# VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the **reissuance** of the VPDES permit listed below. This permit is being processed as a **minor municipal** permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

The discharge results from the operation of a **0.25 MGD** domestic sewage treatment plant with **rotating biological contactors**. This permit action consists of revising ammonia as nitrogen, $BOD_5$, total suspended solids, and total recoverable copper limits; adding an E. coli limit; and revising the special conditions.

1. **Facility Name and Address:**

   **Floyd-Floyd County Public Service Authority WWTP**
   P.O. Box 407
   Floyd, VA 24091

   **SIC Code**: 4952

   **Location:** 169 PSA Road, off State Route 221, West of the Town of Floyd
   Latitude: 36° 54" 37' N
   Longitude: 80° 20" 17" W

2. **Permit No.:** VA0025992
   **Existing Permit Expiration Date**: 8/18/2008

3. **Owner Contact Name**: Mr. N. Elwood Holden Title: Superintendent
   **Telephone No:** (540) 745-2169

4. **Application Complete Date**: 3/19/08
   **Permit Drafted By:** Holly Williams Date: 2/14/08
   Becky L. France Date: 6/3/08 (revised)
   DEQ Regional Office: West Central Regional Office
   Reviewer: Kip D. Foster, Water Permit Manager
   Reviewer's Signature: [signature] Date: 6/10/08
   Public Comment Period Dates: from 6/26/08 to 7/28/08

5. **Receiving Stream Name:** Dodd Creek River Mile: 3.64
   Watershed ID: VAW-N20R
   Basin: New River Subbasin: N.A. Section: 2 Class: V
   Special Standards: None
   1Q30 = 6.1 cfs (3.9 MGD) High Flow 1Q10 = 9.7 cfs (6.3 MGD)
   1Q10 = 7.2 cfs (4.7 MGD) High Flow 7Q10 = 11.5 cfs (7.4 MGD)
   7Q10 = 7.8 cfs (5.0 MGD) High Flow 30Q10 = 14.9 cfs (9.6 MGD)
   30Q10 = 9.5 cfs (6.2 MGD) HM = 19.9 cfs (12.9 MGD)
   30Q5 = 10.7 cfs (6.9 MGD) (See **Attachment A** for Flow Frequency Memo)
   Tidal? NO On 303(d) list? YES

6. **Operator License Requirements:** III

7. **Reliability Class:** II

8. **Permit Characterization:**
( ) Private ( ) Federal ( ) State (X) POTW
( ) Possible Interstate Effect ( ) Interim Limits in Other Document

9. **Description of the Wastewater Treatment System**

**Table 1: Discharge Description**

| OUTFALL NUMBER | DISCHARGE SOURCE | TREATMENT UNITS | FLOW | Discharge Frequency |
|---|---|---|---|---|
| 001 | Domestic Sewage Industrial Contributor (Hollingsworth & Vose) | bar screens (2)<br>grit chambers (2)<br>surge tank<br>primary clarifiers (2)<br>2-stage Rotating Biological contactors (3)<br>secondary clarifier (2)<br>gas chlorinator<br>sulfur dioxide dechlorinator<br>aerobic digestor<br>sludge belt press<br>sludge drying beds | 0.142 MGD (average)<br>0.25 MGD (design) | Continuous |

Sewage is received into the headworks via an 8" sanitary sewer line. The flow passes through manual bar screens to remove large objects, grit chambers and then a surge tank that serves to dampen high flows that may result from multiple pump stations discharging simultaneously. The headworks are followed by two primary clarifiers. From the clarifiers, the wastewater flows to one of two rotating biological contactors (RBC). The RBCs are separated by a baffle into two stages with a standard density media followed by a high density media stage. The flow from the RBCs is directed to a third, high density media RBC for further treatment. The standard density media has approximately 100,000 $ft^3$ of surface area on a 27 foot shaft and the high density media has approximately 150,000 $ft^3$ of surface area on the same length shaft.

The wastewater flow is directed from the RBCs to two secondary clarifiers. Chlorine is added in the effluent line from the secondary clarifiers. The flow passes through a baffled chlorine tank before sulfur dioxide is added for dechlorination as the flow leaves the chlorine contact tank. A schematic diagram of the treatment system may be found in **Attachment B**.

10. **Sewage Sludge Use or Disposal:**

Primary and secondary sludge is collected at the sludge well and then pumped to the aerobic digesters via a four inch pipe. The sludge is aerobically digested and then pumped to the belt press system. Sludge drying beds are available as a back up. Dry

sludge is hauled to the Maplewood Recycling and Waste Disposal facility in Amelia County, Virginia. More detailed information may be found in the VPDES Sewage Sludge Permit Application Form.

**11. Discharge Location Description:** Floyd Quadrangle, Number 051A

A copy of the USGS topographical map which indicates the discharge location, significant dischargers to the receiving stream, water intakes, and other items of interest may be found in **Attachment B**.

**12. Material Storage:**

- Chlorine gas cylinders
- Sulfur dioxide

Indoor storage is used to prevent these materials from reaching state waters.

**13. Ambient Water Quality Information:**

Critical stream flow determinations were performed using site-specific flow measurements taken above the discharge in Dodd Creek over the period of September 1996 to September 1999. A regression analysis was performed using the Dodd Creek data and data from the Little River near Graysontown (#03170000). The relationship derived from the regression analysis was applied to the 2005 compilation of USGS stream flow data for the Little River near Graysontown. A copy of the Flow Frequency Determination may be found in **Attachment A**. Critical stream flows values were found to be slightly lower that those of the previous permit reissuance.

The PReP complaint logs from the past five years were reviewed. Five entries were found associated with the operation of the Floyd-Floyd County PSA WWTP.

**Table 2: Compliant Log of Unpermitted Releases**

| Date | Location | Discharge Volume | Receiving Stream | Comments |
|---|---|---|---|---|
| 11/19/2003 | Main Pump Station | 1500 gallons | Oldfield Creek | |
| 8/26/2004 | Plant | | Dodd Creek | Foam in effluent due to Hollinsworth and Vose dumping drum of detergent to the treatment plant. |
| 9/28/2004 | Main Pump Station | Unknown | Dodd Creek | |
| 1/3/2005 | Howard St. Near Main St. (Rt. 221) | 10-20 gal/hr (few hour duration) | Oldfield Creek, UT | Sewer backed up and overflowing through cleanout in storm drain. |
| 6/27/2006 | Digester: Floyd STP | Unknown (2 hr duration) | | Heavy rain |

The nearest upstream monitoring station is 9-DDD004.64, which is one mile above the discharge. See **Attachment C** for upstream pH and temperature data. The closest downstream monitoring station is 9-DDD002.62, about one mile below the discharge. The 2006 303(d) report lists 15.45 miles of Dodd Creek, West Fork Dodd Creek, and an unnamed tributary to the West Fork Dodd Creek as impaired for not supporting the swimmable goal. A 1.18 mile section of Dodd Creek and West Fork Dodd Creek is listed as not supporting the temperature related aquatic goal of the Clean Water Act

The segment impaired for recreational use extends from the mouth of Dodd Creek on West Fork Little River to the intersection of Routes 710 and 714. The listed sections include the West Fork Dodd Creek that begins at West Fork Dodd Creek headwaters near the Blue Ridge Parkway and continues downstream to the confluence of West Fork Dodd Creek with Dodd Creek and an unnamed tributary to the West Fork. The impairment is caused by exceedances of the fecal coliform criteria for the stream. The impairment source is listed as Nonpoint Source – Agriculture/Wildlife/Domestic Septage.

A 1.8-mile section of the West Fork of Dodd Creek extending from an unnamed tributary located at 36°52'33"/-80° 19'43" downstream to the West Fork Dodd Creek confluence with Dodd Creek (upstream of the discharge) is also listed as impaired for supporting aquatic life. The impairment is due to temperature exceedance and the cause is unknown. **Attachment C** contains the Impaired Water Factsheet for Dodd Creek.

## 14. Antidegradation Review & Comments:

Tier: 1 _____ 2 XX 3 _____

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier I or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier II water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier II waters is not allowed without an evaluation of the economic and social impacts. Tier III water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. As was previously noted, this segment is listed on Part 1 of the 2006 303(d) list for exceedance of water quality criteria for fecal coliform and temperature. However, in accordance with agency guidance, the fecal coliform bacteria standard should not be used to establishment of the antidegradation tier. The temperature exceedance is above the outfall; therefore not considered in tier determination either. Other available pollutant data has been analyzed and the existing water quality condition for pollutants for which data exist compared to the water quality standards. This analysis indicates the quality of the receiving stream does not exceed numeric criteria for any pollutant. As available stream data indicate that the existing water

quality is better than the numeric criteria, this segment of Dodd Creek is classified as Tier II, and no significant degradation of existing quality is allowed.

For purposes of aquatic life protection in Tier II waters, "significant degradation" means that no more that 25% the difference between the acute and chronic aquatic criteria values and the existing quality (unused assimilative capacity) may be allocated. For purposes of human health protection, "significant degradation" means that no more than 10% of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The significant degradation baseline (antidegradation baseline) for aquatic life protection is calculated for each pollutant as follows:

**0.25 (WQS - existing quality) + existing quality = Antidegradation baseline**

The antidegradation baseline for human health protection is calculated for each pollutant as follows:

**0.10 (WQS - existing quality) + existing quality = Antidegradation baseline**

Effluent data used to determine 90$^{th}$ percentile pH and temperature values for the antidegradation wasteload allocation spreadsheet are included in **Attachment D**. The "antidegradation baselines" become the new water quality criteria in Tier II waters must be written to maintain the antidegradation baselines for each pollutant. Antidegradation baselines were calculated as described above using the Master Antidegradation Spreadsheet (Mstranti.xls) included in **Attachment E**.

Effluent limitations are discussed in detail in Section 16 below. The discharge is in compliance with antidegradation requirements set forth in the Water Quality Standard Regulation, 9 VAC 25-260-30. The antidegradation review was conducted as described in Guidance Memorandum 00-2011, dated August 24, 2000, and complies with the antidegradation policy contained in Virginia's Water Quality Standards.

15. **Site Inspection Date**: February 6, 2008 (See **Attachment B** for
**Performed by**: Holly Williams Site Visit Memo)

16. **Effluent Screening and Limitation Development:** DEQ Guidance Memorandum 00-2011 was used in developing all water quality based limits pursuant to water quality standards (9 VAC 25-260-5 et seq.). Effluent limitations for conventional pollutants are discussed below. Also, the discharge must be evaluated to determine whether there is a reasonable potential for the effluent to violate the water quality standards adopted by the State Water Control Board (9 VAC 25-260 et. seq).

Toxic pollutant data submitted during the permit term were above the quantification levels for dissolved copper and dissolved zinc. The water quality criteria and AWLAs for these parameters were calculated and are included in the spreadsheet in **Attachment E**. The acute and chronic AWLAs and the effluent data for zinc were used as input in the Agency's STATS program to determine if limits were necessary

for zinc. The program output indicates that permit limits for zinc are not necessary. See **Attachment E** for a copy of the STATS program results.

**Mixing Zone:** The MIXER program was run to determine the percentage of receiving stream flow that could be used in the antidegradation wasteload allocation calculations. The program output indicated that 100 percent of the 7Q10 and 1Q10 may be used for calculating acute and chronic antidegradation wasteload allocations (AWLAs). A copy of the printouts from the MIXER run is enclosed in **Attachment E.**

**Flow:** The design flow for the expanded plant is 0.25 MGD, increased from 0.15 MGD. The Certificate to Operate the expanded plant was issued December 5, 2004.

**$BOD_5$:** The limits for $BOD_5$ are set in accordance with federal technology based limits for municipal treatment plants. The concentration limits remain the same as in the current permit; 30 mg/L monthly average, 45 mg/L maximum weekly average. The loading limits of 29 kg/day monthly average and 42 kg/day maximum weekly average have been revised to include only whole numbers. This change is in accordance with Guidance Memo 06-2016 which specifies that loading limits should be given in whole numbers. The decimal places have been dropped rather than rounded to avoid backsliding. Monitoring 3 days/week via 8-hour composite samples shall continue.

**Dissolved Oxygen:** The Regional Water Quality Model was used to determine the appropriate $BOD_5$ and DO limits. It was predicted that the Federal Secondary Treatment limitations would not deplete dissolved oxygen more than 0.20 mg/L as long as the DO in the effluent is above 3.0 mg/L. After initial mixing, the model predicts that DO will increase. Please see **Attachment F** for model printouts. The previous minimum daily limit of 3.0 mg/L has been continued. The monitoring frequency has been revised to 1/day to reflect VPDES Permit Manual recommendations.

**Total Suspended Solids:** The limits for TSS are set in accordance with federal technology based limits for municipal treatment plants. The concentration limits remain the same as in the current permit; 30 mg/L monthly average and 45 mg/L maximum weekly average. The loading limits of 29 kg/day monthly average and 42 kg/day maximum weekly average have been revised to include only whole numbers. This change is in accordance with Guidance Memo 06-2016 which specifies that loading limits should be given in whole numbers. The decimal places have been dropped rather than rounded to avoid backsliding. Monitoring 3 days/week via 8-hour composite samples shall continue.

**pH:** The minimum limit of 6.0 standard units and the maximum limit of 9.0 standard units are in accordance with the water quality standards for this water body. These limits have been continued from the previous permit. Grab samples shall continue to be taken 1/day.

**Ammonia as Nitrogen:** Revised ammonia antidegradation wasteload allocations (AWLAs) were entered into the STATS program to determine if more stringent ammonia limits were needed. To calculate limitations for ammonia, an average concentration of 9.0 mg/L has been assumed for the effluent. The STATS program determined that for low flow months of June through December, ammonia as N effluent limitations of 6.2 mg/L monthly average and 8.3 mg/L maximum weekly average are needed. These more stringent limits have been included in the permit. The STATS program determined that for the high flow months of January through May, limits of 10 mg/L monthly average and 14 mg/L maximum weekly average are needed. These more stringent limits have been included in the permit. The plant has been operating well below both the previous and new ammonia limits, so a compliance schedule has not been included in the permit. The ammonia monitoring frequency has been revised to reflect the VPDES Permit Manual recommendation of 3 days/ week via 8 hour composite samples. Refer to **Attachment E** for a copy of the STATS program printouts.

**Temperature:** The regional staff performed a study of the thermal mixing zone in the receiving stream in July and August of 1997. The study indicated that the water quality criteria of 21 °C is occasionally violated upstream of the facility and that the effluent had a minimal impact on the receiving stream. Over the course of the month long study, temperature of the creek increased an average of one-half of one degree Celsius as a result of the discharge. The maximum effluent temperature measured was 23.5 °C and the size of the mixing zone was less than one meter wide and extended less than five meters downstream. Monitoring for temperature has been continued. During the permit term the maximum effluent temperature was 25.1 °C and the 90$^{th}$ percentile effluent temperature was 24.1 °C. The frequency has been increased to 1/day to provide a more thorough evaluation of temperature fluctuations. These data will also be used to calculate the 90$^{th}$ percentile temperature values used in the AWLA spreadsheet for the next reissuance permit.

**Total Recoverable Copper:** The 2003 reissuance permit contains total recoverable copper limitations, so a limit will be needed. This limit has been reevaluated to determine if it is stringent enough. The revised antidegradation wasteload allocations and data were entered into the STATS program to force a limit. The antidegradation wasteload allocations using the updated stream flow frequencies, revised water quality criteria, and hardness data are lower than the previous permit. The STATS program output indicates monthly average and maximum weekly average effluent limitations need to be reduced from the previous limit of 46 µg/L to 27 µg/L to protect water quality. Refer to **Attachment E** for a copy of the STATS program printout. The plant has been operating well below both the previous and new copper limits, so a compliance schedule has not been included in the permit. Monitoring once per month via 8 hour composite samples shall continue.

**Total Residual Chlorine (TRC):** The TRC limits in the permit were reassessed with the AWLAs that were determined from the revised stream flow frequencies. Based on the acute and chronic AWLAs and the Agency's STATS program, permit limits of 0.042 mg/L monthly average and 0.051 mg/L maximum weekly average

are needed in the permit. The previous permit monthly average limitations are more stringent. Therefore to avoid backsliding, the more stringent permit limitations of 0.041 mg/L monthly average and 0.046 mg/L maximum weekly average have been continued in the permit. Refer to **Attachment E** for a copy of the STATS program printout. Effluent monitoring for TRC will continue 1/day via grab samples.

**E. coli:** The treatment plant discharge has been given an allocation in the bacterial TMDL for Dodd Creek. As required by the TMDL, an E. coli limit of 126 n/100 mL (geometric mean) has been included in the permit. See **Attachment C** for the TMDL allocation table listing the discharge and a memorandum demonstrating that a limit of 126 n/100 mL will meet the wasteload allocation Dodd Creek. Grab samples are to be collected between 10 AM and 4 PM. The previous permit monitored disinfection of treated wastewater solely through minimum total residual chlorine limits, with samples collected immediately after the chlorine contact tank. The total residual chlorine limitations will be continued in the permit and the addition of an E. coli limit is intended to confirm adequate disinfection. The monitoring frequency of twice per month is less frequent than the VPDES Permit Manual recommends (3 days/week). Bimonthly E. coli monitoring is justified because the permittee completed a study that demonstrated the effectiveness of the chlorine disinfection in reducing E. coli to below Virginia's Water Quality Standard of 126 n/100 mL.

**17. Basis for Sludge Use and Disposal Requirements**

Sludge from the clarifiers is pumped to the aerobic digester. After digestion, polymer is added to aide dewatering by the belt press. A sludge drying bed is available as an alternate method of sludge dewatering. The facility will transport the dried sludge to Maplewood Recycling and Waste Disposal Facility in Amelia County. No limits or monitoring are required beyond compliance with the Sludge Management Plan approved with the reissuance of this permit.

**18. Antibacksliding Statement:**

Since there are no limitations less stringent than the previous permit, the permit limits comply with the antibacksliding requirements of 9 VAC 25-31-220 L of the VPDES Permit Regulation.

**19. Compliance Schedules:**

None

**20. Special Conditions:**

a. **Additional Chlorine Limitations and Monitoring Requirements (Part I.B)**
**Rationale:** Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790, bacteria standards; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of

treatment in order to comply with the permit. These requirements ensure proper operation of chlorination equipment to maintain adequate disinfection.

b. **95% Capacity Reopener (Part I.C.1)**
**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 2 for all POTW and PVOTW permits.

c. **Indirect Dischargers (Part I.C.2)**
**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

d. **CTC, CTO Requirement (Part I.C.3)**
**Rationale:** Required by Code of Virginia 62.1-44.19 and Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all POTW and PVOTW permits.

e. **Operations and Maintenance Manual Requirement (Part I.C.4)**
**Rationale:** Required by Code of Virginia 62.1-44.19 and Sewage Collection and Treatment Regulations (9 VAC 25-790), and the VPDES Permit Regulation, 9 VAC 25-31-190 E.

f. **Licensed Operator Requirement (Part I.C.5)**
**Rationale:** The VPDES Permit Regulation, 9 VAC 25-31-200 D and the Code of Virginia 54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), require licensure of operators.

g. **Reliability Class (Part I.C.6)**
**Rationale:** Required by the Sewage Collection and Treatment Regulations, 9 VAC 25-790-70 for all municipal facilities.

h. **Sludge Reopener (Part I.C.7)**
**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-220 C4 for all permits issued to treatment works treating domestic sewage.

i. **Section 303(d) List (TMDL) Reopener (Part I.C.8)**
**Rationale:** Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under Section 303 of the Act.

j. **Water Quality Criteria Monitoring (Part I.C.9)**
**Rationale:** State Water Control Law Section 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential

toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, Subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit. Monitoring data shall be collected after **May 1, 2011** and no later than **March 31, 2012**. The data shall be submitted with the Discharge Monitoring Report due for the month in which it was collected. At the latest, if the samples are collected in April of 2012 the data shall be submitted no later than **April 10, 2012**.

k. **Compliance Reporting Under Part I.A and Part I.B (Part I.C.10)**
**Rationale:** Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J4 and 220I. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

l. **Sludge Use and Disposal (Part I.C.11)**
**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-100P; 220 B2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements may be derived from the VPA Permit Regulation, 9 VAC 5-32-10 et seq.

m. **Pretreatment (Part I.D)**
**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-730 through 900, and 40 CFR Part 403 require certain existing and new sources of pollution to meet specified regulations.

n. **Part II, Conditions Applicable to All Permits**
**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

**21. <u>Changes to Permit</u>:**

A. **The following special condition has been deleted from the permit:**

A Bacterial Effluent Limitations and Monitoring Requirements Special Condition (Part I.C) has been deleted because the facility has completed the requirements of the bacterial study to submit <u>E. coli</u> data.

B. **Special conditions that have been modified from the previous permit are listed below: (The referenced permit sections are for the new permit.)**

1. The Additional Total Residual Chlorine Limitations and Monitoring Requirements Special Condition (Part I.B) has been revised to reflect changes in the Water Quality Standards.

2. The Operations and Maintenance Manual Special Condition (Part I.C.4) has been revised in accordance with the VPDES Permit Manual.

3. The Water Quality Criteria Monitoring Special Condition (Part I.C.9) has been revised to include monitoring for water parameters without data associated with the 0.25 MGD facility.

4. The Compliance Reporting under Part I.A and Part I.B Special Condition (Part I.C.10) has been modified in accordance with the VPDES Permit Manual to include information about significant figures. This special condition establishes maximum quantification levels and reporting procedures.

5. In accordance with Guidance Memorandum 01-2023, the Pretreatment Special Condition (Part I.D) has been revised to include information regarding the development of a pretreatment program if required.

C. **A new special condition added to the permit is listed below:**

A CTC, CTO Requirement (Part I.C.3) has been added in accordance with the VPDES Permit Manual. In accordance with the Sewage Collection and Treatment Regulations, plans and specifications are to be submitted to the DEQ for review and approval to construct.

D. **Permit Limits and Monitoring Requirements:** See Table 4 on pages 16 for details on changes to the effluent limits and monitoring requirements.

**22.** **Variances/Alternate Limits or Conditions:** No variances or alternate limits or conditions are included in this permit. The permittee requested that the 8-hour composite data for TSS and $BOD_5$ collected during the permit term be used on the application in lieu of 24-hour composite samples. The permittee also requested that data from one grab sample instead of three be allowed for nitrate + nitrite, oil and grease, total kjeldahl nitrogen, phosphorus, and total dissolved solids. These waivers were granted because they were consistent with current permit requirements.

**23.** **Regulation of Users:** The VPDES Permit Regulation, 9 VAC 25-31-280 B9, requires that every permit issued to a treatment works owned by a person other than a state or municipality provide an explanation of the Board's decision on the regulation of users. The Town of Floyd, a municipality, owns this treatment works; therefore this regulation does not apply. The Significant Industrial Survey required for the facility's industrial users is in Part I.D of the permit.

**24. Public Notice Information required by 9 VAC 25-31-280 B:**

All pertinent information is on file and may be inspected or copied by contacting Becky L. France at:

Virginia DEQ West Central Regional Office
3019 Peters Creek Road
Roanoke, VA 24019
(540) 562-6700
blfrance@deq.virginia.gov

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action.

Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. See **Attachment G** for a copy of the public notice.

**25. Additional Comments:**

Previous Board Action: None

Staff Comments: The discharge is not controversial and is currently meeting discharge limitations. The previous permit was issued August 19, 2003 and expires August 18, 2008. The discharge is not controversial, and is conformance with the existing planning document for the area. The permit is being reissued for a period of less than five years to even out the DEQ staff permitting workload.

Public Comment: No comments were received during the public notice.

Reduced Monitoring: Guidance Memorandum 98-2005 allows for reduced monitoring at facilities with excellent compliance histories. To qualify for consideration of reduced monitoring, the facility should not have been issued any Letter of Noncompliance (LON), Notice of Violation (NOV), or Warning Letter, or be under any Consent Orders, Consent Decrees, Executive Compliance Agreements, or related enforcement documents during the past three years. The facility received the following warning letters within the past three years:

| | |
|---|---|
| Warning Letter No. W2007-01-W-1006 | exceedance of total suspended solids and $BOD_5$ limits |
| Warning Letter No. W2006-07-W-1004 | total suspended solids limit |

The facility does not meet the criteria discussed above, and therefore is not eligible for reduced monitoring.

Attachments

Attachment A
- Flow Frequency Memo

Attachment B
- Topographical Map
- Treatment Schematic
- Site Visit Memo

Attachment C
- Dodd Creek Impaired Water Fact Sheet
- Monitoring Station Data

Attachment D
- Effluent Data

Attachment E
- MIX Program Printout
- Antidegradation Wasteload Allocation Spreadsheet
- Ammonia Jan-May STATS Program Printout
- Ammonia June-Dec STATS Program Printout
- Copper STATS Program Printout
- Zinc STATS Program Printout

Attachment F
- Regional Model for Free Flowing Streams

Attachment G
- Public Notice

Attachment H
- EPA Checksheet

Tables

| | |
|---|---|
| Table 1 | Discharge Description (Page 2) |
| Table 2 | Complaint Log of Unpermitted Discharges (Page 3) |
| Table 3 | Basis for Limitations and Monitoring Requirements (Page 15) |
| Table 4 | Permit Processing Change Sheet (Page 16) |

## 26. 303(d) Listed Segments (TMDL):

This facility discharges to Dodd Creek at river mile 3.64. The 2002 303(d) report lists 15.41 miles of Dodd Creek as impaired for not supporting the swimmable goal of the Clean Water Act due to fecal coliform bacteria. The TMDL entitled "Fecal Coliform TMDL for Dodd Creek Watershed, Virginia" was approved by EPA on December 11, 2002. It contains a wasteload allocation for this discharge of 4.15 x $10^{11}$ cfu/year, equating to a monthly geometric mean of 200 colonies per 100 ml for

the 0.15 MGD design flow plant. Relevant excerpts from the TMDL report and supporting documentation are included in the Impaired Water Factsheet for Dodd Creek found in **Attachment C**. The full TMDL report may be found on the web at http://www.deq.state.va.us/tmdl/apptmdls/newrvr/dodd.pdf.

The original TMDL allocation did not address increasing the design flow of the Floyd PSA facility from 0.15 MGD to 0.25 MGD; however, the Dodd Creek TMDL was re-modeled and the "Fecal Coliform TMDL for Dodd Creek Watershed" was modified to increase the WLA to $6.91 \times 10^{11}$ cfu/year (equivalent to a monthly geometric mean of 200 colonies per 100 ml in the discharge at a 0.25 MGD discharge rate). For the 2003 VPDES permit reissuance, the EPA 30-day comment period ended July 16, 2003 and no comments were received. An E. coli limit of 126 N/100 mL as a geometric has been added to the permit. The E. coli limit is considered protective of the bacterial TMDL. So, this discharge is in conformance with the modified TMDL. Additional information may be found in **Attachment C**.

**Table 3**
BASIS FOR LIMITATIONS – MUNICIPAL

( ) Interim Limitations
(x ) Final Limitations

OUTFALL: 001
DESIGN CAPACITY: 0.25 MGD

Effective Dates - From: Effective Date
To: Expiration Date

| PARAMETER | BASIS FOR LIMITS | DISCHARGE LIMITS | | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|---|
| | | Monthly Average | Weekly Average | Minimum | Maximum | Frequency | Sample Type |
| Flow (MGD) | NA | NL | NA | NA | NL | 1/Day | Continuous |
| pH (Standard Units) | 1,2 | NA | NA | 6.0 | 9.0 | 1/Day | Grab |
| $BOD_5$ | 1 | 30 mg/L 28 kg/d | 45 mg/L 42 kg/d | NA | NA | 3 Days/Week | 8 Hour Composite |
| Total Suspended Solids | 1 | 30 mg/L 28 kg/d | 45 mg/L 42 kg/d | NA | NA | 3 Days/Week | 8 hour Composite |
| Dissolved Oxygen | 3 | NA | NA | 3.0 mg/L | NA | 1/Day | Grab |
| Temperature | 2 | NA | NA | NA | NL °C | 1/Day | IS |
| Ammonia as Nitrogen (June through December) | 2 | 6.2 mg/L | 8.3 mg/L | NA | NA | 3 Days/Week | 8 Hour Composite |
| Ammonia as Nitrogen (January through May) | 2 | 10 mg/L | 14 mg/L | NA | NA | 3 Days/Week | 8 Hour Composite |
| Copper, Total Recoverable | 2 | 27 µg/L | 27 µg/L | NA | NA | 1/Month | 8 Hour Composite |
| Total Residual Chlorine | 2 | 0.041 mg/L | 0.046 mg/L | NA | NA | 1/Day | Grab |
| E. coli | 2,4 | 126 N/100 mL | NA | NA | NA | 2/Month (7 days apart) | Grab (between 10 AM and 4 PM) |

NA = Not Applicable; NL = No Limitations; monitoring only; IS = Immersion Stabilization

The basis for the limitations codes are:
1. Federal Technology-Based Secondary Treatment Regulation (40 CFR Part 133)
2. Water Quality Criteria
3. Regional Water Quality Model
4. TMDL for Discharge to Dodd Creek

**Table 4**
PERMIT PROCESSING CHANGE SHEET

LIMITS AND MONITORING SCHEDULE:

| Outfall No. | Parameter Changed | Monitoring Requirement Changed | | Effluent Limits Changed | | Reason for Change | Date |
|---|---|---|---|---|---|---|---|
| | | From | To | From | To | | |
| 001 | Total Recoverable Copper | | | 46 µg/L monthly average; 46 µg/L maximum weekly average | 27 µg/L monthly average; 27 µg/L maximum weekly average | To maintain Water Quality Standard with revised receiving stream and discharge characteristics. | 5/30/08 |
| 001 | Dissolved oxygen | 3 days/week | 1/day | | | Monitoring frequency revised to reflect VPDES Permit Manual recommendations. | 5/30/08 |
| 001 | $BOD_5$ and TSS | | | 30 mg/L (28.4 kg/d) monthly average and 45 mg/L (42.6 kg/d) maximum weekly average | 30 mg/L (28 kg/d) monthly average and 45 mg/L (42 kg/d) maximum weekly average | The loading limits were rewritten in whole numbers in accordance with Guidance Memorandum 06-2016 which specifies that loading limits should be listed in whole numbers. To avoid backsliding the numbers were rounded down. | 5/30/08 |
| 001 | Ammonia as nitrogen (June – Dec.) | 2 days/month | 3 days/week | 12.3 mg/L monthly average; 18.7 mg/L maximum weekly average | 6.2 mg/L monthly average; 8.3 mg/L maximum weekly average | STATS program output indicated more stringent limit needed. Monitoring frequency revised in accordance with VPDES Permit Manual. | 6/11/08 |
| 001 | Ammonia as nitrogen (Jan. - May | 2 days/month | 3 days/week | 15.5 mg/L monthly average; 22.7 mg/L maximum weekly average | 10 monthly average; 14 mg/L maximum weekly average | STATS program output indicated more stringent limit needed for maximum weekly average. Monitoring frequency revised in accordance with VPDES Permit Manual. | 6/11/08 |
| 001 | Temperature | 1/month | 1/day | | | Monitoring frequency increased to allow tracking of temperature over the course of the permit. This information can be used to calculate 90th percentile temperature values for the antidegradation wasteload allocations. | 5/30/08 |
| 001 | E. coli | NA | 2/Month | NA | 126 N/100 mL geometric mean | E. coli limit added to ensure compliance with bacterial TMDL for discharge to Dodd Creek. | 5/30/08 |

**Attachment A**

- FLOW FREQUENCY MEMO

# MEMORANDUM

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION**
**3019 Peters Creek Road Roanoke, Virginia 24019**

---

**SUBJECT:** Flow Frequency Determination
Floyd-Floyd County PSA (VA0025992) - Reissuance

**TO:** Permit File

**FROM:** Holly Williams, Environmental Engineer Senior

**DATE:** October 19, 2007

The Floyd Town sewage treatment plant discharges to the Dodd Creek near Floyd, VA. Stream flow frequencies are required at this site in developing effluent limitations for the VPDES permit.

The VDEQ conducted several flow measurements on the Dodd Creek from 1996 to 1999. The measurements were made above the Floyd STP outfall. The measurements correlated very well with the same day daily mean values from the continuous record gage on the Little River at Graysontown, VA (#03170000). The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The most current (1929-2003) flow frequencies from the reference gage were plugged into the equation for the regression line and the associated flow frequencies at the measurements site/discharge point were calculated. The data for the reference gage and the measurement site/discharge point are presented below.

Regression Equation: $y = 0.3205x^{0.7615}$

$R^2 = 0.9697$

<u>Little River near Graysontown, VA (#03170000)</u>
Drainage Area = 300 $mi^2$

| | |
|---|---|
| 1Q30 = 48 cfs | High Flow 1Q10 = 88 cfs |
| 1Q10 = 60 cfs | High Flow 7Q10 = 110 cfs |
| 7Q10 = 66 cfs | High Flow 30Q10 = 155 cfs |
| 30Q10 = 86 cfs | HM = 227 cfs |
| 30Q5 = 100 cfs | |

<u>Dodd Creek at Floyd STP, at Floyd, VA (#03169220)</u>
Drainage Area = 19.25 $mi^2$

| | |
|---|---|
| 1Q30 = 6.1 cfs (3.9 MGD) | High Flow 1Q10 = 9.7 cfs (6.3 MGD) |
| 1Q10 = 7.2 cfs (4.7 MGD) | High Flow 7Q10 = 11.5 cfs (7.4 MGD) |
| 7Q10 = 7.8 cfs (5.0 MGD) | High Flow 30Q10 = 14.9 cfs (9.6 MGD) |
| 30Q10 = 9.5 cfs (6.2 MGD) | HM = 19.9 cfs (12.9 MGD) |
| 30Q5 = 10.7 cfs (6.9 MGD) | |

The high flow months are January through May.

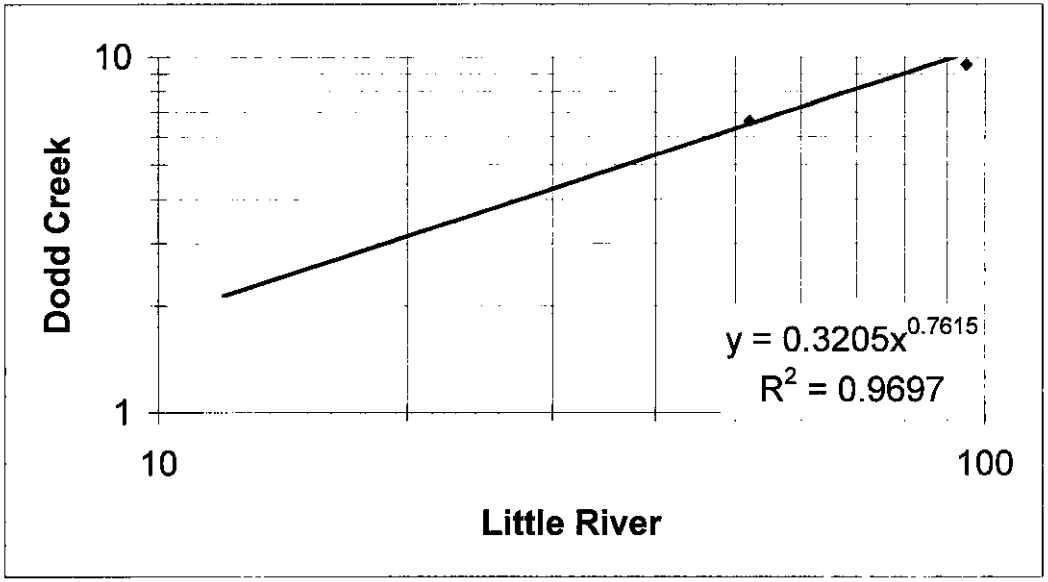
**Little River near Graysontown, VA (reference gage #03170000)**
**vs Dodd Creek at Floyd STP (measurement site #03169220)**

**Historic Flow Data (cfs)**

| Date | Little River | Dodd Creek |
|---|---|---|
| 9/26/96 | 246 | 20.1 |
| 6/30/97 | 261 | 22.9 |
| 9/8/97 | 95 | 9.53 |
| 8/3/98 | 137 | 14 |
| 10/5/98 | 130 | 14.8 |
| 6/8/99 | 121 | 11.4 |
| 9/2/99 | 52 | 6.63 |
| | (Reference) | (Meas. Site) |

**2005 Flow Frequencies (cfs)**

| Little River | | Dodd Creek |
|---|---|---|
| 48 | 1Q30 | 6.1 |
| 60 | 1Q10 | 7.2 |
| 66 | 7Q10 | 7.8 |
| 86 | 30Q10 | 9.5 |
| 100 | 30Q5 | 10.7 |
| 88 | HF1Q10 | 9.7 |
| 110 | HF7Q10 | 11.5 |
| 155 | HF30Q10 | 14.9 |
| 227 | Harmonic Mean | 19.9 |
| 300 | DA ($mi^2$) | 19.25 |




| HARMEAN | HF30Q10 | HF7Q10 | HF1Q10 | Z30Q5 | Z30Q10 | Z7Q10 | Z1Q10 | Z1Q30 | HFMTHS | STATPERIOD | YRSTRN | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 227 | 155 | 110 | 88 | 100 | 86 | 66 | 60 | 48 | JAN-MAY | 1929-2003 | 2005 | |

| | Dodd Creek Meas. Site, cfs | Dodd Creek Meas. Site, mgd | Little River Ref gage, cfs | Little River Ref gage, mgd |
|---|---|---|---|---|
| 1Q30 | 6.1 | 3.9 | 48 | 31.0 |
| 1Q10 | 7.2 | 4.7 | 60 | 38.8 |
| 7Q10 | 7.8 | 5.0 | 66 | 42.6 |
| 30Q10 | 9.5 | 6.2 | 86 | 55.6 |
| 30Q5 | 10.7 | 6.9 | 100 | 64.6 |
| HF1Q10 | 9.7 | 6.3 | 88 | 56.8 |
| HF7Q10 | 11.5 | 7.4 | 110 | 71.1 |
| HF30Q10 | 14.9 | 9.6 | 155 | 100.1 |
| Harmonic Mean | 19.9 | 12.9 | 227 | 146.6 |

HF months January - May

**Attachment B**

- TOPOGRAPHICAL MAP
- TREATMENT SCHEMATIC
- SITE VISIT MEMO

# MEMORANDUM

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION**
**3019 Peters Creek Road Roanoke, Virginia 24019**

---

**SUBJECT:** Site Visit Memo
Floyd-Floyd County Public Service Authority. (VA0025992) - Reissuance

**TO:** Permit File

**FROM:** Holly Williams, Environmental Engineer Senior

**DATE:** February 7, 2008

I performed the Floyd-Floyd County Public Service Authority site visit February 6, 2008. In addition to me, Mr. Elwood Holden was in attendance.

We toured the inside and outside facilities and observed operations. The 0.25 MGD design capacity plant is composed of two manual bar screens, two grit chambers located with partial flumes, a surge tank, two primary clarifiers, three 2-stage rotating biological contactors, two secondary clarifiers, gas chlorination, and $SO_2$ dechlorination before discharging to Dodd Creek via a 6" shore-based pipe. Sludge from the clarifiers is sent to an aerobic digester and then dewatered by a sludge belt press. Dried sludge is stored on-site and then sent the Maplewood Recycling and Waste Disposal facility for disposal.

The plant discharges continuously. The receiving river was observed at the outfall. Stream width, flow characteristics, and bottom character were noted.

Previous investigations into the high copper levels in the discharge showed that the source was water supply line corrosion. Soda ash is now being added to some public water supply wells to increase pH and reduce the copper corrosion.

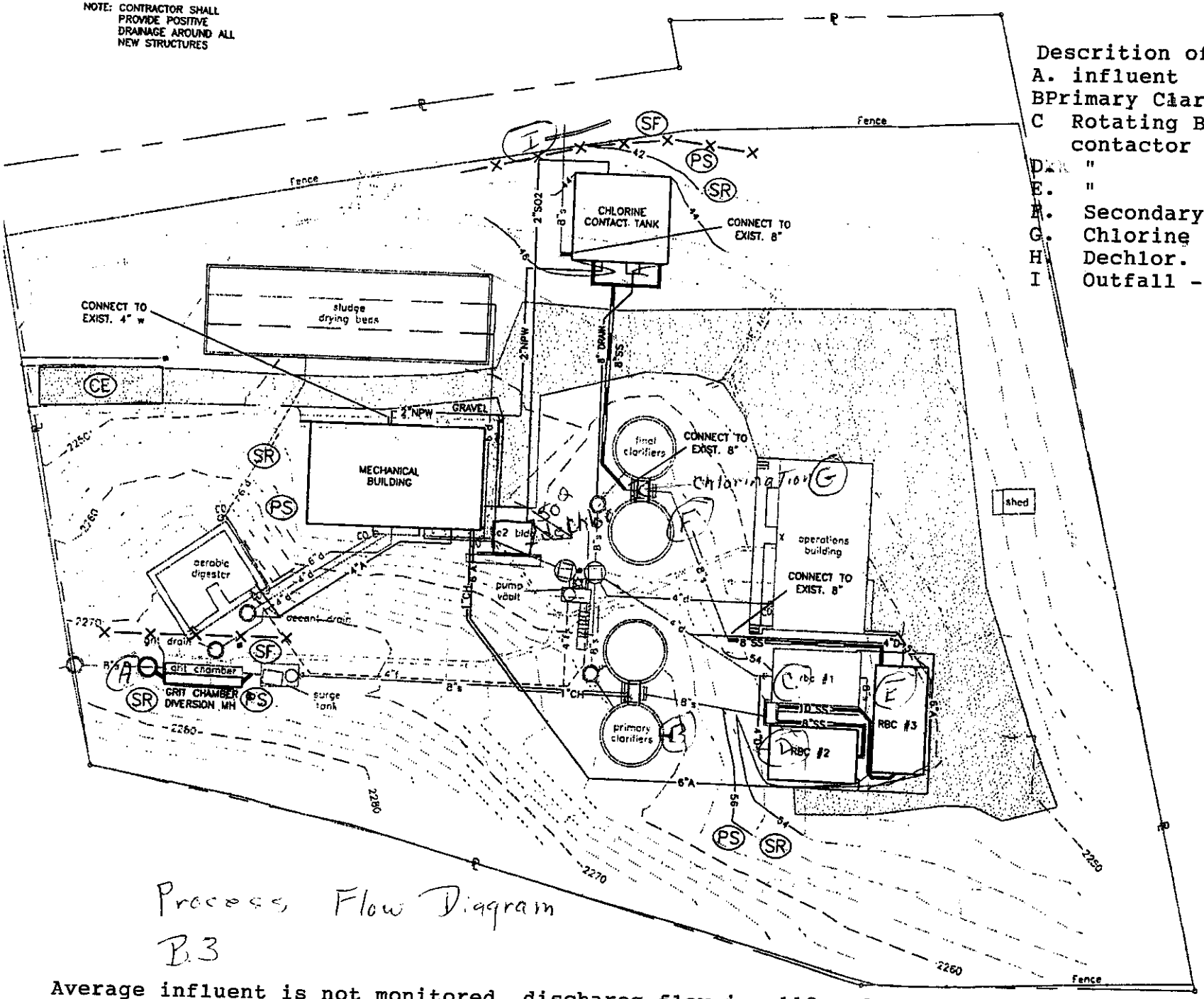
Chemicals stored on-site are listed below.

| **Chemical** | **Storage Location** |
|---|---|
| Chlorine Gas | Storage area attached to main building |
| Polymer | Sludge Press Building |
| Soda Ash | |
| Sulfur Dioxide | $SO_2$ Building |
| Hydrated lime | |

The purpose of the visit was to gain familiarity with facility operations and receiving waters to provided information for VPDES permit reissuance. Nothing observed indicated that the current operations were not consistent with the requirements set forth in the current VPDES permit.

NOTE: CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AROUND ALL NEW STRUCTURES

Descrition of Flow Diagram
A. influent
BPrimary Clarifiars
C Rotating Biological Con
contactor
D. "
E. "
F. Secondary Clairfiars
G. Chlorine Contact
H. Dechlor. Sulfur Dixiode
I Outfall - discharge

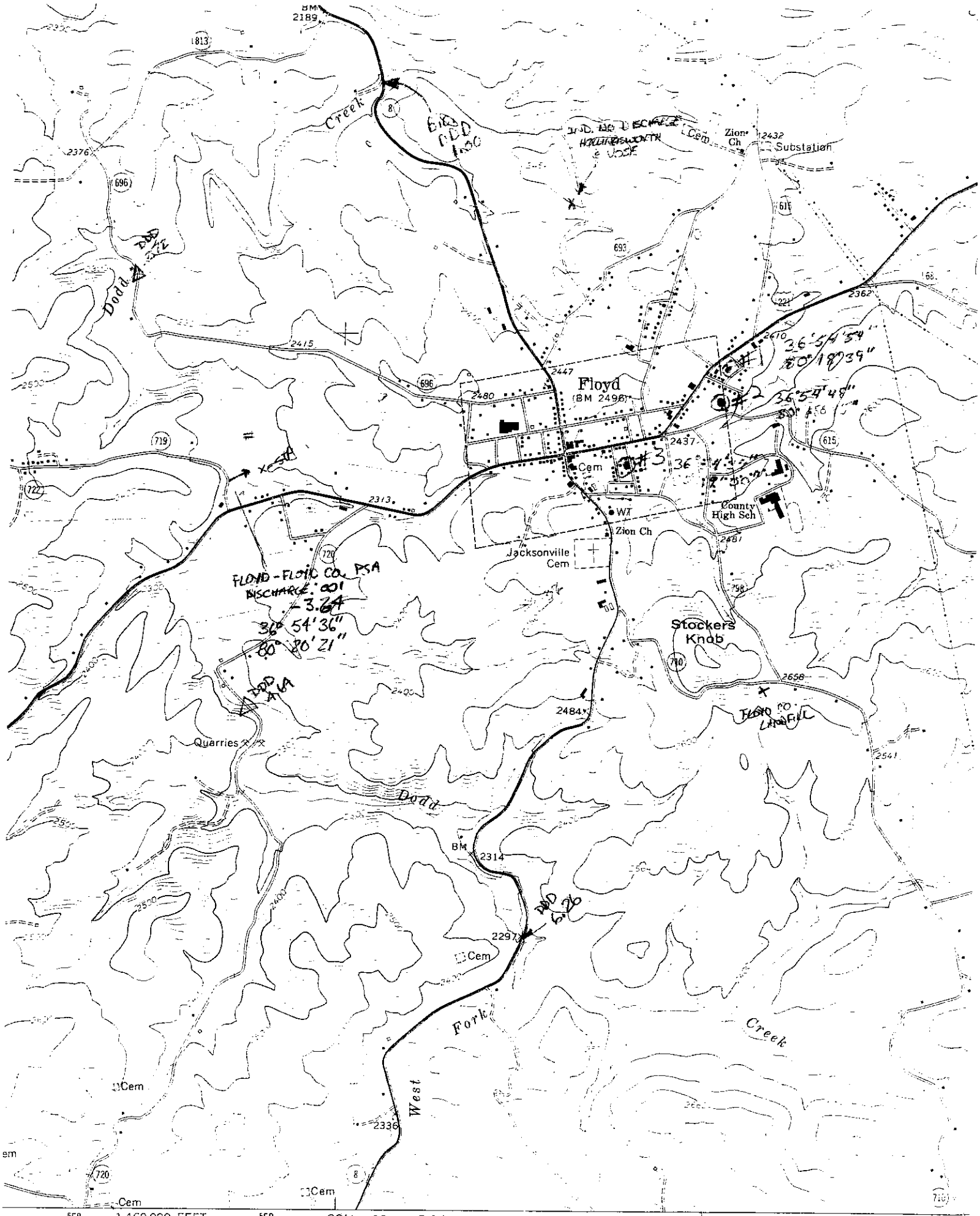


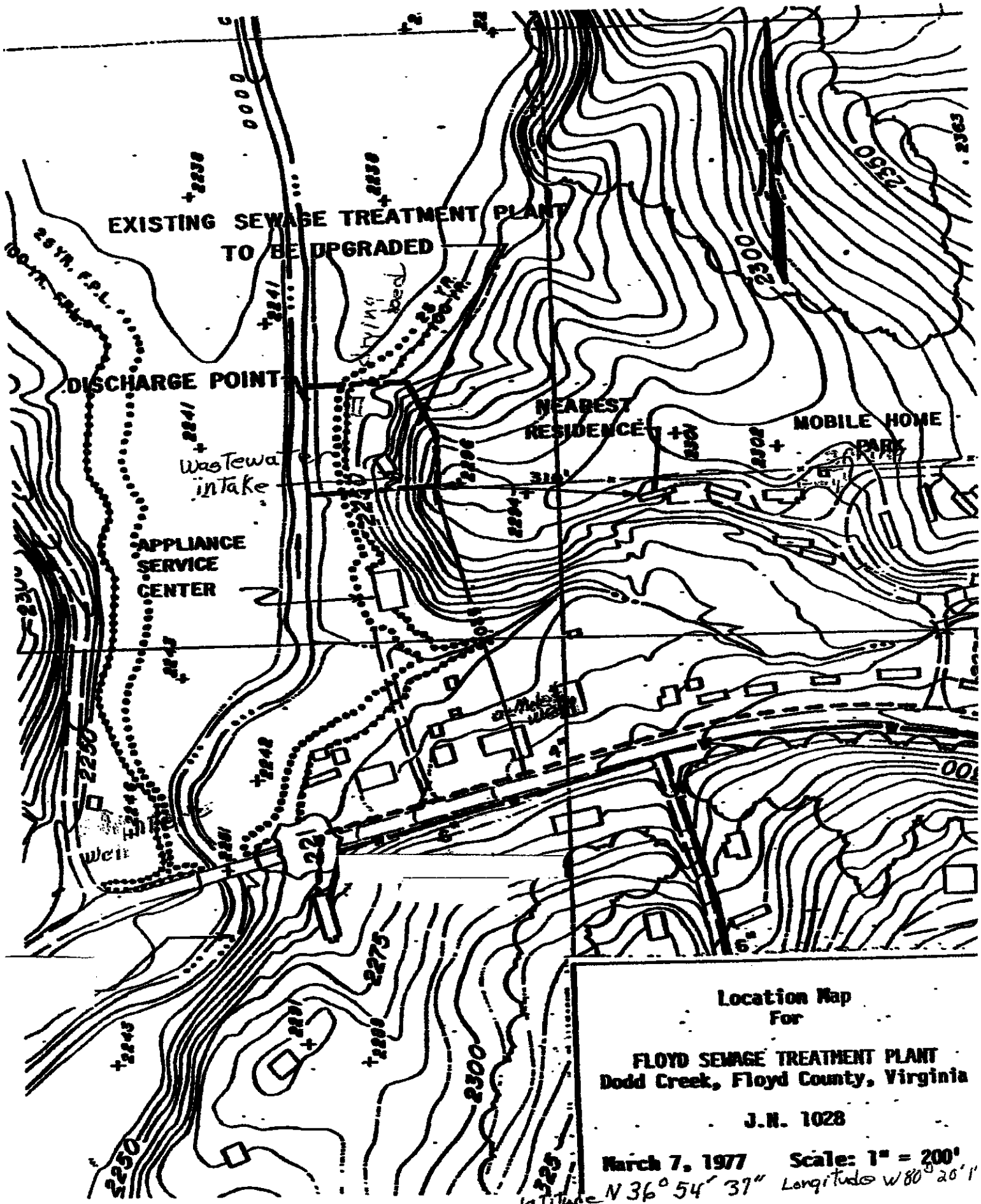

Process Flow Diagram
B.3

Average influent is not monitored, dischareg flow is .119 mgd. The flow goes through each unit by gravity, therefore, flow at each unit is approximately..119 GPD

NOTE: 25-YEAR FLOOD ELEVATION = 2245.0'
100-YEAR FLOOD ELEVATION = 2246.0'

20 10 0 20 40 60
SCALE IN FEET


BM 2189
Creek
Zion Ch
Substation
Floyd
(BM 2496)
Cem
WT
Zion Ch
County High Sch
Jacksonville Cem
Stockers Knob
Quarries
Dodd
BM 2314
West Fork
Creek
Cem
558
1 460 000 FEET
559
561
(WOOLWINE)
4957 IV SE
SCALE 1:24 000
562




**Location Map**
**For**

**FLOYD SEWAGE TREATMENT PLANT**
**Dodd Creek, Floyd County, Virginia**

**J.N. 1028**

**March 7, 1977** **Scale: 1" = 200'**

latitude N 36° 54' 37" Longitude W 80° 20' 1"

X 1

**Attachment C**

- DODD CREEK IMPAIRED WATER FACT SHEET
- MONITORING STATION DATA

## 4.7 Fecal Coliform Sources Representation

This section will show how the fecal coliform sources identified in Section 3.0 were included or represented in the model. These sources include permitted sources, human sources (failed septic systems and straight pipes), livestock, wildlife, pets, and land application of manure and biosolids.

### 4.7.1 Permitted Facilities

The only permitted discharger in Dodd Creek watershed is the Floyd Sewage Treatment Plant (STP). Table 4-4 shows the permitted facility identification number, the stream reach receiving the discharge, facility design discharge rate, and the permitted fecal coliform concentration.

**Table 4-4: Permitted Dischargers in the Dodd Creek Watershed**

| Permit Number | Receiving Stream Reach | Design Flow (gpd)[1] | Fecal Coliform Concentration (cfu/100ml) | Status |
|---|---|---|---|---|
| VA0025992 | Dodd Creek (5050001 89 0.00) | 150,000 | 200 | Active |

1. gpd: gallons per day

The Floyd County Public Sewer Authority provided maps that show the extent of the sewer system in the area (Holden, Per. Comm., December 18, 2001). The sewage collected from the 75 households connected to the network is conveyed to the STP located in the western section of the Town of Floyd. Based on data from DEQ's West Central Regional Office, a discharge rate of 100,000 gallons per day (gpd) is considered representative of the existing condition of the Floyd STP. This discharge rate was used in the HSPF model calibration and validation.

For the TMDL allocation development the Floyd STP was represented as a constant source discharging 150,000 gpd and a fecal coliform concentration of 200 cfu/100 ml.

The MOS will be explicitly incorporated into this TMDL. Incorporating a MOS of 5% will require that allocation scenarios be designed to meet the 30-day fecal coliform geometric mean standard of 190 cfu/100 ml with 0% exceedance.

## 5.2 Sensitivity Analysis

The sensitivity analysis of the fecal coliform loadings and the waterbody response provides a better understanding of the watershed conditions that lead to the water quality standard violation and provides insight and direction in developing the TMDL allocation and implementation. Based on the sensitivity analysis and consultation from DCR, several allocation scenarios were developed; these are presented in the next section. For each scenario developed the percent of days the water quality conditions violate both the 30-day geometric mean standard and the instantaneous fecal coliform standard is shown. The results of the sensitivity analysis are presented in Appendix D.

## 5.3 Allocation Scenario Development

Allocation scenarios that would reduce the existing fecal coliform load to meet water quality standards were simulated using the HSPF model.

### 5.3.1 Wasteload Allocation

There is one permitted point source discharge in the Dodd Creek watershed. The Floyd Sewage Treatment Plant (STP) is permitted to discharge 150,000 gallons of treated water at a fecal coliform concentration of 200 cfu/100 ml. For this TMDL, the wasteload allocation for the Floyd STP is to maintain the discharge and fecal coliform concentration at their permit levels (150,000 gallons per day and 200 cfu/100 ml) (Table 5-1).

**Table 5-1: Dodd Creek Wasteload Allocation**

| Permit Number | Existing Load (cfu/day) | Allocated Load (cfu/day) | Percent Reduction |
|---|---|---|---|
| VA 0025992 | 1.14E+9 | 1.14E+9 | 0% |

# 2006 Impaired Waters

## Categories 4 and 5 by Basin & Stream Name

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

## New River Basin

Cause Group ID: **N20R-01-BAC** **Dodd Creek and West Fork Dodd Creek**

2006 TMDL Group Codes: 00131

Location: Dodd Creek: The upper limit extends from the junction of Routes 710 and 714 downstream to the Dodd Creek mouth on the West Fork Little River (Woolwine and Floyd Quads).
West Fork Dodd Creek and unnamed tributary XDC: Mainstem extends from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located at 36°52'33" / 80°19'43".

City / County: Floyd Co

Use(s): Recreation

Cause(s) /
VA Category: Fecal Coliform / 4A

The Dodd Creek Bacteria Total Maximum Daily Load (TMDL) Study and allocations is complete with US EPA approval on 12/11/2002 [Fed. ID 9456] and SWCB approval on 6/17/2004 (formerly VAW-N20R-01). The Bacteria TMDL Study can be viewed at http://www.deq.virginia.gov. The waters were originally 1998 303(d) listed based on the former fecal coliform WQS instantaneous criterion of 1000 cfu/100 ml and 200 geometric mean (~8.49 miles). Additional bacteria sampling above and below the 1998 303(d) Dodd Creek Impaired waters have extended the original size. Tributary additions include the West Fork of Dodd Creek (6.47 miles) and an unnamed tributary (XDC) in 2002 to the West Fork (0.49 miles). Future assessment and 303(d) Listings will replace fecal coliform with escherichia coli (E.coli) bacteria as the indicator with sufficient E.coli data as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Dodd Creek:
9-DDD008.20- No additional data beyond 2004 IR. The 2004 IR reports FC exceedences of the 400 cfu/100 ml WQS instantaneous criterion occur in 3 of 3 observations (max. 1700); one FC geometric mean calculation results in the exceedence of the 200 cfu/100 ml standard. No E.coli samples collected.

9-DDD006.27 (Rt. 8 Bridge) The 2004 IR reports four of four FC exceedances of the WQS 400 cfu/100 ml instantaneous criterion (max. 2600) with one FC geometric mean calculation exceeding the 200 WQS geometric mean criterion. One E. coli collection exceeds the 235 cfu/100 ml WQS instantaneous criterion at 800 but is not assessed.

9-DDD004.75 (Rt. 720 Bridge) The 2004 IR reports FC exceeds the instantaneous criterion in four of four samples with a maximum of 4800 cfu/100 ml. The FC geometric mean exceeds based on one calculation. One E. coli sample exceeds at 800 but is not assessed.

9-DDD004.64 (Route 720 Bridge above Floyd STP) The 2004 IR reports three of 11 FC samples exceed the WQS 400 cfu/100 ml instantaneous criterion.

West Fork Dodd Creek:
9-DDW004.02 (Rt. 714 Bridge) 2004 IR reports FC exceedences of the WQS 400 cfu/100 ml instantaneous criterion occur in 4 of 4 observations (max. 9200). Additionally the FC geometric mean exceeds in one calculation.

Unnamed Tributary XDC: (The unnamed tributary portion extends from just upstream of the Rt. 8 crossing (36°52'18" / 080°20'03") downstream to its confluence with the West Fork Dodd Creek (36°52'33" / 080°19'43" - Floyd Quad.)
9-XDC000.48 (Rt. 807 Bridge) FC exceedences of the WQS 400 cfu/100 ml instantaneous criterion occur in 4 of 4 observations (max. 6400). Additionally the geometric mean exceeds in one calculation.

| Assessment Unit / Water Name / Description | Cause Category / Name | | Cycle First Listed | TMDL Schedule | Size |
|---|---|---|---|---|---|
| VAW-N20R_DDD01A00 / Dodd Creek Lower / Dodd Creek mainstem waters from its mouth on the West Fork of Little River upstream to the Floyd/Floyd County PSA outfall on Dodd Creek. | 4A | Fecal Coliform | 1998 | 2002 | 3.79 |

# 2006 Impaired Waters

## Categories 4 and 5 by Basin & Stream Name

### New River Basin

| Assessment Unit / Water Name / Description | Cause Category / Name | | Cycle First Listed | TMDL Schedule | Size |
|---|---|---|---|---|---|
| VAW-N20R_DDD02A00 / Dodd Creek Upper / Dodd Creek mainstem waters from the Floyd/Floyd County PSA outfall on Dodd Creek upstream to the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge. | 4A | Fecal Coliform | 1998 | 2002 | 2.51 |
| VAW-N20R_DDD03A02 / Dodd Creek Upper / Dodd Creek mainstem from the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge on upstream near the junction of Routes 710 and 714 near the Blue Ridge Parkway. | 4A | Fecal Coliform | 1998 | 2002 | 2.19 |
| VAW-N20R_DDW01A02 / West Fork Dodd Creek / West Fork Dodd Creek mainstem from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located @36°52'33" / 80°19'43". | 4A | Fecal Coliform | 1998 | 2002 | 1.18 |
| VAW-N20R_DDW02A02 / W. F. Dodd Creek Upper / West Fork Dodd Creek mainstem from the confluence of an unnamed tributary (XDC) upstream to its headwaters. The mouth of the unnamed tributary is located @36°52'33" / 80°19'43". | 4A | Fecal Coliform | 1998 | 2002 | 5.29 |
| VAW-N20R_XDC01A02 / West Fork Dodd Creek, UT (XDC) / An unnamed tributary (XDC) to the West Fork Dodd Creek from its confluence upstream to its headwaters. The mouth of the unnamed tributary is located @36°52'33" / 80°19'43". | 4A | Fecal Coliform | 2002 | 2002 | 0.49 |

| Dodd Creek and West Fork Dodd Creek | Estuary (Sq. Miles) | Reservoir (Acres) | River (Miles) |
|---|---|---|---|
| Fecal Coliform - Total Impaired Size by Water Type: | | | 15.45 |

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

## New River Basin

Cause Group ID: **N20R-01-TEMP** **Dodd Creek and West Fork Dodd Creek**

2006 TMDL Group Codes: 01726

Location: Dodd Creek from its confluence with the West Fork of Little River upstream to upstream to the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge.
West Fork Dodd Creek mainstem from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located @36°52'33" / 80°19'43".

City / County: Floyd Co

Use(s): Aquatic Life

Cause(s) /
VA Category: Temperature, water / 5C

9-DDW000.02 (Rt. 807 Bridge) Temperature exceeds the 20° natural trout criterion in 2 of 2 measurements. Exceeding values are 23.3°C on 7/28/99 and 20.1°C on 6/28/00. The 2002 Temperature 303(d) Listing remains.

9-DDD006.61

9-DDD004.24

| Assessment Unit / Water Name / Description | Cause Category / Name | | Cycle First Listed | TMDL Schedule | Size |
|---|---|---|---|---|---|
| VAW-N20R_DDW01A02 / West Fork Dodd Creek / West Fork Dodd Creek mainstem from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located @36°52'33" / 80°19'43". | 5C | Temperature, water | 2002 | 2014 | 1.18 |

| Dodd Creek and West Fork Dodd Creek | Estuary (Sq. Miles) | Reservoir (Acres) | River (Miles) |
|---|---|---|---|
| Temperature, water - Total Impaired Size by Water Type: | | | 1.18 |

Sources:

Source Unknown

**MEMORANDUM**
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office

3019 Peters Creek Rd. Roanoke, VA 24019

SUBJECT: Dodd Creek TMDL Study, Floyd County

TO: Lynn Wise, Mike Mcleod

FROM: Jason Hill, Greg Anderson

DATE: April 16, 2003

COPIES: Jutta Schneider, Charlie Martin, Jon VanSoestbergen, Kip Foster

This memo discusses how the Waste Load Allocation (WLA) was calculated for the Floyd Sewage Treatment Plant in the *Fecal Coliform TMDL for Dodd Creek Watershed*. This was the only point source allocated for the Dodd Creek TMDL.

**Existing (WQ Standard = Geomean Fecal Coliform 200 cfu/100 ml)**

Annual Waste Load Allocation (WLA) = 4.15 E+11 (*Fecal Coliform TMDL for Dodd Creek Watershed*, Page 5-6)

This WLA was calculated using the max existing design flow (150,000) gallons a day using the equation below:

WLA = CFS (of permitted facility) * Permitted Limit * (28317/100) * 60 * 60 *24) *365

WLA = 0.232 cfs * 200 cfu * 283.17 * 86400 * 365

WLA = 4.15 E+11

Conversions:

1 MGD = 1.547 cfs , 1 CFS = 28317 mL

**Revised Total Fecal Coliform and E. Coli (WQ Standard = Geomean E. coli 126 cfu/100 ml)**

To meet the WLA set forth in the Dodd Creek TMDL with Floyd STP proposed max design flow of (250,000) gallons a day:

WLA = CFS (of permitted facility – Floyd STP) * Permitted Limit * (28316/100) * 60 * 60 *24) *365

4.15 E+11 = 0.38675 * X cfu * 283.17 * 86400 * 365

4.15 E+11 = 3.45 E+9 * X cfu

X = 120 cfu (Total Fecal Coliform)

Fecal Coliform → E. Coli Conversion:

The following formula is used to translate in-stream Fecal Coliform to E. Coli concentration:

Log 2 EC = -0.0172 + 0.91905 * Log 2 FC

In Excel the equation is solved by entering: =2^(-0.0172 + (0.91905 * LOG(FC,2)))

*Note: replace FC with actual number.*

The geomean of E. Coli to meet WLA in TMDL is 80 cfu/100 mL.

9-DDD0004.64 (STORET Station upstream)

| Collection_ | Field_pH | DO_Probe | DO_Winkle | Temp_Cel | Parameter_Name | Value | Comment |
|---|---|---|---|---|---|---|---|
| 11/22/88 | 8 | -- | 10 | 4.9 | TOT HARD CACO3 MG/L | 23 | -- |
| 2/6/89 | 8.02 | -- | 11.9 | 4.8 | TOT HARD CACO3 MG/L | 20 | -- |
| 5/3/89 | 8.02 | -- | 9 | 12.3 | TOT HARD CACO3 MG/L | 22 | -- |
| 8/3/89 | 8.24 | -- | 9.3 | 18.6 | TOT HARD CACO3 MG/L | 28 | -- |
| 11/14/89 | 8.48 | -- | 13.5 | 10.9 | TOT HARD CACO3 MG/L | 18 | -- |
| 2/12/90 | 8.53 | -- | 11.2 | 5.8 | TOT HARD CACO3 MG/L | 26 | -- |
| 5/7/90 | 7.89 | -- | 8.9 | 15 | TOT HARD CACO3 MG/L | 23 | -- |
| 8/7/90 | 7.9 | -- | 8.2 | 18 | TOT HARD CACO3 MG/L | 26 | -- |
| 11/1/90 | 8.5 | -- | 8.8 | 11.2 | TOT HARD CACO3 MG/L | 18 | -- |
| 10/22/91 | 8 | -- | 10.9 | 16.3 | TOT HARD CACO3 MG/L | 22 | -- |
| 1/28/92 | 7.63 | 11.2 | -- | 7.3 | TOT HARD CACO3 MG/L | 30 | -- |
| 4/7/92 | 8.19 | 11.7 | -- | 15.1 | TOT HARD CACO3 MG/L | 34 | -- |
| 7/15/92 | 8.4 | 7.2 | -- | 21.7 | TOT HARD CACO3 MG/L | 26 | -- |
| 10/19/92 | 8.4 | 9.9 | -- | 7.6 | TOT HARD CACO3 MG/L | 24 | -- |
| 1/25/93 | 7.6 | 8.3 | -- | 3.5 | TOT HARD CACO3 MG/L | 20 | -- |
| 4/14/93 | 7.6 | 10.5 | -- | 15.2 | TOT HARD CACO3 MG/L | 20 | -- |
| 7/15/93 | 7.7 | 7.2 | -- | 22.4 | TOT HARD CACO3 MG/L | 20 | -- |
| 10/27/93 | 7.8 | 10.4 | -- | 13.4 | TOT HARD CACO3 MG/L | 30 | -- |
| 1/24/94 | 8.46 | 12.2 | -- | 4.3 | TOT HARD CACO3 MG/L | 20 | -- |
| 7/13/94 | 7.77 | 7.8 | -- | 20.7 | TOT HARD CACO3 MG/L | 22 | -- |
| 10/18/94 | 7.1 | 11.1 | -- | 11 | TOT HARD CACO3 MG/L | 22 | -- |
| 1/24/95 | 7.8 | 12.5 | -- | 1.8 | TOT HARD CACO3 MG/L | 15 | -- |
| 4/10/95 | 8.8 | 8.9 | -- | 17.5 | TOT HARD CACO3 MG/L | 20 | -- |
| 7/17/95 | 7.6 | 8.1 | -- | 24.5 | TOT HARD CACO3 MG/L | 19 | -- |
| 10/5/95 | 6.9 | 7.8 | -- | 18.5 | TOT HARD CACO3 MG/L | 37 | -- |
| 1/17/96 | 7 | 12.3 | -- | 5.5 | TOT HARD CACO3 MG/L | 15 | -- |
| 4/3/96 | 7.9 | 10.2 | -- | 12 | TOT HARD CACO3 MG/L | 26 | -- |
| 7/15/96 | 8 | 7.5 | -- | 20.1 | TOT HARD CACO3 MG/L | 14 | -- |
| 11/26/96 | 7.7 | 11.8 | -- | 8.6 | TOT HARD CACO3 MG/L | 26 | -- |
| 1/8/97 | 8.3 | 12.4 | -- | 3.6 | TOT HARD CACO3 MG/L | 19 | -- |
| 4/2/97 | 8.5 | 10 | -- | 12 | TOT HARD CACO3 MG/L | 15.9 | -- |
| 7/8/97 | 7.8 | 8.1 | -- | 20.3 | TOT HARD CACO3 MG/L | 23 | -- |
| 10/20/97 | 7.6 | 8.5 | -- | 12.7 | TOT HARD CACO3 MG/L | 22.9 | -- |
| 1/12/98 | 7.3 | 10.2 | -- | 6 | TOT HARD CACO3 MG/L | 23.2 | -- |
| 4/14/98 | 8 | 9.5 | -- | 14 | TOT HARD CACO3 MG/L | 19.4 | -- |
| 7/20/98 | 7.6 | 7.5 | -- | 23.7 | TOT HARD CACO3 MG/L | 27.5 | -- |
| 10/27/98 | 7.6 | 9.3 | -- | 11.6 | TOT HARD CACO3 MG/L | 24 | -- |
| 1/12/99 | 7.4 | 12.1 | -- | 4.5 | TOT HARD CACO3 MG/L | 22 | -- |
| 4/5/99 | 8.1 | 9.9 | -- | 14.5 | TOT HARD CACO3 MG/L | 24 | -- |
| 7/14/99 | 8.3 | 8.2 | -- | 17.8 | TOT HARD CACO3 MG/L | 28.3 | -- |
| 11/18/99 | 8.1 | 10.6 | -- | 6.5 | TOT HARD CACO3 MG/L | 19.9 | -- |
| 1/13/00 | 7.8 | 8.5 | -- | 8.3 | TOT HARD CACO3 MG/L | 28 | -- |
| 3/8/00 | 7.7 | 9.8 | -- | 15.4 | TOT HARD CACO3 MG/L | 24 | -- |
| 5/4/00 | -- | 8.9 | -- | 20.5 | TOT HARD CACO3 MG/L | 19 | -- |

| | |
|---|---|
| 90th Percentile Temp | 21.7 °C |
| 90th Percentile Temp | 15.4 °C |
| 90th Percentile pH | 8.4 S.U. |
| 10th Percentile pH | 7.4 S.U. |

**Attachment D**

- EFFLUENT DATA

PROCHEM Analytical Incorporated

**Final Report**

**Report Date:** 2/18/2008

**PCA Order No.:** 417534
**Client:** Floyd County Public Service Authority
**Project:**

**Sample Number:** 417534-01
**Date Collected:** 1/29/2008
**Time Collected:** 10:32

**Description:** 001 Effluent
**Matrix:** Wastewater
**Sample Type:** Grab

| Analysis | Result | Reporting Limit | Units | Date Analyzed | Time Analyzed | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Mercury, Dissolved | < 0.0002 | 0.0002 | mg/L | 2/15/2008 | 11:18 | KNB | EPA 245.2 |
| Chemical Oxygen Demand | 129 | 20 | mg/L | 2/6/2008 | 08:00 | ASB | EPA 410.4 |
| Hexavalent Chromium | < 0.002 | 0.002 | mg/L | 1/30/2008 | 07:00 | ASB | ASTM D1687 |
| Antimony, Dissolved | < 0.005 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Arsenic, Dissolved | < 0.005 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Cadmium, Dissolved | < 0.001 | 0.001 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Chromium | < 0.005 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Copper, Dissolved | 0.012 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Lead, Dissolved | < 0.005 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Nickel, Dissolved | < 0.005 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Selenium, Dissolved | < 0.005 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Silver, Dissolved | < 0.002 | 0.002 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |
| Zinc, Dissolved | 0.060 | 0.005 | mg/L | 2/1/2008 | 12:30 | CDM | EPA 200.7 |

6040 North Fork Road Elliston, Virginia 24087 Phone: (540) 268-9884 Fax: (540) 268-2755

Floyd-Floyd County PSA WWTP
VA0025992

Effluent Total Recoverable Copper Data

| Date DMR Data Due | Concentration (µg/L) |
|---|---|
| 10-Dec-2005 | 13 |
| 10-Jan-2006 | 11 |
| 10-Feb-2006 | 11 |
| 10-Mar-2006 | 14 |
| 10-Apr-2006 | 11 |
| 10-May-2006 | 18 |
| 10-Jun-2006 | 18 |
| 10-Jul-2006 | 18 |
| 10-Aug-2006 | 14 |
| 10-Sep-2006 | 13 |
| 10-Oct-2006 | 5 |
| 10-Nov-2006 | 18 |
| 10-Dec-2006 | 16 |
| 10-Jan-2007 | 11 |
| 10-Feb-2007 | 7 |
| 10-Mar-2007 | 14 |
| 10-Apr-2007 | 15 |
| 10-May-2007 | 19 |
| 10-Jun-2007 | 17 |
| 10-Jul-2007 | 18 |
| 10-Aug-2007 | 18 |
| 10-Sep-2007 | 18 |
| 10-Oct-2007 | 20 |

HW

**Final Report**

**PCA Order No.:** 416911
**Client:** Floyd County Public Service Authority
**Project:**

**Report Date:** 12/18/2007

**Sample Number:** 416911-01
**Date Collected:** 12/11/2007
**Time Collected:** 08:00

**Description:** Upstream of Dodd Creek
**Matrix:** Surface Water
**Sample Type:** Grab

| Analysis | Result | Reporting Limit | Units | Date Analyzed | Time Analyzed | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Hardness as CaCO3 | 34 | 5 | mg/L | 12/13/2007 | 13:00 | KNB | SM 2340C |

**Sample Number:** 416911-02
**Date Collected:** 12/11/2007
**Time Collected:** 08:00

**Description:** Outfall
**Matrix:** Surface Water
**Sample Type:** Grab

| Analysis | Result | Reporting Limit | Units | Date Analyzed | Time Analyzed | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Hardness as CaCO3 | 109 | 5 | mg/L | 12/13/2007 | 13:00 | KNB | SM 2340C |

RECEIVED
DEC 28 2007
DEQ-WCRO

Floyd-Floyd County PSA WWTP (VA0025992)

| | Effluent pH (S.U.) |
|---|---|
| 10-Oct-03 | 7.3 |
| 10-Nov-03 | 7.7 |
| 10-Dec-03 | 7.4 |
| 10-Jan-04 | 7.5 |
| 10-Feb-04 | 7.6 |
| 10-Mar-04 | 7.4 |
| 10-Apr-04 | 7.4 |
| 10-May-04 | 7.2 |
| 10-Jun-04 | 7.7 |
| 10-Jul-04 | 7.9 |
| 10-Aug-04 | 7.3 |
| 10-Sep-04 | 7.4 |
| 10-Oct-04 | 7.2 |
| 10-Nov-04 | 7.9 |
| 10-Dec-04 | 7.4 |
| 10-Jan-05 | 7.86 |
| 10-Feb-05 | 7.65 |
| 10-Mar-05 | 7.79 |
| 10-Apr-05 | 8 |
| 10-May-05 | 7.7 |
| 10-Jun-05 | 7.1 |
| 10-Jul-05 | 7.19 |
| 10-Aug-05 | 7.23 |
| 10-Sep-05 | 7.22 |
| 10-Oct-05 | 7.38 |
| 10-Nov-05 | 7.45 |
| 10-Dec-05 | 7.56 |
| 10-Jan-06 | 7.45 |
| 10-Feb-06 | 7.48 |
| 10-Mar-06 | 7.76 |
| 10-Apr-06 | 7.19 |
| 10-May-06 | 7.22 |
| 10-Jun-06 | 7.26 |
| 10-Jul-06 | 7.3 |
| 10-Aug-06 | 7.51 |
| 10-Sep-06 | 7.2 |
| 10-Oct-06 | 7.35 |
| 10-Nov-06 | 7.23 |
| 10-Dec-06 | 7.32 |
| 10-Jan-07 | 7.3 |
| 10-Feb-07 | 7.3 |
| 10-Mar-07 | 7.2 |
| 10-Apr-07 | 7.25 |
| 10-May-07 | 7.38 |
| 10-Jun-07 | 7.24 |
| 10-Jul-07 | 7.15 |
| 10-Aug-07 | 7.05 |
| 10-Sep-07 | 7.32 |
| 10-Oct-07 | 7.61 |
| 10-Nov-07 | 7.78 |
| 10-Dec-07 | 7.35 |
| 10-Jan-08 | 7.36 |
| 10-Feb-08 | 7.71 |

| | |
|---|---|
| 90th Percentile pH | 7.8 S.U. |
| 10th Percentile pH | 7.2 S.U. |

Floyd-Floyd County PSA WWTP (VA0025992)

**Effluent Temperature (°C)**

| | |
|---|---|
| 10-Oct-03 | 23 |
| 10-Nov-03 | 20 |
| 10-Dec-03 | 18 |
| 10-Jan-04 | 13 |
| 10-Feb-04 | 13 |
| 10-Mar-04 | 10 |
| 10-Apr-04 | 13 |
| 10-May-04 | 15 |
| 10-Jun-04 | 20.5 |
| 10-Jul-04 | 21.5 |
| 10-Aug-04 | 22.7 |
| 10-Sep-04 | 23.1 |
| 10-Oct-04 | 23.3 |
| 10-Nov-04 | 24 |
| 10-Dec-04 | 24 |
| 10-Jan-05 | 15 |
| 10-Feb-05 | 20 |
| 10-Mar-05 | 17 |
| 10-Apr-05 | 22 |
| 10-May-05 | 28 |
| 10-Jun-05 | 29 |
| 10-Jul-05 | 32 |
| 10-Aug-05 | 23.8 |
| 10-Sep-05 | 24 |
| 10-Oct-05 | 23 |
| 10-Nov-05 | 22 |
| 10-Dec-05 | 17.9 |
| 10-Jan-06 | 13.7 |
| 10-Feb-06 | 11.7 |
| 10-Mar-06 | 12 |
| 10-Apr-06 | 14.6 |
| 10-May-06 | 16.9 |
| 10-Jun-06 | 19.8 |
| 10-Jul-06 | 21.9 |
| 10-Aug-06 | 23.9 |
| 10-Sep-06 | 25.1 |
| 10-Oct-06 | 23.1 |
| 10-Nov-06 | 20.7 |
| 10-Dec-06 | 20.2 |
| 10-Jan-07 | 15.6 |
| 10-Feb-07 | 13.5 |
| 10-Mar-07 | 10.2 |
| 10-Apr-07 | 14.4 |
| 10-May-07 | 18.9 |
| 10-Jun-07 | 19.9 |
| 10-Jul-07 | 22.9 |
| 10-Aug-07 | 23.4 |
| 10-Sep-07 | 24.8 |
| 10-Oct-07 | 24.4 |
| 10-Nov-07 | 22.8 |
| 10-Dec-07 | 12.3 |
| 10-Jan-08 | 15.1 |
| 10-Feb-08 | 12.5 |

| | | |
|---|---|---|
| 90th Percentile Temperature | 24.3 °C | |
| 90th Percentile Temperature | 22.8 °C | Jan-May |

**Attachment E**

- MIX PROGRAM PRINTOUT
- ANTIDEGRADATION WASTELOAD ALLOCATION SPREADSHEET
- AMMONIA JAN-MAY STATS PROGRAM PRINTOUT
- AMMONIA JUNE-DEC STATS PROGRAM PRINTOUT
- COPPER STATS PRINTOUT
- ZINC STATS PROGRAM PRINTOUT

Mix Output

Mixing Zone Predictions for Floyd-Floyd County PSA

Effluent Flow = 0.25 MGD
Stream 7Q10 = 5 MGD
Stream 30Q10 = 6.2 MGD
Stream 1Q10 = 4.7 MGD
Stream HF7Q10 = 7.4 MGD
Stream HF30Q10 = 9.6 MGD
Stream HF1Q10 = 6.3 MGD
Stream slope = 0.00234 ft/ft
Stream width = 15 ft
Bottom scale = 2
Channel scale = 1

---

Mixing Zone Predictions @ 7Q10

Depth = .7662 ft
Length = 345.63 ft
Velocity = .707 ft/sec
Residence Time = .0057 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

---

Mixing Zone Predictions @ 30Q10

Depth = .8714 ft
Length = 307.9 ft
Velocity = .7639 ft/sec
Residence Time = .0047 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

---

Mixing Zone Predictions @ 1Q10

Depth = .7387 ft
Length = 357.16 ft
Velocity = .6915 ft/sec
Residence Time = .1435 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

---

Mixing Zone Predictions @ HF7Q10

Depth = .9698 ft

Length = 279.44 ft
Velocity = .814 ft/sec
Residence Time = .004 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

---

Mixing Zone Predictions @ HF30Q10

Depth = 1.1376 ft
Length = 241.48 ft
Velocity = .8936 ft/sec
Residence Time = .0031 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

---

Mixing Zone Predictions @ HF1Q10

Depth = .8798 ft
Length = 305.27 ft
Velocity = .7683 ft/sec
Residence Time = .1104 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

Virginia DEQ Mixing Zone Analysis Version 2.1

# FRESHWATER
# WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Floyd-Floyd County PSA  Permit No.: VA0025992

Receiving Stream: Dodd Creek  Version: OWP Guidance Memo 00-2011 (8/24/00)

**Stream Information**

| | | |
|---|---|---|
| Mean Hardness (as CaCO3) = | 34 | mg/L |
| 90% Temperature (Annual) = | 21.7 | deg C |
| 90% Temperature (Wet season) = | 15.4 | deg C |
| 90% Maximum pH = | 8.4 | SU |
| 10% Maximum pH = | 7.4 | SU |
| Tier Designation (1 or 2) = | 2 | |
| Public Water Supply (PWS) Y/N? = | n | |
| Trout Present Y/N? = | y | |
| Early Life Stages Present Y/N? = | y | |

**Stream Flows**

| | | |
|---|---|---|
| 1Q10 (Annual) = | 4.7 | MGD |
| 7Q10 (Annual) = | 5 | MGD |
| 30Q10 (Annual) = | 6.2 | MGD |
| 1Q10 (Wet season) = | 6.3 | MGD |
| 30Q10 (Wet season) | 9.6 | MGD |
| 30Q5 = | 6.9 | MGD |
| Harmonic Mean = | 12.9 | MGD |
| Annual Average = | NA | MGD |

**Mixing Information**

| | | |
|---|---|---|
| Annual - 1Q10 Mix = | 100 | % |
| - 7Q10 Mix = | 100 | % |
| - 30Q10 Mix = | 100 | % |
| Wet Season - 1Q10 Mix = | 100 | % |
| - 30Q10 Mix = | 100 | % |

**Effluent Information**

| | | |
|---|---|---|
| Mean Hardness (as CaCO3) = | 109 | mg/L |
| 90% Temp (Annual) = | 24.3 | deg C |
| 90% Temp (Wet season) = | 22.8 | deg C |
| 90% Maximum pH = | 7.8 | SU |
| 10% Maximum pH = | 7.2 | SU |
| Discharge Flow = | 0.25 | MGD |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | **Most Limiting Allocations** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ug/l unless noted) | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | **Acute** | **Chronic** | **HH (PWS)** | **HH** |
| Acenapthene | 0 | -- | -- | na | 2.7E+03 | -- | -- | na | 7.7E+04 | -- | -- | na | 2.7E+02 | -- | -- | na | 7.7E+03 | -- | -- | na | **7.7E+03** |
| Acrolein | 0 | -- | -- | na | 7.8E+02 | -- | -- | na | 2.2E+04 | -- | -- | na | 7.8E+01 | -- | -- | na | 2.2E+03 | -- | -- | na | **2.2E+03** |
| Acrylonitrile[c] | 0 | -- | -- | na | 6.6E+00 | -- | -- | na | 3.5E+02 | -- | -- | na | 6.6E-01 | -- | -- | na | 3.5E+01 | -- | -- | na | **3.6E+01** |
| Aldrin [c] | 0 | 3.0E+00 | -- | na | 1.4E-03 | 5.9E+01 | -- | na | 7.4E-02 | 7.5E-01 | -- | na | 1.4E-04 | 1.5E+01 | -- | na | 7.4E-03 | **1.5E+01** | -- | na | **7.4E-03** |
| Ammonia-N (mg/l) (Yearly) | 0 | 2.92E+00 | 8.73E-01 | na | -- | 5.8E+01 | 2.3E+01 | na | -- | 7.30E-01 | 2.18E-01 | na | -- | 1.4E+01 | 5.6E+00 | na | -- | **1.4E+01** | **5.6E+00** | na | -- |
| Ammonia-N (mg/l) (High Flow) | 0 | 2.84E+00 | 1.27E+00 | na | -- | 7.4E+01 | 5.0E+01 | na | -- | 7.10E-01 | 3.17E-01 | na | -- | 1.9E+01 | 1.3E+01 | na | -- | **1.9E+01** | **1.3E+01** | na | -- |
| Anthracene | 0 | -- | -- | na | 1.1E+05 | -- | -- | na | 3.1E+06 | -- | -- | na | 1.1E+04 | -- | -- | na | 3.1E+05 | -- | -- | na | **3.1E+05** |
| Antimony | 0 | -- | -- | na | 4.3E+03 | -- | -- | na | 1.2E+05 | -- | -- | na | 4.3E+02 | -- | -- | na | 1.2E+04 | -- | -- | na | **1.2E+04** |
| Arsenic | 0 | 3.4E+02 | 1.5E+02 | na | -- | 6.7E+03 | 3.2E+03 | na | -- | 8.5E+01 | 3.8E+01 | na | -- | 1.7E+03 | 7.9E+02 | na | -- | **1.7E+03** | **7.9E+02** | na | -- |
| Barium | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| Benzene [c] | 0 | -- | -- | na | 7.1E+02 | -- | -- | na | 3.7E+04 | -- | -- | na | 7.1E+01 | -- | -- | na | 3.7E+03 | -- | -- | na | **3.7E+03** |
| Benzidine[c] | 0 | -- | -- | na | 5.4E-03 | -- | -- | na | 2.8E-01 | -- | -- | na | 5.4E-04 | -- | -- | na | 2.8E-02 | -- | -- | na | **2.8E-02** |
| Benzo (a) anthracene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | **2.6E+00** |
| Benzo (b) fluoranthene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | **2.6E+00** |
| Benzo (k) fluoranthene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | **2.6E+00** |
| Benzo (a) pyrene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | **2.6E+00** |
| Bis2-Chloroethyl Ether | 0 | -- | -- | na | 1.4E+01 | -- | -- | na | 4.0E+02 | -- | -- | na | 1.4E+00 | -- | -- | na | 4.0E+01 | -- | -- | na | **4.0E+01** |
| Bis2-Chloroisopropyl Ether | 0 | -- | -- | na | 1.7E+05 | -- | -- | na | 4.9E+06 | -- | -- | na | 1.7E+04 | -- | -- | na | 4.9E+05 | -- | -- | na | **4.9E+05** |
| Bromoform [c] | 0 | -- | -- | na | 3.6E+03 | -- | -- | na | 1.9E+05 | -- | -- | na | 3.6E+02 | -- | -- | na | 1.9E+04 | -- | -- | na | **1.9E+04** |
| Butylbenzylphthalate | 0 | -- | -- | na | 5.2E+03 | -- | -- | na | 1.5E+05 | -- | -- | na | 5.2E+02 | -- | -- | na | 1.5E+04 | -- | -- | na | **1.5E+04** |
| Cadmium | 0 | 1.3E+00 | 5.3E-01 | na | -- | 2.6E+01 | 1.1E+01 | na | -- | 3.3E-01 | 1.3E-01 | na | -- | 6.5E+00 | 2.8E+00 | na | -- | **6.5E+00** | **2.8E+00** | na | -- |
| Carbon Tetrachloride [c] | 0 | -- | -- | na | 4.4E+01 | -- | -- | na | 2.3E+03 | -- | -- | na | 4.4E+00 | -- | -- | na | 2.3E+02 | -- | -- | na | **2.3E+02** |
| Chlordane [c] | 0 | 2.4E+00 | 4.3E-03 | na | 2.2E-02 | 4.8E+01 | 9.0E-02 | na | 1.2E+00 | 6.0E-01 | 1.1E-03 | na | 2.2E-03 | 1.2E+01 | 2.3E-02 | na | 1.2E-01 | **1.2E+01** | **2.3E-02** | na | **1.2E-01** |
| Chloride | 0 | 8.6E+05 | 2.3E+05 | na | -- | 1.7E+07 | 4.8E+06 | na | -- | 2.2E+05 | 5.8E+04 | na | -- | 4.3E+06 | 1.2E+06 | na | -- | **4.3E+06** | **1.2E+06** | na | -- |
| TRC | 0 | 1.9E+01 | 1.1E+01 | na | -- | 3.8E+02 | 2.3E+02 | na | -- | 4.8E+00 | 2.8E+00 | na | -- | 9.4E+01 | 5.8E+01 | na | -- | **9.4E+01** | **5.8E+01** | na | -- |
| Chlorobenzene | 0 | -- | -- | na | 2.1E+04 | -- | -- | na | 6.0E+05 | -- | -- | na | 2.1E+03 | -- | -- | na | 6.0E+04 | -- | -- | na | **6.0E+04** |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ug/l unless noted) | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH |
| Chlorodibromomethane[c] | 0 | -- | -- | na | 3.4E+02 | -- | -- | na | 1.8E+04 | -- | -- | na | 3.4E+01 | -- | -- | na | 1.8E+03 | -- | -- | na | 1.8E+03 |
| Chloroform [c] | 0 | -- | -- | na | 2.9E+04 | -- | -- | na | 1.5E+06 | -- | -- | na | 2.9E+03 | -- | -- | na | 1.5E+05 | -- | -- | na | 1.5E+05 |
| 2-Chloronaphthalene | 0 | -- | -- | na | 4.3E+03 | -- | -- | na | 1.2E+05 | -- | -- | na | 4.3E+02 | -- | -- | na | 1.2E+04 | -- | -- | na | 1.2E+04 |
| 2-Chlorophenol | 0 | -- | -- | na | 4.0E+02 | -- | -- | na | 1.1E+04 | -- | -- | na | 4.0E+01 | -- | -- | na | 1.1E+03 | -- | -- | na | 1.1E+03 |
| Chlorpyrifos | 0 | 8.3E-02 | 4.1E-02 | na | -- | 1.6E+00 | 8.6E-01 | na | -- | 2.1E-02 | 1.0E-02 | na | -- | 4.1E-01 | 2.2E-01 | na | -- | 4.1E-01 | 2.2E-01 | na | -- |
| Chromium III | 0 | 2.6E+02 | 3.3E+01 | na | -- | 5.1E+03 | 7.0E+02 | na | -- | 6.4E+01 | 8.3E+00 | na | -- | 1.3E+03 | 1.7E+02 | na | -- | 1.3E+03 | 1.7E+02 | na | -- |
| Chromium VI | 0 | 1.6E+01 | 1.1E+01 | na | -- | 3.2E+02 | 2.3E+02 | na | -- | 4.0E+00 | 2.8E+00 | na | -- | 7.9E+01 | 5.8E+01 | na | -- | 7.9E+01 | 5.8E+01 | na | -- |
| Chromium, Total | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| Chrysene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | 2.6E+00 |
| Copper | 0 | 5.4E+00 | 3.9E+00 | na | -- | 1.1E+02 | 8.1E+01 | na | -- | 1.3E+00 | 9.7E-01 | na | -- | 2.7E+01 | 2.0E+01 | na | -- | 2.7E+01 | 2.0E+01 | na | -- |
| Cyanide | 0 | 2.2E+01 | 5.2E+00 | na | 2.2E+05 | 4.4E+02 | 1.1E+02 | na | 6.1E+06 | 5.5E+00 | 1.3E+00 | na | 2.2E+04 | 1.1E+02 | 2.7E+01 | na | 6.1E+05 | 1.1E+02 | 2.7E+01 | na | 6.1E+05 |
| DDD [c] | 0 | -- | -- | na | 8.4E-03 | -- | -- | na | 4.4E-01 | -- | -- | na | 8.4E-04 | -- | -- | na | 4.4E-02 | -- | -- | na | 4.4E-02 |
| DDE [c] | 0 | -- | -- | na | 5.9E-03 | -- | -- | na | 3.1E-01 | -- | -- | na | 5.9E-04 | -- | -- | na | 3.1E-02 | -- | -- | na | 3.1E-02 |
| DDT [c] | 0 | 1.1E+00 | 1.0E-03 | na | 5.9E-03 | 2.2E+01 | 2.1E-02 | na | 3.1E-01 | 2.8E-01 | 2.5E-04 | na | 5.9E-04 | 5.4E+00 | 5.3E-03 | na | 3.1E-02 | 5.4E+00 | 5.3E-03 | na | 3.1E-02 |
| Demeton | 0 | -- | 1.0E-01 | na | -- | -- | 2.1E+00 | na | -- | -- | 2.5E-02 | na | -- | -- | 5.3E-01 | na | -- | -- | 5.3E-01 | na | -- |
| Dibenz(a,h)anthracene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | 2.6E+00 |
| Dibutyl phthalate | 0 | -- | -- | na | 1.2E+04 | -- | -- | na | 3.4E+05 | -- | -- | na | 1.2E+03 | -- | -- | na | 3.4E+04 | -- | -- | na | 3.4E+04 |
| Dichloromethane (Methylene Chloride) [c] | 0 | -- | -- | na | 1.6E+04 | -- | -- | na | 8.4E+05 | -- | -- | na | 1.6E+03 | -- | -- | na | 8.4E+04 | -- | -- | na | 8.4E+04 |
| 1,2-Dichlorobenzene | 0 | -- | -- | na | 1.7E+04 | -- | -- | na | 4.9E+05 | -- | -- | na | 1.7E+03 | -- | -- | na | 4.9E+04 | -- | -- | na | 4.9E+04 |
| 1,3-Dichlorobenzene | 0 | -- | -- | na | 2.6E+03 | -- | -- | na | 7.4E+04 | -- | -- | na | 2.6E+02 | -- | -- | na | 7.4E+03 | -- | -- | na | 7.4E+03 |
| 1,4-Dichlorobenzene | 0 | -- | -- | na | 2.6E+03 | -- | -- | na | 7.4E+04 | -- | -- | na | 2.6E+02 | -- | -- | na | 7.4E+03 | -- | -- | na | 7.4E+03 |
| 3,3-Dichlorobenzidine[c] | 0 | -- | -- | na | 7.7E-01 | -- | -- | na | 4.1E+01 | -- | -- | na | 7.7E-02 | -- | -- | na | 4.1E+00 | -- | -- | na | 4.1E+00 |
| Dichlorobromomethane [c] | 0 | -- | -- | na | 4.6E+02 | -- | -- | na | 2.4E+04 | -- | -- | na | 4.6E+01 | -- | -- | na | 2.4E+03 | -- | -- | na | 2.4E+03 |
| 1,2-Dichloroethane [c] | 0 | -- | -- | na | 9.9E+02 | -- | -- | na | 5.2E+04 | -- | -- | na | 9.9E+01 | -- | -- | na | 5.2E+03 | -- | -- | na | 5.2E+03 |
| 1,1-Dichloroethylene | 0 | -- | -- | na | 1.7E+04 | -- | -- | na | 4.9E+05 | -- | -- | na | 1.7E+03 | -- | -- | na | 4.9E+04 | -- | -- | na | 4.9E+04 |
| 1,2-trans-dichloroethylene | 0 | -- | -- | na | 1.4E+05 | -- | -- | na | 4.0E+06 | -- | -- | na | 1.4E+04 | -- | -- | na | 4.0E+05 | -- | -- | na | 4.0E+05 |
| 2,4-Dichlorophenol | 0 | -- | -- | na | 7.9E+02 | -- | -- | na | 2.3E+04 | -- | -- | na | 7.9E+01 | -- | -- | na | 2.3E+03 | -- | -- | na | 2.3E+03 |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| 1,2-Dichloropropane[c] | 0 | -- | -- | na | 3.9E+02 | -- | -- | na | 2.1E+04 | -- | -- | na | 3.9E+01 | -- | -- | na | 2.1E+03 | -- | -- | na | 2.1E+03 |
| 1,3-Dichloropropene | 0 | -- | -- | na | 1.7E+03 | -- | -- | na | 4.9E+04 | -- | -- | na | 1.7E+02 | -- | -- | na | 4.9E+03 | -- | -- | na | 4.9E+03 |
| Dieldrin [c] | 0 | 2.4E-01 | 5.6E-02 | na | 1.4E-03 | 4.8E+00 | 1.2E+00 | na | 7.4E-02 | 6.0E-02 | 1.4E-02 | na | 1.4E-04 | 1.2E+00 | 2.9E-01 | na | 7.4E-03 | 1.2E+00 | 2.9E-01 | na | 7.4E-03 |
| Diethyl Phthalate | 0 | -- | -- | na | 1.2E+05 | -- | -- | na | 3.4E+06 | -- | -- | na | 1.2E+04 | -- | -- | na | 3.4E+05 | -- | -- | na | 3.4E+05 |
| Di-2-Ethylhexyl Phthalate [c] | 0 | -- | -- | na | 5.9E+01 | -- | -- | na | 3.1E+03 | -- | -- | na | 5.9E+00 | -- | -- | na | 3.1E+02 | -- | -- | na | 3.1E+02 |
| 2,4-Dimethylphenol | 0 | -- | -- | na | 2.3E+03 | -- | -- | na | 6.6E+04 | -- | -- | na | 2.3E+02 | -- | -- | na | 6.6E+03 | -- | -- | na | 6.6E+03 |
| Dimethyl Phthalate | 0 | -- | -- | na | 2.9E+06 | -- | -- | na | 8.3E+07 | -- | -- | na | 2.9E+05 | -- | -- | na | 8.3E+06 | -- | -- | na | 8.3E+06 |
| Di-n-Butyl Phthalate | 0 | -- | -- | na | 1.2E+04 | -- | -- | na | 3.4E+05 | -- | -- | na | 1.2E+03 | -- | -- | na | 3.4E+04 | -- | -- | na | 3.4E+04 |
| 2,4 Dinitrophenol | 0 | -- | -- | na | 1.4E+04 | -- | -- | na | 4.0E+05 | -- | -- | na | 1.4E+03 | -- | -- | na | 4.0E+04 | -- | -- | na | 4.0E+04 |
| 2-Methyl-4,6-Dinitrophenol | 0 | -- | -- | na | 7.65E+02 | -- | -- | na | 2.2E+04 | -- | -- | na | 7.7E+01 | -- | -- | na | 2.2E+03 | -- | -- | na | 2.2E+03 |
| 2,4-Dinitrotoluene [c] | 0 | -- | -- | na | 9.1E+01 | -- | -- | na | 4.8E+03 | -- | -- | na | 9.1E+00 | -- | -- | na | 4.8E+02 | -- | -- | na | 4.8E+02 |
| Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq) | 0 | -- | -- | na | 1.2E-06 | -- | -- | na | na | -- | -- | na | 1.2E-07 | -- | -- | na | 1.2E-07 | -- | -- | na | na |
| 1,2-Diphenylhydrazine[c] | 0 | -- | -- | na | 5.4E+00 | -- | -- | na | 2.8E+02 | -- | -- | na | 5.4E-01 | -- | -- | na | 2.8E+01 | -- | -- | na | 2.8E+01 |
| Alpha-Endosulfan | 0 | 2.2E-01 | 5.6E-02 | na | 2.4E+02 | 4.4E+00 | 1.2E+00 | na | 6.9E+03 | 5.5E-02 | 1.4E-02 | na | 2.4E+01 | 1.1E+00 | 2.9E-01 | na | 6.9E+02 | 1.1E+00 | 2.9E-01 | na | 6.9E+02 |
| Beta-Endosulfan | 0 | 2.2E-01 | 5.6E-02 | na | 2.4E+02 | 4.4E+00 | 1.2E+00 | na | 6.9E+03 | 5.5E-02 | 1.4E-02 | na | 2.4E+01 | 1.1E+00 | 2.9E-01 | na | 6.9E+02 | 1.1E+00 | 2.9E-01 | na | 6.9E+02 |
| Endosulfan Sulfate | 0 | -- | -- | na | 2.4E+02 | -- | -- | na | 6.9E+03 | -- | -- | na | 2.4E+01 | -- | -- | na | 6.9E+02 | -- | -- | na | 6.9E+02 |
| Endrin | 0 | 8.6E-02 | 3.6E-02 | na | 8.1E-01 | 1.7E+00 | 7.6E-01 | na | 2.3E+01 | 2.2E-02 | 9.0E-03 | na | 8.1E-02 | 4.3E-01 | 1.9E-01 | na | 2.3E+00 | 4.3E-01 | 1.9E-01 | na | 2.3E+00 |
| Endrin Aldehyde | 0 | -- | -- | na | 8.1E-01 | -- | -- | na | 2.3E+01 | -- | -- | na | 8.1E-02 | -- | -- | na | 2.3E+00 | -- | -- | na | 2.3E+00 |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ug/l unless noted) | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH |
| Ethylbenzene | 0 | -- | -- | na | 2.9E+04 | -- | -- | na | 8.3E+05 | -- | -- | na | 2.9E+03 | -- | -- | na | 8.3E+04 | -- | -- | na | 8.3E+04 |
| Fluoranthene | 0 | -- | -- | na | 3.7E+02 | -- | -- | na | 1.1E+04 | -- | -- | na | 3.7E+01 | -- | -- | na | 1.1E+03 | -- | -- | na | 1.1E+03 |
| Fluorene | 0 | -- | -- | na | 1.4E+04 | -- | -- | na | 4.0E+05 | -- | -- | na | 1.4E+03 | -- | -- | na | 4.0E+04 | -- | -- | na | 4.0E+04 |
| Foaming Agents | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| Guthion | 0 | -- | 1.0E-02 | na | -- | -- | 2.1E-01 | na | -- | -- | 2.5E-03 | na | -- | -- | 5.3E-02 | na | -- | -- | 5.3E-02 | na | -- |
| Heptachlor [c] | 0 | 5.2E-01 | 3.8E-03 | na | 2.1E-03 | 1.0E+01 | 8.0E-02 | na | 1.1E-01 | 1.3E-01 | 9.5E-04 | na | 2.1E-04 | 2.6E+00 | 2.0E-02 | na | 1.1E-02 | 2.6E+00 | 2.0E-02 | na | 1.1E-02 |
| Heptachlor Epoxide[c] | 0 | 5.2E-01 | 3.8E-03 | na | 1.1E-03 | 1.0E+01 | 8.0E-02 | na | 5.8E-02 | 1.3E-01 | 9.5E-04 | na | 1.1E-04 | 2.6E+00 | 2.0E-02 | na | 5.8E-03 | 2.6E+00 | 2.0E-02 | na | 5.8E-03 |
| Hexachlorobenzene[c] | 0 | -- | -- | na | 7.7E-03 | -- | -- | na | 4.1E-01 | -- | -- | na | 7.7E-04 | -- | -- | na | 4.1E-02 | -- | -- | na | 4.1E-02 |
| Hexachlorobutadiene[c] | 0 | -- | -- | na | 5.0E+02 | -- | -- | na | 2.6E+04 | -- | -- | na | 5.0E+01 | -- | -- | na | 2.6E+03 | -- | -- | na | 2.6E+03 |
| Hexachlorocyclohexane Alpha-BHC[c] | 0 | -- | -- | na | 1.3E-01 | -- | -- | na | 6.8E+00 | -- | -- | na | 1.3E-02 | -- | -- | na | 6.8E-01 | -- | -- | na | 6.8E-01 |
| Hexachlorocyclohexane Beta-BHC[c] | 0 | -- | -- | na | 4.6E-01 | -- | -- | na | 2.4E+01 | -- | -- | na | 4.6E-02 | -- | -- | na | 2.4E+00 | -- | -- | na | 2.4E+00 |
| Hexachlorocyclohexane Gamma-BHC[c] (Lindane) | 0 | 9.5E-01 | na | na | 6.3E-01 | 1.9E+01 | -- | na | 3.3E+01 | 2.4E-01 | -- | na | 6.3E-02 | 4.7E+00 | -- | na | 3.3E+00 | 4.7E+00 | -- | na | 3.3E+00 |
| Hexachlorocyclopentadiene | 0 | -- | -- | na | 1.7E+04 | -- | -- | na | 4.9E+05 | -- | -- | na | 1.7E+03 | -- | -- | na | 4.9E+04 | -- | -- | na | 4.9E+04 |
| Hexachloroethane[c] | 0 | -- | -- | na | 8.9E+01 | -- | -- | na | 4.7E+03 | -- | -- | na | 8.9E+00 | -- | -- | na | 4.7E+02 | -- | -- | na | 4.7E+02 |
| Hydrogen Sulfide | 0 | -- | 2.0E+00 | na | -- | -- | 4.2E+01 | na | -- | -- | 5.0E-01 | na | -- | -- | 1.1E+01 | na | -- | -- | 1.1E+01 | na | -- |
| Indeno (1,2,3-cd) pyrene [c] | 0 | -- | -- | na | 4.9E-01 | -- | -- | na | 2.6E+01 | -- | -- | na | 4.9E-02 | -- | -- | na | 2.6E+00 | -- | -- | na | 2.6E+00 |
| Iron | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| Isophorone[c] | 0 | -- | -- | na | 2.6E+04 | -- | -- | na | 1.4E+06 | -- | -- | na | 2.6E+03 | -- | -- | na | 1.4E+05 | -- | -- | na | 1.4E+05 |
| Kepone | 0 | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- |
| Lead | 0 | 3.4E+01 | 3.9E+00 | na | -- | 6.8E+02 | 8.2E+01 | na | -- | 8.6E+00 | 9.7E-01 | na | -- | 1.7E+02 | 2.0E+01 | na | -- | 1.7E+02 | 2.0E+01 | na | -- |
| Malathion | 0 | -- | 1.0E-01 | na | -- | -- | 2.1E+00 | na | -- | -- | 2.5E-02 | na | -- | -- | 5.3E-01 | na | -- | -- | 5.3E-01 | na | -- |
| Manganese | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| Mercury | 0 | 1.4E+00 | 7.7E-01 | na | 5.1E-02 | 2.8E+01 | 1.6E+01 | na | 1.5E+00 | 3.5E-01 | 1.9E-01 | na | 5.1E-03 | 6.9E+00 | 4.0E+00 | na | 1.5E-01 | 6.9E+00 | 4.0E+00 | na | 1.5E-01 |
| Methyl Bromide | 0 | -- | -- | na | 4.0E+03 | -- | -- | na | 1.1E+05 | -- | -- | na | 4.0E+02 | -- | -- | na | 1.1E+04 | -- | -- | na | 1.1E+04 |
| Methoxychlor | 0 | -- | 3.0E-02 | na | -- | -- | 6.3E-01 | na | -- | -- | 7.5E-03 | na | -- | -- | 1.6E-01 | na | -- | -- | 1.6E-01 | na | -- |
| Mirex | 0 | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- |
| Monochlorobenzene | 0 | -- | -- | na | 2.1E+04 | -- | -- | na | 6.0E+05 | -- | -- | na | 2.1E+03 | -- | -- | na | 6.0E+04 | -- | -- | na | 6.0E+04 |
| Nickel | 0 | 8.0E+01 | 8.9E+00 | na | 4.6E+03 | 1.6E+03 | 1.9E+02 | na | 1.3E+05 | 2.0E+01 | 2.2E+00 | na | 4.6E+02 | 4.0E+02 | 4.6E+01 | na | 1.3E+04 | 4.0E+02 | 4.6E+01 | na | 1.3E+04 |
| Nitrate (as N) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- |
| Nitrobenzene | 0 | -- | -- | na | 1.9E+03 | -- | -- | na | 5.4E+04 | -- | -- | na | 1.9E+02 | -- | -- | na | 5.4E+03 | -- | -- | na | 5.4E+03 |
| N-Nitrosodimethylamine[c] | 0 | -- | -- | na | 8.1E+01 | -- | -- | na | 4.3E+03 | -- | -- | na | 8.1E+00 | -- | -- | na | 4.3E+02 | -- | -- | na | 4.3E+02 |
| N-Nitrosodiphenylamine[c] | 0 | -- | -- | na | 1.6E+02 | -- | -- | na | 8.4E+03 | -- | -- | na | 1.6E+01 | -- | -- | na | 8.4E+02 | -- | -- | na | 8.4E+02 |
| N-Nitrosodi-n-propylamine[c] | 0 | -- | -- | na | 1.4E+01 | -- | -- | na | 7.4E+02 | -- | -- | na | 1.4E+00 | -- | -- | na | 7.4E+01 | -- | -- | na | 7.4E+01 |
| Parathion | 0 | 6.5E-02 | 1.3E-02 | na | -- | 1.3E+00 | 2.7E-01 | na | -- | 1.6E-02 | 3.3E-03 | na | -- | 3.2E-01 | 6.8E-02 | na | -- | 3.2E-01 | 6.8E-02 | na | -- |
| PCB-1016 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB-1221 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB-1232 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB-1242 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB-1248 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB-1254 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB-1260 | 0 | -- | 1.4E-02 | na | -- | -- | 2.9E-01 | na | -- | -- | 3.5E-03 | na | -- | -- | 7.4E-02 | na | -- | -- | 7.4E-02 | na | -- |
| PCB Total[c] | 0 | -- | -- | na | 1.7E-03 | -- | -- | na | 8.9E-02 | -- | -- | na | 1.7E-04 | -- | -- | na | 8.9E-03 | -- | -- | na | 8.9E-03 |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | **Most Limiting Allocations** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ug/l unless noted) | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | **Acute** | **Chronic** | **HH (PWS)** | **HH** |
| Pentachlorophenol [C] | 0 | 1.3E+01 | 9.9E+00 | na | 8.2E+01 | 2.5E+02 | 2.1E+02 | na | 4.3E+03 | 3.2E+00 | 2.5E+00 | na | 8.2E+00 | 6.4E+01 | 5.2E+01 | na | 4.3E+02 | **6.4E+01** | **5.2E+01** | **na** | **4.3E+02** |
| Phenol | 0 | -- | -- | na | 4.6E+06 | -- | -- | na | 1.3E+08 | -- | -- | na | 4.6E+05 | -- | -- | na | 1.3E+07 | **--** | **--** | **na** | **1.3E+07** |
| Pyrene | 0 | -- | -- | na | 1.1E+04 | -- | -- | na | 3.1E+05 | -- | -- | na | 1.1E+03 | -- | -- | na | 3.1E+04 | **--** | **--** | **na** | **3.1E+04** |
| Radionuclides (pCi/l except Beta/Photon) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | **--** | **--** | **na** | **--** |
| Gross Alpha Activity | 0 | -- | -- | na | 1.5E+01 | -- | -- | na | 4.3E+02 | -- | -- | na | 1.5E+00 | -- | -- | na | 4.3E+01 | **--** | **--** | **na** | **4.3E+01** |
| Beta and Photon Activity (mrem/yr) | 0 | -- | -- | na | 4.0E+00 | -- | -- | na | 1.1E+02 | -- | -- | na | 4.0E-01 | -- | -- | na | 1.1E+01 | **--** | **--** | **na** | **1.1E+01** |
| Strontium-90 | 0 | -- | -- | na | 8.0E+00 | -- | -- | na | 2.3E+02 | -- | -- | na | 8.0E-01 | -- | -- | na | 2.3E+01 | **--** | **--** | **na** | **2.3E+01** |
| Tritium | 0 | -- | -- | na | 2.0E+04 | -- | -- | na | 5.7E+05 | -- | -- | na | 2.0E+03 | -- | -- | na | 5.7E+04 | **--** | **--** | **na** | **5.7E+04** |
| Selenium | 0 | 2.0E+01 | 5.0E+00 | na | 1.1E+04 | 4.0E+02 | 1.1E+02 | na | 3.1E+05 | 5.0E+00 | 1.3E+00 | na | 1.1E+03 | 9.9E+01 | 2.6E+01 | na | 3.1E+04 | **9.9E+01** | **2.6E+01** | **na** | **3.1E+04** |
| Silver | 0 | 6.5E-01 | -- | na | -- | 1.3E+01 | -- | na | -- | 1.6E-01 | -- | na | -- | 3.2E+00 | -- | na | -- | **3.2E+00** | **--** | **na** | **--** |
| Sulfate | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | **--** | **--** | **na** | **--** |
| 1,1,2,2-Tetrachloroethane[C] | 0 | -- | -- | na | 1.1E+02 | -- | -- | na | 5.8E+03 | -- | -- | na | 1.1E+01 | -- | -- | na | 5.8E+02 | **--** | **--** | **na** | **5.8E+02** |
| Tetrachloroethylene[C] | 0 | -- | -- | na | 8.9E+01 | -- | -- | na | 4.7E+03 | -- | -- | na | 8.9E+00 | -- | -- | na | 4.7E+02 | **--** | **--** | **na** | **4.7E+02** |
| Thallium | 0 | -- | -- | na | 6.3E+00 | -- | -- | na | 1.8E+02 | -- | -- | na | 6.3E-01 | -- | -- | na | 1.8E+01 | **--** | **--** | **na** | **1.8E+01** |
| Toluene | 0 | -- | -- | na | 2.0E+05 | -- | -- | na | 5.7E+06 | -- | -- | na | 2.0E+04 | -- | -- | na | 5.7E+05 | **--** | **--** | **na** | **5.7E+05** |
| Total dissolved solids | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | **--** | **--** | **na** | **--** |
| Toxaphene [C] | 0 | 7.3E-01 | 2.0E-04 | na | 7.5E-03 | 1.4E+01 | 4.2E-03 | na | 3.9E-01 | 1.8E-01 | 5.0E-05 | na | 7.5E-04 | 3.6E+00 | 1.1E-03 | na | 3.9E-02 | **3.6E+00** | **1.1E-03** | **na** | **3.9E-02** |
| Tributyltin | 0 | 4.6E-01 | 6.3E-02 | na | -- | 9.1E+00 | 1.3E+00 | na | -- | 1.2E-01 | 1.6E-02 | na | -- | 2.3E+00 | 3.3E-01 | na | -- | **2.3E+00** | **3.3E-01** | **na** | **--** |
| 1,2,4-Trichlorobenzene | 0 | -- | -- | na | 9.4E+02 | -- | -- | na | 2.7E+04 | -- | -- | na | 9.4E+01 | -- | -- | na | 2.7E+03 | **--** | **--** | **na** | **2.7E+03** |
| 1,1,2-Trichloroethane[C] | 0 | -- | -- | na | 4.2E+02 | -- | -- | na | 2.2E+04 | -- | -- | na | 4.2E+01 | -- | -- | na | 2.2E+03 | **--** | **--** | **na** | **2.2E+03** |
| Trichloroethylene [C] | 0 | -- | -- | na | 8.1E+02 | -- | -- | na | 4.3E+04 | -- | -- | na | 8.1E+01 | -- | -- | na | 4.3E+03 | **--** | **--** | **na** | **4.3E+03** |
| 2,4,6-Trichlorophenol [C] | 0 | -- | -- | na | 6.5E+01 | -- | -- | na | 3.4E+03 | -- | -- | na | 6.5E+00 | -- | -- | na | 3.4E+02 | **--** | **--** | **na** | **3.4E+02** |
| 2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | na | -- | **--** | **--** | **na** | **--** |
| Vinyl Chloride[C] | 0 | -- | -- | na | 6.1E+01 | -- | -- | na | 3.2E+03 | -- | -- | na | 6.1E+00 | -- | -- | na | 3.2E+02 | **--** | **--** | **na** | **3.2E+02** |
| Zinc | 0 | 5.1E+01 | 5.2E+01 | na | 6.9E+04 | 1.0E+03 | 1.1E+03 | na | 2.0E+06 | 1.3E+01 | 1.3E+01 | na | 6.9E+03 | 2.5E+02 | 2.7E+02 | na | 2.0E+05 | **2.5E+02** | **2.7E+02** | **na** | **2.0E+05** |

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

| Metal | Target Value (SSTV) |
|---|---|
| Antimony | 1.2E+04 |
| Arsenic | 4.7E+02 |
| Barium | na |
| Cadmium | 1.7E+00 |
| Chromium III | 1.0E+02 |
| Chromium VI | 3.2E+01 |
| Copper | 1.1E+01 |
| Iron | na |
| Lead | 1.2E+01 |
| Manganese | na |
| Mercury | 1.5E-01 |
| Nickel | 2.8E+01 |
| Selenium | 1.6E+01 |
| Silver | 1.3E+00 |
| Zinc | 1.0E+02 |

Note: do not use QL's lower than the minimum QL's provided in agency guidance

## 0.250 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGI 0.250

| | Stream Flows Allocated to Mix (MGD) | | Total Mix Flows Stream + Discharge (MGD) | |
|---|---|---|---|---|
| | Dry Season | Wet Season | Dry Season | Wet Season |
| 1Q10 | 4.700 | 6.300 | 4.950 | 6.550 |
| 7Q10 | 5.000 | N/A | 5.250 | N/A |
| 30Q10 | 6.200 | 9.600 | 6.450 | 9.850 |
| 30Q5 | 6.900 | N/A | 7.150 | N/A |
| Harm. Mean | 12.900 | N/A | 13.150 | N/A |
| Annual Avg. | NA | N/A | #VALUE! | N/A |

Stream/Discharge Mix Values

| | Dry Season | Wet Season |
|---|---|---|
| 1Q10 90th% Temp. Mix (deg C) | 21.831 | 15.682 |
| 30Q10 90th% Temp. Mix (deg C) | 21.801 | 15.588 |
| 1Q10 90th% pH Mix (SU) | 8.339 | 8.353 |
| 30Q10 90th% pH Mix (SU) | 8.353 | 8.368 |
| 1Q10 10th% pH Mix (SU) | 7.387 | N/A |
| 7Q10 10th% pH Mix (SU) | 7.388 | N/A |

| | Calculated | Formula Inputs |
|---|---|---|
| 1Q10 Hardness (mg/L as CaCO3) | 37.8 | 37.8 |
| 7Q10 Hardness (mg/L as CaCO3) | 37.6 | 37.6 |

**Ammonia - Dry Season - Acute**

| | |
|---|---|
| 90th Percentile pH (SU) | 8.339 |
| (7.204 - pH) | -1.135 |
| (pH - 7.204) | 1.135 |
| Trout Present Criterion (mg N/l | 2.919 |
| Trout Absent Criterion (mg N/L | 4.370 |
| Trout Present? | y |
| Effective Criterion (mg N/L) | 2.919 |

**Ammonia - Dry Season - Chronic**

| | |
|---|---|
| 90th Percentile Temp. (deg C) | 21.801 |
| 90th Percentile pH (SU) | 8.353 |
| MIN | 1.782 |
| MAX | 21.801 |
| (7.688 - pH) | -0.665 |
| (pH - 7.688) | 0.665 |
| Early LS Present Criterion (mg N | 0.873 |
| Early LS Absent Criterion (mg N/ | 0.873 |
| Early Life Stages Present? | y |
| Effective Criterion (mg N/L) | 0.873 |

**Ammonia - Wet Season - Acute**

| | |
|---|---|
| 90th Percentile pH (SU) | 8.353 |
| (7.204 - pH) | -1.149 |
| (pH - 7.204) | 1.149 |
| Trout Present Criterion (mg N/l | 2.840 |
| Trout Absent Criterion (mg N/L | 4.251 |
| Trout Present? | y |
| Effective Criterion (mg N/L) | 2.840 |

**Ammonia - Wet Season - Chronic**

| | |
|---|---|
| 90th Percentile Temp. (deg C) | 15.588 |
| 90th Percentile pH (SU) | 8.368 |
| MIN | 2.660 |
| MAX | 15.588 |
| (7.688 - pH) | -0.680 |
| (pH - 7.688) | 0.680 |
| Early LS Present Criterion (mg N | 1.270 |
| Early LS Absent Criterion (mg N/ | 1.270 |
| Early Life Stages Present? | y |
| Effective Criterion (mg N/L) | 1.270 |

## 0.250 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGI 0.250

| | 100% Stream Flows Allocated to Mix (MGD) | | Total Mix Flows Stream + Discharge (MGD) | |
|---|---|---|---|---|
| | Dry Season | Wet Season | Dry Season | Wet Season |
| 1Q10 | 4.700 | 6.300 | 4.950 | 6.550 |
| 7Q10 | 5.000 | N/A | 5.250 | N/A |
| 30Q10 | 6.200 | 9.600 | 6.450 | 9.850 |
| 30Q5 | 6.900 | N/A | 7.150 | N/A |
| Harm. Mean | 12.900 | N/A | 13.150 | N/A |
| Annual Avg. | NA | N/A | #VALUE! | N/A |

Stream/Discharge Mix Values

| | Dry Season | Wet Season |
|---|---|---|
| 1Q10 90th% Temp. Mix (deg C) | 21.831 | 15.682 |
| 30Q10 90th% Temp. Mix (deg C) | 21.801 | 15.588 |
| 1Q10 90th% pH Mix (SU) | 8.339 | 8.353 |
| 30Q10 90th% pH Mix (SU) | 8.353 | 8.368 |
| 1Q10 10th% pH Mix (SU) | 7.387 | N/A |
| 7Q10 10th% pH Mix (SU) | 7.388 | N/A |

| | Calculated | Formula Inputs |
|---|---|---|
| 1Q10 Hardness (mg/L as CaCO3) = | 37.788 | 37.788 |
| 7Q10 Hardness (mg/L as CaCO3) = | 37.571 | 37.571 |

**Ammonia - Dry Season - Acute**

| | |
|---|---|
| 90th Percentile pH (SU) | 8.339 |
| (7.204 - pH) | -1.135 |
| (pH - 7.204) | 1.135 |
| Trout Present Criterion (mg N/l | 2.919 |
| Trout Absent Criterion (mg N/L | 4.370 |
| Trout Present? | y |
| Effective Criterion (mg N/L) | 2.919 |

**Ammonia - Dry Season - Chronic**

| | |
|---|---|
| 90th Percentile Temp. (deg C) | 21.801 |
| 90th Percentile pH (SU) | 8.353 |
| MIN | 1.782 |
| MAX | 21.801 |
| (7.688 - pH) | -0.665 |
| (pH - 7.688) | 0.665 |
| Early LS Present Criterion (mg N | 0.873 |
| Early LS Absent Criterion (mg N/ | 0.873 |
| Early Life Stages Present? | y |
| Effective Criterion (mg N/L) | 0.873 |

**Ammonia - Wet Season - Acute**

| | |
|---|---|
| 90th Percentile pH (SU) | 8.353 |
| (7.204 - pH) | -1.149 |
| (pH - 7.204) | 1.149 |
| Trout Present Criterion (mg N/l | 2.840 |
| Trout Absent Criterion (mg N/L | 4.251 |
| Trout Present? | y |
| Effective Criterion (mg N/L) | 2.840 |

**Ammonia - Wet Season - Chronic**

| | |
|---|---|
| 90th Percentile Temp. (deg C) | 15.588 |
| 90th Percentile pH (SU) | 8.368 |
| MIN | 2.660 |
| MAX | 15.588 |
| (7.688 - pH) | -0.680 |
| (pH - 7.688) | 0.680 |
| Early LS Present Criterion (mg N | 1.270 |
| Early LS Absent Criterion (mg N/ | 1.270 |
| Early Life Stages Present? | y |
| Effective Criterion (mg N/L) | 1.270 |

5/5/2008 9:33:51 AM

Facility = Floyd-Floyd County PSA WWTP
Chemical = TRC (ug/L)
Chronic averaging period = 4
WLAa = 94
WLAc = 58
Q.L. = 100
# samples/mo. = 30
# samples/wk. = 8

Summary of Statistics:

# observations = 1
Expected Value = 1000
Variance = 360000
C.V. = 0.6
97th percentile daily values = 2433.41
97th percentile 4 day average = 1663.79
97th percentile 30 day average= 1206.05
# < Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 84.8293374750874
Average Weekly limit = 50.6011312376056
Average Monthly LImit = 42.0432149695269

The data are:

1000

6/11/2008 10:10:07 AM

Facility = Floyd-Floyd County PSA WWTP
Chemical = ammonia Jan.-May (mg/L)
Chronic averaging period = 30
WLAa = 19
WLAc = 13
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

# observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
# < Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 19
Average Weekly limit = 13.8974302985117
Average Monthly LImit = 10.3517691139499

The data are:

9

6/11/2008 10:10:58 AM

Facility = Floyd-Floyd County PSA WWTP
Chemical = ammonia Jun.-Dec. (mg/L)
Chronic averaging period = 30
WLAa = 14
WLAc = 5.6
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

# observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
# < Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 11.2989525231313
Average Weekly limit = 8.26454763875846
Average Monthly LImit = 6.15600777625984

The data are:

9

5/16/2008 4:01:35 PM

Facility = Floyd-Floyd County PSA WWTP
Chemical = dissolved copper ug/L
Chronic averaging period = 4
WLAa = 27
WLAc = 20
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

# observations = 1
Expected Value = 1000
Variance = 360000
C.V. = 0.6
97th percentile daily values = 2433.41
97th percentile 4 day average = 1663.79
97th percentile 30 day average= 1206.05
# < Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 27
Average Weekly limit = 27
Average Monthly LImit = 27

The data are:

1000

5/29/2008 9:38:31 AM

Facility = Floyd-Floyd County PSA WWTP
Chemical = dissolved zinc (ug/L)
Chronic averaging period = 4
WLAa = 250
WLAc = 270
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

# observations = 1
Expected Value = 60
Variance = 1296
C.V. = 0.6
97th percentile daily values = 146.005
97th percentile 4 day average = 99.8274
97th percentile 30 day average= 72.3631
# < Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

60

**Attachment F**

- REGIONAL MODEL FOR FREE FLOWING STREAMS

REGIONAL MODELING SYSTEM VERSION 4.0

**Model Input File for the Discharge to DODD CREEK.**

## File Information

| | |
|---|---|
| File Name: | C:\Documents and Settings\blfrance\My Documents\Working files\BECKY\F |
| Date Modified: | May 29, 2008 |

## Water Quality Standards Information

| | |
|---|---|
| Stream Name: | DODD CREEK |
| River Basin: | New River Basin |
| Section: | 2 |
| Class: | V - Stockable Trout Waters |
| Special Standards: | None |

## Background Flow Information

| | |
|---|---|
| Gauge Used: | 03170000 |
| Gauge Drainage Area: | 300 Sq.Mi. |
| Gauge 7Q10 Flow: | 42.7 MGD |
| Headwater Drainage Area: | 0 Sq.Mi. |
| Headwater 7Q10 Flow: | 5.172423 MGD (Net; includes Withdrawals/Discharges) |
| Withdrawal/Discharges: | 0 MGD |
| Incremental Flow in Segments: | 0.1423333 MGD/Sq.Mi. |

## Background Water Quality

| | |
|---|---|
| Background Temperature: | 24.3 Degrees C |
| Background cBOD5: | 2 mg/l |
| Background TKN: | 0 mg/l |
| Background D.O.: | 6.996149 mg/l |

## Model Segmentation

| | |
|---|---|
| Number of Segments: | 1 |
| Model Start Elevation: | 2230 ft above MSL |
| Model End Elevation: | 2180 ft above MSL |

REGIONAL MODELING SYSTEM VERSION 4.0

**Model Input File for the Discharge to DODD CREEK.**

## Segment Information for Segment 1

### Definition Information

| | |
|---|---|
| Segment Definition: | A discharge enters. |
| Discharge Name: | FLOYD-FLOYD COUNTY PSA WWTP |
| VPDES Permit No.: | VA0025992 |

### Discharger Flow Information

| | |
|---|---|
| Flow: | 0.25 MGD |
| cBOD5: | 30 mg/l |
| TKN: | 18.5 mg/l |
| D.O.: | 3 mg/l |
| Temperature: | 18.5 Degrees C |

### Geographic Information

| | |
|---|---|
| Segment Length: | 3.6 miles |
| Upstream Drainage Area: | 0 Sq.Mi. |
| Downstream Drainage Area: | 0 Sq.Mi. |
| Upstream Elevation: | 2230 Ft. |
| Downstream Elevation: | 2180 Ft. |

### Hydraulic Information

| | |
|---|---|
| Segment Width: | 15.001 Ft. |
| Segment Depth: | 0.779 Ft. |
| Segment Velocity: | 0.717 Ft./Sec. |
| Segment Flow: | 5.422 MGD |
| Incremental Flow: | 0 MGD (Applied at end of segment.) |

### Channel Information

| | |
|---|---|
| Cross Section: | Wide Shallow Arc |
| Character: | Moderately Meandering |
| Pool and Riffle: | Yes |
| Percent Pools: | 50 |
| Percent Riffles: | 50 |
| Pool Depth: | 1 Ft. |
| Riffle Depth: | 0.52 Ft. |
| Bottom Type: | Silt |
| Sludge: | None |
| Plants: | None |
| Algae: | None |

"Model Run For C:\Documents and Settings\blfrance\My Documents\Working files\BECKY\PERMITS\VPDES\Floyd WWTP\Reissuance 2008\Data\Model Min DO 2008 6.mod On 5/29/2008 1:52:54 PM"

"Model is for DODD CREEK."
"Model starts at the FLOYD-FLOYD COUNTY PSA WWTP discharge."

"Background Data"

| "7Q10" | "cBOD5" | "TKN" | "DO" | "Temp" |
|---|---|---|---|---|
| "(mgd)" | "(mg/l)" | "(mg/l)" | "(mg/l)" | "deg C" |
| 5.1724, | 2, | 0, | 6.996, | 24.3 |

"Discharge/Tributary Input Data for Segment 1"

| "Flow" | "cBOD5" | "TKN" | "DO" | "Temp" |
|---|---|---|---|---|
| "(mgd)" | "(mg/l)" | "(mg/l)" | "(mg/l)" | "deg C" |
| .25, | 30, | 18.5, | ,3, | 18.5 |

"Hydraulic Information for Segment 1"

| "Length" | "Width" | "Depth" | "Velocity" |
|---|---|---|---|
| "(mi)" | "(ft)" | "(ft)" | "(ft/sec)" |
| 3.6, | 15.001, | .779, | .717 |

"Initial Mix Values for Segment 1"

| "Flow" | "DO" | "cBOD" | "nBOD" | "DOSat" | "Temp" |
|---|---|---|---|---|---|
| "(mgd)" | "(mg/l)" | "(mg/l)" | "(mg/l)" | "(mg/l)" | "deg C" |
| 5.4224, | 6.812, | 8.227, | 3.094, | 7.816, | 24.03259 |

"Rate Constants for Segment 1. - (All units Per Day)"

| "k1" | "k1@T" | "k2" | "k2@T" | "kn" | "kn@T" | "BD" | "BD@T" |
|---|---|---|---|---|---|---|---|
| .3, | .361, | 8.333, | 9.17, | .05, | .068, | 0, | 0 |

"Output for Segment 1"
"Segment starts at FLOYD-FLOYD COUNTY PSA WWTP"

| "Total" "Dist." | "Segm." "Dist." | "DO" | "cBOD" | "nBOD" |
|---|---|---|---|---|
| "(mi)" | "(mi)" | "(mg/l)" | "(mg/l)" | "(mg/l)" |
| 0, | 0, | 6.812, | 8.227, | 3.094 |
| .1, | .1, | 6.861, | 8.202, | 3.092 |
| .2, | .2, | 6.907, | 8.177, | 3.09 |
| .3, | .3, | 6.949, | 8.152, | 3.088 |
| .4, | .4, | 6.988, | 8.127, | 3.086 |
| .5, | .5, | 7.024, | 8.102, | 3.084 |
| .6, | .6, | 7.034, | 8.077, | 3.082 |
| .7, | .7, | 7.034, | 8.052, | 3.08 |
| .8, | .8, | 7.034, | 8.027, | 3.078 |
| .9, | .9, | 7.034, | 8.002, | 3.076 |
| 1, | 1, | 7.034, | 7.977, | 3.074 |
| 1.1, | 1.1, | 7.034, | 7.952, | 3.072 |
| 1.2, | 1.2, | 7.034, | 7.928, | 3.07 |
| 1.3, | 1.3, | 7.034, | 7.904, | 3.068 |
| 1.4, | 1.4, | 7.034, | 7.88, | 3.066 |
| 1.5, | 1.5, | 7.034, | 7.856, | 3.064 |
| 1.6, | 1.6, | 7.034, | 7.832, | 3.062 |
| 1.7, | 1.7, | 7.034, | 7.808, | 3.06 |
| 1.8, | 1.8, | 7.034, | 7.784, | 3.058 |
| 1.9, | 1.9, | 7.034, | 7.76, | 3.056 |
| 2, | 2, | 7.034, | 7.736, | 3.054 |
| 2.1, | 2.1, | 7.034, | 7.712, | 3.052 |
| 2.2, | 2.2, | 7.034, | 7.688, | 3.05 |
| 2.3, | 2.3, | 7.034, | 7.664, | 3.048 |
| 2.4, | 2.4, | 7.034, | 7.64, | 3.046 |
| 2.5, | 2.5, | 7.034, | 7.617, | 3.044 |
| 2.6, | 2.6, | 7.034, | 7.594, | 3.042 |

| | | | | |
|---|---|---|---|---|
| 2.7, | 2.7, | 7.034, | 7.571, | 3.04 |
| 2.8, | 2.8, | 7.034, | 7.548, | 3.038 |
| 2.9, | 2.9, | 7.034, | 7.525, | 3.036 |
| 3, | 3, | 7.034, | 7.502, | 3.034 |
| 3.1, | 3.1, | 7.034, | 7.479, | 3.032 |
| 3.2, | 3.2, | 7.034, | 7.456, | 3.03 |
| 3.3, | 3.3, | 7.034, | 7.433, | 3.028 |
| 3.4, | 3.4, | 7.034, | 7.41, | 3.026 |
| 3.5, | 3.5, | 7.034, | 7.387, | 3.024 |
| 3.6, | 3.6, | 7.034, | 7.364, | 3.022 |

"END OF FILE"

**Attachment G**

- PUBLIC NOTICE

PUBLIC NOTICE – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Floyd County.
PUBLIC COMMENT PERIOD: 30 days following the public notice issue date; comment period ends 4:30 pm of last day
PERMIT NAME: Virginia Pollutant Discharge Elimination System – Wastewater issued by DEQ, under the authority of the State Water Control Board
NAME, ADDRESS, AND PERMIT NUMBER OF APPLICANT: Floyd-Floyd County Public Service Authority (PSA), PO Box 407, Floyd, Virginia 24091, VA0025992
NAME AND ADDRESS OF FACILITY: Floyd-Floyd County PSA, 169 PSA Road (off State Route 221), Floyd, Virginia 24091
PROJECT DESCRIPTION: Floyd-Floyd County PSA has applied for a reissuance of a permit for the wastewater treatment plant in Floyd County. The applicant proposes to release treated sewage at a rate of 0.25 MGD from the current facility into a water body. Sludge from the treatment process will be disposed of at a landfill. The facility proposes to release the treated sewage into Dodd Creek in Floyd County in the Dodd Creek and West Fork Dodd Creek Watershed (VAW-N20R). A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: nutrients, organic matter, solids, metal (copper).
HOW TO COMMENT: DEQ accepts comments by e-mail, fax, or postal mail. All comments must be in writing and be received by DEQ during the comment period. The public also may request a public hearing.
WRITTEN COMMENTS MUST INCLUDE: DEQ accepts comments by e-mail, fax, or postal mail. All comments must be in writing and be received by DEQ during the comment period. Written comments must include: 1) The names, mailing addresses, and telephone numbers of the person commenting and of all people represented by the citizen. 2) If a public hearing is requested, the reason for holding a hearing, including associated concerns. 3) A brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen. DEQ may hold a public hearing, including another comment period, if a public response is significant and there are substantial, disputed issues relevant to the proposed permit. The public may review the draft permit and application at the DEQ office named below.
CONTACT OF PUBLIC COMMENTS, DOCUMENT REQUESTS, AND ADDITIONAL INFORMATION:
NAME: Becky L. France; ADDRESS: Virginia Department of Environmental Quality, West Central Regional Office, 3019 Peters Creek Road, Roanoke, VA 24019-2738; PHONE: (540) 562-6700; E-MAIL ADDRESS: blfrance@deq.virginia.gov; FAX: (540) 562-6725

**Attachment H**

- EPA CHECKSHEET

Revised 2/2003

## *State "FY2003 Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review*

### Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Floyd –Floyd County PSA WWTP

NPDES Permit Number: VA0025992

Permit Writer Name: Becky L. France

Date: 2/29/08

**Major** [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

| I.A. Draft Permit Package Submittal Includes: | Yes | No | N/A |
|---|---|---|---|
| 1. Permit Application? | X | | |
| 2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)? | X | | |
| 3. Copy of Public Notice? | X | | |
| 4. Complete Fact Sheet? | X | | |
| 5. A Priority Pollutant Screening to determine parameters of concern? | | | X |
| 6. A Reasonable Potential analysis showing calculated WQBELs? | X | | |
| 7. Dissolved Oxygen calculations? | X | | |
| 8. Whole Effluent Toxicity Test summary and analysis?/ | | | X |
| 9. Permit Rating Sheet for new or modified industrial facilities? | | | X |

| I.B. Permit/Facility Characteristics | Yes | No | N/A |
|---|---|---|---|
| 1. Is this a new, or currently unpermitted facility? | | X | |
| 2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit? | X | | |
| 3. Does the fact sheet **or** permit contain a description of the wastewater treatment process? | X | | |

| I.B. Permit/Facility Characteristics – cont. (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit? | | X | |
| 5. Has there been any change in streamflow characteristics since the last permit was developed? | X | | |
| 6. Does the permit allow the discharge of new or increased loadings of any pollutants? | | X | |
| 7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses? | X | | |
| 8. Does the facility discharge to a 303(d) listed water? | X | | |
| a. Has a TMDL been developed and approved by EPA for the impaired water? | X | | |
| b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit? | | | X |
| c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water? E. coli | X | | |
| 9. Have any limits been removed, or are any limits less stringent, than those in the current permit? | | X | |
| 10. Does the permit authorize discharges of storm water? | | | X |
| 11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production? | | X | |
| 12. Are there any production-based, technology-based effluent limits in the permit? | | X | |
| 13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures? | | X | |
| 14. Are any WQBELs based on an interpretation of narrative criteria? | | X | |
| 15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations? | | X | |
| 16. Does the permit contain a compliance schedule for any limit or condition? | | X | |
| 17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)? | | X | |
| 18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated? | | | X |
| 19. Is there any indication that there is significant public interest in the permit action proposed for this facility? | | X | |
| 20. Have previous permit, application, and fact sheet been examined? | X | | |

## Part II. NPDES Draft Permit Checklist (FY2003)

### Region III NPDES Permit Quality Checklist – for POTWs

*(To be completed and included in the record only for POTWs)*

| II.A. Permit Cover Page/Administration | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)? | X | | |
| 2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)? | X | | |

| II.B. Effluent Limits – General Elements | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)? | X | | |
| 2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit? | | | X |

| II.C. Technology-Based Effluent Limits (POTWs) | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH? | X | | |
| 2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133? | X | | |
| a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved? | | | X |
| 3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)? | X | | |
| 4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits? | X | | |
| 5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)? | | X | |
| a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations? | | | X |

| II.D. Water Quality-Based Effluent Limits | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality? | X | | |
| 2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL? | | | X |

| II.D. Water Quality-Based Effluent Limits – cont. (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 3. Does the fact sheet provide effluent characteristics for each outfall? | X | | |
| 4. Does the fact sheet document that a "reasonable potential" evaluation was performed? | X | | |
| a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures? | X | | |
| b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone? | X | | |
| c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"? | X | | |
| d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)? | | | X |
| e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined? | X | | |
| 5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet? | X | | |
| 6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established? | X | | |
| 7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)? | X | | |
| 8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy? | X | | |

| II.E. Monitoring and Reporting Requirements | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations? | X | | |
| a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver? | | | X |
| 2. Does the permit identify the physical location where monitoring is to be performed for each outfall? | X | | |
| 3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements? | | X | |
| 4. Does the permit require testing for Whole Effluent Toxicity? | | X | |

| II.F. Special Conditions | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit include appropriate biosolids use/disposal requirements? | X | | |
| 2. Does the permit include appropriate storm water program requirements? | | | X |

| II.F. Special Conditions – cont. (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements? | | | X |
| 4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations? | X | | |
| 5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]? | | | X |
| 6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)? | | | X |
| a. Does the permit require implementation of the "Nine Minimum Controls"? | | | X |
| b. Does the permit require development and implementation of a "Long Term Control Plan"? | | | X |
| c. Does the permit require monitoring and reporting for CSO events? | | | X |
| 7. Does the permit include appropriate Pretreatment Program requirements? | X | | |

| II.G. Standard Conditions | Yes | No | N/A |
|---|---|---|---|
| 1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions? | X | | |

**List of Standard Conditions – 40 CFR 122.41**

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions

Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset

Reporting Requirements
- Planned change
- Anticipated noncompliance
- Transfers
- Monitoring reports
- Compliance schedules
- 24-Hour reporting
- Other non-compliance

| | | | |
|---|---|---|---|
| 2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]? | X | | |

## Part II. NPDES Draft Permit Checklist (FY2003)

### Region III NPDES Permit Quality Review Checklist – For Non-Municipals

*(To be completed and included in the record for all non-POTWs)*

| II.A. Permit Cover Page/Administration | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)? | | | |
| 2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)? | | | |

| II.B. Effluent Limits – General Elements | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)? | | | |
| 2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit? | | | |

| II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) | Yes | No | N/A |
|---|---|---|---|
| 1. Is the facility subject to a national effluent limitations guideline (ELG)? | | | |
| a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source? | | | |
| b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations? | | | |
| 2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)? | | | |
| 3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits? | | | |
| 4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)? | | | |
| 5. Does the permit contain "tiered" limits that reflect projected increases in production or flow? | | | |
| a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained? | | | |
| 6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)? | | | |

| II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont. | Yes | No | N/A |
|---|---|---|---|
| 7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits? | | | |
| 8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ? | | | |

| II.D. Water Quality-Based Effluent Limits | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality? | | | |
| 2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL? | | | |
| 3. Does the fact sheet provide effluent characteristics for each outfall? | | | |
| 4. Does the fact sheet document that a "reasonable potential" evaluation was performed? | | | |
| a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures? | | | |
| b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone? | | | |
| c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"? | | | |
| d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)? | | | |
| e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined? | | | |
| 5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet? | | | |
| 6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established? | | | |
| 7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)? | | | |
| 8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy? | | | |

| II.E. Monitoring and Reporting Requirements (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit require at least annual monitoring for all limited parameters? | | | |
| a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver? | | | |
| 2. Does the permit identify the physical location where monitoring is to be performed for each outfall? | | | |
| 3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices? | | | |

| II.F. Special Conditions | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs? | | | |
| a. If yes, does the permit adequately incorporate and require compliance with the BMPs? | | | |
| 2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements? | | | |
| 3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations? | | | |

| II.G. Standard Conditions | Yes | No | N/A |
|---|---|---|---|
| 1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions? | | | |

**List of Standard Conditions – 40 CFR 122.41**

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions

Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset

Reporting Requirements
- Planned change
- Anticipated noncompliance
- Transfers
- Monitoring reports
- Compliance schedules
- 24-Hour reporting
- Other non-compliance

| | | | |
|---|---|---|---|
| 2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]? | | | |

# Attachment J

# Toxics Management Program Justification Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
*West Central Regional Office*

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: TMP Justification for Town of Stuart WWTP
VPDES Permit No. VA0022985

TO: Permit File

FROM: Becky L. France, Environmental Engineer Senior

DATE: May 21, 2008

**DISCUSSION:**

Attached are the results of the previous data reviews that cover all of the available data for outfall 001. Acute and chronic tests were performed using *Pimephales promelas* for the acute test and *Ceriodaphnia dubia* for the chronic test. The facility has not failed either an acute or chronic toxicity test since the permit reissuance. Results from the initial four quarters testing in the previous permit term indicated that *Pimephales promelas* was the most sensitive species for the acute toxicity tests and *Ceriodaphnia dubia* was the most sensitive species for the chronic toxicity tests.

**RECOMMENDATIONS:**

The toxicity testing acute and chronic wasteload allocation and NOEC endpoint calculations are included on the attached spreadsheet. The acute and chronic wasteload allocations and test results were entered into the STATS program to determine if a limit is needed. The output from this program indicated that a limit is not needed. In accordance with Guidance Memorandum 00-2012, annual whole effluent toxicity testing will continue for the Town of Stuart WWTP.

Guidance Memorandum 00-2012 designates criteria to allow testing of only one species per test type rather than two species. The criteria designate one of two conditions that need to be met: (1) the average percent survival in 100% effluent for all the acceptable acute tests during a permit term with a particular species is $\geq$ 100, <u>or</u> (2) the average percent survival in 100% effluent for all of the acceptable chronic tests during a permit term with a particular species is $\geq$ 80% and the secondary endpoint for reproduction or growth is an NOEC=100%. If the criteria indicate that there is no possibility for toxicity from tests with the evaluated species, annual testing with the other tested species should be sufficient. A summary of the acute and chronic toxicity testing data is found in Tables 2 and 3. Based upon these test results, the criteria found in Guidance 00-2012 are not meet and the acute and chronic toxicity testing will be required using both *Ceriodaphnia dubia* and *Pimephales promelas*.

**Table 1** **FACILITY INFORMATION**

| | | | |
|---|---|---|---|
| **FACILITY:** | Town of Stuart WWTP | | |
| **LOCATION:** | Stuart, Virginia | | |
| **VPDES PERMIT NUMBER:** | VA0022985 | **Expiration Date:** | 08/20/08 |
| **SIC CODE/DESCRIPTION:** | 4952/Sewerage Systems | | |
| **DESIGN FLOW:** | **Outfall 001** = 0.60 MGD | | |

**RECEIVING STREAM/CRITICAL FLOWS/IWC:**

| | | | |
|---|---|---|---|
| Receiving Stream: | South Mayo River | | |
| River Basin: | Roanoke River | | |
| River Subbasin: | Roanoke River | | |
| Section: | 3g | | |
| Class: | IV | | |
| Special Standards: | None | | |
| 1Q10 = | 6.8 MGD | 30Q5 = | 9.5 MGD |
| 7Q10 = | 6.0 MGD | Harmonic mean = | 21 MGD |
| IWC = 7.2% | | | |

**WASTEWATER AND TREATMENT:**

This plant operates under the conventional activated sludge treatment process, which consists of screening, activated sludge aeration, secondary clarification, chlorine disinfection, dechlorination, sludge digestion and thickening. The wastewater treatment process consists of the following in order of treatment:

Biological Treatment Using Extended Mode of Activated Sludge Process

Screening (mechanical bar screen and aerated grit collector)
Aeration
Secondary Clarification
Chlorination
Dechlorination
Final Effluent Flow Metering (Parshall Flume)

Solids Handling

Return Sludge to Aeration Basins
Thickener
Aerobic Sludge Digester
Dewatering
Land Application

**PROPOSED TMP REQUIREMENTS:**

BIOLOGICAL

Annual acute and chronic toxicity tests for the duration of the permit. The acute tests shall be 48-hour static tests using *C. dubia* and *P. promelas*. The chronic tests shall be 3-brood survival and reproduction tests using C. *dubia* and *P. promelas*.

Table 2
Acute TMP Test Data
Town of Stuart WWTP
VPDES Permit No. VA0022985

| Test Dates | Test Organism | $LC_{50}$ | % Survival in 100% Effluent | Testing Lab |
|---|---|---|---|---|
| 10/21-10/23/03 (1st Annual) | *P. promelas* | >100 | 80 | Prochem Analytical |
| 10/21-10/23/04 (2nd Annual) | *P. promelas* | >100 | 100 | Olver Inc. |
| 10/19-10/21/05 (3rd Annual) | *P. promelas* | >100 | 90 | Olver Inc. |
| 9/27-9/29/06 (4th Annual) | *P. promelas* | >100 | 100 | Olver Inc. |
| 9/19/-9/21/07 (5th Annual | *P. promelas* | >100 | 100 | Olver Inc. |

Table 3
Chronic TMP Test Data
Town of Stuart WWTP
VPDES Permit No. VA0022985

| Test Dates | Test Organism | % NOEC Survival | % NOEC Reproduction | % Survival in 100% Effluent | Testing Lab |
|---|---|---|---|---|---|
| 10/21-10/27/03 (1st Annual) | *C. dubia* | 100 | 100 | 100 | Prochem Analytical |
| 10/19-10/23/04 (2nd Annual) | *C. dubia* | 100 | 100 | 100 | Olver Inc. |
| 10/17-10/23/05 (3rd Annual) | *C. dubia* | 100 | 7.2 | 100 | Olver, Inc. |
| 9/25-10/1/06 (4th Annual) | *C. dubia* | 100 | 100 | 100 | Olver, Inc. |
| 9/18-9/24/07 (5th Annual) | *C. dubia* | 100 | 100 | 90 | Olver, Inc. |

# Attachment K

# Public Notice

PUBLIC NOTICE – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Patrick County
PUBLIC COMMENT PERIOD: 30 days following the public notice issue date; comment period ends 4:30 pm of last day
PERMIT NAME: Virginia Pollutant Discharge Elimination System – Wastewater issued by DEQ, under the authority of the State Water Control Board
NAME, ADDRESS, AND PERMIT NUMBER OF APPLICANT: Town of Stuart, PO Box 422, Stuart, VA 24171, VA0022985
NAME AND ADDRESS OF FACILITY: Town of Stuart WWTP, (709 Commerce Street), PO Box 422, Stuart, VA 24171
PROJECT DESCRIPTION: The Town of Stuart has applied for a reissuance of a permit for their wastewater treatment plant in Patrick County. The applicant proposes to release treated sewage at a rate of 0.60 MGD from the current facility into a water body. The facility proposes to release the treated sewage into the Upper South Mayo River/ Russell Creek Watershed (VAW-L43R). A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: nutrients, organic matter, metals (copper, zinc), solids. A sludge management plan has been submitted proposing application of approximately 72.71 dry metric tons of sludge per year to agricultural lands. Sludge application will be made at or below standard agronomic rates. The sludge management plan identifies sites on approximately 113 acres identified as the KP Hill Dairy Inc. These sites are owned by Mr. Wayne M. Kirkpatrick.
HOW TO COMMENT: DEQ accepts comments by e-mail, fax, or postal mail. All comments must be in writing and be received by DEQ during the comment period. The public also may request a public hearing.
WRITTEN COMMENTS MUST INCLUDE: DEQ accepts comments by e-mail, fax, or postal mail. All comments must be in writing and be received by DEQ during the comment period. Written comments must include: 1) The names, mailing addresses, and telephone numbers of the person commenting and of all people represented by the citizen. 2) If a public hearing is requested, the reason for holding a hearing, including associated concerns. 3) A brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen. DEQ may hold a public hearing, including another comment period, if a public response is significant and there are substantial, disputed issues relevant to the proposed permit. The public may review the draft permit and application at the DEQ office named below.
CONTACT OF PUBLIC COMMENTS, DOCUMENT REQUESTS, AND ADDITIONAL INFORMATION:
NAME: Becky L. France; ADDRESS: Virginia Department of Environmental Quality, West Central Regional Office, 3019 Peters Creek Road, Roanoke, VA 24019-2738; PHONE: (540) 562-6700; E-MAIL ADDRESS: blfrance@deq.virginia.gov; FAX: (540) 562-6725

# Attachment L

# EPA Checksheet

Revised 2/2003

## *State "FY2003 Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review*

### Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Town of Stuart WWTP

NPDES Permit Number: VA0022985

Permit Writer Name: Becky L. France

Date: 5/21/08

**Major [ ]** **Minor [X]** **Industrial [ ]** **Municipal [X]**

| I.A. Draft Permit Package Submittal Includes: | Yes | No | N/A |
|---|---|---|---|
| 1. Permit Application? | X | | |
| 2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)? | X | | |
| 3. Copy of Public Notice? | X | | |
| 4. Complete Fact Sheet? | X | | |
| 5. A Priority Pollutant Screening to determine parameters of concern? | X | | |
| 6. A Reasonable Potential analysis showing calculated WQBELs? | X | | |
| 7. Dissolved Oxygen calculations? | X | | |
| 8. Whole Effluent Toxicity Test summary and analysis? | X | | |
| 9. Permit Rating Sheet for new or modified industrial facilities? | | | X |

| I.B. Permit/Facility Characteristics | Yes | No | N/A |
|---|---|---|---|
| 1. Is this a new, or currently unpermitted facility? | | X | |
| 2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit? | X | | |
| 3. Does the fact sheet **or** permit contain a description of the wastewater treatment process? | X | | |

| I.B. Permit/Facility Characteristics – cont. (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit? | | X | |
| 5. Has there been any change in streamflow characteristics since the last permit was developed? | X | | |
| 6. Does the permit allow the discharge of new or increased loadings of any pollutants? | | X | |
| 7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses? | X | | |
| 8. Does the facility discharge to a 303(d) listed water? | | X | |
| a. Has a TMDL been developed and approved by EPA for the impaired water? | | | X |
| b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit? | | | X |
| c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water? | | | X |
| 9. Have any limits been removed, or are any limits less stringent, than those in the current permit? | | X | |
| 10. Does the permit authorize discharges of storm water? **no exposure exemption granted** | | | X |
| 11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production? | | X | |
| 12. Are there any production-based, technology-based effluent limits in the permit? | | X | |
| 13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures? | | X | |
| 14. Are any WQBELs based on an interpretation of narrative criteria? | | X | |
| 15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations? | | X | |
| 16. Does the permit contain a compliance schedule for any limit or condition? | X | | |
| 17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)? | X | | |
| 18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated? | | | X |
| 19. Is there any indication that there is significant public interest in the permit action proposed for this facility? | | X | |
| 20. Have previous permit, application, and fact sheet been examined? | X | | |

## Part II. NPDES Draft Permit Checklist (FY2003)

### Region III NPDES Permit Quality Checklist – for POTWs

*(To be completed and included in the record only for POTWs)*

| II.A. Permit Cover Page/Administration | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)? | X | | |
| 2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)? | X | | |

| II.B. Effluent Limits – General Elements | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)? | X | | |
| 2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit? | | | X |

| II.C. Technology-Based Effluent Limits (POTWs) | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH? | X | | |
| 2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133? | X | | |
| a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved? | | | X |
| 3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)? | X | | |
| 4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits? | X | | |
| 5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)? | | X | |
| a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations? | | | X |

| II.D. Water Quality-Based Effluent Limits | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality? | X | | |
| 2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL? | | | X |

| II.D. Water Quality-Based Effluent Limits – cont. (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 3. Does the fact sheet provide effluent characteristics for each outfall? | X | | |
| 4. Does the fact sheet document that a "reasonable potential" evaluation was performed? | X | | |
| a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures? | X | | |
| b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone? | X | | |
| c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"? | X | | |
| d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)? | | | X |
| e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined? | X | | |
| 5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet? | X | | |
| 6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established? | X | | |
| 7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)? | X | | |
| 8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy? | X | | |

| II.E. Monitoring and Reporting Requirements | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations? | X | | |
| a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver? | | | X |
| 2. Does the permit identify the physical location where monitoring is to be performed for each outfall? | X | | |
| 3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements? | | X | |
| 4. Does the permit require testing for Whole Effluent Toxicity? | X | | |

| II.F. Special Conditions | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit include appropriate biosolids use/disposal requirements? | X | | |
| 2. Does the permit include appropriate storm water program requirements? | | | X |

| II.F. Special Conditions – cont. (FY2003) | Yes | No | N/A |
|---|---|---|---|
| 3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements? | X | | |
| 4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations? | X | | |
| 5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]? | | | X |
| 6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)? | | | X |
| a. Does the permit require implementation of the "Nine Minimum Controls"? | | | X |
| b. Does the permit require development and implementation of a "Long Term Control Plan"? | | | X |
| c. Does the permit require monitoring and reporting for CSO events? | | | X |
| 7. Does the permit include appropriate Pretreatment Program requirements? | X | | |

| II.G. Standard Conditions | Yes | No | N/A |
|---|---|---|---|
| 1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions? | X | | |
| **List of Standard Conditions – 40 CFR 122.41**<br><br>Duty to comply<br>Duty to reapply<br>Need to halt or reduce activity not a defense<br>Duty to mitigate<br>Proper O & M<br>Permit actions<br><br>Property rights<br>Duty to provide information<br>Inspections and entry<br>Monitoring and records<br>Signatory requirement<br>Bypass<br>Upset<br><br>Reporting Requirements<br>Planned change<br>Anticipated noncompliance<br>Transfers<br>Monitoring reports<br>Compliance schedules<br>24-Hour reporting<br>Other non-compliance | | | |
| 2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]? | X | | |

## Part II. NPDES Draft Permit Checklist (FY2003)

### Region III NPDES Permit Quality Review Checklist – For Non-Municipals

*(To be completed and included in the record for all non-POTWs)*

| II.A. Permit Cover Page/Administration | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)? | | | |
| 2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)? | | | |

| II.B. Effluent Limits – General Elements | Yes | No | N/A |
|---|---|---|---|
| 1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)? | | | |
| 2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit? | | | |

| II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) | Yes | No | N/A |
|---|---|---|---|
| 1. Is the facility subject to a national effluent limitations guideline (ELG)? | | | |
| a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source? | | | |
| b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations? | | | |
| 2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)? | | | |
| 3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits? | | | |
| 4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)? | | | |
| 5. Does the permit contain "tiered" limits that reflect projected increases in production or flow? | | | |
| a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained? | | | |
| 6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)? | | | |

| II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont. | Yes | No | N/A |
|---|---|---|---|
| 7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits? | | | |
| 8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ? | | | |

| II.D. Water Quality-Based Effluent Limits | Yes | No | N/A |
|---|---|---|---|
| 1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality? | | | |
| 2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL? | | | |
| 3. Does the fact sheet provide effluent characteristics for each outfall? | | | |
| 4. Does the fact sheet document that a "reasonable potential" evaluation was performed? | | | |
| a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures? | | | |
| b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone? | | | |
| c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"? | | | |
| d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)? | | | |
| e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined? | | | |
| 5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet? | | | |
| 6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established? | | | |
| 7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)? | | | |
| 8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy? | | | |

## Part III. Signature Page (FY2003)

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

| | |
|---|---|
| Name | Becky L. France |
| Title | Environmental Engineer Senior |
| Signature | Becky L. France |
| Date | 2/29/08 |