus, total ammonia nitrogen, organic nitrogen, (nitrite + nitrate) and orthophosphate shall be two per week-24 hour composite samplings.
- (12) Total nitrogen as N (in mg/l) is a calculated parameter as the sum of individual results for total ammonia nitrogen as N, organic nitrogen as N and (nitrite + nitrate) as N. All the nitrogen species must be sampled on the same day.
- (13) The permittee shall also calculate and report on the monthly DMR the TN and TP total monthly loads plus the seasonal cumulative December 1 through March 31 loads for the outfall- 001.
- (14) The Minimum monitoring requirements of Two/day, One per shift, grab sampling for total residual chlorine shall be applicable, when chlorine or any chlorine compound is used in any treatment process, including but not limited to disinfection, that could become a potential constituent of the effluent discharged from the Centreville Wastewater Treatment Plant. The minimum detection 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. All results reported below the minimum level shall be considered in compliance.
- (15) The monitoring of parameters (total residual chlorine, pH, and dissolved oxygen) by two per day-grab samplings shall be distributed on a daily basis during the entire staffed period in accordance with the representative sampling requirements as stated in General Condition III.A.1 of the draft permit.
- (16) Flows shall be reported in millions gallons per day (mgd) to at least the nearest 1,000 gallons per day. (Example: A flow of 524,699 gallons per day shall be reported as 0.525 mgd.). For each calendar month, flows shall be reported on the MOR as daily individual results and on the DMR as monthly average (mgd) and daily maximum (mgd).
- (17) Continuous electronic flow measurement and recording which can produce a permanent record are acceptable to the Department.
- (18) Total monthly flow is a calculated parameter equal to sum of the daily flow results in a calendar month. It shall be reported on the monthly DMR as Total monthly flow in millions gallons (MG) to at least the nearest 10,000 gallons. (Example: A flow of 1,524,699 gallons shall be reported as 1.53 MG).
- (19) The effluent samples with two per week monitoring frequency shall be collected at least two days apart.
- (20) Effluent flow to outfall 001 and to the spray irrigation system shall be measured and reported year round on the monthly DMR reports.

**III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

*Regulations and Rationale for Effluent Limitations*

|                                     |   |
|-------------------------------------|---|
| <b>BOD<sub>5</sub></b>              | <p><b>Regulations:</b> COMAR 26.08.02.03-3A(2), COMAR 26.08.04.04C(1) and COMAR 26.08.01.01B(80).</p>   |
|                                     | <p><b>Discussion and Additional Rationale(s):</b><br/>The technical analysis was performed in 2007 using WASP model to establish the effluent limits requirements for discharge flows up to 0.500 MGD. There is increase of the discharge flow of 0.042 mgd for this permit renewal. The BOD<sub>5</sub> and dissolved oxygen effluent limits established in 2007 and incorporated in previous permit 06-DP-0116 have been considered at this time for the proposed permit renewal for 0.542 mgd flow by holding the pound loadings for BOD<sub>5</sub> and TSS same as for 0.500 mgd flow. These limits will be protective of meeting the dissolved oxygen criteria in downstream portion of the effluent receiving stream(s).</p> |
| <b>Total Suspended Solids (TSS)</b> | <p><b>Regulations:</b> COMAR 26.08.02.03-3A(5), COMAR 26.08.04.04C(1), COMAR 26.08.01.01B(80) and 40 CFR§133.102 - §133.105.</p>  |
|                                     | <p><b>Discussion and Additional Rationale(s):</b><br/>The Chesapeake Bay TMDL (Phase I) approved by USEPA on 12/29/2010 allocated the aggregate annual TSS waste load to cover all non-significant point sources which are located into the Chesapeake Bay Water Quality Segment-MD-CHSMH, rather than individual sources. The limit of 28 mg/l monthly average is in conformance to the Bay TMDL for 0.542 mgd flow.</p>   |
| <b>Total Ammonia Nitrogen as N</b>  | <p><b>Regulations:</b> COMAR 26.08.02.03-2J, COMAR 26.08.02.03-2K and COMAR 26.08.02.05C, COMAR 26.08.02.05D.</p>   |
|                                     | <p><b>Discussion and Additional Rationale(s):</b><br/>The reasonable potential of the Centreville WWTP effluent to cause a violation of the receiving stream's ammonia water quality criteria was investigated to process the discharge permit renewal. An in-house SPREADSHEET program (developed by the Municipal Surface Discharge Permits Division) was used as a tool for the toxicity analysis. The dilution factors, based on the applicable mixing zone criteria, were incorporated in the analysis. As the ammonia toxicity criteria are pH dependent, the effluent pH of 7.6 which is a median of the maximum effluent pH data for 1/07-3/11.</p>   |
| <b>Total Nitrogen as N</b>          | <p><b>Regulations:</b> COMAR 26.08.02.04, COMAR 26.08.03.01C (3), COMAR 26.08.04.04C, and in addition, the Chesapeake Bay Nutrient Reduction Strategy and the Enhanced Nutrient Removal (ENR) Policy.</p>   |
|                                     | <p><b>Discussion and Additional Rationale(s):</b><br/>Refer to Section II (Special Requirements and Conditions) on page-6 for ENR load goal and TMDL requirements.</p>  |
| <b>Total Phosphorus as P</b>        | <p><b>Regulations:</b> COMAR 26.08.02.04, COMAR 26.08.03.01C(3), COMAR 26.08.04.04C, and in addition, the Chesapeake Bay Nutrient Reduction Strategy and the Enhanced Nutrient Removal (ENR) Policy.</p>  |
|                                     | <p><b>Discussion and Additional Rationale(s):</b><br/>Refer to Section II (Special Requirements and Conditions) on page 6 for ENR load goal and TMDL requirements.</p>  |

**III. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

|                         |   |
|-------------------------|---|
| E. Coli                 | <b>Regulations:</b> COMAR 26.08.04.02-1A(2).  |
|                         | <b>Discussion and Additional Rationale(s):</b> NONE<br><br>Fecal Coliform TMDL approved in 2006.  |
| Total Residual Chlorine | <b>Regulations:</b> COMAR 26.08.02.03-2G(1), COMAR 26.08.02.05C, COMAR 26.08.02.05D, COMAR 26.08.03.06C(5), COMAR 26.08.03.06D, COMAR 26.08.03.06F,   |
|                         | <b>Discussion and Additional Rationale(s):</b><br><br>The reasonable potential of the Centreville WWTP effluent to cause a violation of the receiving stream's TRC water quality criteria was investigated to process the discharge permit renewal. An in-house SPREADSHEET program (developed by the Municipal Surface Discharge Permits Division) is used as a tool for the toxicity analysis. The toxicity based limit was compared with the effluent quality criteria to set the TRC limit requirement. |
| pH                      | <b>Regulations:</b> COMAR 26.08.02.03-3A(4),  |
|                         | <b>Discussion and Additional Rationale(s):</b><br><br>The limits are set equal to the stream water quality criteria. Also, refer to Discussion and Additional Rationale for Total Ammonia Nitrogen as N.  |
| Dissolved Oxygen (DO)   | <b>Regulations:</b> COMAR 26.08.02.03-3A(4),  |
|                         | <b>Discussion and Additional Rationale(s):</b><br>The limits are set equal to the stream water quality criteria. Also, refer to Discussion and Additional Rationale for BOD <sub>5</sub> .  |
| Flow                    | <b>Regulations:</b> COMAR 26.08.04.02A(2). The discharge is consistent with the Queen Anne's County water and sewer master plan.  |
|                         | <b>Discussion and Additional Rationale(s):</b><br><br>The permit flow considered for this permit renewal is equivalent to the rated design capacity of the facility. It is not a limitation, but it incorporated with concentration limits to calculate the waste load limits for BOD <sub>5</sub> , TSS, TP and TN.  |

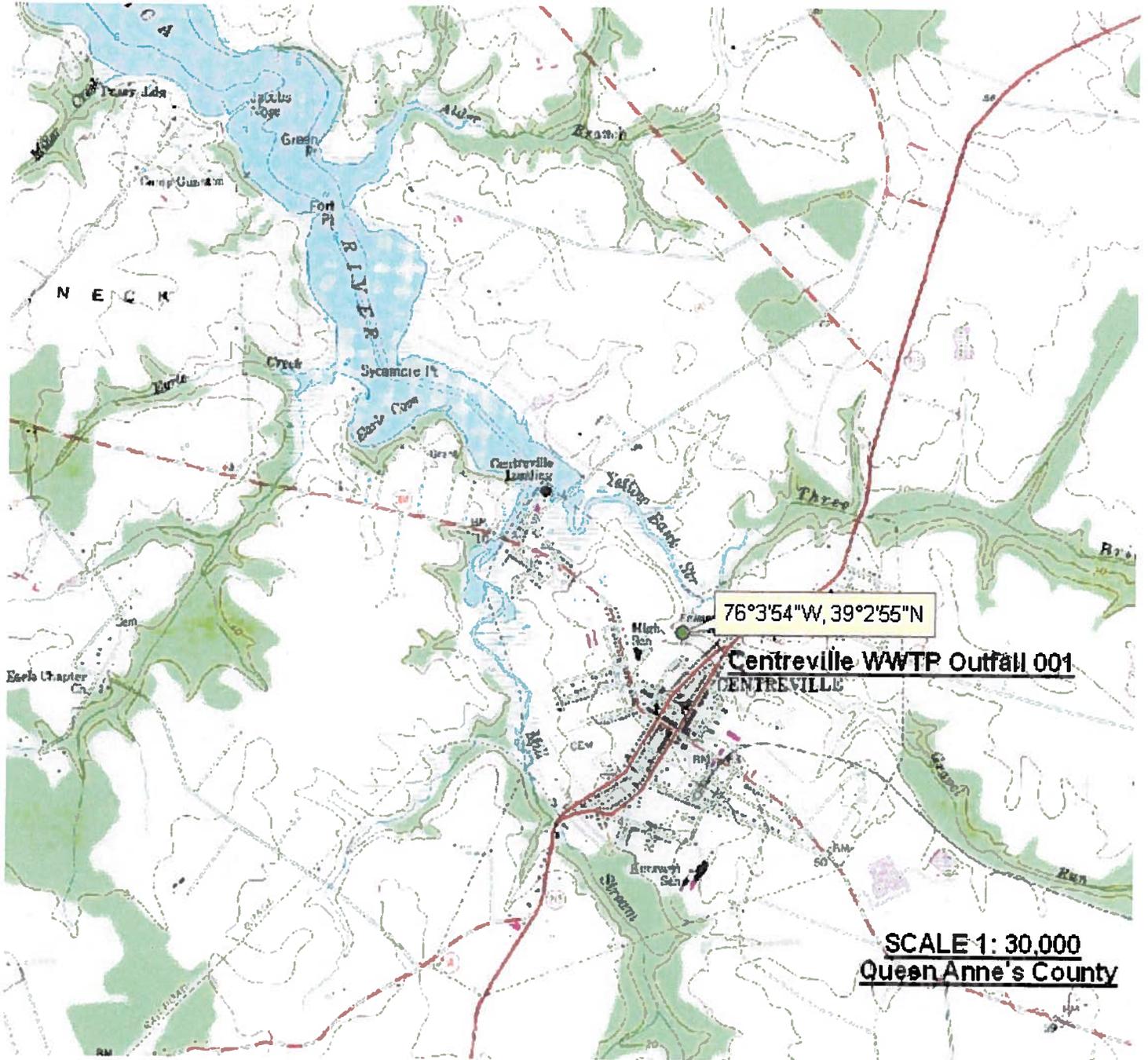
***Rationale for Monitoring Requirements***

The Department Guidelines for Minimum Monitoring Requirements as revised by memorandums of 7/24/1996 and 3/6/2008.

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

| DATE       | ACTIVITY DESCRIPTION   |
|------------|--|
| 04/01/2010 | The Permitting and Customer Services (PCS) received discharge permit renewal application dated 03/19/2010 completed by Bob McGrory.  |
| 07/07/2010 | Comments received from Planning Division   |
| 05/11/2011 | The Municipal Discharge Permits Division received letters from Daniel Worth on 7/28/2010 and Chris Curran on 5/11/2011 with particular interest concerning the renewal permit. |
| 06/01/2012 | Report narrating information gathered during the site visit of 6/1/2012 along with photographs.  |
| 08/10/2012 | A Public Notice for the Tentative Determination was published on 8/10/2012   |
| 08/14/2012 | A request for Public Hearing was received on 8/14/2012   |

**V. MAP SHOWING POINT OF DISCHARGE LOCATION**



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**Effluent Limitations and Monitoring Requirements of the Previous Permit (06-DP-0116).**

A. Effluent Limitations, Outfall 001- see footnotes

These limitations shall be applicable from December 1 through March 31 only. **No discharge is permitted from April 1 through November 30.** The quality of the effluent discharged by the facility shall be limited at all times as shown below.

| Effluent Characteristics                             | Requirements | Period    | Quantity                                   | Concentration                                     | Footnotes |
|--|--------------|-----------|--|---|-----------|
| BOD <sub>5</sub>                                     | Limits       | 12/1-3/31 | 130 lbs/d (mo ave)<br>190 lbs/d (wkly ave) | 30 mg/l (mo ave)<br>45 mg/l (wkly ave)            | N/A       |
|  | Monitoring   |           | Frequency                                  | Sample Type                                       | (7)       |
|  |              |           | Two per week                               | 8-hour composite                                  |           |
| Total Suspended Solids (TSS)                         | Limits       | 12/1-3/31 | 130 lbs/d (mo ave)<br>190 lbs/d (wkly ave) | 30 mg/l monthly average<br>45 mg/l weekly average | N/A       |
|  | Monitoring   |           | Frequency                                  | Sample Type                                       | (7)       |
|  |              |           | Two per week                               | 8-hour composite                                  |           |
| Ammonia as N   | Reporting    | 12/1-3/31 | N/A  | REPORT mg/l (mo ave)                              | (9)       |
|  | Monitoring   |           | Frequency                                  | Sample Type                                       |           |
|  |              |           | Two per week                               | 24-hour composite                                 |           |
| Organic Nitrogen as N (Monitoring only parameter)    | Reporting    | 12/1-3/31 | N/A  | REPORT mg/l (mo ave)                              | (9)       |
|  | Monitoring   |           | Frequency                                  | Sample Type                                       |           |
|  |              |           | Two per week                               | 24-hour composite                                 |           |
| (Nitrite + Nitrate) as N (Monitoring only parameter) | Reporting    | 12/1-3/31 | N/A  | REPORT mg/l (mo ave)                              | (9)       |
|  | Monitoring   |           | Frequency                                  | Sample Type                                       |           |
|  |              |           | Two per week                               | 24-hour composite                                 |           |
| Total Nitrogen as N                                  | Limits       | 12/1-3/31 | 750 lbs/mo (mo load)                       | 6.0 mg/l (mo ave)                                 | (3)       |
|  |              |           | 3004 lbs/discharge period                  |   |           |
|  | Monitoring   |           | Frequency                                  | Sample Type                                       | (8)       |
|  |              |           | Two per week                               | 24-hour composite                                 |           |

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| Effluent Characteristics                        | Requirements | Period    | Quantity   | Concentration  | Footnotes |
|---|--------------|-----------|--|--|-----------|
| Orthophosphate as P (Monitoring only parameter) | Reporting    | 12/1-3/31 | N/A  | REPORT mg/l (mo ave)                                     | (9)       |
|   | Monitoring   |           | Frequency  | Sample Type  |           |
|   |              |           | Two per month                                    | 24-hour composite  |           |
| Total Phosphorus as P                           | Limits       | 12/1-3/31 | 140 lbs/mo (Mo Load)<br>457 lbs/discharge period | 1.1 mg/l (mo ave)  | (3)       |
|   | Monitoring   |           | Frequency  | Sample Type  | (8)       |
|   |              |           | Two per week                                     | 24-hour composite  |           |
| Fecal Coliform                                  | Limits       | 12/1-3/31 | N/A  | 200 MPN/100 ml<br>(max mo log mean)                      | (10)(5)   |
|   | Monitoring   |           | Frequency  | Sample Type  |           |
|   |              |           | One per week                                     | Grab   |           |
| E. Coli   | Limits       | 12/1-3/31 | N/A  | 126 MPN/100 ml<br>(max mo geo mean)                      | (10)(5)   |
|   | Monitoring   |           | Frequency  | Sample Type  |           |
|   |              |           | One per week                                     | Grab   |           |
| Total Residual Chlorine (TRC)                   | Limits       | 12/1-3/31 | N/A  | 0.015mg/l (max)/ UV used                                 | (6)(11)   |
|   | Monitoring   |           | Frequency  | Sample Type  |           |
|   |              |           | Two per day                                      | Grab   |           |
| pH  | Limits       | 12/1-3/31 | N/A  | 6.5 SU min<br>8.5 SU max                                 |           |
|   | Monitoring   |           | Frequency  | Sample Type  |           |
|   |              |           | Two per day                                      | Grab   |           |
| Dissolved Oxygen (DO)                           | Limits       | 12/1-3/31 | N/A  | 5.0 mg/l (min at anytime)<br>mg/l (min daily / wkly ave) |           |
|   | Monitoring   |           | Frequency  | Sample Type  |           |
|   |              |           | Two per day                                      | Grab   |           |

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| Effluent Characteristics | Requirements | Period     | Quantity               | Concentration | Footnotes |
|--------------------------|--------------|------------|------------------------|---------------|-----------|
| Flow                     | Limits       | 12/1-3/31  | REPORT mgd (mo ave)    | N/A           |           |
|                          |              |            | REPORT mgd (daily max) |               |           |
|                          | Monitoring   |            | Frequency              | Sample Type   | (12)      |
|                          |              | Continuous | Recorded               |               |           |

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>

Effluent Limitations, Outfall 001, continued - see footnotes 1 through 13:

1. When this permit is renewed, the new limitations may not be equal to the above limitations. There shall be no discharge of floating solids or visible foam other than trace amounts.
2. The permit may also be reopened in accordance with the requirements of MDE's Watershed Permitting Plan under which all discharge permits in a watershed are issued the same year.
3. The monthly cumulative load of nutrients, total nitrogen and total phosphorus, is calculated by multiplying monthly average concentration of each nutrient (mg/l) with monthly total flow (million gallons per month) and conversion factor (8.34). Total nitrogen is the sum of ammonia-N, organic-N, and (nitrite+nitrate)-N based on samples collected on the same day.

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3. The Annual Maximum Loading Rate Limitations for total nitrogen and total phosphorus (lbs/year) 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, the permittee shall calculate, report and comply with the Annual Maximum Loading Rate limitation(s). The details and results of all required annual calculations shall be submitted to the Department with the Discharge Monitoring Report for December.
4. This permit may be reopened and the requirements revised to allow for effluent trading consistent with the terms of any final Maryland trading approach.
5. 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.
6. 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.
7. The permittee may substitute 24-hour composite sample for 8 hr. composite
8. 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 organic-N, ammonia-N, and (nitrite+nitrate)-N. All nitrogen parameters shall be measured on the same daily samples.
9. 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.
10. 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.
11. 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.
12. 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.
13. See General Condition III.A. 2. a.ii. of Permit No. 06-DP-0116.