VPDES PERMIT FACT SHEET

This document gives the 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 **0.035 MGD extended aeration wastewater treatment plant** serving a private country club, restaurant, and a housing development. This permit action consists of adding ammonia as nitrogen limitations and an annual total suspended solids loading limit, revising the effluent limitations for total residual chlorine, adding temperature monitoring, and revising the special conditions. (SIC Code: 4952)

1. **Facility Name and Address:**
   Blacksburg Country Club WWTP
   1064 Clubhouse Road
   Blacksburg, VA 24060
   Location: 1064 Clubhouse Road, off State Road 723

2. **Permit No: VA0027481** Existing Permit Expiration Date: September 11, 2008

3. **Owner Contact:** Name: Mr. Daina Trimble Reynolds II
   Title: Superintendent
   Telephone No: (540) 989-3653

4. **Application Complete Date:**
   Permit Drafted By: Becky L. France
   Date: July 22, 2008 (Revised 8/22/08)
   DEQ Regional Office: West Central Regional Office
   Reviewed By: Kip D. Foster, Water Permit Manager
   Reviewer's Signature: [signature] Date: 7/15/08
   Public Comment Period Dates: From 8/5/08 To 9/3/08

5. **Receiving Stream Classification:**

Receiving Stream:	Roanoke River, North Fork (River Mile: 17.57)		
Watershed ID:	VAW-L02R		
River Basin:	Roanoke River		
River Subbasin:	Roanoke River		
Section:	7		
Class:	IV		
Special Standards:	pH 6.5 - 9.5 S.U.		
7-Day, 10-Year Low Flow:	1.7 MGD	7-Day, 10-Year High Flow:	3.6 MGD
1-Day, 10-Year Low Flow:	1.6 MGD	1-Day, 10-Year High Flow:	3.1 MGD
30-Day, 5-Year Low Flow:	2.3 MGD	Harmonic Mean Flow:	7.7 MGD
Tidal:	No	303(d) Listed:	No

Attachment A contains a copy of the flow frequency determination memorandum.

6. **Operator License Requirements:** Class IV

7. **Reliability Class:** II

8. **Permit Characterization**:

(X)	Private	( )	Interim Limits in Other Document
( )	Federal	( )	Possible Interstate Effect
( )	State		
( )	POTW		
(X)	PVOTW		

9. **Wastewater Treatment System:** A description of the wastewater treatment system is provided below. See **Attachment B** for the wastewater treatment schematic and **Attachment C** for a copy of the site inspection report. Treatment units associated with the discharge are listed in the table below.

Table I
DISCHARGE DESCRIPTION

Outfall Number	Discharge Source	Treatment (Unit by Unit)	Flow (Design) (MGD)
001	Blacksburg Country Club WWTP	serial aeration basins (6) splitter tank clarifiers (2) tablet chlorinator tablet dechlorinator sludge holding tank	0.035

A 10,000 gpd wastewater treatment plant was built around 1975 to serve the Blacksburg Country Club and pool and later upgraded to allow sewer connections to the community. A Virginia Department of Health letter provided approval on January 10, 1978 of Plan and Specifications for a 35,000 gpd facility. A permittee review of old correspondence indicates that the facility was upgraded sometime after September 1978 and before 1988. B&J Enterprises currently operates an extended aeration package plant system for the Ellet Valley section of Blacksburg. This system has a design capacity of 0.035 MGD and serves the country club with a restaurant and a private subdivision. The wastewater treatment works consists of six aeration basins with air diffusers, splitter tank, two clarifiers, aerated sludge holding tank, tablet chlorinator, and tablet dechlorinator. Wastewater flows in series through the six aeration basins and is then routed through the splitter tank which divides the flow between two clarifiers. Then, the effluent is chlorinated and dechlorinated and discharged to the North Fork of the Roanoke River.

10. **Sewage Sludge Use or Disposal:** A VPDES Sewage Sludge Permit Application Form was submitted for this facility to address disposal of sewage sludge from the wastewater treatment

facility. Sludge is aerobically digested and periodically transported to the Western Virginia Water Authority Water Pollution Control Plant.

11. **Discharge Location Description:** A USGS topographic map which indicates the discharge location, any significant dischargers, any water intakes, and other items of interest is included in **Attachment D**. The latitude and longitude of the discharge are N $37^0 12' 51''$, E $80^0 21' 36''$.

Name of Topo: Ironto Number: 081A

12. **Material Storage:** Containers of calcium hypochlorite and sodium sulfite tablets are stored in a shed.

13. **Ambient Water Quality Information:** Memoranda or other information which helped to develop permit conditions (special water quality studies, STORET data, and any other biological and/or chemical data, etc.) are listed below.

Critical stream flow determinations were performed using site-specific flow measurements taken below the discharge on the North Fork of the Roanoke River in 1968, 2004, and 2005. A regression analysis was performed using the site-specific flow measurements and data from a USGS continuous record gauge on the South Fork of the Roanoke River near Shawsville, Virginia (#02053800). The values for the measurement site were projected to the discharge point using proportional drainage areas. The design flow of 0.035 MGD from Blacksburg Country Club WWTP was subtracted from the resulting flows to calculate the flow upstream of outfall 001. Critical stream flow values are lower than the 2003 reissuance permit. A copy of the Flow Frequency Determination Memorandum may be found in **Attachment A**.

Data for STORET Station 4ARNF002.97 were collected downstream of the outfall in the North Fork of the Roanoke River at the Route 603 bridge (**Attachment E**). The 90th percentile pH, temperature, and average hardness used in the antidegradation wasteload allocation spreadsheet were determined from these STORET station data.

Blacksburg County Club WWTP discharges into the North Fork of the Roanoke River/ Bradshaw Creek Watershed (VAW-L02R) as described in the Integrated 2004 Water Quality Assessment Report (**Attachment E**). This segment has been assessed as fully supporting for aquatic life and fishing.

Total Maximum Daily Loads (TMDLs) for total suspended solids and fecal coliform have been developed for this segment of the Roanoke River watershed. Refer to **Attachment E** for excepts from the EPA approved reports which characterize impairment in the Roanoke River watershed and include wasteload allocations for point sources.

The Department of Conservation and Recreation's Division of Natural Heritage has designated a segment of stream downstream of the discharge location as a Stream Conservation Unit (SCU). This SCU (North Fork Roanoke River- Den Creek) has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources

of concern associated with this SCU include Roanoke logperch. The Roanoke logperch is classified as endangered by the Virginia Department of Game and Inland Fisheries (VDGIF) and the US Fish and Wildlife Service (USFWS). The North Fork of the Roanoke River has been designated by DGIF as a "Threatened and Endangered Species Water". VDGIF has also found state Threatened orangefin madtom in the North Fork of the Roanoke River. The Roanoke logperch is listed as a federal endangered species and its presence has been documented in the designated river section. A copy of the Division of Natural Heritage report information and the VDGIF information on species of concern in the area of the discharge is included in **Attachment E**.

14. **Antidegradation Review and Comments:** Tier I _____ Tier II __X__ Tier III _____

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 Tier determination. The North Fork of the Roanoke River is not listed as a public water supply in the segment where the discharge is located. The Roanoke River in this segment (VAW-L02R) is not listed on Part I of the 303(d) list for exceedance of water quality criteria. Available pollutant data have been analyzed, and the existing water quality condition for pollutants for which data exist compared to the water quality standards. This analysis indicates the water quality of the receiving stream does not exceed numeric criteria for any pollutant analyzed. Therefore, this segment of the North Fork of the Roanoke River is classified as a Tier II water, 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 than 25 percent of 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 percent of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The antidegradation baselines for aquatic life and human health are calculated for each pollutant as follows:

Antidegradation baseline (aquatic life) = 0.25 (WQS – existing quality) + existing quality

Antidegradation baseline (human health) = 0.10 (WQS – existing quality) + existing quality

Where:
"WQS" = Numeric criterion listed in 9 VAC 25-260-00 et seq. for the parameter analyzed
"Existing quality" = Concentration of the parameter being analyzed in the receiving stream

When applied, these "antidegradation baselines" become the new water quality criteria in Tier II waters, and effluent limits for future expansions or new facilities must be written to maintain the antidegradation baselines for each pollutants. Antidegradation baselines have been calculated as described above and included in **Attachment F**.

The facility's outfall 001 discharge is existing, and the application does not indicate an expansion or proposed increase in the discharge of pollutants via this outfall. Therefore, the antidegradation baselines do not apply to this permit reissuance. As the facility is not proposing any increase in the loading of any pollutants, the permit limits are in compliance with antidegradation requirements set forth in 9 VAC 25-260-30. The antidegradation review was conducted as described in Guidance Memorandum 00-2011, and complies with the antidegradation policy contained in Virginia's Water Quality Standards.

15. **Site Inspection:** Date: 4/18/08 Performed by: Becky L. France
Attachment C contains a copy of the site inspection memorandum.

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.). Refer to **Attachment F** for the wasteload allocation spreadsheet and effluent limit calculations. See **Table II** on pages 16-17 for a summary of limits and monitoring requirements.

A. **Mixing Zone**

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

B. **Effluent Limitations for Conventional Pollutants**

The Upper Roanoke River Water Quality Management Plan (WQMP) requires dischargers in this segment to meet the State Water Control Board's Policy for Nutrient Enriched Waters (9 VAC 25-40-00 et seq.). This protective strategy is intended to protect Smith Mountain Lake from nutrient enrichment via point source discharges. The strategy states that all dischargers into this segment "...shall maintain the effluent phosphorus concentration prescribed by the nutrient enrichment policy." Therefore, although the stream classification for the North Fork of the Roanoke River does not carry the Nutrient Enriched Waters (NEW) designation in the September 11, 2007 Water Quality Standards, the nutrient enriched policy regarding phosphorus applies.

This facility has a design capacity below 0.05 MGD, and thus phosphorus limitations prescribed in the Nutrient Policy are not applicable. However, this policy indicates that a phosphorus monitoring requirement may be added to the VPDES permit where there is a potential for discharging monthly average phosphorus concentrations greater than or

equal to 2 mg/L. The previous permit required effluent total phosphorus data which the permittee collected from August 2003 to May 2005. A summary of the phosphorus data is included in **Attachment F**. No additional phosphorus monitoring will be required with this reissuance.

Flow -- The permitted design flow of 0.035 MGD for this facility is taken from the previous permit and the application for the reissuance. In accordance with the current VPDES Permit Manual, flow is to be estimated and reported per day.

E. coli -- The monthly average limit of 126 cfu/100 mL has been continued from the previous permit. Monitoring twice per month at least 7 days apart shall continue via grab samples. The permittee conducted a bacterial study in the previous permit term that failed to demonstrate that the water quality criterion for E. coli was met when the total residual chlorine contact concentration was met. This limit is needed to ensure that the effluent is adequately disinfected.

A bacteria TMDL for the Roanoke River watershed allocates an E. coli wasteload allocation (6.10E+10 cfu/year) that is derived from a bacteria water quality criterion. This allocation was derived by multiplying the design flow (0.035 MGD) by the bacteria water quality standards (126 cfu/100 mL) for E. coli. The TMDL report indicates that the E. coli limit of 126 cfu/100 mL will ensure compliance with the bacteria TMDL for the discharge. Refer to **Attachment E** for information from the bacteria TMDL report.

pH -- The pH limits of 6.5 S.U. (minimum) and 9.0 S.U. (maximum) have been continued from the previous permit. The federal technology-based guidelines for secondary treatment, 40 CFR Part 133, allow for a minimum of 6.0 S.U. However, a minimum limit of 6.5 S.U. has been included in the permit since the water quality criteria in 9 VAC 25-260-50 for Class IV receiving waters are 6.5 S.U. (minimum) and 9.5 S.U. (maximum). The maximum pH limit of 9.0 S.U. has been included in the permit in accordance with the federal technology-based guidelines. Grab samples shall be collected once per day.

Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS) -- Since there has been a decrease in the flow frequencies at the outfall, the new data have been entered into the Regional Water Quality Model for Free Flowing Streams (Version 4.0) to reassess the BOD_5 limits. A copy of the model output results is found in **Attachment G**. An initial DO concentration of 0 mg/L, a TKN value of 20 mg/L, and 30 mg/L for BOD_5 were used in the model input. The model predicted a dissolved oxygen (DO) sag at the initial discharge point to 7.309 mg/L. The model did not predict the dissolved oxygen to drop below the water quality criteria of 5.0 mg/L. Therefore, current secondary treatment limits for BOD_5 are protective of the water quality, and a limit for DO is not needed to meet the DO water quality criterion in 9 VAC 25-260-50 for Class IV receiving waters.

BOD_5 and TSS are technology-based requirements for municipal dischargers with secondary treatment required in accordance with 40 CFR Part 133. The concentration

limits of 30 mg/L monthly average and 45 mg/L maximum weekly average have been continued from the previous permit. The loading limits of 390 g/day monthly average and 590 g/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 monthly loadings are also consistent with the 1992 Upper Roanoke River Subarea Water Quality Management Plan (**Attachment E**) which includes a BOD_5 monthly loading of 4.0 kg/d for Blacksburg Country Club WWTP. Grab samples shall continue to be collected once per month.

A benthic TMDL for the Roanoke River watershed allocates an annual total suspended solids wasteload allocation for this discharge. Monthly monitoring of the total TSS loading is also required so that the calendar-year-to-date loading may be calculated. The permit includes a TSS annual loading limit of 1.57 tons which is the total maximum daily load (TMDL) allocation from the report Benthic TMDL Development for the Roanoke River, Virginia (**Attachment E**).

C. Effluent Limitations for Toxic Pollutants

Ammonia as Nitrogen -- The acute and chronic WLAs during the high flow months of January through May and the low flow months of June through December were entered into the STATS program to determine if limits are necessary. For effluent ammonia data, an average concentration of 9.0 mg/L was assumed. The STATS program output indicated that ammonia as nitrogen limits of 15 mg/L monthly average and 15 mg/L weekly average are needed during the months of June through December. The program output indicated that ammonia as nitrogen limits are not needed during the months of January through May. A four-year schedule of compliance has been included to allow the permittee time to meet the ammonia limitations. Once the limits become effective, samples shall be collected 1/month via grab samples.

Temperature -- Daily temperature monitoring is being required in the reissued permit. These data will be reported as a maximum daily average for the purposes of calculating the 90th percentile effluent temperature and calibrating the Regional Water Quality Model. The 90th percentile temperature is used in the WLA spreadsheet calculations. The temperature water quality criteria as per 9 VAC 25-260-50 for this Class IV receiving stream is 31 ^{o}C.

Total Residual Chlorine (TRC) -- The TRC limits in the previous permit were reassessed with the WLAs that were determined from the decreased stream flow frequencies. Based on the acute and chronic WLAs and the Agency's STATS program, permit limits of 0.046 mg/L monthly average and 0.056 mg/L weekly average are needed in the permit. These more stringent limits replace the previous permit limits. Since the facility dechlorinates the effluent, a compliance schedule is not needed to meet these limitations. Effluent total residual chlorine will continue to be monitoring 1/day via grab samples.

17. **Basis for Sludge Use and Disposal Requirements:** Since the facility proposes to pump and haul sludge to a POTW, there are no sludge limits or monitoring requirements.

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:** A compliance schedule has been included to allow the permittee time to comply with the ammonia as nitrogen limitations.

20. **Special Conditions:** A brief rationale for each permit special condition contained in the permit is given below.

A. **Additional Total Residual Chlorine (TRC) Limitations and Monitoring Requirements (Part I.B)**

Rationale: This condition requires that the permittee monitor the TRC concentration after chlorine contact. In accordance with 40 CFR 122.41 (e), the permittee is required, 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. **Schedule of Compliance (Part I.C)**

Rationale: In accordance with 9 VAC 25-31-250 A3, a schedule of compliance has been added to allow the permittee time to meet ammonia as nitrogen limitations.

C. **Compliance Reporting under Part I.A and I.B (Part I.D.1)**

Rationale: In accordance with VPDES Permit Regulation, 9 VAC 25-31-190 J4 and 220 I, DEQ is authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR Part 130, Water Quality Planning and Management, Subpart 130.4. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. This condition also establishes protocols for calculation of reported values.

D. **95% Capacity Reopener (Part I.D.2)**

Rationale: This condition requires that the permittee address problems resulting from high influent flows, in a timely fashion, to avoid non-compliance and water quality problems from plant overloading. This requirement is contained in 9 VAC 25-31-200 B2 of the VPDES Permit Regulations.

E. **Indirect Dischargers (Part I.D.3)**

Rationale: This condition is required by VPDES Permit Regulation, 9 VAC 25-31-200 B1 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

F. **CTC, CTO Requirement (Part I.D.4)**

Rationale: This condition is required by Code of Virginia Section 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

G. **Operations and Maintenance Manual Requirement (Part I.D.5)**

Rationale: Submittal of the manual is required by the VPDES Permit Regulation, 9 VAC 25-31-190 E to provide an opportunity for review of current and proposed operations of the facility.

H. **Licensed Operator Requirement (Part I.D.6)**

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 D and the Code of Virginia §54.1-2399 et seq., Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), require licensure of operators. A Class IV operator is required for this facility.

I. **Reliability Class (Part I.D.7)**

Rationale: Reliability class designations are required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities. A Reliability Class II has been assigned to this facility.

J. **Financial Assurance and Disclosure to Purchasers (Part I.D.8)**

Rationale: Submittal of a financial assurance closure plan is required by Code of Virginia §62.1-44.18:3 and the Board's Financial Assurance Regulation, 9 VAC 25-650-10 et seq.

K. **Sludge Reopener (Part I.D.9)**

Rationale: This condition is required by VPDES Permit Regulation, 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

L. **Sludge Use and Disposal (Part I.D.10)**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B2; and 420 and 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. This special condition, in accordance with Guidance Memorandum No. 97-004, clarifies that the Sludge Management Plan approved with the reissuance of this permit is an enforceable condition of the permit.

M. **Total Maximum Daily Load (TMDL) Reopener (Part I.D.11)**

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.

N. **Total Suspended Solids Load Calculations (Part I.D.12)**

Rationale: This special condition provides instructions for calculation of the annual total suspended solids load which will be compared to the Total Maximum Daily Load approved by the EPA.

O. **Conditions Applicable to All VPDES Permits (Part II)**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. **Changes to the Permit:**

A. **The following special conditions have been deleted from the permit:**

1. The Bacterial Limitations and Monitoring Requirements Special Condition (old Part I.C) has been deleted because the study data required for this special condition have been submitted. This study failed to demonstrate that the bacteria criterion is met if a given total chlorine residual concentration is maintained. Therefore, an E. coli limit has been included in the permit.

2. The Effluent Monitoring for Total Phosphorus Special Condition (old Part I.E.8) has been deleted because the phosphorus data have been submitted.

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 Agency guidance.

2. The Compliance Reporting under Part I.A and Part I.B Special Condition (Part I.D) has been revised to include information about significant figures.

3. The Operations and Maintenance Manual Special Condition (Part I.D.5) has been revised in accordance with the VPDES Permit Manual.

4. In accordance with the VPDES Permit Manual, boilerplate permit pages (Part II) have been revised to reflect changes in the VPDES permit regulations regarding signatory requirements.

C. **New special conditions added to the permit are listed below:**

1. A Schedule of Compliance (Part I.C) has been added to allow the permittee time to meet the ammonia limitations.

2. A CTC, CTO Requirement Special Condition (Part I.D.4) has been added in accordance with the VPDES Permit Manual.

3. A Total Maximum Daily Load (TMDL) Reopener Special Condition has been added as Part I.D.11 to allow opening of the permit if necessary to comply with any applicable TMDL for the receiving stream.

4. Total Suspended Solids Load Calculations Special Condition (Part I.D.12) has been added to address calculation of an annual loading for total suspended solids.

D. **Permit Limits and Monitoring Requirements:** See Table III on page 18 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.

23. **Regulation of Treatment Works Users (9 VAC 235-31-280 B9):** There are no industrial users contributing to the treatment works.

24. **Public Notice Information required by 9 VAC 25-31-290 D:**

All pertinent information is on file and may be inspected, and arrangements made for copying 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 e-mail 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 DEQ 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.

25. **303(d) Listed Segments (TMDL):** This facility discharges directly to the North Fork of the Roanoke River. The stream segment receiving the effluent is not listed on the current 303(d) list; and therefore no Total Maximum Daily Loads (TMDLs) have been or are being developed for this segment. Two TMDLs have been developed for the Roanoke River watershed. See **Attachment E** for excerpts from the TMDL reports.

EPA approved the Bacterial TMDLs for Wilson Creek, Ore Branch, and Roanoke River Watersheds, Virginia report on August 2, 2006 for this segment. It contains a WLA for this discharge of 6.10E+10 cfu/year. This permit has a limit of 126 cfu/100 mL (geometric mean for E. coli) that is in compliance with the TMDL. This permit also contains disinfection requirements.

EPA approved the Benthic TMDL Development for the Roanoke River, Virginia report on May 10, 2006 for this segment. It contains a WLA for this discharge of 1.57 tons/year, and this limit has been added to the permit to ensure compliance with this wasteload allocation. See **Attachment E** for excerpts from the TMDLs.

26. **Additional Comments:**

A. **Reduced Effluent Monitoring:** In accordance with Guidance Memorandum 98-2005, all permit applications received after May 4, 1998, are considered for reduction in effluent monitoring frequency. Only facilities having exemplary operations that consistently meet permit requirements may qualify for reduced monitoring. To qualify for consideration of reduced monitoring requirements, the facility should not have been issued any Warning Letters, Notices of Unsatisfactory Laboratory Compliance, Letter of Noncompliance (LON) or Notices of Violation (NOV), or be under any Consent Orders,

Consent Decrees, Executive Compliance Agreements, or related enforcement documents during the past three years.

The facility is currently under a consent order. The facility received the following Warning Letters and Notice of Violation (NOV) reports within the past two years:

Warning Letter No. W2008-06-W-1001	unauthorized discharge, E. coli exceedance
NOV No. W2008-04-W-0001	TSS, E. coli and TRC exceedances, failure to report pH; failure to meet requirements in consent order for I&I study report
NOV No. W2008-03-W-0001	TSS, E. coli, and BOD_5 exceedances
NOV No. W2008-02-W-0001	TSS, E. coli, and BOD_5 exceedances
NOV No. W2008-01-W-1004	TSS, E. coli, and BOD_5 exceedances
NOV No. W2007-06-W-0001	unauthorized discharge
NOV No. W2007-05-W-0002	unauthorized discharge
NOV No. W2007-02-W-0001	BOD_5 exceedance and unauthorized discharge
NOV No. W2006-11-W-0001	failure to submit E. coli progress report, 95% of design flow
NOV No. W2006-09-W-0001	95% of design flow, failure to report flow max loading
NOV No. W2006-07-W-0001	failure to report pH, 95% of design flow, BOD_5 exceedance

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

B. **Toxic Pollutant (PCB) Monitoring:** No effluent PCB data is on file. Since the treatment facility has a design capacity under 40,000 gpd and does not treat process wastewater, water quality standards monitoring has not been required.

C. **Previous Board Action:** A Special Order by Consent was issued to B&J Enterprises L.C., and this order became effective on September 28, 2007. A copy of this order is in **Attachment I**. This consent order requires the permittee to address inflow and infiltration problems.

D. **Staff Comments:** The discharge is not controversial. The discharge is in conformance with the existing planning document for the area.

On August 22, 2008, some minor clarifications were added to the draft permit. The E. coli monitoring description in Part I.B.5 was revised to be more concise, but the requirements were not changed. The wording for the Schedule of Compliance (Part I.C) was revised to avoid confusion about the due dates for the compliance schedule reports. The due date for the Operations and Maintenance Manual (Part I.D.5) was changed to December 10, 2008 to correct a typographical error and be consistent with the VPDES Permit Manual.

E. **Public Comments:** The Virginia Department of Game and Inland Fisheries (VDGIF) and the Department of Recreation's Division of Natural Heritage (DCR) commented on the reissuance of the permit. They recommended that the treatment for the discharge be upgraded to ultraviolet or ozone disinfection alternative. Since the facility has dechlorination following chlorination and an E. coli limitation, an alternative disinfection method was not deemed necessary. They also recommended that any instream projects be limited to the months of March 15 through June 30 of any year and include strict erosion and sediment control measures. Any instream work plans would need to be reviewed and approved by DEQ's Virginia Water Protection Program, and adequate erosion and sediment control would be required. DCR noted that a spill from the Country Club may have killed an estimated 150 Roanoke logperch and recommended a restoration project. The Country Club is not owned by the treatment works. The DEQ investigation case for the fish kill is ongoing. See **Attachment E** for a copy of the VDGIF and DCR comments.

Comments were received from one person during the public comment period. See **Attachment H** for a copy of the comment letter and DEQ response letter.

F. **Tables:**

Table I	Discharge Description (Page 2)
Table II	Basis for Monitoring Requirements (Pages 16-17)
Table III	Permit Processing Change Sheet (Page 18)

G. **Attachments:**

A. Flow Frequency Memorandum
B. Wastewater Schematic
C. Site Inspection Report
D. USGS Topographic Map
E. Ambient Water Quality Information
- STORET Data (Station 4ARNF002.97)
- 2006 Impaired Waters Assessment (Excerpt)
- 2004 Integrated Water Quality Assessment Unit Summary Report (Excerpt)
- 1992 Upper Roanoke River Subarea Water Quality Management Plan (Excerpt)
- Policy for Nutrient Enriched Waters (9 VAC 25-40-00 et seq.)
- Benthic TMDL Development for the Roanoke River, Virginia (3/06) (Excerpt)
- Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watersheds, Virginia (2/06) (Excerpt)
- Endangered Species Information

F. Wasteload and Limit Calculations
- Mixing Zone Calculations (MIXER)
- Effluent Data
- Wasteload Allocation Spreadsheet
- STATS Program Results (ammonia, TRC)

G. Regional Water Quality Model Output (Version 4.0)
H. Public Notice
I. Consent Order
J. EPA Checksheet

Table II-1
BASIS FOR LIMITATIONS – MUNICIPAL

( ) Interim Limitations
(x) Final Limitations

OUTFALL: 001
DESIGN CAPACITY: 0.035 MGD

Effective Dates - From: Compliance with Schedule
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	Estimate
pH (Standard Units)	1,2	NA	NA	6.5	9.0	1/Day	Grab
BOD_5	1	30 mg/L 390 g/d	45 mg/L 590 g/d	NA	NA	1/Month	Grab
Total Suspended Solids	1	30 mg/L 390 g/d	45 mg/L 590 g/d	NA	NA	1/Month	Grab
Total Suspended Solids (total mass loading)	3	NA	NA	NA	NL tons	1/Month	Calculated
Total Suspended Solids (calendar-year-to-date)	3	NA	NA	NA	NL tons	1/Month	Calculated
Total Suspended Solids (tons/calendar year)	3	NA	NA	NA	1.57 tons/year	1/Year	Calculated
Total Residual Chlorine	2	0.046 mg/L	0.056 mg/L	NA	NA	1/Day	Grab
Ammonia as Nitrogen (June - Dec.)	2	15 mg/L	15 mg/L	NA	NA	1/Month	grab
Temperature	2	NA	NA	NA	NL °C	1/Day	IS
E. coli	2	126 cfu/100 mL	NA	NA	NA	2/Month (at least 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. Total Maximum Daily Load -- Upper Roanoke River Report

Table II-2
BASIS FOR LIMITATIONS – MUNICIPAL

(X) Interim Limitations
( ) Final Limitations

OUTFALL: 001
DESIGN CAPACITY: 0.035 MGD

Effective Dates - From: Effective Date
To: Compliance with Schedule

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	Estimate
pH (Standard Units)	1,2	NA	NA	6.5	9.0	1/Day	Grab
BOD_5	1	30 mg/L 390 g/d	45 mg/L 590 g/d	NA	NA	1/Month	Grab
Total Suspended Solids	1	30 mg/L 390 g/d	45 mg/L 590 g/d	NA	NA	1/Month	Grab
Total Suspended Solids (total mass loading)	3	NA	NA	NA	NL tons	1/Month	Calculated
Total Suspended Solids (calendar-year-to-date)	3	NA	NA	NA	NL tons	1/Month	Calculated
Total Suspended Solids (tons/calendar year)	3	NA	NA	NA	1.57 tons/year	1/Year	Calculated
Total Residual Chlorine	2	0.046 mg/L	0.056 mg/L	NA	NA	1/Day	Grab
Temperature	2	NA	NA	NA	NL °C	1/Day	IS
E. coli	2	126 cfu/100 mL	NA	NA	NA	2/Month (at least 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. Total Maximum Daily Load (Upper Roanoke River report)

Table III
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 Residual Chlorine (TRC)			0.41 mg/L monthly average & 0.50 mg/L weekly average	0.046 mg/L monthly average & 0.056 mg/L weekly average	STATS program indicated the need for more stringent limitations.	7/15/08
001	Temperature	NA	1/Day	NA	NL °C	Effluent temperature monitoring required to provide data used in calculation of wasteload allocations and water quality model.	7/15/08
001	Ammonia as Nitrogen (June - Dec.)	NA	1/Month	15 mg/L monthly average and 15 mg/L weekly average	NA	STATS program indicated the need for ammonia limitations.	7/15/08
001	Total Suspended Solids (total monthly load)	NA	1/month	NA	NL tons	Monthly mass loading has been included so that compliance with the total suspended solids (TSS) TMDL for this segment can be determined.	7/15/08
001	Total Suspended Solids (calendar-year-to-date)	NA	1/month	NA	NL tons	Mass loading has been included so that compliance with the TSS TMDL for this segment Roanoke River can be determined.	7/15/08
001	Total Suspended Solids (tons/calendar year)	NA	1/year	NA	8.8 tons	The TSS mass loading limit is required as defined in "Benthic TMDL Development for the Roanoke River, Virginia."	7/15/08

Attachment A

Flow Frequency Memorandum

MEMORANDUM

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

SUBJECT: Flow Frequency Determination
Blacksburg Country Club WWTP – (VA0027481)

TO: Permit File

FROM: Becky L. France, Environmental Engineer Senior

DATE: April 9, 2008

COPIES:

This memorandum supersedes the August 1, 2002, memorandum from Paul E. Herman concerning the subject VPDES permit.

The Blacksburg Country Club WWTP discharges to the North Fork of the Roanoke River near Lusters Gate, Virginia. Stream flow frequencies are required at this site to develop effluent limitations for the VPDES permit.

DEQ conducted several flow measurements on the North Fork of the Roanoke River in 1968, 2004, and 2005. The measurements were made at Route 603 in Ellet, Virginia (#02054120) downstream of the discharge point. The measurements correlated very well with the same day daily mean values from the downstream continuous record gauge on the South Fork of the Roanoke River near Shawsville, Virginia #02053800. The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The values for the measurement site were projected to the discharge point using proportional drainage areas. The design flow of 0.035 MGD from Blacksburg Country Club WWTP was subtracted from the resulting flows to calculate the flow upstream of outfall 001.

This analysis assumes there are no other significant discharges, withdrawals, or springs influencing the flow in the North Fork of the Roanoke River upstream of the discharge point. The high flows are January through May. Flow frequencies for the reference gauge, the measurement site, and the discharge point are listed on the attached tables.

Reference Gauge (data from 1961 to 2003)
S.F. Roanoke River near Shawsville, VA (#02053800)

	Drainage Area [mi^2] =		110	mi^2	
	ft^3/s	MGD		ft^3/s	MGD
1Q10 =	12	7.8	High Flow 1Q10 =	22	14
7Q10 =	13	8.4	High Flow 7Q10 =	26	17
30Q5 =	20	13	High Flow 30Q10=	37	24
30Q10=	17	11	HM =	53	34

Flow frequencies from Regression Analysis
N.F. Roanoke River at Route 603 in Ellet, VA (#02054195)

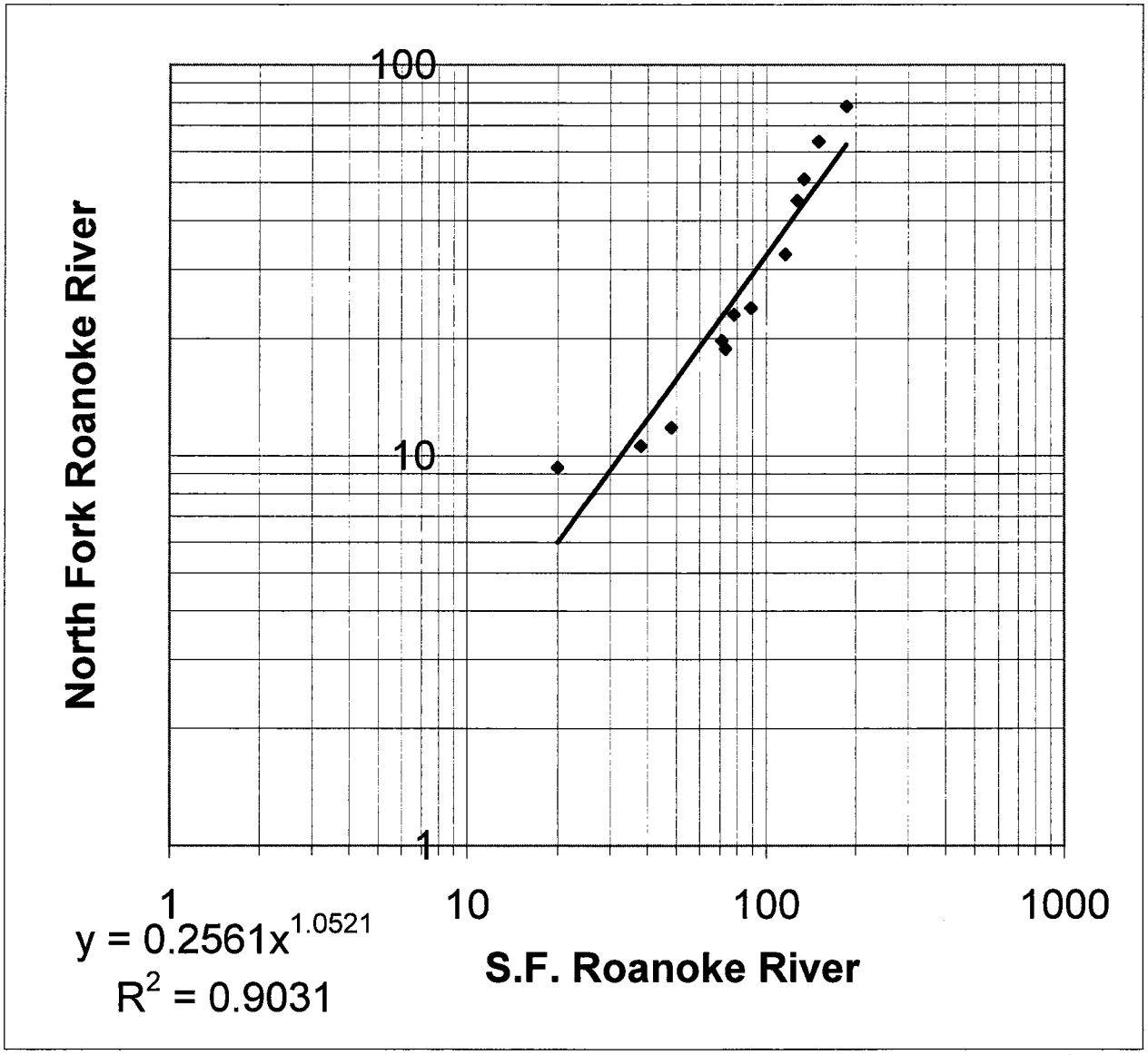
	Drainage Area [mi^2] =		64.4	mi^2	
	ft^3/s	MGD		ft^3/s	MGD
1Q10 =	3.498	2.26	High Flow 1Q10 =	6.619	4.28
7Q10 =	3.805	2.46	High Flow 7Q10 =	7.890	5.10
30Q5 =	5.987	3.87	High Flow 30Q10	11.437	7.39
30Q10=	5.046	3.26	HM =	16.692	10.79

N.F. Roanoke River above Blacksburg Country Club WWWTP discharge

	Drainage Area [mi^2] =		**46.36**	**mi^2**	
	ft^3/s	**MGD**		**ft^3/s**	**MGD**
1Q10 =	**2.483104**	**1.6**	**High Flow 1Q10 =**	**4.729639**	**3.1**
7Q10 =	**2.704346**	**1.7**	**High Flow 7Q10 =**	**5.64516**	**3.6**
30Q5 =	**4.275035**	**2.8**	**High Flow 30Q10=**	**8.198266**	**5.3**
30Q10=	**3.597641**	**2.3**	**HM =**	**11.98149**	**7.7**

Design Capacity Blacksburg Country Club WWTP 0.035 MGD

North Fork Roanoke River at Route 603 in Ellet, VA (#02054120)
vs S.F. Roanoke River near Shawsville, VA (#02053800)



Flow Data (cfs)

Date	SF Roanoke	NF Roanoke
10/15/1968	20	9.33
7/14/2004	71	19.7
8/19/2004	38	10.6
9/23/2004	73	18.8
10/8/2004	116	32.8
11/29/2004	186	78.3
2/16/2005	134	51
4/14/2005	150	63.7
4/22/2005	127	45
5/25/2005	89	23.9
6/9/2005	78	23
6/27/2005	48	11.8

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.969382
R Square	0.939702
Adjusted R Squa	0.933672
Standard Error	5.774494
Observations	12

Flow Frequencies (cfs)

SF Roanoke		NF Roanoke
12	1Q10	3.498
13	7Q10	3.805
20	30Q5	5.987
17	30Q10	5.046
22	HF 1Q10	6.619
26	HF 7Q10	7.890
53	HM	16.692
37	HF30Q10	11.437
110 mi^2	DA	46.36 mi^2
	Jan-May	

Gauge # 2053800 South Fork Roanoke River at Shawsville, Va. (Ironto Quad)

DaArea	Harmean	HF30Q10	HF7Q10	HF1Q10	Z30Q5	Z30Q10	Z7Q10	Z1Q10	Z1Q30	HFMTHS	Statperiod	Yrstrn
110	53	37	26	22	20	17	13	12	8.7	Jan-May	2003	2005

Gauging Station #02054195 (STORET No. ARNF015.50)
North Fork Roanoke River at Route 603, at Ellett, VA (Ironto Quad) (TMDL Site)
Watershed ID No. VAW-L02R
Lat 37 11'12", Long 80 21'09", NAD 83
Drainage Area 64.4 mi^2

DATE	Discharge (cfs)
10/15/68	9.33
7/14/04	19.7
8/19/04	10.6
9/23/04	18.8
10/8/04	32.8
11/29/04	78.3
2/16/05	51
4/14/05	63.7
4/22/05	45
5/25/05	23.9
6/9/05	23
6/27/05	11.8

North Fork Roanoke River at Route 603 in Ellet, VA (#02054195)
vs S.F. Roanoke River near Shawsville, VA (#02053800)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9693823
R Square	0.939702
Adjusted R Squa	0.9336722
Standard Error	5.7744943
Observations	12

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	5196.554	5196.554	155.84308	2.013E-07
Residual	10	333.44785	33.344785		
Total	11	5530.0018			

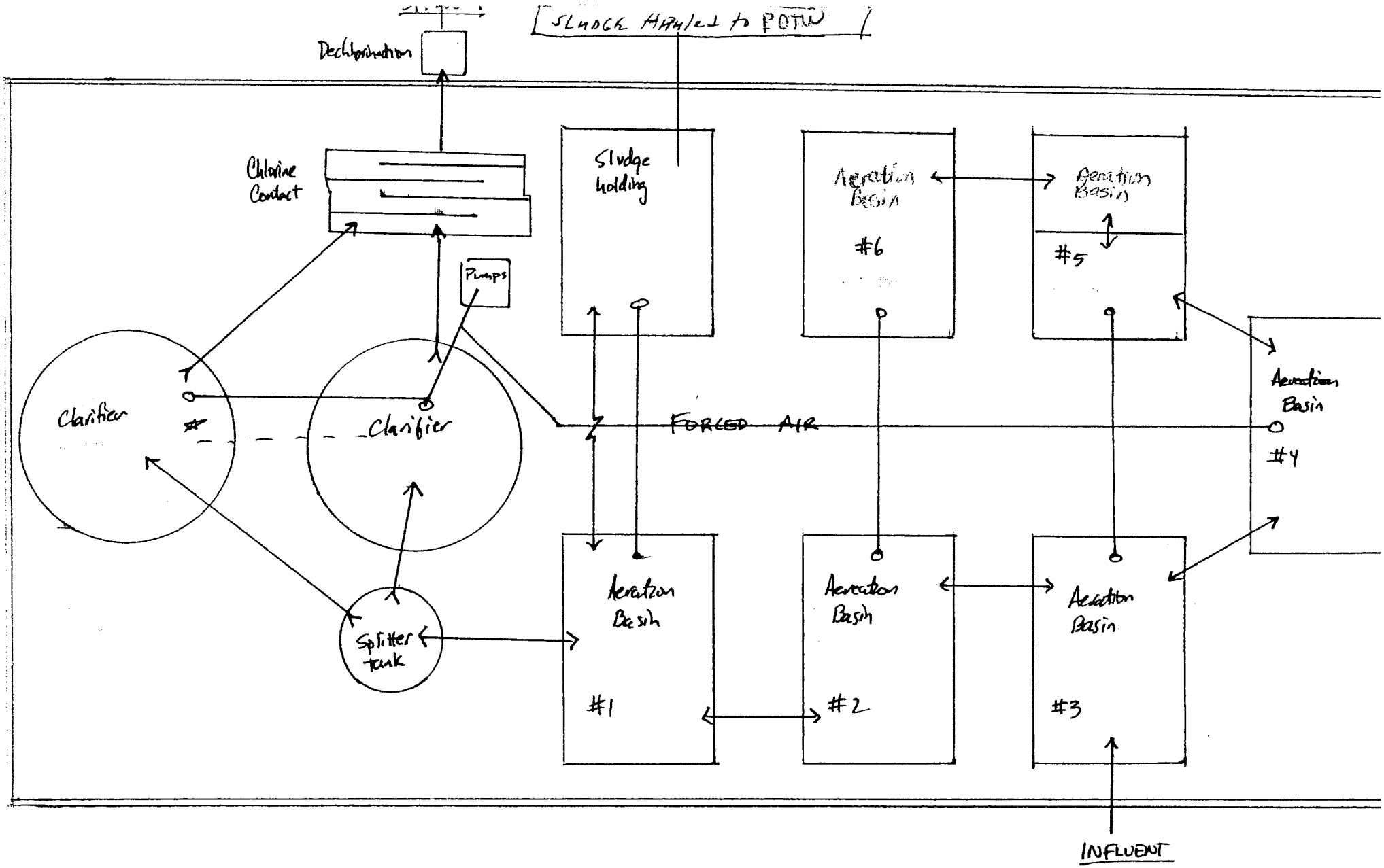
	Coefficients	*standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 95.0%*	*Upper 95.0%*
Intercept	-9.175501	3.7190739	-2.467147	0.033267	-17.46212	-0.888886	-17.46212	-0.8888861
X Variable 1	0.4407398	0.0353052	12.483713	2.013E-07	0.362075	0.5194047	0.362075	0.5194047

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*	*ıdard Residuals*
1	-0.360704	9.690704	1.7601015
2	22.117027	-2.417027	-0.438999
3	7.5726129	3.0273871	0.5498577
4	22.998507	-4.198507	-0.762566
5	41.95032	-9.15032	-1.661953
6	72.802108	5.4978923	0.9985702
7	49.883637	1.1163635	0.2027627
8	56.935474	6.7645262	1.2286262
9	46.798458	-1.798458	-0.32665
10	30.050344	-6.150344	-1.117074
11	25.202206	-2.202206	-0.399982
12	11.980011	-0.180011	-0.032695

Attachment B

Wastewater Schematic



* valved to operate in series in 1998.

1997
OPERATIONS DIAGRAM
Blacksburg Country Club Sewage Treatment Plant.

Attachment C

Site Inspection Report

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: Site Inspection Report for Blacksburg Country Club WWTP
Reissuance of VPDES Permit No. VA0027481

TO: Permit File

FROM: Becky L. France, Environmental Engineer Senior

CC: Samuel C. Hale, Environmental Inspector Supervisor

DATE: April 22, 2008

On April 18, 2008, a site inspection of the wastewater works for the Ellet Valley section of Blacksburg was conducted. Mr. Daina Reynolds II, operator, was present at the inspection. Blacksburg Country Club is located off US Road 723 in Montgomery County. Drinking water for the area is provided by wells. Blacksburg Country Club withdraws water upstream of the wastewater outfall. A small dam is located just above the withdrawal point. The treatment facility is located approximately a mile from public sewer.

B & J Enterprises L.C. operates an extended aeration treatment plant for the Blacksburg Country Club, restaurant, and 156 residences in the area. Two pump stations (built in 2001) serve the residential area and two pump stations (built in 1970s) serve the country club. Each pump station has a grinder pump, audio alarm, and generator connection.

The wastewater treatment facility has a design capacity of 35,000 gpd. The extended aeration system consists of 6 aeration basins in series with air diffusers, splitter tank, 2 clarifiers with skimmers, sludge holding tank with aerator, tablet chlorinator with baffled chlorine contact chamber, and dechlorinator. A grease trap is designed to handle grease from the country club restaurant.

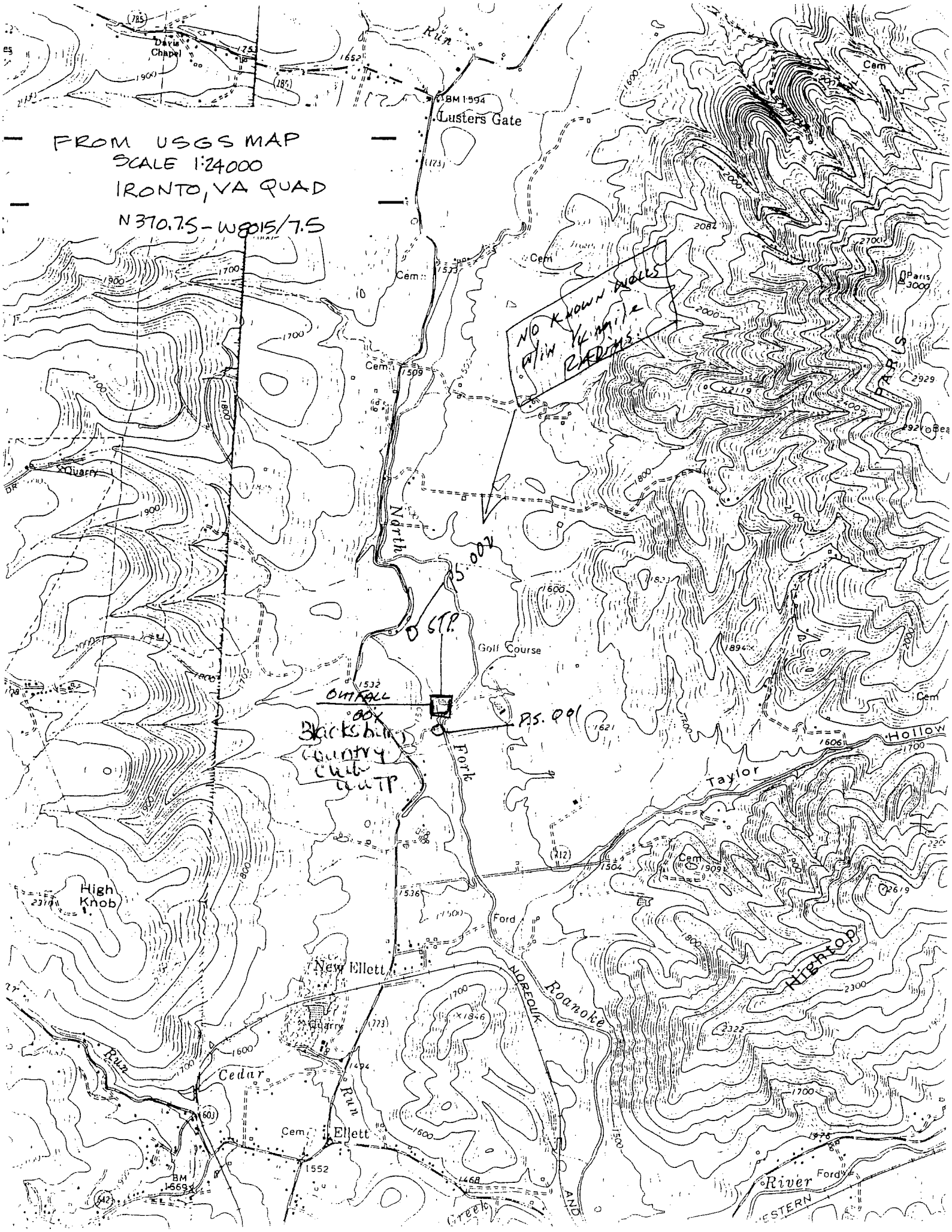
During the site visit, some floating solids were observed in the aeration basins. The activated sludge was a good chocolate color. Wastewater from the last activated sludge basin in series flows through a splitter tank and then into two parallel clarifiers. Each clarifier has a hopper with an air lift pump for sludge return. Currently, sludge is being returned for 30 minutes at 60-minute intervals. Excess sludge from the clarifiers is pumped into the aerated sludge holding tank every other day.

The sludge tank is pumped periodically, and the sludge is transported by a contract waste hauler to the Western Virginia Water Authority Water Pollution Control Plant. At the time of the site visit, the sludge was settling well. Solids did not seem to be carried over the weir.

The wastewater from each clarifier flows to the disinfection system, which includes a tablet chlorinator, baffled chlorine contact chamber, and tablet dechlorinator. One tablet tube is currently used for chlorination. The effluent is discharged to the North Fork of the Roanoke River. Flow is measured by a totalizer flow meter.

Attachment D

USGS Topographic Map


FROM USGS MAP
SCALE 1:24000
IRONTO, VA QUAD
N370.7.5-W8015/7.5
NO KNOWN WELLS W/IN 1/4 MILE RADIUS
Davis Chapel
Lusters Gate
BM 1594
Cem
Paris
PARIS
Quarry
North
Fork
Golf Course
OUTFALL
Blacksburg Country Club WTP
Taylor
Hollow
High Knob
Ford
New Ellett
NORFOLK
Roanoke
Hightop
Cedar
Run
Ellett
River
Creek
AND
WESTERN

Attachment E

Ambient Water Quality Information

- **STORET Data (Station 4ARNF002.97)**
- **2004 Integrated Report Watershed Assessment Unit Summary Report (Excerpt)**
- **1992 Upper Roanoke River Subarea Water Quality Management Plan (Excerpt)**
- **Policy for Nutrient Enriched Waters (9 VAC 25-40-00 et seq.)**

Attachment E

Ambient Water Quality Information

- **STORET Data (Station 4ARNF002.97)**
- **2004 Integrated Report Watershed Assessment Unit Summary Report (Excerpt)**
- **1992 Upper Roanoke River Subarea Water Quality Management Plan (Excerpt)**
- **Policy for Nutrient Enriched Waters (9 VAC 25-40-00 et seq.)**
- **Benthic TMDL Development for the Roanoke River, Virginia (3/06) (Excerpt)**
- **Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watersheds, Virginia (2/06) (Excerpt)**
- **Endangered Species Information**

VAW-L02R
4ARNF002.97 North Fork of the Roanoke River at the Route 603 bridge

Collection Date Time	Temp Celsius	Field pH (S.U.)	Fecal coliform Membr Filter	E. Coli - MTEC-MF N0/100mL
2/12/1990 10:30	7.1	8.62	100	NULL
5/7/1990 9:30	13.4	8.53	800	NULL
8/7/1990 10:30	20	8.17	8000L	NULL
11/27/1990 13:30	9.4	8.84	100K	NULL
10/17/1991 10:30	11.4	8.3	800	NULL
1/22/1992 9:20	2.7	8.4	100	NULL
4/28/1992 8:40	10.7	8.3	300	NULL
7/28/1992 9:00	20.1	7.7	NULL	NULL
10/28/1992 8:30	11.1	8.2	100	NULL
1/28/1993 8:40	4.3	7.4	200	NULL
4/21/1993 9:10	13.1	8.5	1200	NULL
7/26/1993 9:15	22.9	8.3	700	NULL
10/26/1993 9:20	10	8.4	700	NULL
1/25/1994 9:20	4.6	9	500	NULL
4/21/1994 8:50	13	8.4	600	NULL
7/25/1994 8:35	22.5	8.2	300	NULL
10/17/1994 8:55	NULL	NULL	100	NULL
1/18/1995 9:10	6.4	8.46	500	NULL
4/10/1995 8:25	16	8.03	600	NULL
7/24/1995 8:05	21	8.21	600	NULL
10/23/1995 14:55	12.5	8.53	100U	NULL
1/17/1996 8:05	4.6	8.21	200	NULL
4/9/1996 7:45	6.9	8.33	400	NULL
7/29/1996 9:10	19.6	8.47	300	NULL
10/23/1996 8:00	12.7	8.1	100U	NULL
1/13/1997 9:15	0	8.73	100U	NULL
4/14/1997 8:45	9.2	8.36	200	NULL
7/14/1997 8:50	NULL	NULL	400	NULL
10/22/1997 8:20	9.5	8.49	100	NULL
1/21/1998 8:20	2.7	8.29	100U	NULL
4/14/1998 8:10	12.5	7.85	200	NULL
7/14/1998 9:00	22.3	8.19	200	NULL
10/27/1998 8:15	7.8	8.35	100U	NULL
1/11/1999 8:30	0	8.93	100U	NULL
4/14/1999 7:50	9.8	8.47	100U	NULL
1/4/2007 12:30	5.9	7.7	NULL	<25
3/13/2007 11:30	8.5	7.8	NULL	<25
5/9/2007 14:00	16.6	7.7	NULL	100
7/10/2007 13:30	23.9	7.9	NULL	200
9/11/2007 13:30	22.7	6.4	NULL	220
11/1/2007 13:30	9.9	6.9	NULL	100
1/16/2008 15:00	1.6	6.7	NULL	<25
3/5/2008 13:30	9.4	7.7	NULL	<25
5/1/2008 14:30	14	8.2	NULL	100

90th percentile pH	8.6	S.U.	
10th percentile pH	7.7	S.U.	
temperature	22.2	°C	
temperature	13.3	°C	January - May (high flow months)

VAW-L02R
4ARNF002.97 North Fork of the Roanoke River at the Route 603 bridge

Collection Date Time	Hardness, Total (mg/L as $CaCO_3$)
2/12/1990 10:30	204
5/7/1990 9:30	220
8/7/1990 10:30	200
11/27/1990 13:30	230
10/17/1991 10:30	262
1/22/1992 9:20	250
7/28/1992 9:00	264
10/28/1992 8:30	278
1/28/1993 8:40	224
4/21/1993 9:10	196
7/26/1993 9:15	230
10/26/1993 9:20	264
1/25/1994 9:20	198
4/21/1994 8:50	214
7/25/1994 8:35	230
10/17/1994 8:55	296
1/18/1995 9:10	181
4/10/1995 8:25	218
7/24/1995 8:05	218
10/23/1995 14:55	247
1/17/1996 8:05	175
4/9/1996 7:45	200
7/29/1996 9:10	236
10/23/1996 8:00	212
1/13/1997 9:15	221
4/14/1997 8:45	229
7/14/1997 8:50	233
10/22/1997 8:20	258
1/21/1998 8:20	193
4/14/1998 8:10	177
7/14/1998 9:00	150
10/27/1998 8:15	258
1/11/1999 8:30	257
4/14/1999 7:50	180

Mean **224** **mg/L**

2004 Use Attainment by Assessment Units (AU)

Watershed ID: VAW-L02R

Total Watershed Size: 167.89 M

AU ID: **VAW-L02R_ZZZ02A02** **3.45** M *AU Overall Category:* **3A**

LOCATION: Tributary waters to the North Fork Roanoke River within the WQS designated PWS section 7b waters.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Public Water Supply	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class IV Sec 7b PWS pH 6.5-9.5 No current data. These waters are not assessed. No VDH fish consumption or drinking water advisories.

AU ID: **VAW-L02R_ZZZ01A00** **100.64** M *AU Overall Category:* **3A**

LOCATION: Remaining waters tributary to the North Fork Roanoke River in Watershed L02R.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class IV Sec. 7 pH 6.5-9.5 No current data. These waters are not assessed. No VDH fish consumption advisory.

AU ID: **VAW-L02R_WLN20A04** **7.57** M *AU Overall Category:* **3A**

LOCATION: Unnamed Tributaries to Wilson Creek.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class IV Sec. 7 pH 6.5-9.5 No current data. These waters are not assessed. No VDH fish comsumption advisory.

AU ID: **VAW-L02R_WLN03A00** **2.49** M *AU Overall Category:* **5A**

LOCATION: Wilson Creek mainstem segment extends from near Rt. 460/I-81 intersection downstream to intersection of segments WLN02A with WLN01A.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
VAW-L02R-02	Recreation	Not Supporting	
	303(d) Parameter:	Total Fecal Coliform	1996
		Escherichia coli	2004
	Wildlife	Fully Supporting	

2004 Use Attainment by Assessment Units (AU)

WQS Class IV Sec. 7 pH 6.5-9.5
A bacteria TMDL Study is tentatively scheduled for completion in 2005. Assessment basis: DEQ station 4AWLN000.40 (AQ, TM). Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 27. Mean Daily Flow; 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/11/02 (9 cfs). One Field measurement set excluded from dataset. Each Full Support. 4AWLN000.40 - Fourteen of 27 FC samples exceed the 400 cfu/1000 ml instantaneous criterion. The maximum exceeding value is 5400 cfu/100 ml and the lowest is 700. Escherichia coli (E. coli) exceeds the instantaneous criterion of 235 cfu/100 ml in two of three samples. Values exceeding the criterion are 350 and 800 cfu/100 ml. DO, Temp, pH, TP, chlorophyll a and NH3-N all Fully Support. Two TP results from 28 observations exceed the SV of 0.20 mg/l at 0.22 and 0.23 mg/l but still Fully Support. No excursions of the sediment PEC SVs are found. No VDH fish consumption advisory.

AU ID: **VAW-L02R_WLN02A00** **1.65** M ***AU Overall Category:*** **5A**

LOCATION: This northern arm extends upstream from mainstem Wilson Creek to the Rt. 114 & Rt. 460 intersection behind major developed area near New River Valley Mall.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
VAW-L02R-02	Recreation	Not Supporting	
	303(d) Parameter:	Escherichia coli	2004
		Total Fecal Coliform	2002
	Wildlife	Fully Supporting	

WQS - Class IV Sec. 7 pH 6.5-9.5
A bacteria TMDL Study is tentatively scheduled for completion in 2005. Assessment basis: DEQ station 4AWLN000.40 (AQ, TM). Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 27. Mean Daily Flow; 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/11/02 (9 cfs). One Field measurement set excluded from dataset. Each Full Support. 4AWLN000.40 - Fourteen of 27 FC samples exceed the 400 cfu/1000 ml instantaneous criterion. The maximum exceeding value is 5400 cfu/100 ml and the lowest is 700. Escherichia coli (E. coli) exceeds the instantaneous criterion of 235 cfu/100 ml in two of three samples. Values exceeding the criterion are 350 and 800 cfu/100 ml. DO, Temp, pH, TP, chlorophyll a and NH3-N all Fully Support. Two TP results from 28 observations exceed the SV of 0.20 mg/l at 0.22 and 0.23 mg/l but still Fully Support. No excursions of the sediment PEC SVs are found. No VDH fish consumption advisory.

AU ID: **VAW-L02R_WLN01A00** **2.77** M ***AU Overall Category:*** **5A**

LOCATION: Wilson Creek mainstem segment extends from WLN02A00 downstream to the Wilson Creek mouth on the North Fork Roanoke River.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
VAW-L02R-02	Recreation	Not Supporting	
	303(d) Parameter:	Escherichia coli	2004
		Total Fecal Coliform	1996
	Wildlife	Fully Supporting	

WQS Class IV Sec. 7 pH 6.5-9.5
A bacteria TMDL Study is tentatively scheduled for completion in 2005. Assessment basis: DEQ station 4AWLN000.40 (AQ, TM). Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 27. Mean Daily Flow; 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/11/02 (9 cfs). One Field measurement set excluded from dataset. Each Full Support. 4AWLN000.40 - Fourteen of 27 FC samples exceed the 400 cfu/1000 ml instantaneous criterion. The maximum exceeding value is 5400 cfu/100 ml and the lowest is 700. Escherichia coli (E. coli) exceeds the instantaneous criterion of 235 cfu/100 ml in two of three samples. Values exceeding the criterion are 350 and 800 cfu/100 ml. DO, Temp, pH, TP, chlorophyll a and NH3-N all Fully Support. Two TP results from 28 observations exceed the SV of 0.20 mg/l at 0.22 and 0.23 mg/l but still Fully Support. No excursions of the sediment PEC SVs are found. No VDH fish consumption advisory.

AU ID: **VAW-L02R_RNF05A02** **7.52** M ***AU Overall Category:*** **3A**

LOCATION: North Fork Roanoke River mainstem from the mouth of Dry Run upstream to its headwaters.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	

Wildlife	Not Assessed

WQS Class IV Sec. 7 pH 6.5-9.5 No current data. These waters are unassessed. No VDH fish consumption advisory.

AU ID: **VAW-L02R_RNF04A02** **9.06** M **AU Overall Category:** **2A**

LOCATION: North Fork Roanoke River mainstem from the mouth of Wilson Creek upstream to the mouth of Dry Run.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Fully Supporting	

WQS Class IV Sec. 7 pH 6.5-9.5
Assessment basis: DEQ station 4ARNF015.50 (FPM- VAEQ99-011) 4ARNF015.50- Single observations of FC, TP and chlorophyll a- not assessed but none exceed. NH3-N Fully Supports. No exceedances of sediment PEC SVs. No VDH fish consumption advisory.

AU ID: **VAW-L02R_RNF03A02** **6.56** M **AU Overall Category:** **5A**

LOCATION: North Fork Roanoke River mainstem from a right bank entry of an unnamed tributary in the community of Ironto upstream to the mouth of Wilson Cr.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Fully Supporting	
VAW-L02R-01	Recreation	Not Supporting	
	303(d) Parameter:	Total Fecal Coliform	2002
	Wildlife	Fully Supporting	

WQS Class IV Sec. 7 pH 6.5-9.5
Assessment basis: DEQ stations 4ARNF015.09 (AQ), 4ARNF013.60 ('99 FT/Sed) and 4ARNF007.72 (FPM- VAEQ99-011). A bacteria TMDL Study is tentatively scheduled for completion in 2005. Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 21 at 4ARNF015.09. Mean Daily Flow; 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/11/02 (9 cfs). One Field measurement set excluded from dataset. Each Full Support. 4ARNF015.09 -FC exceeds the 400 cfu/100 ml instantaneous criterion in nine of 21 samples. Exceeding values range from 600 to 3900 cfu/100 ml. DO, Temp, pH, TP, chlorophyll a and NH3-N all Fully Support. An AQ '00 sediment collection finds no excursions of the PEC SVs for sediment are found. 4ARNF013.60- WQS 1999 fish tissue exceeds [Table 6(b)] TSV 0.07 ppm for arsenic (As) in: a Green Sunfish at 0.51 ppm, a Golden Redhorse Sucker at 1.30 and a White Sucker at 0.27 ppm.- 'Observed Effect'. WQS 1999 sediment finds no exceedances of PEC SVs. 4ARNF007.72- A probabilistic site finds an exceedance of the FC 400 cfu/100 ml instantaneous criterion from one observation at 800.- not assessed. Single observations of TP and chlorophyll a Fully Support but are not assessed. DO, Temp, pH, NH3-N and sediment all Fully Support. No VDH fish consumption advisory.

AU ID: **VAW-L02R_RNF02A02** **3.09** M **AU Overall Category:** **2A**

LOCATION: The North Fork Roanoke River mainstem from the end of the WQS public water supply (PWS) designation, section 7b, upstream to the mouth of a right bank unnamed tributary in the community of Ironto.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
	Recreation	Fully Supporting	
	Wildlife	Fully Supporting	

WQS Class IV Sec. 7 pH 6.5-9.5
Assessment basis: DEQ station 4ARNF002.97 (AQ). 4ARNF002.97- FC, DO, Temp, pH, TP and NH3-N all Fully Support. An AQ '98 sediment collection reveals no excursions of PEC SVs. No VDH fish consumption advisory.

2004 Use Attainment by Assessment Units (AU)

AU ID: **VAW-L02R_RNF01A00** **3.53** M *AU Overall Category:* **2A**

LOCATION: The North Fork Roanoke River mainstem from its confluence with the South Fork Roanoke River upstream to the end of the WQS designated public water supply (PWS) in section 7b.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
	Public Water Supply	Fully Supporting	
	Recreation	Fully Supporting	
	Wildlife	Fully Supporting	

WQS Class IV Sec. 7b PWS pH 6.5-9.5
Assessment basis: DEQ station 4ARNF002.97 (AQ). 4ARNF002.97- FC, DO, Temp, pH, TP and NH3-N all Fully Support. An AQ '98 sediment collection reveals no excursions of PEC SVs. No VDH fish consumption advisory.

AU ID: **VAW-L02R_MKC01A02** **7.76** M *AU Overall Category:* **3A**

LOCATION: Mill Creek and its tributaries from its mouth on the North Fork Roanoke R. upstream to its headwaters.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class VI Sec 7 pH 6.5-9.5 No current data. These waters are not assessed. No VDH fish consumption advisory.

AU ID: **VAW-L02R_CDN01A02** **3.20** M *AU Overall Category:* **2A**

LOCATION: Cedar Run from its mouth on Wilson Creek upstream to its headwaters.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Fully Supporting	
	Recreation	Fully Supporting	
	Wildlife	Fully Supporting	

WQS Class IV Sec 7 pH 6.5-9.5
A bacteria TMDL Study is tentatively scheduled for completion in 2005. Assessment basis: DEQ stations 4ACDN002.53 ('02 FT/Sed), 4ACDN002.20 ('99 FT/Sed) and 4ACDN001.12 (AQ). 4ACDN002.53- WQS fish tissue finds no exceedances of TVs / TSVs. No excursions of sediment PEC SVs. 4ACDN002.20- WQS fish tissue finds no exceedances of TVs / TSVs. Lead (Pb) is detected in 1 species; a Chub at 0.26 ppm. No excursions of sediment PEC SVs. Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 9 at 4ACDN001.12. Mean Daily flows; 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/11/02 (9 cfs). One Field measurement set excluded from dataset. Each Full Support. 9-CDN001.12- FC, DO, Temp, pH, TP, chlorophyll a and NH3-N all Fully Support. No VDH fish consumption advisory.

AU ID: **VAW-L02R_BDC02A04** **7.77** M *AU Overall Category:* **2A**

LOCATION: Bradshaw Creek mainstem from near its headwaters downstream to the upstream ending of the WQS PWS designation.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
	Recreation	Fully Supporting	
	Wildlife	Fully Supporting	

2004 Use Attainment by Assessment Units (AU)

WQS Class IV Sec. 7 pH 6.5-9.5
Assessment basis: DEQ station 4ABDC002.36 (AQ). Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 7. Mean Daily flows; 02055100 Tinker Cr. - Daleville <7Q10 of 1.2 cfs @ gage on 9/19/01 (1.1 cfs) and on 7/22/02 (0.63 cfs). And 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/19/01 (13 cfs) and 7/22/02 (12 csf) . One Field measurement set each date excluded from dataset. Each Full Support on 9/19/01. On 7/22/02 Temp Full Support - DO/pH exceedances excluded. 4ABDC002.36- FC, DO, pH, TP, chlorophyll a and NH3-N all Fully Support.

AU ID: **VAW-L02R_BDC01A04** **0.83** M *AU Overall Category:* **2A**

LOCATION: Bradshaw Creek from the end of the WQS PWS designation downstream to its mouth on the North Fork Roanoke River.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	**Fully Supporting**	
	Fish Consumption	**Not Assessed**	
	Public Water Supply	**Fully Supporting**	
	Recreation	**Fully Supporting**	
	Wildlife	**Fully Supporting**	

WQS Class IV Sec 7b PWS pH 6.5-9.5
Assessment basis: DEQ station 4ABDC002.36 (AQ). Stream Flow Conditions [9 VAC 25-260-50 Numerical criteria for dissolved oxygen, pH and maximum temperature***]. Total field measurements 7. Mean Daily flows; 02055100 Tinker Cr. - Daleville <7Q10 of 1.2 cfs @ gage on 9/19/01 (1.1 cfs) and on 7/22/02 (0.63 cfs). And 02053800 S.F. Roanoke R. - Shawsville <7Q10 of 14 cfs @ gage on 9/19/01 (13 cfs) and 7/22/02 (12 csf) . One Field measurement set each date excluded from dataset. Each Full Support on 9/19/01. On 7/22/02 Temp Full Support - DO/pH exceedances excluded. 4ABDC002.36- FC, DO, pH, TP, chlorophyll a and NH3-N all Fully Support.

2004 Integrated Report Watershed Assessment Unit Summary

Watershed ID: **VAW-L02R** NORTH FORK ROANOKE RIVER/BRADSHAW CREEK

Assessment Unit (AU)	TMDL ID	Overall AU Category	Stream & AU Description	AU Size
VAW-L02R_BDC01A04		2A	Bradshaw Creek from the end of the WQS PWS designation downstream to its mouth on the North Fork Roanoke River.	0.83 MILES
VAW-L02R_BDC02A04		2A	Bradshaw Creek mainstem from near its headwaters downstream to the upstream ending of the WQS PWS designation.	7.77 MILES
VAW-L02R_CDN01A02		2A	Cedar Run from its mouth on Wilson Creek upstream to its headwaters.	3.20 MILES
VAW-L02R_MKC01A02		3A	Mill Creek and its tributaries from its mouth on the North Fork Roanoke R. upstream to its headwaters.	7.76 MILES
VAW-L02R_RNF01A00		2A	The North Fork Roanoke River mainstem from its confluence with the South Fork Roanoke River upstream to the end of the WQS designated public water supply (PWS) in section 7b.	3.53 MILES
VAW-L02R_RNF02A02		2A	The North Fork Roanoke River mainstem from the end of the WQS public water supply (PWS) designation, section 7b, upstream to the mouth of a right bank unnamed tributary in the community of Ironto.	3.09 MILES
VAW-L02R_RNF03A02	**VAW-L02R-01**	5A	North Fork Roanoke River mainstem from a right bank entry of an unnamed tributary in the community of Ironto upstream to the mouth of Wilson Cr.	6.56 MILES
VAW-L02R_RNF04A02		2A	North Fork Roanoke River mainstem from the mouth of Wilson Creek upstream to the mouth of Dry Run.	9.06 MILES
VAW-L02R_RNF05A02		3A	North Fork Roanoke River mainstem from the mouth of Dry Run upstream to its headwaters.	7.52 MILES
VAW-L02R_WLN01A00	**VAW-L02R-02**	5A	Wilson Creek mainstem segment extends from WLN02A00 downstream to the Wilson Creek mouth on the North Fork Roanoke River.	2.77 MILES
VAW-L02R_WLN02A00	**VAW-L02R-02**	5A	This northern arm extends upstream from mainstem Wilson Creek to the Rt. 114 & Rt. 460 intersection behind major developed area near New River Valley Mall.	1.65 MILES
VAW-L02R_WLN03A00	**VAW-L02R-02**	5A	Wilson Creek mainstem segment extends from near Rt. 460/I-81 intersection downstream to intersection of segments WLN02A with WLN01A.	2.49 MILES
VAW-L02R_WLN20A04		3A	Unnamed Tributaries to Wilson Creek.	7.57 MILES
VAW-L02R_ZZZ01A00		3A	Remaining waters tributary to the North Fork Roanoke River in Watershed L02R.	100.64 MILES
VAW-L02R_ZZZ02A02		3A	Tributary waters to the North Fork Roanoke River within the WQS designated PWS section 7b waters.	3.45 MILES

2004 Integrated Report Watershed Assessment Unit Summary

VAW-L02R

NORTH FORK ROANOKE RIVER/BRADSHAW CREEK

Total Assessment Units:
15

OVERALL 2004 WATERSHED SUMMARY *

Total Watershed Size:
167.89 MILES

	Federal Category 5 Waters			Federal Categories 4A & 4C Waters	
	Waters 'Impaired' requiring TMDL Studies			No further TMDL Study required	
	'Impaired' for one or more parameters	Believed Natural	One TMDL complete one or more remains	Waters 'Impaired' TMDL complete	Waters 'Impaired' Natural
(VA Subcategories)	**5A**	**5C**	**5D**	**4A**	**4C**
Impaired Waters:	13.47				

	Federal Category 3 Waters			
			non-DEQ Data Method Collection and/or Laboratory not QA/QC'd	
	No Data	Existing Data Insufficient to Assess	Use Not Attained 'Waters of Concern'	Use Attained
(VA Subcategories)	**3A**	**3B**	**3C**	**3D**
Insufficient Data:	126.94			

	Federal Category 2 Waters			Federal Category 1 Waters
	Fully Supports Assessed Uses	Fully Supports but are 'Waters of Concern'		'Fully Supports all Uses'
(VA Subcategories)	**2A**	**2B**	**(VA Subcategories)**	**1**
Support Some Uses:	27.48		**Supports All Uses:**	

*** Note: Totals are based on Overall AU Category.**

UPPER ROANOKE RIVER SUBAREA
WATER QUALITY MANAGEMENT PLAN

VR 680-16-02.1

Prepared in accordance with the
Federal Water Pollution Control Act Amendments
of 1972, Section 303(e) as amended
by the Clean Water Act, P.L. 95-217

and

Section 62.1-44.15(3a) and (13) of the Virginia
State Water Control Law

Adopted by the State Water Control Board
on December 9, 1991

This Plan Supersedes the Roanoke River Basin Comprehensive Water Resources Plan, Water Quality Management Plan, December 9, 1976, and the Fifth Planning District Commission 208 Areawide Plan, July 1976, for those areas of Planning Districts 4, 5, 11 and 12 that are in the Upper Roanoke River Subarea.

Effective Date: February 12, 1992

TABLE 5: WASTELOAD ALLOCATIONS BASED ON EXISTING DISCHARGE POINT[1]
UPPER ROANOKE RIVER SUBAREA
HUC 03010101

Map Location	Stream Name	Segment Number	Segment Classification Standards	Mile to Mile[2]	Discharger	VPDES Permit Number	VPDES Permit Limits BOD_5 kg/day	303(e)[3] Wasteload Allocation BOD_5 kg/day	Total Maximum Daily Load W.Q. Segments BOD_5 kg/day
A	S.F. Roanoke R.	4A-1	E.L.-P W.Q.-FC	6.33-	Montgomery County PSA Shawsville STP	VA0024031	11.40	Secondary	
B	S.F. Roanoke R.	4A-1	E.L.-P W.Q.-FC	0.76-	Montgomery County PSA Elliston - Lafayette STP	VA0062219	28.00	Secondary	
C	X-trib. to N.F. Roanoke R.	4A-1	E.L.-P	0.25-	Lonnie J. Weddle Residence	VA0073229	0.03	Secondary	
D	X-trib. to N.F. Roanoke R.	4A-1	E.L.-P	0.24-	James Luther Residence	VA0073237	0.05	Secondary	
E	N.F. Roanoke R.	4A-1	E.L.-P	17.57-	~~Blacksburg Country Club, Inc.~~	VA0027481	4.00	Secondary	
1	Cedar Run	4A-1	E.L.-P	2.64-	Wolverine Gasket Co., Inc.	VA0052825	N/A	Secondary	
F	Cedar Run	4A-1	E.L.-P	0.40-	Wendell Hensely Residence	VA0066737	0.07	Secondary	
G	X-trib. to Cedar Run	4A-1	E.L.-P	0.20-	Ivan Gary Bland Residence	VA0077488	0.05	Secondary	
H	Cedar Run	4A-1	E.L.-P	0.46-	Velma D. Compton Residence	VA0080021	0.06	Secondary	
2	N.F. Roanoke R.	4A-1	E.L.-P	15.21-	Federal Mogul, Inc.	VA0001619	N/A	Secondary	
I	N.F. Roanoke R.	4A-1	E.L.-P	0.76-	VDOT - I-81 Ironto Rest Area	VA0060941	2.80	Secondary	
3	X-trib. to Roanoke R.	4A-2	E.L.-P	1.04-	Salem Stone Corp.	VA0006459	N/A	Secondary	
4	Roanoke R.	4A-2	W.Q.-DO,P	218.13-	Koppers Company, Inc.	VA0001333	N/A	N/A	N/A
5	Roanoke R.	4A-2	W.Q.-DO,P	216.33-	Roanoke Electric Steel Salem Plant	VA0001341	N/A	N/A	N/A
6	Snyders Br.	4A-2	E.L.-P	0.17-	Graham-White Mfg., Inc.	VA0030031	N/A	Secondary	
7	Bowman's Br.	4A-2	E.L.-P	0.20-	Mechanical Development Co., Inc.	VA0072311	N/A	Secondary	
8	Roanoke R.	4A-2	W.Q.-DO,P	212.61-	Rowe Furniture Corp., Inc.	VA0024716	N/A	N/A	N/A

D. Nutrient Policy

The SWCB has adopted a Policy for Nutrient Enriched Waters[18] under the authority of Sections 62.1-44.15(3) and 62.1-44.15(10) of the Code of Virginia. This new policy provides for the control of discharges of phosphorus from point sources to state waters designated as "nutrient enriched." Smith Mountain Lake and all its' tributaries are designated as "nutrient enriched waters" in the Upper Roanoke River Subarea.

The original 1976 Roanoke River Basin WQMP classified Smith Mountain Lake and its tributaries as phosphorus limited.[19] The SWCB Policy for Nutrient Enriched Waters Section 3 C. states "This Policy shall not be construed to relax any effluent limitations concerning a nutrient that is imposed under any other requirement of State or Federal Law."[20] The following strategy shall apply to the Upper Roanoke River Subarea:

Phosphorus Strategy

Due to the increased and anticipated growth around Smith Mountain Lake, this Plan requires all dischargers to the impounded waters of Smith Mountain Lake to remove phosphorus from their effluents regardless of design flow. Phosphorus limitations shall be set as follows:

(i) All discharges into the impounded waters of Smith Mountain Lake (pool elevation of 800 feet) and the Roanoke Regional STP shall maintain an effluent phosphorus concentration of 0.2 mg/l; a technology based value.

ELLISTON & SHAWSVILLE STP IN 4A-1

(ii) All other discharges in Segments 4A-1, 4A-2 and 4A-3 (see Plate No. 2) shall maintain the effluent phosphorus concentration prescribed by the nutrient enrichment policy.

E. Toxics Management Program

The SWCB upon receipt of a VPDES permit application for issuance, reissuance or modification determines the need for toxics management. The first step of toxics

COMMONWEALTH OF VIRGINIA
STATE WATER CONTROL BOARD

VR 680-14-02 - POLICY FOR NUTRIENT ENRICHED WATERS
9 VAC 25-40-10 et seq

[Adopted: March 28-29, 1988 - Effective: May 25, 1988.]

§ 1. Purpose.
This policy provides for the control of discharges of nutrients from point sources affecting state waters that have been designated "nutrient enriched waters" in VR 680-21-07.03.

§ 2. Authority.
The Board has adopted this policy under the authority of §§ 62.1-44.15(3), 62.1-44.15(10) and 62.1-44.15(14) of the Code of Virginia.

§ 3. Strategy for "nutrient enriched waters".
As specified herein, the board shall reopen the NPDES permits of certain point source dischargers to "nutrient enriched waters" and shall impose effluent limitations on nutrients in the discharges authorized by those permits and certain new permits.

A. 1. All dischargers authorized by NPDES permits issued on or before July 1, 1988, to discharge 1 MGD or more to "nutrient enriched waters" shall be required to meet a monthly average total phosphorus effluent limitation of 2 mg/l as quickly as possible and in any event within 3 years following modification of the NPDES permit.

2. At the time of modification of the NPDES permit, any discharger who voluntarily accepts a permit to require installation and operation of nitrogen removal facilities to meet a monthly average total nitrogen effluent limitation of 10 mg/l for the months of April through October shall be allowed an additional year to meet the phosphorus effluent limitation in § 3 A.1.

B. All new source dischargers as defined in Regulation 6 with a permit issued after July 1, 1988 and a design flow greater than or equal to 0.05 MGD who propose to discharge to "nutrient enriched waters" shall be required to meet a monthly average total phosphorus effluent limitation of 2 mg/l.

C. This policy shall not be construed to relax any effluent limitation concerning a nutrient that is imposed under any other requirement of state or federal law. No time extensions outlined in § 3 A.2 for installation and

operation of nitrogen removal facilities shall be granted to a discharger if such an effluent limitation or a time extension is already imposed under any other requirement of state or federal law or regulation.

§ 4. Whenever the board determines that a permittee has the potential for discharging monthly average total phosphorus concentrations greater than or equal to 2 mg/l or monthly average total nitrogen concentrations greater than or equal to 10 mg/l to "nutrient enriched waters," the board may reopen the NPDES permit to impose monitoring requirements for nutrients in the discharge.

§ 5. The board anticipates that, following implementation of the foregoing requirements and evaluation of effects of this policy and of the results of the non-point source control programs, further limitations on discharges of phosphorus or of other nutrients may be necessary to control undesirable growths of aquatic plants.

§ 6. The board may entertain petitions from adjoining states to consider rulemakings to control nutrients entering tributaries to "nutrient enriched waters" of the adjoining state.

Benthic TMDL Development for the Roanoke River, Virginia

Submitted to

Virginia Department of Environmental Quality

Prepared by

THE Louis Berger Group, INC.
2300 N Street, NW
Washington, DC 20037

March 2006

EPA approved 5/10/06
SWCB approved 9/7/06

Table E-3: Point Sources Sediment TMDL Allocations

Facility Name	Permit Number	Annual Sediment Loads (tons/yr)	Allocated Loads (tons/yr)	Percent Reduction
Western Virginia Water Authority	VA0025020	472.2	472.2	0
Roanoke Electric Steel Corporation	VA0001589	92.9	92.9	0
Shawville Town STP	VA0024031	9.1	9.1	0
Carvin Cove Water Filtration Plant	VA0001473	17.6	17.6	0
Crystal Springs WTP	VA0091065	8.8	8.8	0
Norfolk Southern Railway Company - Shaffers Crossings	VA0001597	1.62	1.62	0
Ellison Lafayette WWTP	VA0062219	11.2	11.2	0
Blacksburg Country Club STP	VA0027481	1.57	1.57	0
Roanoke Moose Lodge	VA0077895	0.21	0.21	0
		Total Allocated Load	**615.3**	**0**

The MS4 allocations detailed in Table E-2 are broken down by MS4 Urban area and shown in Table E-4.

Table E-4: Sediment TMDL Wasteload Allocations for MS4 Urban Areas

MS4 Permit Holder	Permit Number	Sediment Allocation (Tons/Year)
Roanoke County	VAR040022	1823
City of Roanoke	VAR040004	1487
Town of Vinton	VAR040026	128
Botetourt County	VAR040023	327
City of Salem	VAR040010	589
VDOT Roanoke Urban Area	VAR040017	27
Virginia Western Community College	VAR040030	2
Virginia Medical Center	VAR040050	10
VDOT Montgomery County Urban Area	VAR040016	4
Town of Blacksburg	VAR040019	102
Town of Christianburg	VAR040025	75
	Total	**4573**

The MS4 sediment loads shown in Table E-4 include the loads from individual MS4s permits for urban areas as well as loads from Individual Stormwater Permits, General Stormwater Permits, General Permits for Mines, General Permits for Concrete Facilities, General Permits for Carwashes, and General Permits for Construction Sites. Table E-5 depicts the breakdown of loads other than the individual MS4-permits loads for each urban area. Table E-6 shows the wasteload allocation for each specific MS4 permit.

Table E-5: Wasteload Allocation for Stormwater Permits by MS4 Urban Area* (tons/year)

MS4 Urban Area	Individual Permits	General Permits	Mines	Concrete Facilities	Carwashes	Construction Sites	Totals
Roanoke County	-	19.65	-	-	-	123.95	143.60
City of Roanoke	108.1	316.8	7	0.9	0.1	101.11	534.01
Town of Vinton	-	-	-	-	-	8.70	8.70
Botetourt County	-	0.62	15.6	2.43	-	22.23	40.88
City of Salem	18.4	101.6		0.2		40.05	160.25
VDOT Roanoke Urban Area	-	-	-	-	-	1.84	1.84
Virginia Western Community College	-	-	-	-	-	0.14	0.14
Virginia Medical Center	-	-	-	-	-	0.68	0.68
VDOT Montgomery County Urban Area	-	-	-	-	-	0.27	0.27
Town of Blacksburg	12.3	-	-	-	-	6.94	19.24
Town of Christianburg	-	-	-	-	-	5.10	5.10
Total	**138.8**	**438.67**	**22.6**	**3.53**	**0.1**	**311**	**914.7**

* Does not include the load for the specific MS4 urban area permit – Shown in Table E-6 below. The breakdown by individual permit is shown in Appendix D

Based on the number of disturbed land-acres specified in the stormwater construction permits issued between 2002 and 2004, it is estimated that on the average approximately

467 acres are annually under construction. The total allocated load was calculated based on a per acre loading unit of 10.97 metric tons of sediment per hectare, the disturbed construction area of 476 acres, and a sediment delivery ratio of 0.136. This corresponds to an average total sediment allocation of 311 tons/year (Appendix D, Table D-7).

Table E-6: Wasteload Allocation for each Individual MS4 Permit

MS4 Permit Holder	Permit Number	Sediment Allocation (Tons/Year)
Roanoke County	VAR040022	1680.0
City of Roanoke	VAR040004	953.0
Town of Vinton	VAR040026	119.30
Botetourt County	VAR040023	286.1
City of Salem	VAR040010	428.8
VDOT Roanoke Urban Area	VAR040017	25.2
Virginia Western Community College	VAR040030	1.9
Virginia Medical Center	VAR040050	9.3
VDOT Montgomery County Urban Area	VAR040016	3.7
Town of Blacksburg	VAR040019	82.8
Town of Christianburg	VAR040025	69.90
	Total	**3659.3**

Implementation

In general, Virginia intends for the required reductions to be implemented in an iterative process that first addresses those sources with the largest impact on water quality. Among the most efficient sediment BMPs for both urban and rural watersheds are infiltration and retention basins, riparian buffer zones, grassed waterways, streambank protection and stabilization, and wetland development or enhancement.

Once developed, DEQ intends to incorporate the TMDL implementation plan into the appropriate Water Quality Management Plan (WQMP), in accordance with the Clean Water Act's Section 303(e). In response to a Memorandum of Understanding (MOU) between EPA and DEQ, DEQ also submitted a draft Continuous Planning Process to EPA in which DEQ commits to regularly updating the WQMPs. Thus, the WQMPs will be, among other things, the repository for all TMDLs and TMDL implementation plans developed within a river basin.

Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watersheds, Virginia

Submitted by

Virginia Department of Environmental Quality

Prepared by

GEORGE MASON UNIVERSITY

and

THE Louis Berger Group, INC.
2300 N Street, NW
Washington, DC 20037

February 2006

EPA approved 8/2/06
SWCB approved 6/27/07

5.3.1.3. Roanoke River Waste Load Allocation

There are 6 industrial and municipal permitted facilities in the Roanoke River watershed permitted to discharge bacteria (see Chapter 4). For this TMDL, the wasteload allocation for permitted facilities is to maintain discharge at the design flow limits and bacteria concentrations at their permitted levels of 126 cfu/100mL. Table 5-3 shows the loading from the industrial and municipal permitted facilities in the watershed.

Table 5-3: Roanoke River Wasteload Allocation for E. coli

Point Source	Name	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Percent Reduction
VA0077895	Roanoke Moose Lodge	8.18E+09	8.18E+09	0%
VA0027481	Blacksburg Country Club Sewage Treatment Plant	6.10E+10	6.10E+10	0%
VA0062219	Montgomery County PSA – Elliston-Lafayette WWTP	4.34E+11	4.34E+11	0%
VA0024031	Shawsville Town – Sewage Treatment Plant	3.48E+11	3.48E+11	0%
VA0025020	Western Virginia Water Authority WPC	1.08E+14	1.08E+14	0%
VA0028711	Suncrest Heights	3.48E+10	3.48E+10	0%
Total		**1.09E+14**	**1.09E+14**	**0%**

Within Wilson Creek there are seven MS4s permits requiring TMDL allocations. Table 5-4 shows the waste load allocations for each MS4. The waste load allocations were based on each municipality's share of the contributing urbanized area of the impairment. Appendix F outlines the steps used in the development of the MS4 E-coli allocations.

Table 5-4: Roanoke River MS4s Wasteload Allocation for E. coli

MS4 Permit Holder	Permit Number	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Percent Reduction
Roanoke County	VAR040022	2.37E+13	2.84E+11	98.8%
City of Roanoke	VAR040004	1.61E+13	1.93E+11	98.8%
Town of Vinton	VAR040026	2.77E+12	3.32E+10	98.8%
City of Salem	VAR040010	1.91E+13	2.29E+11	98.8%
VDOT Roanoke Urban Area	VAR040017	8.94E+11	1.07E+10	98.8%
Virginia Western Community College	VAR040030	1.44E+11	1.73E+09	98.8%
Virginia Medical Center	VAR040050	6.56E+11	7.87E+09	98.8%
	Total	**6.34E+13**	7.60E+11	**98.8%**

Table E-5: Roanoke River Wasteload Allocation for E. coli

Point Source	Name	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Percent Reduction
VA0077895	Roanoke Moose Lodge	8.18E+09	8.18E+09	0%
VA0027481	Blacksburg Country Club Sewage Treatment Plant	6.10E+10	6.10E+10	0%
VA0062219	Montgomery County PSA – Elliston-Lafayette WWTP	4.34E+11	4.34E+11	0%
VA0024031	Shawsville Town – Sewage Treatment Plant	3.48E+11	3.48E+11	0%
VA0025020	Western Virginia Water Authority Water Pollution Control Plant	1.08E+14	1.08E+14	0%
VA0028711	Suncrest Heights	3.48E+10	3.48E+10	0%
VAR040022*	Roanoke County	2.37E+13	2.84E+11	98.8%
VAR040004*	City of Roanoke	1.61E+13	1.93E+11	98.8%
VAR040026*	Town of Vinton	2.77E+12	3.32E+10	98.8%
VAR040010*	City of Salem	1.91E+13	2.29E+11	98.8%
VAR040017*	VDOT Roanoke Urban Area	8.94E+11	1.07E+10	98.8%
VAR040030*	Virginia Western Community College	1.44E+11	1.73E+09	98.8%
VAR040050*	Virginia Medical Center	6.56E+11	7.87E+09	98.8%
	Total	**1.72E+14**	**1.10E+14**	**36.0%**

(*) MS4 permit loads based on each share of the MS4 contributing urbanized area of the impairment. Appendix F outlines the steps used in the development of the MS4 E. coli allocations.

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951 FAX (804) 371-2674

December 14, 2007

Becky France
DEQ-West Central Regional Office
3019 Peters Creek Road
Roanoke, VA 24019

Re: Blacksburg Country Club WWTP

Dear Ms. France,

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the North Fork Roanoke River- Den Creek Stream Conservation Unit is located downstream of the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The North Fork Roanoke River- Den Creek Stream Conservation Unit has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resource associated with this SCU is:

Percina rex	Roanoke logperch	G1G2/S1S2/LE/LE

The Roanoke logperch is endemic to the Roanoke and Chowan River drainages in Virginia (Burkhead and Jenkins, 1991) and inhabits medium and large, warm and usually clear rivers with sandy to boulder spotted bottoms (TNC et. al., 1991). The Roanoke logperch is threatened by channelization, siltation, impoundment, pollution, and de-watering activities (Burkhead & Jenkins, 1991). Please note that this species is currently classified as endangered by USFWS and VDGIF.

In addition, according to the information currently in our files, the North Fork Roanoke River has been designated by the Virginia Department of Game and Inland Fisheries (VDGIF) as a "Threatened and Endangered Species Water" and is adjacent and downstream of the project site. The species associated with this T & E Water are the Orangefin madtom and the Roanoke logperch.

Due to the legal status of these species, DCR also recommends coordination with USFWS and VDGIF to ensure compliance with protected species legislation. DCR also recommends a plan be developed and

implemented to correct the high flow problems during storm events. DCR supports VDGIF's recommends for this project including the time of year restriction for instream work, the use of UV or ozone disinfection system and continued monitoring and mitigation for the impacts from the spill this summer.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, which may contain information not documented in this letter. Their database may be accessed from http://www.dgif.virginia.gov/wildlife/info_map/index.html , or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

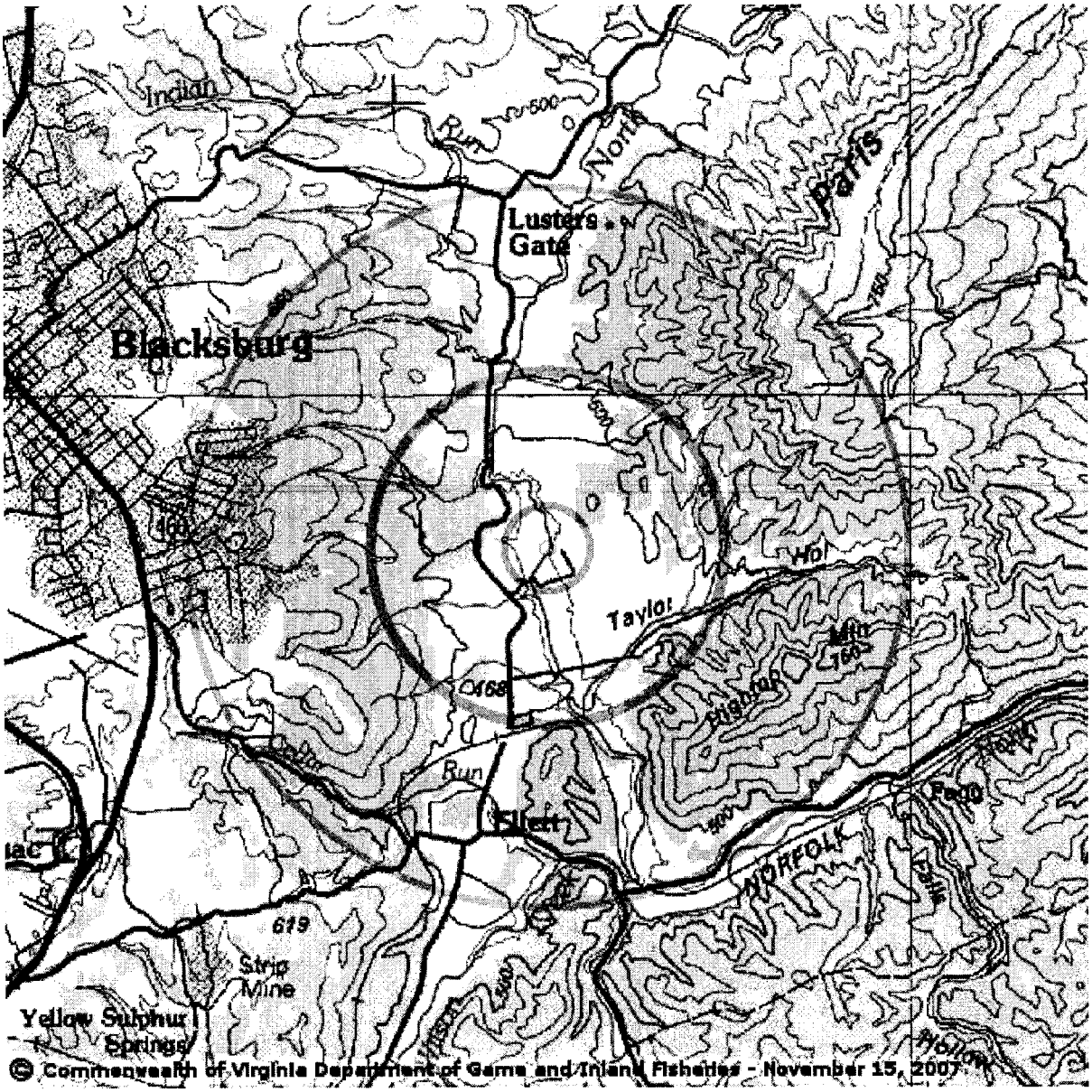
S. René Hypes
Project Review Coordinator

CC: Amy Ewing, VDGIF
Kim Smith, USFWS

Literature Cited

Burkhead, N.M. and R.E. Jenkins. 1991. Roanoke logperch. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. p. 395-397.

The Nature Conservancy and The Network of Natural Heritage Programs and Conservation Data Centers. 1991. Natural Heritage Conservation Databases. Accessed through the Biosource web site project. The Nature Conservancy, Arlington, VA. (7/14/99).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619
Strip
Mine
Yellow Sulphur
Springs
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Department of Conservation & Recreation

CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

PROJECT INFORMATION

TITLE: Blacksburg Country Club WWTP

DESCRIPTION: municipal discharge 0.35 MGD capacity

EXISTING SITE CONDITIONS: discharge to North Fork Roanoke River

QUADRANGLES: IRONTO

COUNTIES: Montgomery

Latitude/Longitude (DMS): 371250/802135

Acreage:

Comments: This discharge is an existing municipal discharge from the treatment of domestic sewage.

REQUESTOR INFORMATION

Contact Name: Becky L. France

Company Name: DEQ-West Central Regional Office

Address: 3019 Peters Creek Road

City: Roanoke **State:** VA **Zip:** 24019

Phone: 540-562-6793 **Fax:** 540-562-6860 **Email:** blfrance@deq.virginia.gov

Site-Name	Group-Name	common-name	scientific-name	GRANK	SRANK	Fed Status	st status	EO Rank	last obs date	precision
	Vascular Plant	A Bluegrass	Poa saltuensis	G5	S2			E	1987-05-22	M
	Vascular Plant	Canby's Mountain-lover	Paxistima canbyi	G2	S2	SOC		H	1953-03-20	M
	Vascular Plant	Canby's Mountain-lover	Paxistima canbyi	G2	S2	SOC		H	1960-04-16	M
	Vascular Plant	Capillary Beakrush	Rhynchospora capillacea	G4	S1			H	1937-10-31	M
	Vascular Plant	Small Dropseed	Sporobolus neglectus	G5	S2			H	1937-10-31	G
	Vascular Plant	Smooth Coneflower	Echinacea laevigata	G2	S2	LE	LT	H	1945-06-28	M
NORTH FORK ROANOKE RIVER - DEN CREEK SCU	Vertebrate Animal	Roanoke Logperch	Percina rex	G1G2	S1S2	LE	LE	E	1985-07-09	S

Natural Heritage Resources within Search Radius

Conservation Site Name	Site Type	Brank	Acreage	Listed Species Presence
	GLNHR			NL
NORTH FORK ROANOKE RIVER - DEN CREEK SCU	SCU	B2	17	FL
ERHART	Karst Screen	B4		SL
AUNT NELLIE'S	Karst Screen	B3		FL
THORN AGNEW	Karst Screen	B4		NL
	GLNHR			NL
	GLNHR			NL
	GLNHR			NL
	GLNHR			NL
	GLNHR			FL

Natural Heritage Conservation Sites within Search Radius

France,Becky

From: ProjectReview@dgif.virginia.gov
Sent: Thursday, December 13, 2007 12:04 PM
To: France,Becky
Cc: Pinder, Mike (DGIF); Cindy_Kane@fws.gov; nhreview@dcr.virginia.gov
Subject: RE: Endangered/Threatened Species Review VPDES Permit Issuance Revised
Attachments: Coordination Form DGIF BCC 2.doc

We have reviewed the subject VPDES re-issuance and offer the following comments and recommendations.

According to our records, FESE Roanoke logperch has been documented at the project site. The North Fork Roanoke River, the receiving stream for this discharge, has been designated a Threatened and Endangered Species Water due to the presence of this species and state Threatened orangefin madtom. To protect these listed species from harm, we recommend that the discharge be treated using ozone or UV disinfection as opposed to chlorine. The addition of chlorine during the disinfection process, and therefore to the effluents being discharged, can result in adverse impacts upon water quality and the health of the aquatic species that depend upon this river. Further, we recommend that if any instream work is necessary for maintenance of the discharge pipe, upgrading the pipe or any other projects in the North Fork Roanoke River and/or its tributaries that such instream work adhere to a time of year restriction from March 15 through June 30 of any year. We recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures.

It has come to our attention that at times in the past, the applicant and/or their agent or contractors has partially blocked flow in the North Fork Roanoke River for the purpose of pooling water to increase water available for the intake. To protect the listed species mentioned above from the harmful aspect of such activities, we recommend that these activities not occur. It was also brought to our attention that the Country Club was responsible for a spill of harmful chemicals into the River earlier this year. This spill killed upwards of 150 (this is an estimate) of the federal and state endangered Roanoke logperch. We recommend that the applicant adhere to the recommendations/requirements of the USFWS and that the fish kills be appropriately mitigated. We recommend that mitigation include consideration of restoration activities that result in water quality and other habitat improvements. This may include actions such as upgrading the facility to use UV or ozone disinfection, bank stabilization projects and native riparian buffer plantings.

*please make sure to include a map anytime you send me a review request.

Thank you.
Amy Ewing
amy.ewing@dgif.virginia.gov

VA Department of Game and Inland Fisheries
Environmental Services Section
4010 West Broad Street
Richmond, VA 23230
804-367-6913

From: France, Becky (DEQ)
Sent: Thursday, November 15, 2007 10:04 AM
To: ProjectReview
Subject: RE: Endangered/Threatened Species Review VPDES Permit Issuance Revised

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY	**VPDES PERMITS** **Threatened and Endangered Species Coordination**
To: ☒ DGIF, Environmental Review Coordinator ☐ DCR ☐ USFWS, T/E Review Coordinator **From: Becky L. France**	**Date Sent: November 15, 2007** **Permit Number: Reissuance (VA0027481)**
Facility Name: Blacksburg Country Club WWTP **Contact:** Mr. Daina Reynolds III **Phone:** : (540) 989-3653 **Address: 1064 Clubhouse Road** **Blacksburg, VA 24060**	**Location:** 1064 Clubhouse Road, off State Road 723 **USGS Quadrangle: Ironto** **Latitude/Longitude:** N 37°12'51", E 80°21'36" **Receiving Stream: North Fork Roanoke River** **Receiving Stream Flow Statistics used for Permit: 2003 statistics 1.80 MGD 7Q10** **1.67 MGD 1Q10**
Effluent Characteristics and Max Daily Flow: **0.035 MGD design flow for municipal treatment facility**	**Species Search Results (or attach database report and map) confirmed species:** **FESE Roanoke Logperch (confirmed)** **FSST Orangefin Madtom (confirmed)** **FS Kanawha Minnow (confirmed)** **FS Roanoke Hog Sucker (confirmed)** **FS Bigeye Jumprock (confirmed)** **FSSS Roanoke Bass (confirmed)** **FSSS Candy Darter (confirmed)** **FS Riverweed Darter (confirmed)** **FS Big Sandy Crayfish (confirmed)**

Attach draft permit effluent limits page if available.

DGIF email: projectreview@dgif.virginia.gov
USF&W fax: (804)693-9032

Virginia Fish and Wildlife Information Service

Species List Report

List of species known or likely to occur within a **2 mile radius of 37,12,51 80,21,36** in **121 Montgomery, Va.** This report is compiled on 11/15/2007,7:49:09 AM

1-94 Species Records

Bova Code	Status*	Common Name	Scientific Name	Confirmed	Database(s)
010214	FESE	Logperch, Roanoke	Percina rex	Yes	Collections
010127	FSST	Madtom, orangefin	Noturus gilberti	Yes	Collections
010097	FS	Minnow, Kanawha	Phenacobius teretulus	Yes	Collections
010109	FS	Sucker, Roanoke hog	Hypentelium roanokense	Yes	Collections, Collections
010110	FS	Jumprock, bigeye	Scartomyzon (= Moxostoma) ariommus (= ariommum)	Yes	Collections, Collections, Collections
010174	FSSS	Bass, Roanoke	Ambloplites cavifrons	Yes	Collections, Collections, Collections
010199	FSSS	Darter, candy	Etheostoma osburni	Yes	Collections, Collections, Collections
010200	FS	Darter, riverweed	Etheostoma podostemone	Yes	Collections, Collections, Collections, Collections
070118	FS	Crayfish, Big Sandy	Cambarus veteranus	Yes	Collections, Collections, Collections, Collections
010034		Bowfin	Amia calva	Yes	Collections, Collections, Collections, Collections
010050		Trout, rainbow	Oncorhynchus mykiss	Yes	Collections, Collections, Collections, Collections, Collections
010051		Trout, brown	Salmo trutta	Yes	Collections, Collections, Collections, Collections, Collections

010052		Trout, brook	Salvelinus fontinalis	Yes	Collections, Collections, Collections, Collections, Collections
010056		Pickerel, chain	Esox niger	Yes	Collections, Collections, Collections, Collections, Collections
010058		Stoneroller, central	Campostoma anomalum	Yes	Collections, Collections, Collections, Collections, Collections, Collections
010060		Dace, mountain redbelly	Phoxinus oreas	Yes	Collections, Collections, Collections, Collections, Collections, Collections, Collections
010061		Darter, Roanoke	Percina roanoka	Yes	Collections, Collections, Collections, Collections, Collections, Collections, Collections, Collections
010062		Carp, common	Cyprinus carpio	Yes	Collections, Collections, Collections, Collections, Collections, Collections, Collections, Collections
010063		Minnow, cutlips	Exoglossum maxillingua	Yes	Collections, Collections, Collections, Collections, Collections, Collections, Collections, Collections, Collections
010065		Chub, bigeye	Notropis amblops	Yes	Collections, Collections, Collections, Collections, Collections, Collections, Collections,

Confirm Logperch, Roanoke 010214 in Collections

37,12,51.0 -80,21,36.0
is the Search Point

Show Position Rings
○ Yes ◉ No
1 mile and 1/4 mile at the **Search Point**

Show Search Area
◉ Yes ○ No
2 miles

Search Point is at map center

Base Map Choices
Topography

Map Overlay Choices
Current List: Search, Collections

Map Overlay Legend
2 mile radius Search Area
Data Collection Site
Selected Site

Virginia Fish and Wildlife Information Service

Help
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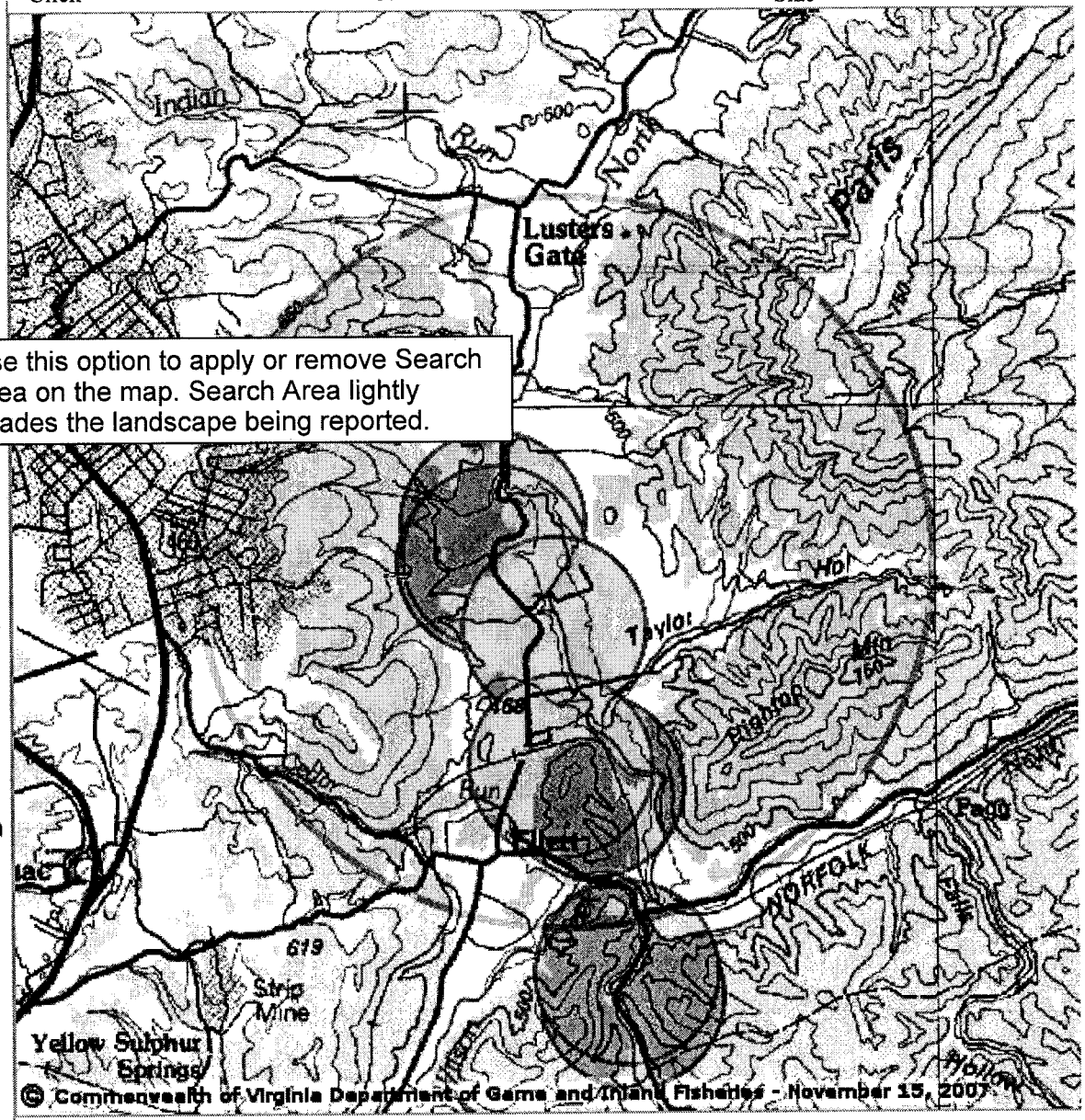
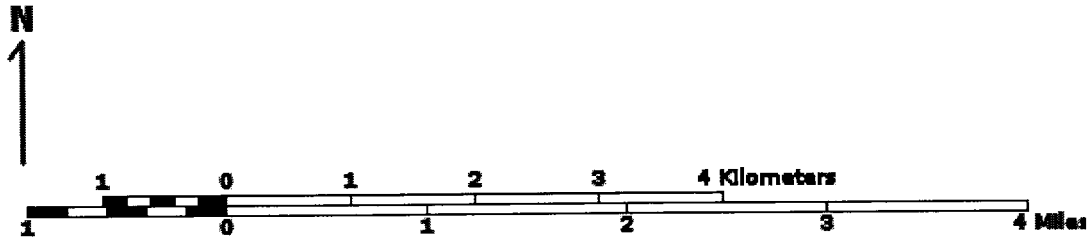
Refresh Browser Page
Map Scale: In Zoom Out
Screen Size: Small Size



Use this option to apply or remove Search Area on the map. Search Area lightly shades the landscape being reported.

Roanoke Logperch



Point of Search 37,12,51.0 -80,21,36.0

Virginia Fish and Wildlife Information Service

Confirmation Records

Confirmation records for **Logperch, Roanoke(010214)** in **121**

Scientific Collections Records. View all Maps

Collection ID	Description	Vi
5433	Collection Date Tuesday, August 03, 1993; Collector M. T. Ferguson, P. S. Lookabaugh	Ye
5434	Collection Date Wednesday, June 30, 1993; Collector M. T. Ferguson, P. S. Lookabaugh	Ye
8934	Collection Date Tuesday, August 03, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
8935	Collection Date Friday, July 30, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
10577	Collection Date Monday, June 08, 1970; Collector Bouchard	Ye
15270	Collection Date Sunday, March 27, 1966; Collector BOBAN, MCCONNELL	Ye
30962	Collection Date Thursday, January 01, 1953; Collector VPI-B-VA. POLY. INST.	Ye
55098	Collection Date Tuesday, April 15, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
55201	Collection Date Sunday, February 23, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
65184	Collection Date Saturday, July 28, 2001; Collector A.L. George (principle permittee), D.A. Neely (Collector)	Ye
308378	Collection Date Wednesday, May 18, 2005; Collector ANGERMEIER ET AL	Ye
311322	Collection Date Wednesday, May 18, 2005; Collector Paul Angermeier (Principle Permittee) & Brett Albanese, Virginia Tech	Ye

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Confirm Sucker, Roanoke hog 010109 in Collections

37,12,51.0 -80,21,36.0
is the Search Point

Show Position Rings
○ Yes ◉ No
1 mile and 1/4 mile at the **Search Point**

Show Search Area
◉ Yes ○ No
2 miles

Search Point is at map center

Base Map Choices
Topography

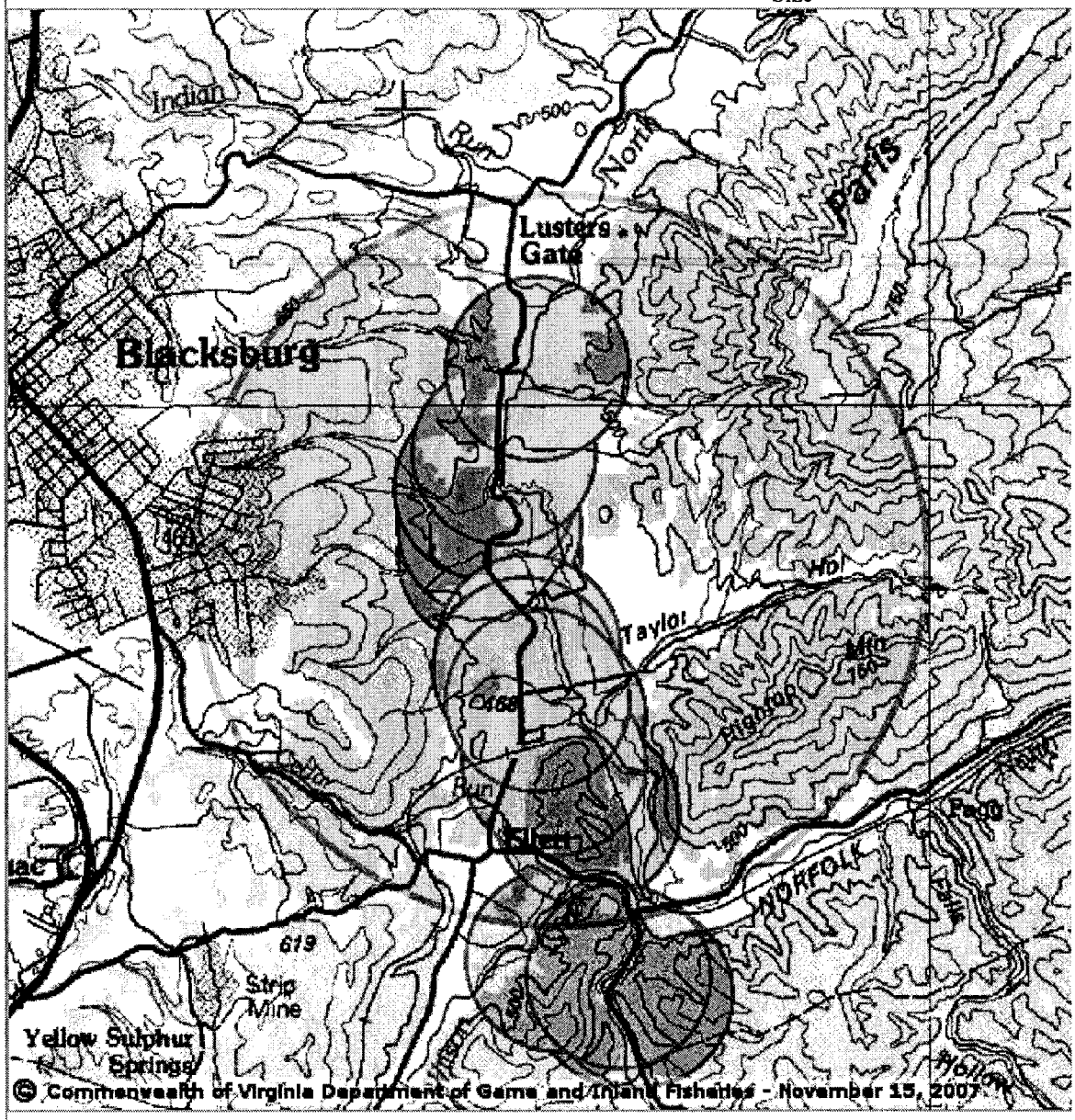
Map Overlay Choices
Current List: Search, Collections

Map Overlay Legend
2 mile radius Search Area
Data Collection Site
Selected Site

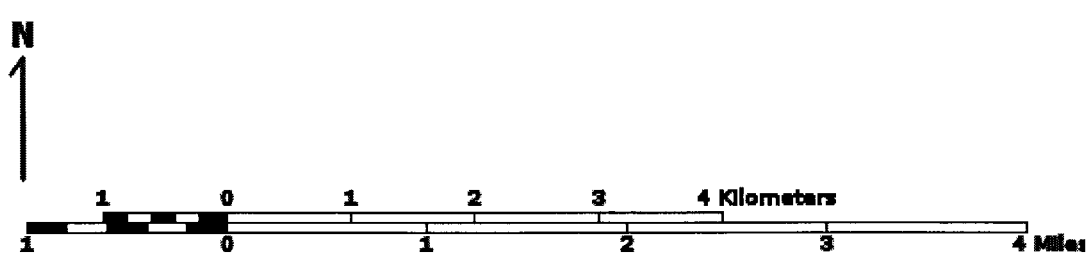
Virginia Fish and Wildlife Information Service

Help **Refresh Browser Page**

Map Click: Pan | Map Scale: In Zoom Out | Screen Size: Small Size



Roanoke hog sucker



Point of Search 37,12,51.0 -80,21,36.0

Virginia Fish and Wildlife Information Service

Confirmation Records

Confirmation records for **Sucker, Roanoke hog(010109)** in **12**

Scientific Collections Records. View all Maps

Collection ID	Description	Vi
8934	Collection Date Tuesday, August 03, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
10557	Collection Date Thursday, April 17, 1975; Collector B.H. Bauer	Ye
10577	Collection Date Monday, June 08, 1970; Collector Bouchard	Ye
10578	Collection Date Monday, June 08, 1970; Collector Bouchard	Ye
10625	Collection Date Wednesday, October 06, 1971; Collector Bresnik, Cashner, Conner, and Humphries	Ye
15270	Collection Date Sunday, March 27, 1966; Collector BOBAN, MCCONNELL	Ye
15284	Collection Date Saturday, December 05, 1964; Collector MCCLEARY	Ye
31923	Collection Date Wednesday, January 01, 1964; Collector GM-MCCLEARY	Ye
32086	Collection Date Friday, January 01, 1965; Collector VPI-B-VA. POLY. INST.	Ye
34179	Collection Date Wednesday, January 01, 1975; Collector BHB (MISC 1)	Ye
54166	Collection Date Thursday, August 05, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
54167	Collection Date Monday, July 26, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
54168	Collection Date Friday, September 03, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
55098	Collection Date Tuesday, April 15, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
55204	Collection Date Thursday, March 13, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
55212	Collection Date Friday, May 16, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye

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Collections record 311322

37,12,51.0 -80,21,36.0
is the Search Point

Display **Item Location** is in center
not at map center

Show Position Rings
○ Yes ◉ No
1 mile and 1/4 mile at the **Item Location**

Show Search Area
◉ Yes ○ No
2 miles

Search Point is at map center

Base Map Choices
Topography

Map Overlay Choices
Current List: Search, Observation

Map Overlay Legend

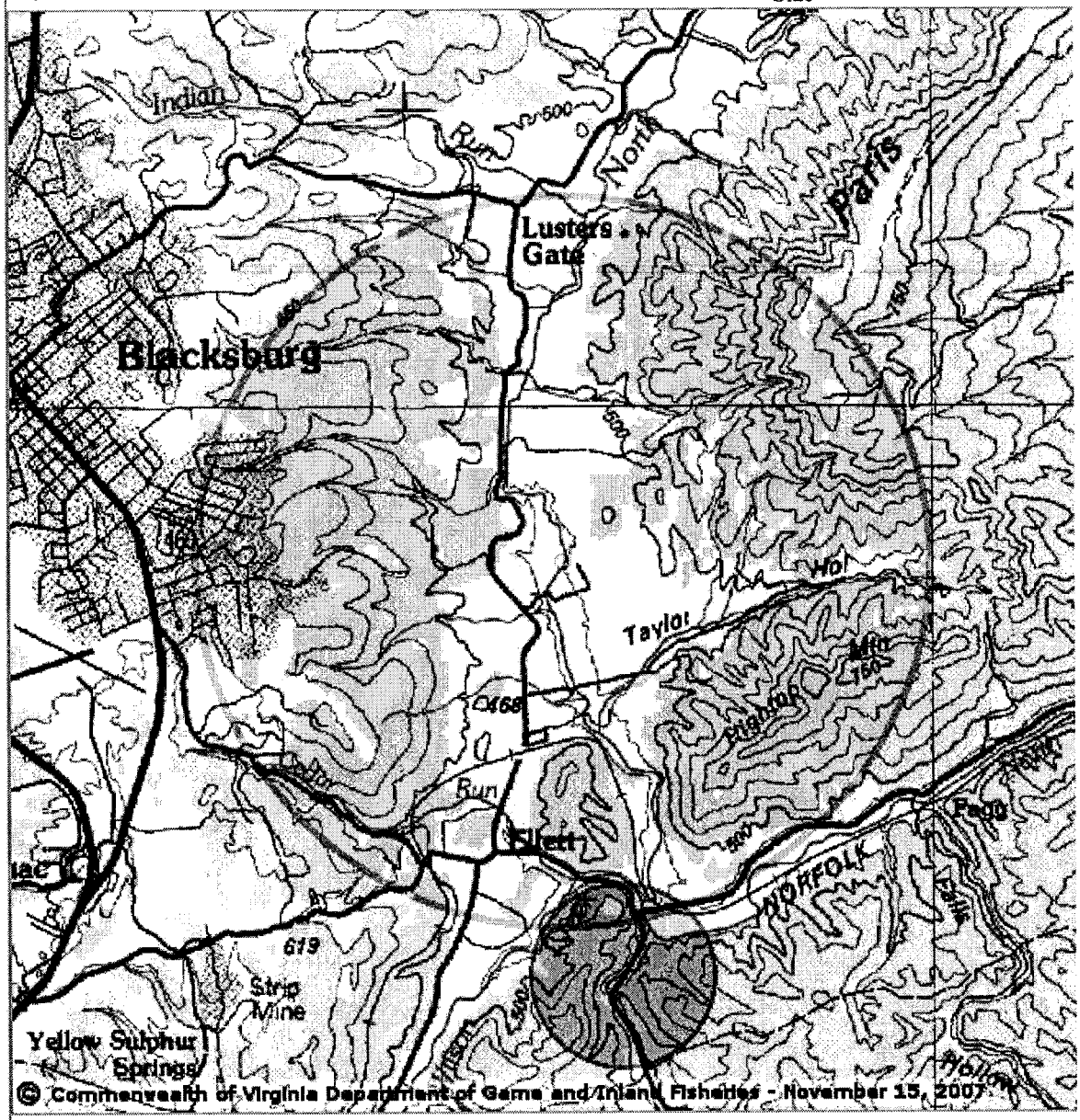
2 mile radius Search Area

Data Collection Site

Virginia Fish and Wildlife Information Service

Help | **Refresh Browser Page**

Map Click: Pan | Map Scale: In Zoom Out | Screen Size: Small Size



Bigeye Jumprock

N

1 0 1 2 3 4 Kilometers

1 0 1 2 3 4 Miles

Point of Search 37,12,51.0 -80,21,36.0

Virginia Fish and Wildlife Information Service

Confirmation Records

Confirmation records for **Jumprock, bigeye(010110)** in **121,**

Scientific Collections Records. View all Maps

Collection ID	Description	Vi
10625	Collection Date Wednesday, October 06, 1971; Collector Bresnik, Cashner, Conner, and Humphries	Ye

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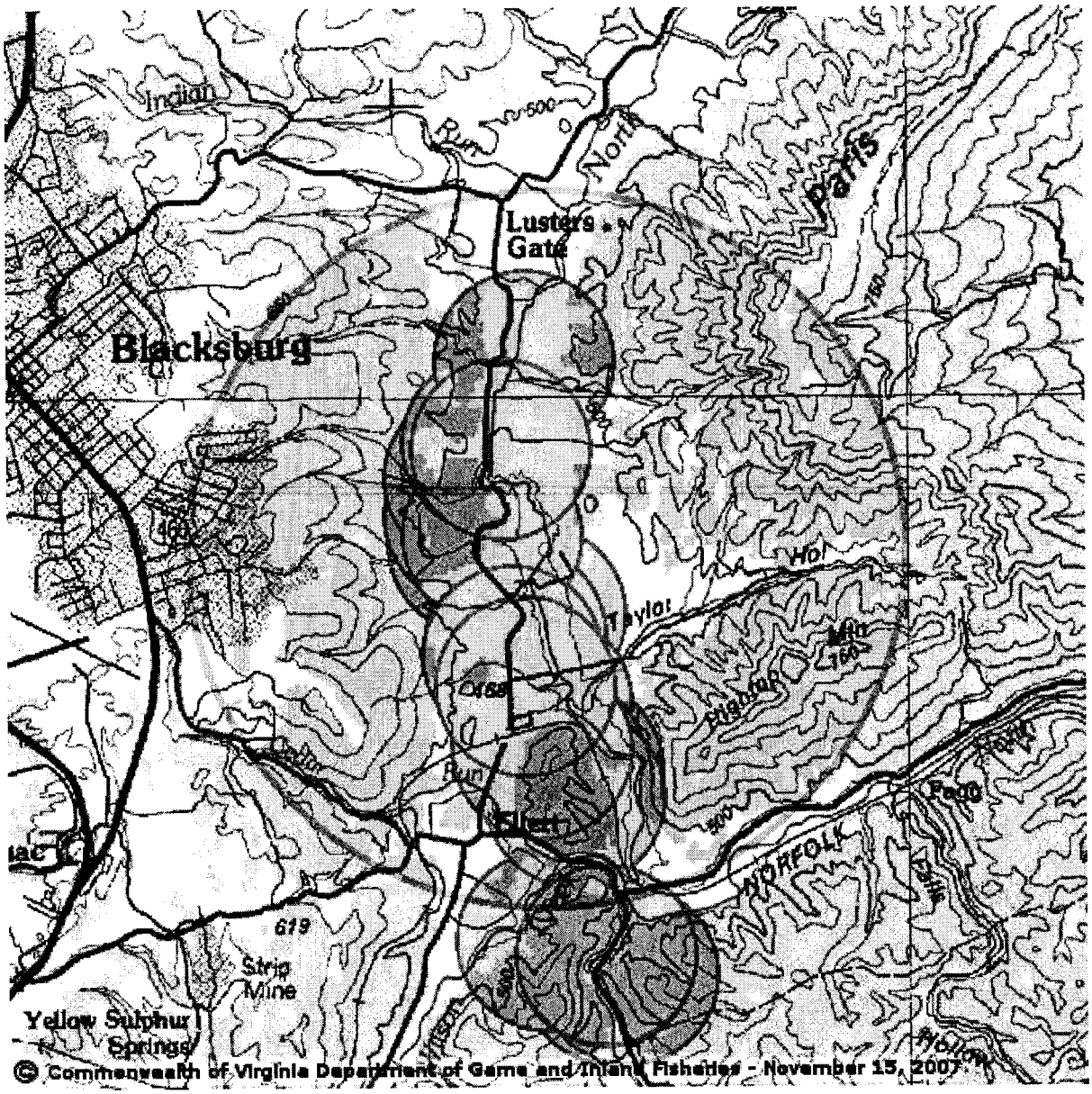

riverweed darter

Virginia Fish and Wildlife Information Service

Confirmation Records

Confirmation records for **Darter, riverweed(010200)** in **121,**

Scientific Collections Records. View all Maps

Collection ID	Description	Vi
8934	Collection Date Tuesday, August 03, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
8935	Collection Date Friday, July 30, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
10557	Collection Date Thursday, April 17, 1975; Collector B.H. Bauer	Ye
10577	Collection Date Monday, June 08, 1970; Collector Bouchard	Ye
10578	Collection Date Monday, June 08, 1970; Collector Bouchard	Ye
10625	Collection Date Wednesday, October 06, 1971; Collector Bresnik, Cashner, Conner, and Humphries	Ye
15266	Collection Date Friday, May 06, 1966; Collector ROSS ET AL	Ye
15284	Collection Date Saturday, December 05, 1964; Collector MCCLEARY	Ye
30962	Collection Date Thursday, January 01, 1953; Collector VPI-B-VA. POLY. INST.	Ye
31923	Collection Date Wednesday, January 01, 1964; Collector GM-MCCLEARY	Ye
32086	Collection Date Friday, January 01, 1965; Collector VPI-B-VA. POLY. INST.	Ye
32166	Collection Date Saturday, January 01, 1966; Collector VPI-B-VA. POLY. INST.	Ye
34179	Collection Date Wednesday, January 01, 1975; Collector BHB (MISC 1)	Ye
36287	Collection Date Friday, January 01, 1982; Collector NMB-B-BURKHEAD	Ye
54166	Collection Date Thursday, August 05, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
54167	Collection Date Monday, July 26, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
54168	Collection Date Friday, September 03, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
54169	Collection Date Monday, June 21, 1993; Collector M.T. FERGUSON, S.A. BRUENDERMAN, P.S. LOOKABAUGH	Ye
55098	Collection Date Tuesday, April 15, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
55201	Collection Date Sunday, February 23, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND	Ye

	WILDLIFE SCIENCE	
55204	Collection Date Thursday, March 13, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
55212	Collection Date Friday, May 16, 1997; Collector D.J. ORTH, RYAN K. SMITH, AND MATHEW D. CHAN, VA TECH- FISHERIES AND WILDLIFE SCIENCE	Ye
58937	Collection Date Monday, April 05, 1999; Collector Tammy Newcomb (Principle Permittee), Ryan Smith, and Tammy, Newcomb, Virginia Tech, Dept. of Fisheries and Wildlife Sciences	Ye
311322	Collection Date Wednesday, May 18, 2005; Collector Paul Angermeier (Principle Permittee) & Brett Albanese, Virginia Tech	Ye

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Attachment F

Wasteload and Limit Calculations

- Mixing Zone Calculations (MIXER)
- Effluent Data
- Wasteload Allocation Spreadsheet
- STATS Program Results (ammonia, TRC)

Mixing Zone Predictions for Blacksburg Country Club WWTP

Effluent Flow = 0.035 MGD
Stream 7Q10 = 1.7 MGD
Stream 30Q10 = 2.3 MGD
Stream 1Q10 = 1.6 MGD
Stream slope = 0.002 ft/ft
Stream width = 12 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .5705 ft
Length = 206.6 ft
Velocity = .3923 ft/sec
Residence Time = .0061 days

Recommendation:

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

Mixing Zone Predictions @ 30Q10

Depth = .6866 ft
Length = 174.99 ft
Velocity = .4386 ft/sec
Residence Time = .0046 days

Recommendation:

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

Mixing Zone Predictions @ 1Q10

Depth = .5499 ft
Length = 213.47 ft
Velocity = .3835 ft/sec
Residence Time = .1546 hours

Recommendation:

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

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Summary of Total Phosphorus Monitoring Data

Date	Phosphorus (mg/L)
8/20/2003	0.55
9/29/2003	0.22
11/13/2003	0.24
1/23/2004	0.31
2/26/2004	0.22
3/26/2004	0.45
5/27/2004	0.63
6/29/2004	0.20
7/26/2004	0.220
8/27/2004	1.34
9/30/2004	2.75
10/29/2004	0.61
11/19/2004	0.185
12/20/2004	0.978
1/26/2005	4.50
2/25/2005	1.34
3/30/2005	0.170
4/20/2005	0.527
5/31/2005	3.48

Maximum	4.5 mg/L
Mean	1.00 mg/L

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Effluent pH Data for 90th Percentile Calculation

Days	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08
1	7.7	7.6	7.6	7.6	7.5	7.3	7.6	7.5	7.6	7.6	7.9	8.4
2	7.7	7.3	7.6	7.5	7.5	7.5	7.6	7.4	7.5	7.5	7.8	7.7
3	7.7	7.5	7.5	7.5	7.4	7.7	7.4	7.9	7.8	7.2	8.7	7.8
4	7.6	7.5	7.4	7.6	7.3	7.6	7.7	7.9	7.6	7.4	8.9	8.1
5	7.6	7.5	7.4	7.5	7.4	7.6	7.3	7.5	7.4	7.6	8.9	7.9
6	7.6	7.5	7.5	6.9	7.6	7.6	7.8	7.5	7.2	7.5	7.2	7.7
7	7.5	7.6	7.3	7.1	7.4	7.6	7.4	7.6	6.8	7.6	8.1	7.3
8	7.5	7.7	7.7	7.2	7.1	7.6	7.1	7.6	6.5	7.6	8.1	7.5
9	7.6	7.6	7.4	7.4	7.3	7.5	7.5	7.4	7.4	7.6	8.0	8.0
10	7.6	7.7	7.6	7.4	7.5	7.6	7.4	7.7	7.5	7.5	8.4	7.8
11	7.5	7.6	7.6	7.5	8	7.6	7.6	7.4	7.5	7.8	7.5	7.7
12	7.5	7.6	7.5	6.8	7.5	7.6	7.3	6.8	7.3	7.3	8.0	7.7
13	7.5	7.5	7.5	7.1	7.3	7.5	8.0	7.4	6.8	7.8	7.9	8.1
14	7.5	7.6	7.4	7.3	7.5	7.5	8.0	7.5	7.1	7.9	8.4	7.6
15	7.4	7.5	7.5	7.3	7.4	7.5	7.6	7.5	7.7	7.8	8.9	8.4
16	7.4	7.5	7.4	7.4	7.4	7.3	7.7	7.3	7.4	7.6	7.8	7.8
17	7.4	7.6	7.4	7.3	7.5	7.5	7.3	7.5	7.5	7.7	8.1	8.0
18	7.5	7.7	7.5	7.5	7.2	7.3	7.5	7.5	7.5	7.3	8.0	7.8
19	7.4	7.7	7.5	7.4	7.5	7.2	7.9	7.8	6.9	7.7	7.7	8.0
20	7.6	7.7	7.5	7.6	7.3	7.4	7.8	7.6	7.5	7.8	7.8	8.0
21	7.5	7.8	7.5	7.5	7.7	7.5	7.9	7.5	7.8	7.5	7.9	7.8
22	7.5	7.7	7.6	7.5	7.2	7.3	7.8	8.0	7.7	7.8	7.5	7.7
23	7.6	6.7	7.6	7.3	7.4	7.5	7.8	7.9	7.6	7.7	8.1	8.1
24	7.5	7.2	7.5	6.9	7.2	7.6	7.7	7.8	7.5	7.9	7.5	8.1
25	7.6	7.6	7.5	7.2	7.2	7.5	7.7	8.0	7.6	8.0	7.8	8.0
26	7.5	7.5	7.4	7.5	7.4	7.6	7.6	7.7	7.7	7.9	8.0	8.0
27	7.6	7.5	7.6	7.4	7.3	7.5	7.6	7.8	7.2	8.2	7.8	8.2
28	7.5	7.5	7.5	7.5	7.5	7.5	7.7	7.7	7.5	7.8	7.6	7.6
29	7.4	7.4	7.5	7.5	7.2	7.6	7.7	7.8	8.5	7.8	7.9	7.6
30	7.5	7.4	7.5	7.4	7.4	7.6	7.6	7.7	8.3	7.9	7.1	
31	7.6		7.6		7.2	7.8		7.8		8.1	8.0	

90th Percentile pH	7.6	S.U.
10th Percentile pH	7.3	S.U.

*

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Days	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08
1	8.8	14.0	16.4	20.7	21.9	23.3	24.1	24.1	16.6	14.5	12.2	10.4
2	9.1	14.5	16.8	21.3	22	23.4	23.7	23.9	15.1	14.4	11.3	9.8
3	9.7	14.0	16.4	21.0	22.1	24.2	23.9	21.6	15.3	14.5	10.6	10.2
4	9.3	14.2	15.1	21.0	22.7	24	24	21.9	15.2	13.5	10.6	10.8
5	7.3	14.4	15.9	19.8	22.6	24.2	23.7	22.2	17.4	13.3	10.8	11.2
6	9.8	14.5	14.8	19.1	23.2	22.9	23.7	21.7	15.3	13.1	10.9	11.9
7	10.0	13.5	15.5	21.1	21.9	23.4	24.3	20.8	16.5	13.2	11.9	11.2
8	7.7	13.3	15.3	20.1	21.3	24	24.7	21.3	16.3	10.9	12.3	11.1
9	10.3	14.0	16.3	21.3	24.3	25.1	23.9	20.8	16.1	10.8	12.7	11.1
10	10.8	13.6	17.1	20.8	22.3	24.8	24.0	22.1	15.5	13.6	12.3	10.9
11	14.4	14.5	17.1	19.1	22.3	22.5	22.8	20.2	15.3	15.2	12.4	10.2
12	12.2	13.2	17.3	21.8	22.8	22.8	21.9	20.1	15.2	14.7	12.3	10.5
13	13.5	13.8	17.0	21.2	20.2	23.6	21.8	18.1	16.1	16.3	12.1	10.5
14	13.7	11.1	17.6	20.1	19.4	24.3	23.5	16.8	16.4	14.9	11.8	10.2
15	14.6	10.5	17.5	19.9	20.9	23.6	20.7	20.6	16.4	11.7	11.4	10.5
16	17.7	12.1	16.4	19.7	22.6	23.8	19.9	19.8	16.4	8.2	11	11.4
17	15.0	13.3	17.5	19.8	21	24.2	20.1	20.6	13.8	13.2	10.8	11.5
18	14.1	13.3	17.5	20.2	22.9	23.9	22.4	20.7	12.6	12.8	11.3	11.7
19	9.6	13.3	17.0	19.3	23	22.9	22.4	20.1	16.3	13	11.2	11.1
20	10.5	14.0	17.6	20.9	19.1	23.9	22.1	19.7	16.3	12.9	10.4	10.7
21	11.9	14.5	17.6	21.2	21.4	24.1	22.3	20.5	16.6	13.2	10.1	10.7
22	11.9	15.0	18.3	19.4	22	24.2	22	19.1	15.5	13.9	10.1	10.6
23	15.8	14.5	18.5	21.1	22.2	24.5	22.1	19.3	12.2	11.6	10.9	10.6
24	16.9	14.7	18.6	20.3	21.9	24.4	23.0	19.7	10.4	11.9	10.5	10.9
25	13.3	15.2	18.9	21.2	21.7	23.5	22.9	18.9	14	13.1	9.9	11.3
26	12.9	15.3	19.1	20.8	22.3	22.9	22.7	18.9	15.9	11.4	10.3	11.5
27	13.5	15.2	19.3	19.6	21.1	24.4	22.9	19.7	15.7	13	10.6	10.6
28	13.5	15.5	19.3	20.2	22.4	24.2	22.4	19.5	15.6	8.6	10.7	10
29	13.4	15.8	19.5	22.2	21.9	24.5	22.4	18.7	15.6	12.3	10.8	9.9
30	13.7	15.9	20.1	22.2	22.2	24.2	21.5	18.8	15.4	12.8	10.3	
31	14.2		20.6		23.1	24.1		19.1		12.6	10.3	

90th Percentile Temperature	23.5	°C		
90th Percentile Temperature	17.5	°C	(January - May)	High Flow Months

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Blacksburg Country Club WWTP Permit No.: VA0027481

Receiving Stream: Roanoke River, North Fork Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	224	mg/L
90% Temperature (Annual) =	22.2	deg C
90% Temperature (Wet season) =	13.3	deg C
90% Maximum pH =	8.6	SU
10% Maximum pH =	7.7	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	1.6	MGD
7Q10 (Annual) =	1.7	MGD
30Q10 (Annual) =	2.3	MGD
1Q10 (Wet season) =	3.1	MGD
30Q10 (Wet season)	5.3	MGD
30Q5 =	2.8	MGD
Harmonic Mean =	7.7	MGD
Annual Average =		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) =	224	mg/L
90% Temp (Annual) =	23.5	deg C
90% Temp (Wet season) =	17.5	deg C
90% Maximum pH =	7.6	SU
10% Maximum pH =	7.3	SU
Discharge Flow =	0.35	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	2.4E+04	--	--	na	2.7E+02	--	--	na	2.4E+03	--	--	**na**	**2.4E+03**
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.0E+03	--	--	na	7.8E+01	--	--	na	7.0E+02	--	--	**na**	**7.0E+02**
Acrylonitrile[c]	0	--	--	na	6.6E+00	--	--	na	1.5E+02	--	--	na	6.6E-01	--	--	na	1.5E+01	--	--	**na**	**1.5E+01**
Aldrin [c]	0	3.0E+00	--	na	1.4E-03	1.7E+01	--	na	3.2E-02	7.5E-01	--	na	1.4E-04	4.2E+00	--	na	3.2E-03	**4.2E+00**	--	**na**	**3.2E-03**
Ammonia-N (mg/l) (Yearly)	0	5.93E+00	9.81E-01	na	--	3.3E+01	7.4E+00	na	--	1.48E+00	2.45E-01	na	--	8.3E+00	1.9E+00	na	--	**8.3E+00**	**1.9E+00**	**na**	--
Ammonia-N (mg/l) (High Flow)	0	4.55E+00	1.27E+00	na	--	4.5E+01	2.1E+01	na	--	1.14E+00	3.18E-01	na	--	1.1E+01	5.1E+00	na	--	**1.1E+01**	**5.1E+00**	**na**	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	9.9E+05	--	--	na	1.1E+04	--	--	na	9.9E+04	--	--	**na**	**9.9E+04**
Antimony	0	--	--	na	4.3E+03	--	--	na	3.9E+04	--	--	na	4.3E+02	--	--	na	3.9E+03	--	--	**na**	**3.9E+03**
Arsenic	o	3.4E+02	1.5E+02	na	--	1.9E+03	8.8E+02	na	--	8.5E+01	3.8E+01	na	--	4.7E+02	2.2E+02	na	--	**4.7E+02**	**2.2E+02**	**na**	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	**na**	--
Benzene [c]	0	--	--	na	7.1E+02	--	--	na	1.6E+04	--	--	na	7.1E+01	--	--	na	1.6E+03	--	--	**na**	**1.6E+03**
Benzidine[c]	0	--	--	na	5.4E-03	--	--	na	1.2E-01	--	--	na	5.4E-04	--	--	na	1.2E-02	--	--	**na**	**1.2E-02**
Benzo (a) anthracene [c]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	--	--	**na**	**1.1E+00**
Benzo (b) fluoranthene [c]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	--	--	**na**	**1.1E+00**
Benzo (k) fluoranthene [c]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	--	--	**na**	**1.1E+00**
Benzo (a) pyrene [c]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	--	--	**na**	**1.1E+00**
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.3E+02	--	--	na	1.4E+00	--	--	na	1.3E+01	--	--	**na**	**1.3E+01**
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.5E+06	--	--	na	1.7E+04	--	--	na	1.5E+05	--	--	**na**	**1.5E+05**
Bromoform [c]	0	--	--	na	3.6E+03	--	--	na	8.3E+04	--	--	na	3.6E+02	--	--	na	8.3E+03	--	--	**na**	**8.3E+03**
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	4.7E+04	--	--	na	5.2E+02	--	--	na	4.7E+03	--	--	**na**	**4.7E+03**
Cadmium	0	9.7E+00	2.1E+00	na	--	5.4E+01	1.3E+01	na	--	2.4E+00	5.3E-01	na	--	1.4E+01	3.1E+00	na	--	**1.4E+01**	**3.1E+00**	**na**	--
Carbon Tetrachloride [c]	0	--	--	na	4.4E+01	--	--	na	1.0E+03	--	--	na	4.4E+00	--	--	na	1.0E+02	--	--	**na**	**1.0E+02**
Chlordane [c]	0	2.4E+00	4.3E-03	na	2.2E-02	1.3E+01	2.5E-02	na	5.1E-01	6.0E-01	1.1E-03	na	2.2E-03	3.3E+00	6.3E-03	na	5.1E-02	**3.3E+00**	**6.3E-03**	**na**	**5.1E-02**
Chloride	0	8.6E+05	2.3E+05	na	--	4.8E+06	1.3E+06	na	--	2.2E+05	5.8E+04	na	--	1.2E+06	3.4E+05	na	--	**1.2E+06**	**3.4E+05**	**na**	--
TRC	0	1.9E+01	1.1E+01	na	--	1.1E+02	6.4E+01	na	--	4.8E+00	2.8E+00	na	--	2.6E+01	1.6E+01	na	--	**2.6E+01**	**1.6E+01**	**na**	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	1.9E+05	--	--	na	2.1E+03	--	--	na	1.9E+04	--	--	**na**	**1.9E+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	7.8E+03	--	--	na	3.4E+01	--	--	na	7.8E+02	**--**	**--**	**na**	**7.8E+02**
Chloroform [c]	0	--	--	na	2.9E+04	--	--	na	6.7E+05	--	--	na	2.9E+03	--	--	na	6.7E+04	**--**	**--**	**na**	**6.7E+04**
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	3.9E+04	--	--	na	4.3E+02	--	--	na	3.9E+03	**--**	**--**	**na**	**3.9E+03**
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	3.6E+03	--	--	na	4.0E+01	--	--	na	3.6E+02	**--**	**--**	**na**	**3.6E+02**
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	4.6E-01	2.4E-01	na	--	2.1E-02	1.0E-02	na	--	1.2E-01	6.0E-02	na	--	**1.2E-01**	**6.0E-02**	**na**	**--**
Chromium III	0	1.1E+03	1.4E+02	na	--	6.1E+03	8.4E+02	na	--	2.8E+02	3.6E+01	na	--	1.5E+03	2.1E+02	na	--	**1.5E+03**	**2.1E+02**	**na**	**--**
Chromium VI	0	1.6E+01	1.1E+01	na	--	8.9E+01	6.4E+01	na	--	4.0E+00	2.8E+00	na	--	2.2E+01	1.6E+01	na	--	**2.2E+01**	**1.6E+01**	**na**	**--**
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Chrysene [c]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	**--**	**--**	**na**	**1.1E+00**
Copper	0	2.9E+01	1.8E+01	na	--	1.6E+02	1.0E+02	na	--	7.2E+00	4.5E+00	na	--	4.0E+01	2.6E+01	na	--	**4.0E+01**	**2.6E+01**	**na**	**--**
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	1.2E+02	3.0E+01	na	1.9E+06	5.5E+00	1.3E+00	na	2.2E+04	3.1E+01	7.6E+00	na	1.9E+05	**3.1E+01**	**7.6E+00**	**na**	**1.9E+05**
DDD [c]	0	--	--	na	8.4E-03	--	--	na	1.9E-01	--	--	na	8.4E-04	--	--	na	1.9E-02	**--**	**--**	**na**	**1.9E-02**
DDE [c]	0	--	--	na	5.9E-03	--	--	na	1.4E-01	--	--	na	5.9E-04	--	--	na	1.4E-02	**--**	**--**	**na**	**1.4E-02**
DDT [c]	0	1.1E+00	1.0E-03	na	5.9E-03	6.1E+00	5.9E-03	na	1.4E-01	2.8E-01	2.5E-04	na	5.9E-04	1.5E+00	1.5E-03	na	1.4E-02	**1.5E+00**	**1.5E-03**	**na**	**1.4E-02**
Demeton	0	--	1.0E-01	na	--	--	5.9E-01	na	--	--	2.5E-02	na	--	--	1.5E-01	na	--	**--**	**1.5E-01**	**na**	**--**
Dibenz(a,h)anthracene [c]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	**--**	**--**	**na**	**1.1E+00**
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.1E+05	--	--	na	1.2E+03	--	--	na	1.1E+04	**--**	**--**	**na**	**1.1E+04**
Dichloromethane (Methylene Chloride) [c]	0	--	--	na	1.6E+04	--	--	na	3.7E+05	--	--	na	1.6E+03	--	--	na	3.7E+04	**--**	**--**	**na**	**3.7E+04**
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.5E+05	--	--	na	1.7E+03	--	--	na	1.5E+04	**--**	**--**	**na**	**1.5E+04**
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.3E+04	--	--	na	2.6E+02	--	--	na	2.3E+03	**--**	**--**	**na**	**2.3E+03**
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.3E+04	--	--	na	2.6E+02	--	--	na	2.3E+03	**--**	**--**	**na**	**2.3E+03**
3,3-Dichlorobenzidine[c]	0	--	--	na	7.7E-01	--	--	na	1.8E+01	--	--	na	7.7E-02	--	--	na	1.8E+00	**--**	**--**	**na**	**1.8E+00**
Dichlorobromomethane [c]	0	--	--	na	4.6E+02	--	--	na	1.1E+04	--	--	na	4.6E+01	--	--	na	1.1E+03	**--**	**--**	**na**	**1.1E+03**
1,2-Dichloroethane [c]	0	--	--	na	9.9E+02	--	--	na	2.3E+04	--	--	na	9.9E+01	--	--	na	2.3E+03	**--**	**--**	**na**	**2.3E+03**
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.5E+05	--	--	na	1.7E+03	--	--	na	1.5E+04	**--**	**--**	**na**	**1.5E+04**
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.3E+06	--	--	na	1.4E+04	--	--	na	1.3E+05	**--**	**--**	**na**	**1.3E+05**
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.1E+03	--	--	na	7.9E+01	--	--	na	7.1E+02	**--**	**--**	**na**	**7.1E+02**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
1,2-Dichloropropane[c]	0	--	--	na	3.9E+02	--	--	na	9.0E+03	--	--	na	3.9E+01	--	--	na	9.0E+02	**--**	**--**	**na**	**9.0E+02**
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.5E+04	--	--	na	1.7E+02	--	--	na	1.5E+03	**--**	**--**	**na**	**1.5E+03**
Dieldrin [c]	0	2.4E-01	5.6E-02	na	1.4E-03	1.3E+00	3.3E-01	na	3.2E-02	6.0E-02	1.4E-02	na	1.4E-04	3.3E-01	8.2E-02	na	3.2E-03	**3.3E-01**	**8.2E-02**	**na**	**3.2E-03**
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.1E+06	--	--	na	1.2E+04	--	--	na	1.1E+05	**--**	**--**	**na**	**1.1E+05**
Di-2-Ethylhexyl Phthalate [c]	0	--	--	na	5.9E+01	--	--	na	1.4E+03	--	--	na	5.9E+00	--	--	na	1.4E+02	**--**	**--**	**na**	**1.4E+02**
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.1E+04	--	--	na	2.3E+02	--	--	na	2.1E+03	**--**	**--**	**na**	**2.1E+03**
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.6E+07	--	--	na	2.9E+05	--	--	na	2.6E+06	**--**	**--**	**na**	**2.6E+06**
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.1E+05	--	--	na	1.2E+03	--	--	na	1.1E+04	**--**	**--**	**na**	**1.1E+04**
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.3E+05	--	--	na	1.4E+03	--	--	na	1.3E+04	**--**	**--**	**na**	**1.3E+04**
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	6.9E+03	--	--	na	7.7E+01	--	--	na	6.9E+02	**--**	**--**	**na**	**6.9E+02**
2,4-Dinitrotoluene [c]	0	--	--	na	9.1E+01	--	--	na	2.1E+03	--	--	na	9.1E+00	--	--	na	2.1E+02	**--**	**--**	**na**	**2.1E+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	1.2E+02	--	--	na	5.4E-01	--	--	na	1.2E+01	**--**	**--**	**na**	**1.2E+01**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	1.2E+00	3.3E-01	na	2.2E+03	5.5E-02	1.4E-02	na	2.4E+01	3.1E-01	8.2E-02	na	2.2E+02	**3.1E-01**	**8.2E-02**	**na**	**2.2E+02**
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	1.2E+00	3.3E-01	na	2.2E+03	5.5E-02	1.4E-02	na	2.4E+01	3.1E-01	8.2E-02	na	2.2E+02	**3.1E-01**	**8.2E-02**	**na**	**2.2E+02**
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.2E+03	--	--	na	2.4E+01	--	--	na	2.2E+02	**--**	**--**	**na**	**2.2E+02**
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	4.8E-01	2.1E-01	na	7.3E+00	2.2E-02	9.0E-03	na	8.1E-02	1.2E-01	5.3E-02	na	7.3E-01	**1.2E-01**	**5.3E-02**	**na**	**7.3E-01**
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	7.3E+00	--	--	na	8.1E-02	--	--	na	7.3E-01	**--**	**--**	**na**	**7.3E-01**

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	2.6E+05	--	--	na	2.9E+03	--	--	na	2.6E+04	**--**	**--**	**na**	**2.6E+04**
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.3E+03	--	--	na	3.7E+01	--	--	na	3.3E+02	**--**	**--**	**na**	**3.3E+02**
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.3E+05	--	--	na	1.4E+03	--	--	na	1.3E+04	**--**	**--**	**na**	**1.3E+04**
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Guthion	0	--	1.0E-02	na	--	--	5.9E-02	na	--	--	2.5E-03	na	--	--	1.5E-02	na	--	**--**	**1.5E-02**	**na**	**--**
Heptachlor [C]	0	5.2E-01	3.8E-03	na	2.1E-03	2.9E+00	2.2E-02	na	4.8E-02	1.3E-01	9.5E-04	na	2.1E-04	7.2E-01	5.6E-03	na	4.8E-03	**7.2E-01**	**5.6E-03**	**na**	**4.8E-03**
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	1.1E-03	2.9E+00	2.2E-02	na	2.5E-02	1.3E-01	9.5E-04	na	1.1E-04	7.2E-01	5.6E-03	na	2.5E-03	**7.2E-01**	**5.6E-03**	**na**	**2.5E-03**
Hexachlorobenzene[C]	0	--	--	na	7.7E-03	--	--	na	1.8E-01	--	--	na	7.7E-04	--	--	na	1.8E-02	**--**	**--**	**na**	**1.8E-02**
Hexachlorobutadiene[C]	0	--	--	na	5.0E+02	--	--	na	1.2E+04	--	--	na	5.0E+01	--	--	na	1.2E+03	**--**	**--**	**na**	**1.2E+03**
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	1.3E-01	--	--	na	3.0E+00	--	--	na	1.3E-02	--	--	na	3.0E-01	**--**	**--**	**na**	**3.0E-01**
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	4.6E-01	--	--	na	1.1E+01	--	--	na	4.6E-02	--	--	na	1.1E+00	**--**	**--**	**na**	**1.1E+00**
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	6.3E-01	5.3E+00	--	na	1.4E+01	2.4E-01	--	na	6.3E-02	1.3E+00	--	na	1.4E+00	**1.3E+00**	**--**	**na**	**1.4E+00**
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.5E+05	--	--	na	1.7E+03	--	--	na	1.5E+04	**--**	**--**	**na**	**1.5E+04**
Hexachloroethane[C]	0	--	--	na	8.9E+01	--	--	na	2.0E+03	--	--	na	8.9E+00	--	--	na	2.0E+02	**--**	**--**	**na**	**2.0E+02**
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	1.2E+01	na	--	--	5.0E-01	na	--	--	2.9E+00	na	--	**--**	**2.9E+00**	**na**	**--**
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	1.1E+01	--	--	na	4.9E-02	--	--	na	1.1E+00	**--**	**--**	**na**	**1.1E+00**
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Isophorone[C]	0	--	--	na	2.6E+04	--	--	na	6.0E+05	--	--	na	2.6E+03	--	--	na	6.0E+04	**--**	**--**	**na**	**6.0E+04**
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	**--**	**0.0E+00**	**na**	**--**
Lead	0	3.3E+02	3.8E+01	na	--	1.8E+03	2.2E+02	na	--	8.3E+01	9.4E+00	na	--	4.6E+02	5.5E+01	na	--	**4.6E+02**	**5.5E+01**	**na**	**--**
Malathion	0	--	1.0E-01	na	--	--	5.9E-01	na	--	--	2.5E-02	na	--	--	1.5E-01	na	--	**--**	**1.5E-01**	**na**	**--**
Manganese	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	7.8E+00	4.5E+00	na	4.6E-01	3.5E-01	1.9E-01	na	5.1E-03	2.0E+00	1.1E+00	na	4.6E-02	**2.0E+00**	**1.1E+00**	**na**	**4.6E-02**
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	3.6E+04	--	--	na	4.0E+02	--	--	na	3.6E+03	**--**	**--**	**na**	**3.6E+03**
Methoxychlor	0	--	3.0E-02	na	--	--	1.8E-01	na	--	--	7.5E-03	na	--	--	4.4E-02	na	--	**--**	**4.4E-02**	**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	1.9E+05	--	--	na	2.1E+03	--	--	na	1.9E+04	**--**	**--**	**na**	**1.9E+04**
Nickel	0	3.6E+02	4.0E+01	na	4.6E+03	2.0E+03	2.3E+02	na	4.1E+04	9.0E+01	1.0E+01	na	4.6E+02	5.0E+02	5.9E+01	na	4.1E+03	**5.0E+02**	**5.9E+01**	**na**	**4.1E+03**
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.7E+04	--	--	na	1.9E+02	--	--	na	1.7E+03	**--**	**--**	**na**	**1.7E+03**
N-Nitrosodimethylamine[C]	0	--	--	na	8.1E+01	--	--	na	1.9E+03	--	--	na	8.1E+00	--	--	na	1.9E+02	**--**	**--**	**na**	**1.9E+02**
N-Nitrosodiphenylamine[C]	0	--	--	na	1.6E+02	--	--	na	3.7E+03	--	--	na	1.6E+01	--	--	na	3.7E+02	**--**	**--**	**na**	**3.7E+02**
N-Nitrosodi-n-propylamine[C]	0	--	--	na	1.4E+01	--	--	na	3.2E+02	--	--	na	1.4E+00	--	--	na	3.2E+01	**--**	**--**	**na**	**3.2E+01**
Parathion	0	6.5E-02	1.3E-02	na	--	3.6E-01	7.6E-02	na	--	1.6E-02	3.3E-03	na	--	9.1E-02	1.9E-02	na	--	**9.1E-02**	**1.9E-02**	**na**	**--**
PCB-1016	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB-1221	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB-1232	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB-1242	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB-1248	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB-1254	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB-1260	0	--	1.4E-02	na	--	--	8.2E-02	na	--	--	3.5E-03	na	--	--	2.1E-02	na	--	**--**	**2.1E-02**	**na**	**--**
PCB Total[C]	0	--	--	na	1.7E-03	--	--	na	3.9E-02	--	--	na	1.7E-04	--	--	na	3.9E-03	**--**	**--**	**na**	**3.9E-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	1.6E+01	1.2E+01	na	8.2E+01	8.8E+01	7.2E+01	na	1.9E+03	4.0E+00	3.1E+00	na	8.2E+00	2.2E+01	1.8E+01	na	1.9E+02	**2.2E+01**	**1.8E+01**	**na**	**1.9E+02**
Phenol	0	--	--	na	4.6E+06	--	--	na	4.1E+07	--	--	na	4.6E+05	--	--	na	4.1E+06	--	--	**na**	**4.1E+06**
Pyrene	0	--	--	na	1.1E+04	--	--	na	9.9E+04	--	--	na	1.1E+03	--	--	na	9.9E+03	--	--	**na**	**9.9E+03**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	**na**	--
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	na	1.4E+02	--	--	na	1.5E+00	--	--	na	1.4E+01	--	--	**na**	**1.4E+01**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	3.6E+01	--	--	na	4.0E-01	--	--	na	3.6E+00	--	--	**na**	**3.6E+00**
Strontium-90	0	--	--	na	8.0E+00	--	--	na	7.2E+01	--	--	na	8.0E-01	--	--	na	7.2E+00	--	--	**na**	**7.2E+00**
Tritium	0	--	--	na	2.0E+04	--	--	na	1.8E+05	--	--	na	2.0E+03	--	--	na	1.8E+04	--	--	**na**	**1.8E+04**
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	1.1E+02	2.9E+01	na	9.9E+04	5.0E+00	1.3E+00	na	1.1E+03	2.8E+01	7.3E+00	na	9.9E+03	**2.8E+01**	**7.3E+00**	**na**	**9.9E+03**
Silver	0	1.4E+01	--	na	--	7.7E+01	--	na	--	3.5E+00	--	na	--	1.9E+01	--	na	--	**1.9E+01**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	**na**	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	1.1E+02	--	--	na	2.5E+03	--	--	na	1.1E+01	--	--	na	2.5E+02	--	--	**na**	**2.5E+02**
Tetrachloroethylene[C]	0	--	--	na	8.9E+01	--	--	na	2.0E+03	--	--	na	8.9E+00	--	--	na	2.0E+02	--	--	**na**	**2.0E+02**
Thallium	0	--	--	na	6.3E+00	--	--	na	5.7E+01	--	--	na	6.3E-01	--	--	na	5.7E+00	--	--	**na**	**5.7E+00**
Toluene	0	--	--	na	2.0E+05	--	--	na	1.8E+06	--	--	na	2.0E+04	--	--	na	1.8E+05	--	--	**na**	**1.8E+05**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	**na**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	4.1E+00	1.2E-03	na	1.7E-01	1.8E-01	5.0E-05	na	7.5E-04	1.0E+00	2.9E-04	na	1.7E-02	**1.0E+00**	**2.9E-04**	**na**	**1.7E-02**
Tributyltin	0	4.6E-01	6.3E-02	na	--	2.6E+00	3.7E-01	na	--	1.2E-01	1.6E-02	na	--	6.4E-01	9.2E-02	na	--	**6.4E-01**	**9.2E-02**	**na**	--
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	8.5E+03	--	--	na	9.4E+01	--	--	na	8.5E+02	--	--	**na**	**8.5E+02**
1,1,2-Trichloroethane[C]	0	--	--	na	4.2E+02	--	--	na	9.7E+03	--	--	na	4.2E+01	--	--	na	9.7E+02	--	--	**na**	**9.7E+02**
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	1.9E+04	--	--	na	8.1E+01	--	--	na	1.9E+03	--	--	**na**	**1.9E+03**
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	1.5E+03	--	--	na	6.5E+00	--	--	na	1.5E+02	--	--	**na**	**1.5E+02**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	**na**	--
Vinyl Chloride[C]	0	--	--	na	6.1E+01	--	--	na	1.4E+03	--	--	na	6.1E+00	--	--	na	1.4E+02	--	--	**na**	**1.4E+02**
Zinc	0	2.3E+02	2.3E+02	na	6.9E+04	1.3E+03	1.4E+03	na	6.2E+05	5.8E+01	5.8E+01	na	6.9E+03	3.2E+02	3.4E+02	na	6.2E+04	**3.2E+02**	**3.4E+02**	**na**	**6.2E+04**

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	3.9E+03
Arsenic	1.3E+02
Barium	na
Cadmium	1.9E+00
Chromium III	1.3E+02
Chromium VI	8.9E+00
Copper	1.6E+01
Iron	na
Lead	3.3E+01
Manganese	na
Mercury	4.6E-02
Nickel	3.5E+01
Selenium	4.4E+00
Silver	7.7E+00
Zinc	1.3E+02

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

0.350 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGI 0.350

	Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	1.600	3.100	1.950	3.450
7Q10	1.700	N/A	2.050	N/A
30Q10	2.300	5.300	2.650	5.650
30Q5	2.800	N/A	3.150	N/A
Harm. Mean	7.700	N/A	8.050	N/A
Annual Avg.	0.000	N/A	0.350	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	22.433	13.726
30Q10 90th% Temp. Mix (deg C)	22.372	13.560
1Q10 90th% pH Mix (SU)	8.182	8.318
30Q10 90th% pH Mix (SU)	8.260	8.408
1Q10 10th% pH Mix (SU)	7.596	N/A
7Q10 10th% pH Mix (SU)	7.600	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3)	224.0	224.0
7Q10 Hardness (mg/L as CaCO3)	224.0	224.0

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	8.182
(7.204 - pH)	-0.978
(pH - 7.204)	0.978
Trout Present Criterion (mg N/l	3.957
Trout Absent Criterion (mg N/L	5.925
Trout Present?	n
Effective Criterion (mg N/L)	5.925

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	22.372
90th Percentile pH (SU)	8.260
MIN	1.718
MAX	22.372
(7.688 - pH)	-0.572
(pH - 7.688)	0.572
Early LS Present Criterion (mg N	0.981
Early LS Absent Criterion (mg N/	0.981
Early Life Stages Present?	y
Effective Criterion (mg N/L)	0.981

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	8.318
(7.204 - pH)	-1.114
(pH - 7.204)	1.114
Trout Present Criterion (mg N/l	3.039
Trout Absent Criterion (mg N/L	4.550
Trout Present?	n
Effective Criterion (mg N/L)	4.550

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	13.560
90th Percentile pH (SU)	8.408
MIN	2.850
MAX	13.560
(7.688 - pH)	-0.720
(pH - 7.688)	0.720
Early LS Present Criterion (mg N	1.273
Early LS Absent Criterion (mg N/	1.355
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.273

0.350 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGI 0.350

	100% Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	1.600	3.100	1.950	3.450
7Q10	1.700	N/A	2.050	N/A
30Q10	2.300	5.300	2.650	5.650
30Q5	2.800	N/A	3.150	N/A
Harm. Mean	7.700	N/A	8.050	N/A
Annual Avg.	0.000	N/A	0.350	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	22.433	13.726
30Q10 90th% Temp. Mix (deg C)	22.372	13.560
1Q10 90th% pH Mix (SU)	8.182	8.318
30Q10 90th% pH Mix (SU)	8.260	8.408
1Q10 10th% pH Mix (SU)	7.596	N/A
7Q10 10th% pH Mix (SU)	7.600	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3) =	224.000	224.000
7Q10 Hardness (mg/L as CaCO3) =	224.000	224.000

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	8.182
(7.204 - pH)	-0.978
(pH - 7.204)	0.978
Trout Present Criterion (mg N/l	3.957
Trout Absent Criterion (mg N/L	5.925
Trout Present?	n
Effective Criterion (mg N/L)	5.925

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	22.372
90th Percentile pH (SU)	8.260
MIN	1.718
MAX	22.372
(7.688 - pH)	-0.572
(pH - 7.688)	0.572
Early LS Present Criterion (mg N	0.981
Early LS Absent Criterion (mg N/	0.981
Early Life Stages Present?	y
Effective Criterion (mg N/L)	0.981

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	8.318
(7.204 - pH)	-1.114
(pH - 7.204)	1.114
Trout Present Criterion (mg N/l	3.039
Trout Absent Criterion (mg N/L	4.550
Trout Present?	n
Effective Criterion (mg N/L)	4.550

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	13.560
90th Percentile pH (SU)	8.408
MIN	2.850
MAX	13.560
(7.688 - pH)	-0.720
(pH - 7.688)	0.720
Early LS Present Criterion (mg N	1.273
Early LS Absent Criterion (mg N/	1.355
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.273

7/8/2008 3:15:48 PM

Facility = Blacksburg Country Club WWTP
Chemical = ammonia mg/L (Jan. - May)
Chronic averaging period = 30
WLAa = 45
WLAc = 21
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

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

No Limit is required for this material

The data are:

9

7/2/2008 9:29:00 AM

Facility = Blacksburg Country Club WWTP
Chemical = ammonia (mg/L) June - Dec.
Chronic averaging period = 30
WLAa = 33
WLAc = 7.4
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

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 = 14.9307586912807
Average Weekly limit = 14.9307586912807
Average Monthly LImit = 14.9307586912807

The data are:

9

7/11/2008 8:49:59 AM

Facility = Blacksburg Country Club WWTP
Chemical = TRC (ug/L)
Chronic averaging period = 4
WLAa = 110
WLAc = 64
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 = 93.6047861794068
Average Weekly limit = 55.8357310208062
Average Monthly LImit = 46.3925130698228

The data are:

1000

Attachment G

Regional Water Quality Model Output (Version 4.0)

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to ROANOKE RIVER, NORTH FORK.

File Information

File Name:	C:\Documents and Settings\blfrance\My Documents\Working files\BECKY\F
Date Modified:	July 08, 2008

Water Quality Standards Information

Stream Name:	ROANOKE RIVER, NORTH FORK
River Basin:	Roanoke River Basin
Section:	7
Class:	IV - Mountainous Zones Waters
Special Standards:	pH 6.5 S.U. - 9.5 S.U.

Background Flow Information

Gauge Used:	#2054120
Gauge Drainage Area:	46.36 Sq.Mi.
Gauge 7Q10 Flow:	1.7 MGD
Headwater Drainage Area:	0 Sq.Mi.
Headwater 7Q10 Flow:	1.7 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges:	0 MGD
Incremental Flow in Segments:	3.666954E-02 MGD/Sq.Mi.

Background Water Quality

Background Temperature:	22.2 Degrees C
Background cBOD5:	2 mg/l
Background TKN:	0 mg/l
Background D.O.:	7.459683 mg/l

Model Segmentation

Number of Segments:	1
Model Start Elevation:	1475 ft above MSL
Model End Elevation:	1451 ft above MSL

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to ROANOKE RIVER, NORTH FORK.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	BLACKSBURG COUNTRY CLUB WWTP
VPDES Permit No.:	

Discharger Flow Information

Flow:	0.035 MGD
cBOD5:	30 mg/l
TKN:	20 mg/l
D.O.:	0 mg/l
Temperature:	23.5 Degrees C

Geographic Information

Segment Length:	2.2 miles
Upstream Drainage Area:	0 Sq.Mi.
Downstream Drainage Area:	0 Sq.Mi.
Upstream Elevation:	1475 Ft.
Downstream Elevation:	1451 Ft.

Hydraulic Information

Segment Width:	12.001 Ft.
Segment Depth:	0.546 Ft.
Segment Velocity:	0.41 Ft./Sec.
Segment Flow:	1.735 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Wide Shallow Arc
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Small Rock
Sludge:	None
Plants:	Few
Algae:	None

"Model Run For C:\Documents and Settings\blfrance\My Documents\Working files\BECKY\PERMITS\VPDES\Blacksburg Country Club WWTP\Reissuance 2008\Data\BCC wq model 2008 do omod 2.mod On 7/8/2008 2:28:38 PM"

"Model is for ROANOKE RIVER, NORTH FORK."
"Model starts at the BLACKSBURG COUNTRY CLUB WWTP discharge."

"Background Data"

"7Q10",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
1.7,	2,	0,	7.46,	22.2

"Discharge/Tributary Input Data for Segment 1"

"Flow",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.035,	30,	20,	,0,	23.5

"Hydraulic Information for Segment 1"

"Length",	"Width",	"Depth",	"Velocity"
"(mi)",	"(ft)",	"(ft)",	"(ft/sec)"
2.2,	12.001,	.546,	.41

"Initial Mix Values for Segment 1"

"Flow",	"DO",	"cBOD",	"nBOD",	"DOSat",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
1.735,	7.309,	6.412,	1.485,	8.288,	22.22623

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

"k1",	"k1@T",	"k2",	"k2@T",	"kn",	"kn@T",	"BD",	"BD@T"
.5,	.554,	6.545,	6.9,	.25,	.297,	0,	0

"Output for Segment 1"
"Segment starts at BLACKSBURG COUNTRY CLUB WWTP"

"Total", "Dist.",	"Segm." "Dist.",	"DO",	"cBOD",	"nBOD"
"(mi)",	"(mi)",	"(mg/l)",	"(mg/l)",	"(mg/l)"
0,	0,	7.309,	6.412,	1.485
.1,	.1,	7.348,	6.359,	1.478
.2,	.2,	7.384,	6.307,	1.471
.3,	.3,	7.417,	6.255,	1.465
.4,	.4,	7.447,	6.204,	1.459
.5,	.5,	7.46,	6.153,	1.453
.6,	.6,	7.46,	6.102,	1.447
.7,	.7,	7.46,	6.052,	1.441
.8,	.8,	7.46,	6.002,	1.435
.9,	.9,	7.46,	5.953,	1.429
1,	1,	7.46,	5.904,	1.423
1.1,	1.1,	7.46,	5.855,	1.417
1.2,	1.2,	7.46,	5.807,	1.411
1.3,	1.3,	7.46,	5.759,	1.405
1.4,	1.4,	7.46,	5.712,	1.399
1.5,	1.5,	7.46,	5.665,	1.393
1.6,	1.6,	7.46,	5.618,	1.387
1.7,	1.7,	7.46,	5.572,	1.381
1.8,	1.8,	7.46,	5.526,	1.375
1.9,	1.9,	7.46,	5.481,	1.369
2,	2,	7.46,	5.436,	1.363
2.1,	2.1,	7.46,	5.391,	1.357
2.2,	2.2,	7.46,	5.347,	1.351

"END OF FILE"

Attachment H

Public Notice and Public Notice Comments

MONTGOMERY COUNTY DEPARTMENT OF
PLANNING & GIS SERVICES

PLANNING
GIS & MAPPING

755 ROANOKE STREET, SUITE 2A, CHRISTIANSBURG, VIRGINIA 24073-3177

RECEIVED
DEQ WCRO

August 22, 2008

Virginia DEQ
West Central Regional Office
Attn: Becky L. France
3019 Peters Creek Road
Roanoke, VA 24019

RE: Reissuance of VPDES Permit No. VA0027481
Blacksburg Country Club WWTP

Dear Becky:

This office has received public notice of the above referenced proposed permit action. In response to this notice, Montgomery County respectfully requests that Virginia DEQ hold a public hearing on this matter.

Over the past several years there have been various complaints and concerns about this facility expressed to the Montgomery County Board of Supervisors, Montgomery County Public Service Authority, New River Health District of the Virginia Department of Health as well as this office. Concerns expressed varied in range from sewage disposal rates to untreated effluent being directly discharged into the North Fork of the Roanoke River. This facility has been an area of concern for the citizens of this area for some time. In addition, this facility is currently under a consent order due to non compliance issues including exceeding capacity which has a direct impact on the river and the downstream residents. Therefore, the County feels it is prudent with this particular permit request for the Virginia Department of Environmental Quality to conduct a public hearing and notify potentially affected property owners of the requested permit.

If you have any questions concerning this information or would like additional information please feel free to contact me at (540) 394-2148 or by e-mail at sandysm@montgomerycountyva.gov.

Sincerely,

Steven M. Sandy

Steven M. Sandy, AICP, CZA
Planning Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office

L. Preston Bryant, Jr.
Secretary of Natural Resources

3019 Peters Creek Road, Roanoke, Virginia 24019
(540) 562-6700 Fax (540) 562-6725
www.deq.virginia.gov

David K. Paylor
Director

Steven A. Dietrich
Regional Director

September 09, 2008

Mr. Steven M. Sandy
Montgomery County Department of Planning & GIS Services
755 Roanoke Street, Suite 2A
Christiansburg, VA 24073-3177

Re: Public Comments on Draft Permit for Blacksburg Country Club WWTP (VA0027481)

Dear Mr. Sandy:

This letter addresses your comments dated August 22, 2008, in response to the public notice of the referenced draft permit. You asked that a public hearing be conducted and that the potentially affected property owners of the requested permit be notified. You noted that there have been various complaints and concerns about this facility expressed to county government and the Department of Health. These concerns included the discharge of untreated effluent into the North Fork of the Roanoke River. This permittee is under a consent order to address inflow and infiltration problems. If you have any further concerns about this facility's progress in meeting the requirements of the consent order to ensure future compliance with the permit requirements, you may contact Jerry R. Ford, Enforcement Specialist Senior (540) 562-6817.

Procedures for determining whether a public hearing will be held are based upon legislation enacted by the 2008 General Assembly concerning permits issued under the authority of the State Water Control Law. The criteria for requiring a public hearing are as follows:

- There is a significant public interest in the issuance of the permit in question as evidenced by receipt of a minimum of 25 individual requests for a public hearing;
- The requesters raise substantial, disputed issues relevant to the reissuance of the permit in question; and
- The action requested by the interested party is not on its face inconsistent with, or in violation of, state, law, federal law or any regulation promulgated thereunder.

The public comment period ended September 3, 2008. No other requests for a public hearing were received during the public comment period, and therefore this permit action does not fall under the criteria for a public hearing. If you have any additional questions about this permit, feel free to contact Becky L. France at (540) 562-6793.

Sincerely,

Steven A. Dietrich

Steven A. Dietrich, P.E.
Regional Director

cc: Jerry R. Ford, DEQ-Enforcement Specialist Senior

MONTGOMERY COUNTY DEPARTMENT OF
PLANNING & GIS SERVICES

PLANNING
GIS & MAPPING

755 ROANOKE STREET, SUITE 2A, CHRISTIANSBURG, VIRGINIA 24073-3177

RECEIVED
DEQ WCRO

August 22, 2008

Virginia DEQ
West Central Regional Office
Attn: Becky L. France
3019 Peters Creek Road
Roanoke, VA 24019

RE: Reissuance of VPDES Permit No. VA0027481
Blacksburg Country Club WWTP

Dear Becky:

This office has received public notice of the above referenced proposed permit action. In response to this notice, Montgomery County respectfully requests that Virginia DEQ hold a public hearing on this matter.

Over the past several years there have been various complaints and concerns about this facility expressed to the Montgomery County Board of Supervisors, Montgomery County Public Service Authority, New River Health District of the Virginia Department of Health as well as this office. Concerns expressed varied in range from sewage disposal rates to untreated effluent being directly discharged into the North Fork of the Roanoke River. This facility has been an area of concern for the citizens of this area for some time. In addition, this facility is currently under a consent order due to non compliance issues including exceeding capacity which has a direct impact on the river and the downstream residents. Therefore, the County feels it is prudent with this particular permit request for the Virginia Department of Environmental Quality to conduct a public hearing and notify potentially affected property owners of the requested permit.

If you have any questions concerning this information or would like additional information please feel free to contact me at (540) 394-2148 or by e-mail at sandysm@montgomerycountyva.gov.

Sincerely,

Steven M. Sandy

Steven M. Sandy, AICP, CZA
Planning Director

Attachment I

Consent Order

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office
3019 Peters Creek Road, Roanoke, Virginia 24019
Telephone (540) 562-6700, Fax (540) 562-6725
www.deq.virginia.gov

L. Preston Bryant, Jr
Secretary of Natural Resources

David K. Paylor
Director

Steven A. Dietrich
Regional Director

STATE WATER CONTROL BOARD ENFORCEMENT ACTION
SPECIAL ORDER BY CONSENT
ISSUED TO
B & J ENTERPRISES L.C.
FOR
BLACKSBURG COUNTRY CLUB STP
VPDES PERMIT VA0027481

SECTION A: Purpose

This is a Special Order by Consent issued under the authority of Va. Code §§ 62.1-44.15(8a) and (8d) by the Board to B&J Enterprises L.C., owner of the Blacksburg Country Club STP, for the purpose of resolving certain alleged violations of environmental law and/or regulations.

SECTION B: Definitions

Unless the context clearly indicates otherwise, the following words and terms have the meaning assigned to them below:

1. "Va. Code" means the Code of Virginia (1950), as amended.
2. "Board" means the State Water Control Board, a permanent citizens' board of the Commonwealth of Virginia as described in Va. Code §§ 62.1-44.7 and 10.1-1184.
3. "Department" or "DEQ" means the Department of Environmental Quality, an agency of the Commonwealth of Virginia as described in Va. Code § 1183.
4. "Director" means the Director of the Department of Environmental Quality.
5. "Order" means this document, also known as a Consent Order or Special Order by Consent.
6. "BBCC STP" or "The Facility" means the sewage treatment plant and collection system located at the Blacksburg Country Club Estates Subdivision in Montgomery County, Virginia and owned by B&J Enterprises L.C.

7. "B&J" means B&J Enterprises L.C., a Virginia limited liability company, licensed to do business in Virginia on October 3, 1995 and identified by Federal Identification Number 54-1786562.

8. "WCRO" means the West Central Regional Office of DEQ, located in Roanoke, Virginia.

9. "Regulations" means the VPDES Permit Regulation, 9 VAC 25-31-10 *et seq.*

10. "Permit" means a Virginia Pollution Discharge Elimination System permit to discharge into state waters issued by the Board pursuant to Code § 62.1-44.5 and the Regulations.

11. "Sewer System" means the system owned and operated by B&J designed to convey wastewater to the Facility for treatment, including transmission lines, pumping facilities, manholes, discharge pipes, and related appurtenances.

12. "Infiltration" means the water entering the Sewer System and service connections from the ground through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. Infiltration does not include, and is distinguishable from, Inflow.

13. "Inflow" means the water discharged into the Sewer System, including service connections, from such sources as, but not limited to, roof leaders, cellar, yard and area drains, foundation drains, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers and combined sewers, catch basins, storm sewers, surface run-off, street wash waters, or drainage. Inflow does not include, and is distinguishable from, Infiltration.

14. "I&I" means the total quantity of water from both Infiltration and Inflow without distinguishing the source.

15. "I&I Analysis" means an engineering and economic analysis required under Paragraph 3 of Appendix A of the Order that identifies defects in the Sewer System, and I&I in the Sewer System.

16. "Rehabilitation" means the repair work on sewer lines, manholes and other Sewer System appurtenances that have been determined to be the source of I&I. The repair work may involve grouting of sewer pipe joints or defects, sewer pipe relining, inversion and de-slipping, sewer pipe replacement and various repairs or replacements of other Sewer System appurtenances.

SECTION C: Findings of Fact and Conclusions of Law

1. The BBCC STP is permitted under VPDES permit VA0027481. The permit was issued on May 25, 1998 and expired on May 25, 2003. The Permit was re-issued on September 12,

2003 and will expire on September 11, 2008. B&J continued during the interim to work closely with DEQ Staff to resolve outstanding issues with the newly legislated Closure Bond.

2. 9 VAC 25-31-100 requires all permittees with a currently effective permit to submit a complete application for permit renewal at least 180 days before the expiration date of the existing permit. B&J was required to submit a complete application by November 26, 2002.

3. B & J submitted an application on February 19, 2003 and it was returned as incomplete on March 10, 2003.

4. The Department issued Notice of Violation ("NOV") No. W2003-03-W-0004 to B & J on March 14, 2003. The Notice of Violation cited the company's alleged failure to submit a complete permit application as required by the Regulations and the Permit.

5. The Department issued NOV No. W2003-04-W-0001 to B & J Enterprises, L.C. on April 3, 2003. The Notice of Violation cited B & J's alleged failure to submit to the Department a written notice and plan of action to ensure compliance with the terms of the Permit, as required by the Permit. This written notice and plan of action is required when a facility's monthly average flow exceeds 95% of design for three consecutive months. The Facility's flows exceeded 95% of design capacity during November 2002, December 2002, January 2003, and February 2003 and the written notice and plan of action was due no later than March 10, 2003. B& J submitted the written notice and plan of action on May 25, 2004.

6. NOV No. W2003-04-W-0001 cited B&J's alleged violation of the quantity or loading effluent limitation for Biological Oxygen Demand ("BOD5") for February 2003.

7. NOV No. W2003-04-W-001 cited B&J's alleged violation of the quantity or loading effluent limitation for Total Suspended Solids ("TSS") for February 2003.

8. NOV No. W2003-04-W-001 cited B&J's alleged violation of the quality or concentration effluent limitation for BOD5 for February 2003.

9. NOV No. W2003-04-W-001 cited B&J's alleged violation of the quantity or loading effluent limitation for TSS for December 2002.

10. NOV No. W2003-04-W-001 cited B&J's alleged failure to submit the October 2002 Discharge Monthly Report ("DMR") by the 10th of the month. The October 2002 DMR was due November 10, 2002 but was not received until November 12, 2002.

11. DEQ WCRO staff and a representative of B&J convened a meeting to discuss compliance issues on April 21, 2003. B&J agreed to notify the Department within two weeks, by letter, of the course of action B&J would pursue to reduce I&I flows and ensure compliance with permit effluent limits. In addition, the letter would list the actions B&J had completed to

date to correct collection system problems.

12. The Department received a letter from B&J on May 6, 2003. The letter outlined all the actions B&J had completed in an attempt to correct problems with the Facility's collection system. In addition, the letter stated that B&J would commit to spend $15,000 over the next 5 years to correct problems in the collection system.

13. To resolve these alleged violations, Mr. Reynolds, on behalf of B&J negotiated with the Department a proposed consent order during the autumn of 2003. The proposed consent order incorporated the monetary commitment proposed by B&J in May 2003. B&J signed the proposed consent order on September 18, 2003. The Department's Director did not approve the proposed consent order and proposed consent order was not presented to the State Water Control Board for approval. Consequently, the proposed consent order never became effective or enforceable by the Department.

14. B&J has spent the funds, to date, that are part of the monetary commitment proposed by B&J in May 2003, to correct I&I issues connected with the Facility. B&J continues on its own accord to find and repair defects in the system to reduce I&I.

15. On June 20, 2003, B&J submitted additional permit application information to the Department and the Department notified B&J that the VPDES permit application was complete.

16. On September 12, 2003, the Department re-issued VPDES permit VA0027481 to B&J for the BBCC STP.

17. From May 23, 2003 through September 11, 2003, BBCC STP operated and discharged to state waters after the Permit expired. A review of Department files and other documentation submitted by B&J indicates that the Facility discharged to state waters 109 days after the Permit had expired and prior to re-issuance of the Permit. During this time, B&J was involved in a proceeding at the Virginia State Corporation Commission to resolve newly legislated regulations and issues relating to the closure bond. The Closure Bond funding and other issues were resolved by Final Order of the State Corporation Commission in Case Number PUE-2004-00033.

18. On January 7, 2004, B&J submitted a packet that B&J intended to be an I&I Reduction Plan of Action to the Department. The packet included information on a planned I&I project that would replace one hundred sixty-five feet of pipe and recondition two manholes and connections. In addition to the project information, the packet stated that the flow meter to the plant had been calibrated and the calibration of the meter indicated that the flow meter had not measured the flow accurately.

19. As a follow-up to the submittal, Department requested that B&J submit information concerning the error in flow measurements.

20. The Department received a Follow-up Report from B&J on February 9, 2004. The report indicated that the Facility may have had a discharge of wastewater, due to a blockage at the treatment plant, on February 2, 2004. The report did not contain an estimate of the amount of wastewater discharged and if the discharge had reached state waters, two items required by the Permit to be reported. B&J subsequently reported that the discharge occurred for approximately two to three hours and the discharge was approximately 12,000 to 15,000 gallons (based on daily flow numbers) and that the discharge did impact state waters.

21. On March 12, 2004, the DEQ issued NOV No. W2004-03-W-0006. The NOV cited B&J's alleged failure to submit the DMRs for October, November, and December 2003 and January 2004 on the correct DMR form. B& J submitted revised DMRs for the four months on April 21, 2004 on the correct DMR forms.

22. NOV No. W2004-03-W-006 cited B&J's alleged failure to sample for BOD and TSS during the month of December 2003 and the December 2003 DMR, due by the 10th of January was not submitted until February 9, 2004.

23. NOV No. W2004-03-W-006 cited B&J's alleged violation of the quantity or loading effluent limitation for TSS for March 2003.

24. NOV No. W2004-03-W-006 cited B&J's alleged violation of discharging to state waters from May 23, 2003 to September 11, 2003 without a permit.

25. On April 14, 2004, the DEQ issued a NOV No. W2004-04-W-0002. The NOV cited B&J's alleged failure, as required by the VPDES permit, to submit an approvable O&M Manual or a letter stating that the current O&M manual is accurate and complete, within 90 days of the effective date of the Permit. This submittal was due no later than December 11, 2003. B&J submitted the affirming statement on April 29, 2004.

26. NOV No. W2004-04-W-0002 cited B&J's alleged discharge of wastewater to state waters on February 2, 2004.

27. NOV No. W2004-04-W-0002 cited B&J's alleged failure to submit the February 2004 DMR on the correct DMR form. B&J submitted a revised DMR on April 21, 2004.

28. On April 21, 2004, DEQ WCRO staff and a representative of B&J convened a meeting to discuss NOV No. W2004-04-W-0002 and a plan for bringing the facility into compliance. As a follow-up to the meeting, B&J submitted a plan of action for correcting I&I problems at the facility on May 25, 2004.

29. The Department issued NOV No. NOV W2004-06-W-0002 to B&J on June 7, 2004 for alleged violations of TSS and BOD effluent limits for the month of April 2004. The alleged violations were of quantity or loading and quality or concentration.

30. The Department issued NOV No. W2004-07-W-0001 to B&J on July 9, 2004 for allegedly failing to submit total phosphorus monitoring data as required by the Permit. The monitoring was required in April 2004 and due May 10, 2004. In a letter dated April 3, 2006, B&J affirms that B&J failed to monitor for total phosphorus during the month of April 2004.

31. The Department issued NOV No. W2004-08-W-0001 on August 10, 2004 for an alleged un-permitted discharge of wastewater to state waters on June 9, 2004. The alleged discharge was from B&J's Number 1 Pump Station. The Department did not receive notification of the alleged discharge within 24-hours of the event and did not receive a letter within 5 days of the event as required by the Permit. A letter of explanation was received on June 15, 2004. The letter did not include an estimate of the amount of wastewater allegedly discharged during the event as required by the Permit.

32. The Department issued NOV No. W2004-10-W-0002 on October 13, 2004 for alleged failure of B&J to submit written notice and data collected from an E.coli monitoring study required by the Permit. The notice and data was due no later than August 29, 2004.

33. The Department issued NOV No. W2005-02-W-0001 on February 14, 2005 for alleged failure of B&J to demonstrate adequate disinfection as described in Part I.C.3 of the Permit and failure to submit an E.coli demonstration study progress report no later than September 12, 2004 as required by the Permit.

34. In response to the Notice of Violation, the Department received the E.coli demonstration progress report on March 14, 2005. B&J performed the required monitoring but failed to submit the report as required. The Department reviewed the progress report and replied by letter on May 9, 2005. A statistical outlier eliminated one data point of the data set which invalidated the results. The Department requested that B&J re-conduct the study to obtain the required, statistically acceptable twelve data points.

35. On May 16, 2005, the Department issued NOV No. W2005-05-W-0001 to B&J for an alleged discharge, of an unknown volume of wastewater to the North Fork of the Roanoke River on March 28, 2005.

36. On August 19, 2005, the Department issued NOV No. W2005-08-W-0002 for alleged failure of B&J to report pH minimum and maximum concentrations on the June 2005 DMR and failure to report an alleged discharge of wastewater from the Facility's collection system on July 20, 2005. B&J failed to report the date, time, volume, and whether state waters had been impacted. B&J submitted a revised June 2005 DMR with the pH minimum and maximum

values in September 2005.

37. By letter dated January 25, 2006, Mr. Reynolds notified the Department that as of November 7, 2005, B&J had assigned a Certificate of Deposit to the Department in the amount of $5,000 as required by the Financial Assurance Mechanism. The letter stated that B&J will continue to increase the Certificate of Deposit in the amount of $5,000 per year for five years so that B&J will have sufficient funds to meet the Financial Assurance Mechanism.

38. On February 22, 2006, Daina Reynolds of B&J met with DEQ enforcement staff to discuss the Notices of Violation and a plan for bringing the facility into compliance. Mr. Reynolds agreed to provide the Department with a specific list of repairs to be included in the Schedule of Compliance of a Consent Order.

39. B & J submitted a list of I&I projects to be included in the Consent Order on March 14, 2006. Department compliance staff reviewed the list of projects and determined that the list did not contain enough information to make an accurate determination of the appropriateness of the projects. The Department contacted B&J Enterprises on April 14, 2006 requesting additional information regarding the proposed I&I projects. The Department letter requested that B&J Enterprises submit the additional information no later than 30 days after receipt of the letter.

40. Department enforcement staff reviewed Department files on April 17, 2006 and this review indicated that the reported values for pH, Total Chlorine, Total contact chlorine and chlorine instrument technical minimum limit for the December 2003 are estimated values and do not meet the monitoring and reporting requirements of the Permit. These values are the result of the loss of the STP daily testing bench sheet and flow data for December 2003.

41. B&J submitted additional information to the Department on May 25, 2006. Department enforcement staff and compliance staff reviewed the data and determined that B&J Enterprises had not provided the information requested in the Department's April 14, 2006 letter.

42. On July 13, 2006 the Department issued Notice of Alleged Violation # W2006-07-W-001 to B&J for failure to report pH minimum and maximum concentrations for May 2006, BOD effluent alleged violations for January 2006 and November 2005, and TSS effluent alleged violations for September 2005. B&J Enterprises submitted a revised DMR with the missing pH data on July 28, 2006.

43. On July 19, 2006, compliance staff conducted an unscheduled inspection of the Facility. During the inspection, compliance staff noted black, dried material in the area around Pump Station #1. Compliance staff contacted Facility staff to verify what had occurred. Facility staff was not aware of an incident and would investigate and inform compliance staff of their findings. The Department did not receive any other information until September 22, 2006.

44. On September 1, 2006, the Department issued NOV # W2006-09-W-0001 to B&J for the un-permitted and un-reported alleged discharge on or about July 19, 2006. The NOV also cited B&J's failure to report flow maximum loading for July 2006.

45. B&J responded to the NOV by letter on September 22, 2006. B&J asserts that the alleged un-permitted and un-reported discharge documented during the July 19, 2006 inspection is in fact the remnants of a previously reported discharge that did not impact state waters. This resolves this area of apparent non-compliance.

46. On November 3, 2006, B&J submitted a preliminary report analyzing the influent flow of the Facility during the month of October 2006. This preliminary report contained a comparison of recordings of the previous flow meter, which B&J asserts did not correctly measure the flow, and the newly installed flow meter. This preliminary report indicates that the old flow meter may not have accurately measured influent flow at the Facility. Therefore, pending a more comprehensive study, the Department has informally resolved all the effluent loading violations cited in the NOVs and this Consent Order. The calculations used to calculate the loading or quantity effluent limits are based upon the flow at the Facility and may have been incorrect because of the previous flow meter's potential error. By entering into this Order, B&J is agreeing to conduct further analysis on the flow meters and provide the requested information to the Department.

47. On November 14, 2006, the Department issued NOV # W2006-11-W-0001 for alleged failure by B&J to submit the 3rd annual E.coli Demonstration Study Progress Report. The report was due no later than September 12, 2006.

48. B&J responded to the NOV as requested on November 21, 2006. B&J requested additional time to assemble an appropriate response. On December 4, 2006, the Department received documents from B&J via e-mail. The documents constituted B&J's response to the NOV and included the 3rd annual E.coli Demonstration Study Progress Report. The data submitted indicated that B&J was not achieving adequate disinfection to achieve compliance with the pending E.coli effluent limit.

49. On November 26, 2006, the Facility experienced an upset with a bypass/un-permitted discharge. As required in the Permit, B&J reported the event by phone on that day. As required in the Permit, B&J provided a follow-up letter dated November 29, 2006 (received via fax on November 30, 2006). B&J stated that a significant raft caused a clog in front of the sludge return and processed wastewater dammed and overflowed the aeration tanks at the plant. The solids from the overflow were mainly confined to the areas surrounding the tanks and the gravel filled containment areas near the tanks. B&J believes pre-treated wastewater impacted the North Fork of the Roanoke River. B&J estimates the discharge occurred for approximately 2 hours. The solids were cleaned up and discarded. Lime was spread on the pooled areas and wherever necessary.

50. Subsequently, B&J submitted an email on December 4, 2006 and stated in the email that the estimated volume of wastewater from the event is 4,000 to 5,000 gallons. B&J based this estimate on the calculated flows of the previous and subsequent daily flows.

51. On January 1, 2007, the Facility experienced an upset with a bypass/un-permitted discharge. As required in the Permit, B&J reported the event by phone on that day. As required in the Permit, B&J provided a follow-up letter dated January 5, 2007 (received on January 8, 2007).

52. On January 1, 2007, the Number 1 pump station overheated and shut down. Consequently, untreated wastewater overflowed into the adjacent gravel field. B&J believes wastewater impacted the North Fork of the Roanoke River. B&J estimates the discharge occurred for approximately 1 to 2 hours and B&J estimates the volume of the wastewater bypassed/discharged to be 3,000 to 5,000 gallons. Lime was spread wherever necessary. As required in the Permit, B&J reported the event by phone on that day and provided a follow-up letter dated January 5, 2005 (received on January 8, 2007).

53. The Department issued Notice of Violation No. W2007-02-W-0001 to B&J on February 12, 2007 for a violation of the BOD concentration effluent limit for the month of December 2006 and the un-permitted discharge of wastewater that occurred on November 26, 2006.

54. On April 15, 2007, the Facility experienced an upset with a bypass/un-permitted discharge. As required in the Permit, B&J provided a follow-up letter dated April 20, 2007 (received April 26, 2007). B&J believes wastewater impacted the North Fork of the Roanoke River. B&J estimates the volume of discharge to be less than 5,000 gallons. Lime was spread wherever necessary.

55. The Department issued Notice of Violation No. W2007-05-W-0002 to B&J on May 11, 2007 for the two un-permitted discharges of wastewater that occurred on January 1, 2007 and the un-permitted discharge of wastewater that occurred on March 28, 2007.

56. On May 18, 2007, the Facility experienced an upset with a bypass/un-permitted discharge. As required in the Permit, B&J reported the event by phone on that day. As required in the Permit, B&J provided a follow-up letter dated May 23, 2007 (received May 24, 2007 via fax). The Number 2 Pump Station was disabled by lightning. The station was off-line for approximately 8 to 10 hours. B&J believes that the un-permitted discharge did not contact state waters. B&J estimates the volume of the discharge to be less than 1000 gallons. The area was cleared of any solids and was treated with lime.

57. The Department issued Notice of Violation No. W2007-06-W-0001 to B&J on June 13, 2007 for the un-permitted discharge of wastewater that occurred on April 15, 2007.

SECTION D: Agreement and Order

1. Accordingly, the Board, by virtue of the authority granted it in Va. Code §§62.1-44.15(8a) and (8d) orders B&J, and B&J agrees, to pay a civil charge of Eight Thousand Two Hundred Seventy-Eight and 60/100 Dollars ($8,278.60) in settlement of violations noted herein. The civil charge shall be paid in four-quarterly payments of Two Thousand Sixty-Nine and 65/100 Dollars ($2,069.65). The first payment is due no later then 30 days after the effective date of the Order. The second payment is due no later then 120 days after the effective date of the Order. The third payment is due no later then 210 days after the effective date of the Order. The fourth payment is due no later then 300 days after the effective date of the Order. Payment shall be by check, certified check, money order, or cashier's check payable to the "Treasurer of Virginia" and sent to:

   Receipts Control
   Department of Environmental Quality
   Post Office Box 1104
   Richmond, Virginia 23218

2. Either on a transmittal letter or as a notation on the check or money order, B&J shall indicate that the payment is submitted pursuant to this Order and shall include B&J's Federal Identification Number.

3. To remedy the violations described above and bring the Facility into compliance, B&J shall perform the actions described in Appendix A of this Order.

SECTION E: Administrative Provisions

1. The Board may modify, rewrite, or amend the Order with the consent of B&J, for good cause shown by B&J, or on its own motion after notice and opportunity to be heard.

2. This Order only addresses and resolves those alleged violations specifically identified herein. This Order shall not preclude the Board or the Director from taking any action authorized by law, including but not limited to: (a) taking any action authorized by law regarding any additional, subsequent, or subsequently discovered violations; (b) seeking subsequent remediation of the Facility as may be authorized by law; or (c) taking subsequent action to enforce this Order. This Order shall not preclude appropriate enforcement actions by other federal, state, or local regulatory authorities for matters not addressed herein.

3. For purposes of this Order and subsequent actions with respect to this Order, B&J admits the jurisdictional allegations, but does not admit the factual findings, or conclusions of law contained herein. The Board and B&J agree that the actions undertaken by B&J in accordance with this Order do not constitute admission of any violation or liability by B&J. B&J does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement and enforce this Order, the validity of the Findings of Fact and Conclusions of Law contained in Section C of this Order.

4. B&J declares that it has received fair and due process under the Administrative Process Act, Va. Code §§ 2.2-4000 *et seq.* and State Water Control Law, Va. Code § 62.1-44.2 *et seq.* and waives the right to any hearing or other administrative proceeding authorized or required by law or regulation, and to any judicial review of any issue of fact or law contained herein. Nothing shall be construed as a waiver of the right to any administrative proceeding for, or judicial review of, any action taken by the Board to enforce this Order.

5. Failure by B&J to comply with any of the terms of this Order shall constitute a violation of an order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by the Board or the Director as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.

6. If any provision of this Order is found to be unenforceable for any reason, the remainder of the Order shall remain in full force and effect.

7. B&J shall be responsible for failure to comply with any of the terms and conditions of this Order unless compliance is made impossible by earthquake, flood, other acts of God, war, strike, or such other occurrence. B&J shall show that such circumstances were beyond its control and not due to a lack of good faith or diligence on its part. B&J shall notify the WCRO Regional Director in writing when circumstances are anticipated to occur, are occurring, or have occurred that may delay compliance or cause noncompliance with any requirement of this Order. Such notice shall set forth: (a) the reasons for the delay or noncompliance; (b) the projected duration of any such delay or noncompliance; (c) the measures taken and to be taken to prevent or minimize such delay or noncompliance; and (d) the timetable by which such measures will be implemented and the date full compliance will be achieved. Failure to so notify the WCRO Regional Director within twenty-four hours of learning of any condition above, which B&J intends to assert will result in the impossibility of compliance, shall constitute a waiver of any claim of inability to comply with a requirement of this Order.

8. This Order is binding on the parties hereto, their successors in interest, designees and assigns jointly and severally.

9. This Order shall become effective upon execution by both the Director, or his designee, and B&J. Not withstanding the foregoing, B&J agrees to be bound by any compliance date that precedes the effective date of this Order.

10. This Order shall continue in effect until the Director or the Board terminates the Order in his or its sole discretion upon 30 days written notice to B&J. Termination of this Order, or any obligation imposed in this Order, shall not operate to relieve B&J from its obligation to comply with any statute, regulation, permit condition, other order, certificate, certification,

standard, or requirement otherwise applicable.

11. By the signature below, B&J voluntarily agrees to the issuance of this Order.

And it is so ORDERED this 28th day of SEPTEMBER, 2007.

Steven A. Dietrich

Steven A. Dietrich, Regional Director
Department of Environmental Quality

B&J voluntarily agrees to the issuance of this Order.

By: Edsel H. Lester

Edsel H. Lester, Managing Partner
B & J Enterprises, L.C.

Date: 7/17/07

Commonwealth of Virginia
City/County of Roanoke
The foregoing document was signed and acknowledged before me this 17th day of July, 2007, by Edsel H. Lester, Managing Partner, on behalf of B & J Enterprises, L.C.

Roseann L. Simpkins

Notary Public

My commission expires: Sept. 30, 2009

ROSEANN L. SIMPKINS
Notary Public
Commonwealth of Virginia
227492
My Commission Expires Sep 30, 2009

APPENDIX A - SCHEDULE OF COMPLIANCE

B&J shall:

1. Complete an I&I study of the Facility's Sewer System by December 31, 2007 and submit the results to the Department for verification by January 10, 2008. The I&I study shall include, at minimum, the following:
   - A public information program to inform and educate all the customers serviced by the sewer system and Facility of the ongoing I&I problems and the efforts of B&J to correct the problem. The public information program should also educate all the customers on the problems with Inflow and the need of residences to disconnect sources of Inflow on their property;
   - Assembly of a sewerage transmission system configuration map with pipe sizing, pump stations, manhole locations, and graphic reference points;
   - Sewage transmission line integrity testing (robotic TV monitoring and segment smoke testing);
   - Evaluation of security and leakage for all pump stations, manhole covers, and other sewer transmission lines access points;
   - Identification of flow metering locations and flow metering methodology;
   - Conducting high and low, wet and dry weather flow metering;
   - Analysis and project report.

2. Based on the I&I study, identify and prioritize I&I projects, which will prevent future non-compliance with the Facility's design flow capacity and submit to the Department for review and approval by March 31, 2008.

3. Develop a schedule and financial plan ("B&J Plan of Action") to complete the projects identified in item 2 of this Appendix, and submit the B&J Plan of Action to the Department for review and approval by March 31, 2008. After the Department approves the B&J Plan of Action it shall be incorporated by reference and become an enforceable part of this Order.

4. Submit written notification to the Department of the completion of all action items required by this Order **within 14 days of completion.** If completion of an item does not occur in a timely fashion, B&J shall submit written notification to the Department within 14 days of the due date when it plans to complete the item. Correspondence related to this Order shall be sent to:

   Jerry R. Ford, Jr.
   Enforcement Specialist – Senior
   Department of Environmental Quality
   West Central Regional Office
   3019 Peters Creek Road
   Roanoke, VA 24019

Attachment J

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: Blacksburg Country Club WWTP

NPDES Permit Number: VA0027481

Permit Writer Name: Becky L. France

Date: 7/3/08

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? under consent order for I/I problems	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? TMDL for watershed		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?			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)]?			

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	7/3/08