VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a minor, municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq. The discharge results from the operation of the Green Acres Mobile Home Park domestic sewage treatment lagoon. This permit action consists of reissuing the permit for a period of approximately 5 years and establishing effluent limits for biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, total residual chlorine (TRC), and *E. coli*. (SIC Code: 4952)

1. **FACILITY NAME:** Green Acres Mobile Home Park Sewage Treatment Works

   CORRESPONDENCE ADDRESS: 1712 Bluegrass Road
   Woolwine, VA 24185
   FACILITY LOCATION: Henry County, at the end of Tanyard Road (State Route 859)

2. **PERMIT NUMBER:** VA0090174 **EXISTING PERMIT EXPIRATION DATE:** Sept. 7, 2009

3. **OWNER CONTACT:**

Name:	Buddy Pendleton
Title:	President
Telephone No:	(276) 930-3292

4. **APPLICATION COMPLETE DATE:** April 20, 2009
   PERMIT DRAFTED BY: Bob Tate (BRRO) **DATE:** April 24, 2009
   REVIEWED BY: Kip Foster **DATE:** April 27, 2009
   PUBLIC NOTICE DATES: from July 22 through August 20, 2009

5. **RECEIVING WATERS CLASSIFICATION:**

Receiving Stream:	Tanyard Branch
River Mile:	0.53
Basin:	Roanoke River
Subbasin:	Roanoke River
Section:	4a
Class:	III
Special Standards:	PWS
1 Day, 10-Year Low Flow (1Q10):	0.08 MGD*
7 Day, 10-Year Low Flow (7Q10):	0.09 MGD*
30 Day, 10-Year Low Flow (30Q10):	0.12 MGD*
30 Day, 5-Year Low Flow (30Q5):	0.16 MGD*
1 Day, 10-Year High Flow (1Q10):	0.20 MGD* (January through May)
7 Day, 10-Year High Flow (7Q10):	0.23 MGD* (January through May)
Harmonic Mean (HM)	0.41 MGD*
Tidal?	No
On 303(d) list?	No

*flow frequency documentation is in APPENDIX B

6. **OPERATOR LICENSE REQUIREMENTS:** None

7. **RELIABILITY CLASS:** Class I

8. **PERMIT CHARACTERIZATION:** Privately Owned Treatment Works (PVOTW).

9. **WASTEWATER TREATMENT SYSTEM:** A schematic flow diagram of the facility is included in APPENDIX A. Outfall 001 discharges treated domestic sewage from the Green Acres MHP STP to Tanyard Branch. The 0.01 MGD design facility consists of a stabilization pond with fabric filters, tablet chlorination, and tablet dechlorination. The rectangular pond is 160' by 100' (approximately 0.37 acres) and fenced. Inside the fence goats keep vegetation under control. Influent comes from approximately 20 homes. Both aerobic and anaerobic decomposition are assumed to occur in the pond. A small recirculation pump near the pond effluent pipe returned wastewater to the influent pipe location. The recirculation pump has been removed; recirculation is not necessary for adequate treatment. After decomposition in the pond, wastewater flows though (in order) a cylindrical screen, a fabric filter, a tablet chlorinator, a chlorine contact tank, two more fabric filters, and tablet dechlorinator. All three filters are cylindrical and are contained in two separate tanks. The filter fabric is 10 micron polyester felt; 5 micron felt is available. Discharge is to a splash pad beside Tanyard Branch. Discharge is periodic, usually for about 30 days. Most of this description comes from the 2009 site visit report, a copy of which is in APPENDIX A.

10. **SEWAGE SLUDGE USE OR DISPOSAL:** No sewage sludge has been removed from this facility's lagoon. Sludge is proposed to be hauled to a Henry County or City of Martinsville wastewater treatment facility for treatment and disposal.

11. **DISCHARGE LOCATION DESCRIPTION:** latitude N 36° 38' 59", longitude W 79° 57' 01" APPENDIX A contains a copy of 7.5 minute series USGS topographic maps for Martinsville, West indicating the discharge location on Tanyard Branch (Water Body ID# VAW-L53R).

12. **MATERIAL STORAGE:** not applicable

13. **AMBIENT WATER QUALITY:** The receiving water body is Tanyard Branch, which is within Section 4a of the Roanoke River basin as listed in the State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-430). The receiving stream is Class III and listed as a Public Water Supply. Class III water quality criteria include the following.

    temperature: 32°C maximum
    pH: 6.0 – 9.0 SU
    dissolved oxygen (DO): 4.0 mg/L minimum and 5.0 mg/L daily average

    DEQ's Office of Water Quality Assessments and Planning (WQAP) prepared a Flow Frequency Determination Memorandum dated October 4, 1995, for this facility. The memo was updated July 21, 2004 for the previous permit reissuance. Using these analyses and the updated critical flows for the reference gage, a new flow frequency memo was developed for this permit reissuance. APPENDIX B contains flow frequency documentation from the 2004 and 2009 permit reissuances. The flow determination methodology is explained in the memos.

    There are no ambient water quality data available for Tanyard Branch. As with the previous permit reissuance, receiving stream hardness, temperature, and pH data used for the permit's limitations analyses were collected from STORET station 4-AREE000.80 on Reed Creek at the Route 57 Bridge in Henry County, Virginia. STORET data and statistics are in APPENDIX B.

    Tanyard Branch is not impaired. However the Jordan Creek watershed, of which Tanyard Branch is a tributary, is impaired for recreational use. *E. coli* bacteria is the cause of the impairment. APPENDIX B contains a 2008 Impaired Waters summary sheet for Jordan Creek. A TMDL for the Smith River

watershed, approved in December 2008, includes an *E. coli* bacteria waste load allocation for this facility. APPENDIX B contains the TMDL's Smith River allocation page.

14. **ANTIDEGRADATION REVIEW AND COMMENTS:** Tier II

The State Water Control Board's Water Quality Standards (WQS) (9 VAC 25-260-30) provide all state surface waters one of three levels of antidegradation protection. For Tier I, existing uses of the water body and the water quality must be maintained. A Tier II water body has water quality that is better than the narrative and numeric water quality criteria. Significant lowering of the water quality of a Tier II water is not allowed without an evaluation of the economic and social impacts, as required by Water Quality Standards, 9 VAC 25-260-30. A Tier III water body is an exceptional water body that is designated by regulation. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with the Tier determination. Tanyard Branch is not listed on Part 1 of the 303(d) list. However, the Jordan Creek watershed, of which Tanyard Branch is a tributary, is impaired for recreational use. The cause of the impairment is *E. coli* bacteria (see APPENDIX B). Even if Tanyard Branch was impaired, bacteriological impairments are not used to determine tier status. From GM 00-2011, "Note: the fecal coliform bacteria standard will not be used relative to antidegradation. Neither attainment nor non attainment of the fecal coliform bacteria criteria will be used to establish the tier category of a water unless there is clear and convincing evidence that the elevated bacteria numbers are due to inadequately disinfected human waste." Since GM 00-2011 was issued in 2000, Virginia's bacteria water quality standard has replaced fecal coliform with *E. coli*. The guidance is still relevant. The tier designation for the previous permit was II. The tier designation remains II for this permit reissuance.

This section of Tanyard Branch is classified as a Tier II and therefore no significant degradation of existing quality is allowed. For purposes of aquatic life protection, "significant degradation" means that no more that 25% the difference between the acute and chronic aquatic criteria values and the existing quality (unused assimilative capacity) may be allocated. For purposes of human health protection, "significant degradation" means that no more than 10% of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The significant degradation baseline (antidegradation baseline) is 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 25-260-5 et seq. for the parameter analyzed
"Existing quality" = Concentration of the parameter being analyzed in the receiving stream, including the facility's existing discharge.

When applied, the antidegradation baselines become the new water quality criteria to prevent significant degradation of the receiving stream. Effluent limits for future expansions or new facilities must be written to maintain the antidegradation baselines for each pollutant. Antidegradation baselines have been calculated for this facility as described above by the Water Quality Criteria/Wasteload Allocation Analysis (WQC/WLA) spreadsheet in accordance with GM 00-2011. Permit limits are in compliance with antidegradation requirements set forth in the 9 VAC 25-260-30. APPENDIX D contains the WQC/WLA spreadsheet.

15. **SITE VISIT:** A site visit for permit reissuance was performed April 9, 2009 by Bob Tate. Recent compliance inspections were performed January 8, 2009 and April 9, 2009 by Troy Nipper. A copy of the site visit report is included in APPENDIX A.

16. **EFFLUENT SCREENING & LIMITATION DEVELOPMENT:** In accordance with the previous VPDES permit, effluent has been monitored for compliance with flow, pH, BOD_5, TSS, chlorine, and *E. coli* limitations. DMR effluent data are in APPENDIX C.

Effluent limitations and monitoring requirements for the Green Acres MHP STP are determined by applying Virginia's WQS, Federal Effluent Guidelines 40 CFR 133, best professional judgement, the previous permit and DEQ GM 00-0011. Final effluent limitations, monitoring frequencies, and their basis are in TABLE I below. Discussion of specific parameters and their limitations follows. The results of the limitations analysis, including the stream-effluent mixing ratio results (MIX), the WQC/WLA spreadsheet, and reasonable potential analyses (STATS) are in APPENDIX D.

TABLE I

FINAL EFFLUENT LIMITATIONS

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Max. Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow, (MGD)	NA	NL	NA	NA	NL	1/day	Estimate
pH (SU)	1, 2	NA	NA	6.0	9.0	1/day	Grab
BOD_5	1, 4	45 mg/l 1.7 kg/d	65 mg/l 2.4 kg/d	NA	NA	1/month	Grab
TSS	1	45 mg/l 1.7 kg/d	65 mg/l 2.4 kg/d	NA	NA	1/month	Grab
TRC	2	0.08 mg/L	0.10 mg/L	NA	NA	1/day	Grab
*E. coli**	2	126 n/100 mL *	NA	NA	235 n/100 mL*	2/month*	Grab *

*The limit is a geometric mean of 126 n/100 mL if more than one sample is collected within the month. The limit is 235 n/100 mL if only one sample is collected within the month. Samples are to be collected between 10 AM and 4 PM and at least 7 days apart.

Notes:
NA = Not Applicable
NL = No Limitations
The basis for the limitation codes are:

1. Technology-based Limits
2. Water Quality-based Limits
3. Best Professional Judgment-based Limits
4. Other – DO Stream Model

Flow: The 0.01 MGD treatment design capacity of this plant was taken from the previous permit and the permittee's application. This permit does not provide a flow limitation, but requires flow to be estimated daily, per the Permit Manual. APPENDIX C contains a summary of effluent flow data.

pH: Limits are 6.0 S.U. minimum and 9.0 S.U. maximum according to the Water Quality Standards (9 VAC 25-260-50) and Federal Effluent Guidelines' secondary treatment requirements (40 CFR 133). These limits are carried forward from the previous permit. Daily monitoring is continued from the previous permit, per the Permit Manual. APPENDIX C contains a summary of effluent pH data.

BOD_5: Limits are 45 mg/L monthly average and 65 mg/L maximum weekly average. These limits are carried forward from the previous permit. The limits are based on 40 CFR 133.105, Federal Effluent Guidelines for facilities that qualify for "equivalent to secondary treatment." The facility is not able to consistently meet secondary treatment standards: 30 mg/L monthly average and 45 mg/L maximum weekly average. (See APPENDIX C for a summary of effluent BOD_5 data.) DEQ's dissolved oxygen (DO) model indicated 65 mg/L protects DO water quality. APPENDIX E contains model input and output for this reissuance and for the 1999 permit issuance. Monthly monitoring is continued from the previous permit, per the Permit Manual.

TSS: Limits are 45 mg/L monthly average and 65 mg/L maximum weekly average. These limits are carried forward from the previous permit. The limits are based on 40 CFR 133.105, Federal Effluent Guidelines for facilities that qualify for "equivalent to secondary treatment." The facility is not able to consistently meet secondary treatment standards: 30 mg/L monthly average and 45 mg/L maximum weekly average. (See APPENDIX C for a summary of effluent TSS data.) Monthly monitoring is continued from the previous permit, per the Permit Manual.

TRC: Limits are 0.08 mg/L monthly average and 0.10 mg/L maximum weekly average. These limits are carried forward from the previous permit. The limits meet the requirements of GM 00-2011 and VPDES Permit Advice – Chlorine, October 8, 1999. Limitations for municipal facilities are required to be expressed as a monthly average and maximum weekly average for domestic discharges. The monitoring frequency remains 1/day per the Permit Manual. An updated water quality analysis model for this facility confirmed these limitations are protective of Virginia's Water Quality Standards. APPENDIX D contains a STATS analysis printout. APPENDIX C contains a summary of effluent TRC data.

E. coli: The limit is maximum monthly average (geometric mean) of 126 n/100 ml if more than one sample is collected in a calendar month or a maximum of 235 n/100 ml if only one sample is collected in a calendar month. The limit is based on 9 VAC 25-260-170, Virginia's Water Quality Standard for bacteria. Monitoring is twice a month. Grab samples are to be collected between 10 AM and 4 PM and at least 7 days apart. Previously monitoring was weekly according to a special condition requiring demonstration of disinfection efficiency. The Permit Manual recommends twice a month grab sampling between 10 AM and 4 PM for facilities with 0.01 MGD design flow.

Chlorine disinfection is used at this facility. In accordance with 9 VAC 25-260-170, all sewage discharges shall disinfect to achieve the applicable bacteria concentrations prior to discharge. The applicable water quality standard for *E. coli* is a maximum monthly average, calculated as a geometric mean, of 126 n/100 ml. A demonstration of the disinfection technology was required by Special Condition I.B of the previous permit in accordance with GM 03-2007. This requirement was included and based on the February 4, 2004, Virginia Department of Health comments on the permit application concerning disinfection effectiveness at the facility. Effective disinfection was not demonstrated at the facility. Consequently and in accordance with the previous permit, an *E. coli* limit became effective September 1, 2008 (documented in a Notice of Violation dated February 12, 2007). Even if the facility had successfully demonstrated effective disinfection, this permit would still contain an *E. coli* limit because the facility discharges to a watershed with an EPA approved bacteria TMDL. The TMDL contains an allocation for this facility. The allocation is based on the bacteria water quality standard. Thus the limit is in compliance with the bacteria water quality standard and with the TMDL. APPENDIX B contains the TMDL's Smith River allocation page. APPENDIX C contains a summary of effluent *E. coli* data.

Ammonia: There is no ammonia limitation. Water quality/reasonable potential analysis determined no limitation is required for this facility to maintain Virginia's WQS. APPENDIX D contains STATS analyses printouts for "annual" and "high flow" conditions.

Water Quality Standards Monitoring and Limitations: No WQS monitoring was performed in the three previous permit terms. Because the facility's flow is <40,000 GPD and because the STP services residential customers, no other WQS monitoring parameters are believed present in the effluent at a level that would require a water quality based limitation.

Reduced Monitoring: All permit applications received after May 4, 1998, are to be considered for reduction in effluent monitoring frequency. GM 98-2005 states that "only facilities having exemplary operations that consistently meet permit requirements should be considered for reduced monitoring." No effluent monitoring has been reduced in this permit issuance because of the following:
Warning Letter No. W2006-12-W-1003 dated 12/8/06 for TSS exceedence Oct 2006
Warning Letter No. W2007-01-W-1007 dated 1/17/07 re: *E. coli* monitoring
Notice of Violation No. W2007-02-W-0002 dated 2/12/07 re: *E. coli* monitoring
Notice of Violation No. W2007-06-W-0002 dated 6/13/07 re: no DMR submission for Apr 2007
Notice of Violation No. W2007-11-W-0001 dated 11/2/07 for BOD exceedences May 2007
Warning Letter No. W2008-10-W-1013 dated 10/6/08 for BOD exceedences Aug 2008
Warning Letter No. W2008-11-W-1015 dated 11/5/08 for BOD and E. coli exceedences Sept 2008
Warning Letter No. W2008-12-W-1007 dated 12/9/08 for BOD exceedence Oct 2008

17. **BASIS FOR SLUDGE USE & DISPOSAL REQUIREMENTS:** There are no limits or monitoring required for sludge use or disposal for this facility in this permit. There has been no sewage sludge disposed from this facility's lagoon. Sludge is proposed to be hauled to a Henry County or City of Martinsville wastewater treatment facility for treatment and disposal in an approved landfill.

18. **ANTIBACKSLIDING STATEMENT:** No permit limits for the existing discharge will be made less stringent with this permit reissuance. Therefore, the permit complies with the antibacksliding requirements.

19. **COMPLIANCE SCHEDULES:**

20. **SPECIAL CONDITIONS:**

Additional TRC Limitations and Monitoring Requirements (Special Condition I.B)
Rationale: Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790, bacteria standards; other waters. Also 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

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

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

CTC, CTO Requirement (Special Condition I.C.3)
Rationale: Required by Code of Virginia 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

O&M Manual Requirement (Special Condition I.C.4)
Rationale: Required by Code of Virginia 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

Reliability Class (Special Condition I.C.5)
Rationale: Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

Sludge Use and Disposal (Special Condition I.C.6)
Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements may be derived from the Department of Health's Biosolids Use Regulations, 12 VAC 5-585-10 et seq.

Sludge Reopener (Special Condition I.C.7)
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-220 C 4, for all permits issued to treatment works treating domestic sewage.

Total Maximum Daily Load (TMDL) Reopener (Special Condition I.C.8)
Rationale: Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener 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.

Compliance Reporting Under Part I.A and Part I.B (Special Condition I.C.9)
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

Financial Assurance and Disclosure to Purchasers (Special Condition I.C.10)
Rationale: Required by Code of Virginia §62.1-44.18:3 and the Board's Financial Assurance Regulation, 9 VAC 25-650-10 et seq.

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

21. **CHANGES TO PERMIT:** Changes to effluent limits or monitoring frequencies in this permit are in TABLE II. The expiration date of this permit has been moved forward to distribute permit writers' work loads more evenly over a five-year cycle. VPDES permits are normally reissued for five years, so this permit would have expired September 7, 2014. The expiration date was moved forward one week to August 31, 2014 so that compliance monitoring for the next permit would begin the first day of next complete month.

TABLE II
PERMIT PROCESSING CHANGE SHEET
For Effluent Limits and Monitoring Schedule

Outfall	Parameter Changed	Monitoring Requirements Changed		Effluent Limits Changed		Reason for Change
		From	To	From	To	
001	*E. coli*	1/week	2/month*	126 n/100 mL (geometric mean)	126 n/100 mL (geometric mean) OR 2356 n/100 mL (single sample maximum) **	NA

*grab samples to be collected between 10 am and 4 pm and at least 7 days apart
**The limit is a geometric mean of 126 n/100 mL if more than one sample is collected in a calendar month. The limit is a maximum of 235 n/100 mL if only one sample is collected in a calendar month.

Special Conditions Added to or Modified in this Permit

Some special conditions have not been modified except for their number or to reflect current guidance. Only the special conditions listed below have been removed, added, or modified in content:

- Previous Special Condition I.B, Bacterial Effluent Limitations and Monitoring Requirements, has been removed. The facility did not demonstrate adequate disinfection as required in Part I.B of the previous permit. Consequently, *E. coli* limits became effective September 1, 2008.
- Current Special Condition I.B (previous Special Condition I.C), Additional Internal TRC Limitations and Monitoring Requirements, has been modified per the Permit Manual.
- Special Condition I.C.3, CTC, CTO Requirement, has been added per the Permit Manual.
- Special Condition I.C.4, O&M Manual Requirement, has been modified per the Permit Manual.
- Special Condition I.C.7, Sludge Reopener, has been added per the Permit Manual.
- Special Condition I.C.8, TMDL Reopener, has been added per the Permit Manual.
- Special Condition I.C.9, Compliance Reporting, has been modified per the Permit Manual.
- Special Condition I.C.10, Financial Assurance and Disclosure to Purchasers, has been modified per the Permit Manual.
- Part II, Conditions Applicable to All VPDES Permits, has been modified per the Permit Manual.

22. **VARIANCES/ALTERNATE LIMITS OR CONDITIONS:** No variances or alternate limits or conditions are included in this permit.

23. **REGULATION OF USERS:** 9 VAC 25-31-280 B 9 requires that every permit issued to a treatment works not owned by a state or municipality provide an explanation of the Board's decision on the regulation of users. There are no industrial users contributing to the treatment works.

24. **PUBLIC NOTICE INFORMATION REQUIRED BY 9 VAC 25-31-280 B:** All pertinent information is on file and may be inspected and copied by contacting Bob Tate at:

Virginia Department of Environmental Quality
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24015
(540-562-6774)
email: bob.tate@deq.virginia.gov

Persons may comment in writing to the DEQ on the proposed reissuance of the permit within 30 days from the date of the first notice. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed reissuance. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

25. **ADDITIONAL COMMENTS:**

Previous Board Action: None

Staff Comments: The discharge is not controversial although the facility has not been able to consistently meet the required effluent limits for BOD and TSS. The staff believes that the attached final effluent limitations will maintain the Water Quality Standards adopted by the Board.

Public Comments: None

26. **303(d) LISTED SEGMENTS (TMDL):**

This facility discharges directly to Tanyard Branch. The Smith River watershed, of which Tanyard Branch is a tributary, is included in a TMDL approved by EPA December, 2008. The TMDL contains a waste load allocation of 1.74E+10 cfu/year for this discharge. This permit contains an *E.coli* limit that is in compliance with the TMDL. APPENDIX B contains the TMDL's Smith River allocation page.

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- Topographic Map
- Wastewater Treatment Process Schematic
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APPENDIX B
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    - pH
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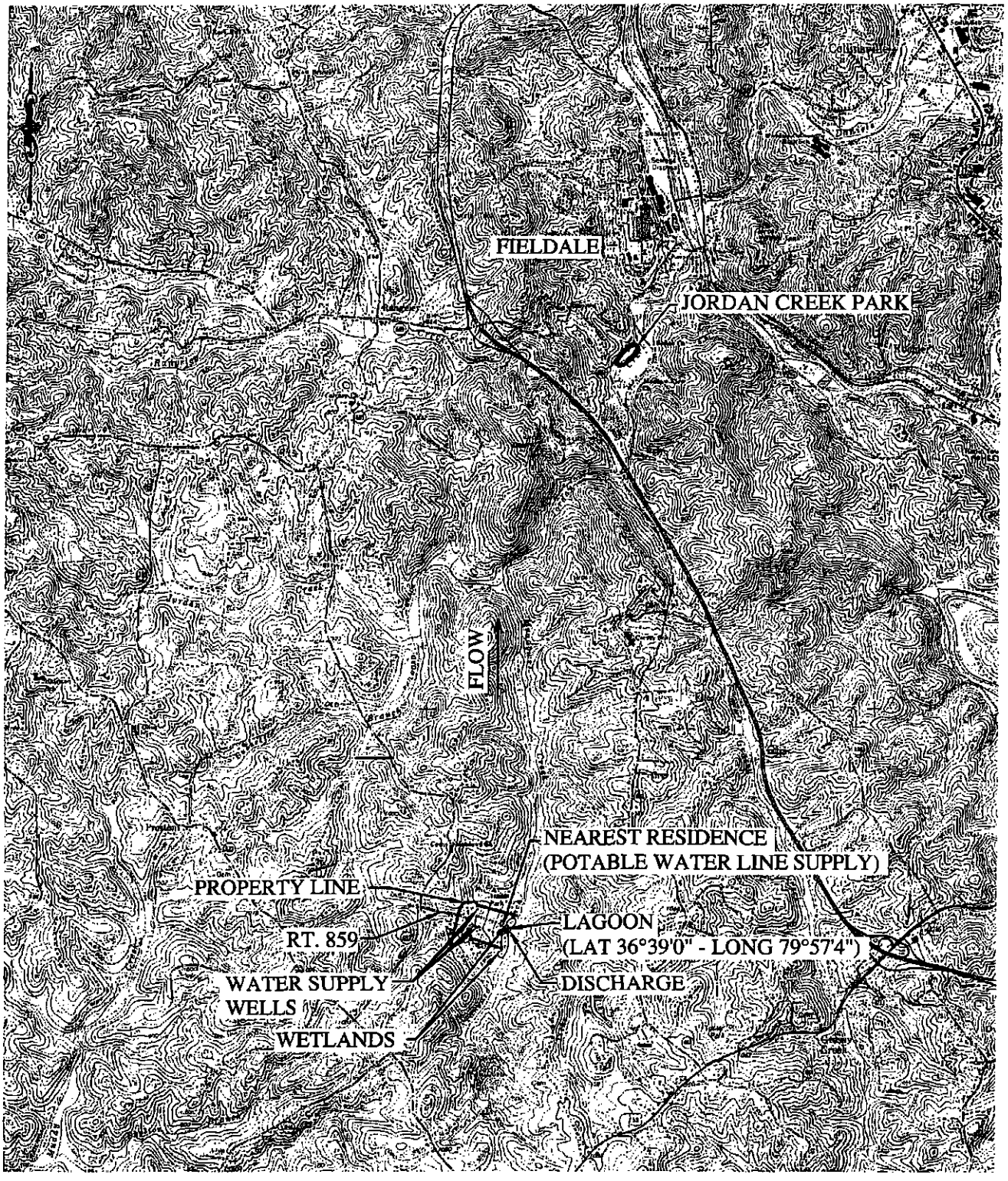
APPENDIX E
- Dissolved Oxygen Modeling
  - April 10, 2009
  - April 1, 1999

APPENDIX A

Topographic Map

Wastewater Treatment Process Schematic

Site Visit Report



MAP TAKEN FROM NATIONAL GEOGRAPHIC MID-ATLANTIC USA USGS TOPO:
MARTINSVILLE, VIRGINIA

RECEIVED
MAR 10 2009
DEQ - BRRO

GREEN ACRES MOBILE HOME PARK
VPDES PERMIT RENEWAL APPLICATION

FIGURE 1

SCALE: 1"=4000'-0"
JOB NO.: 12073.01

3/4/09
Report_20040116.zip

OLVER INCORPORATED

I:\Dwg\Green Acres\12073.01\Permit Renewal\Permit Renewal 2009-2014\Figure 1.dwg, Layout1, 3/5/2009 8:55:24 AM, rholt

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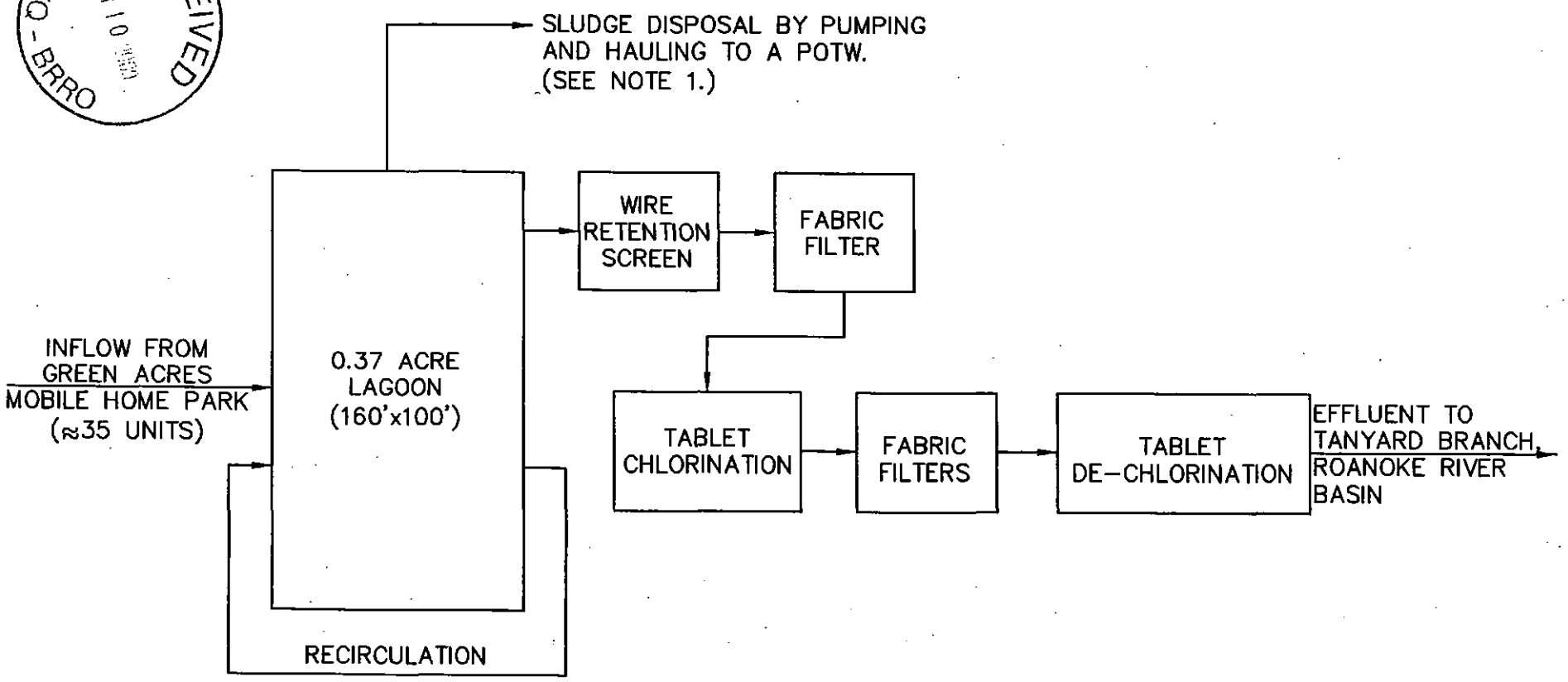
MAR 10
DEQ - BRRO



NOTES:

1. SLUDGE HAS NOT HAD TO BE REMOVED FROM THIS FACILITY TO DATE. SHOULD SLUDGE REMOVAL BE NECESSARY IN THE FUTURE, IT WOULD BE REMOVED BY A PUMP AND HAUL CONTRACTOR AND TAKEN TO A HENRY COUNTY POTW FOR TREATMENT AND DISPOSAL.

GREEN ACRES MOBLE HOME PARK
WASTEWATER TREATMENT SYSTEM SCHEMATIC
FIGURE 3

SCALE: NO SCALE
JOB NO.: 12073.01

3/4/09

OLVER INCORPORATED

I:\Dwg\Green Acres\12073.01\Permit Renewal\Permit Renewal 2009-2014\Figure 3.DWG, Layout1, 3/5/2009 9:18:19 AM, rholt

MEMORANDUM
DRAFT
DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office, Water Division

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: Green Acres Mobile Home Park Sewage Lagoon
VPDES Permit VA0090174
Site Visit for Permit Reissuance

TO: Permit File

FROM: Bob Tate, water permit writer RST

DATE: April 10, 2009

On the afternoon of April 9, 2006, Green Acres Mobile Home Park was visited for the purpose of gathering information for permit reissuance. Present were Buddy Pendleton (owner), Jim Wyatt (operator), Troy Nipper (DEQ compliance), and the writer.

The treatment facility consists of a stabilization pond with fabric filters, tablet chlorination, and tablet dechlorination. The rectangular pond is 160' by 100' (approximately 0.37 acres) and fenced. Inside the fence goats keep vegetation under control. The pond was covered by a layer of green duckweed. Influent comes from approximately 20 homes. Both aerobic and anaerobic decomposition are assumed to occur in the pond. A small recirculation pump near the pond effluent pipe returned wastewater to the influent pipe location. The recirculation pump has been removed; recirculation is not necessary for adequate treatment. After decomposition in the pond, wastewater flows though (in order) a cylindrical screen, a fabric filter, a tablet chlorinator, a chlorine contact tank, two more fabric filters, and tablet dechlorinator. All three filters are cylindrical and are contained in two separate tanks. The filter fabric is 10 micron polyester felt; 5 micron felt is available. Discharge is to a splash pad beside Tanyard Branch. Discharge is periodic, usually for about 30 days. At the visit the facility was discharging at approximately 1 gpm.

The owner was reminded that financial assurance coverage must be reviewed annually. The next permit cannot be issued until this year's review is received and approved. The owner was urged to take care of this immediately.

The receiving stream was observed (approx 13:30) and the following characteristics were noted:

cross-section: irregular
channel: initially mostly straight (approx 200'), then moderately meandering
pool and riffle character: pools 80% of length, riffles 20% of length
bottom: mostly silt, some slabs
sludge deposits: none
vegetation: no rooted plants; no algae
estimated width of stream near outfall: 4'
estimated depth (maximum): 1'
stream clear and colorless

Live minnows were seen throughout the observed stream area (200').

APPENDIX B

RECEIVING STREAM DATA

Flow Frequency Memoranda
April 13, 2009
July 21, 2004

STORET Station Data
Hardness
Temperature
pH

2008 Impaired Waters summary sheet

Smith River TMDL Waste Load Allocation

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
West Central Regional Office
3019 Peters Creek Road Roanoke, Virginia 24019

SUBJECT: Flow Frequency Determination
Green Acres MHP STP VA0090174

TO: Permit File

FROM: Bob Tate, BRRO RST

DATE: April 13, 2009

This memo is an update of the previous flow frequency determination memo from Jason Winningham dated July 21, 2004 concerning the subject VPDES permit.

The Green Acres MHP STP discharges to Tanyard Branch near Fieldale, VA. Stream flow frequencies are required at this site for use in developing effluent limitations for the VPDES permit.

The USGS conducted several flow measurements on Reed Creek from 1981 to 1984. The measurements were made near Collinsville, VA. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the North May Rover near Spencer, VA #02070000. The measurements and daily mean values were plotted by the USGS on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph.

The flow frequencies at the discharge point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site and the discharge point are presented below.

North Mayo River near Spencer, VA (#02070000):
Drainage Area = 108 mi^2

1Q30 = 14 cfs	
1Q10 = 21 cfs	High Flow 1Q10 = 46 cfs
7Q10 = 23 cfs	High Flow 7Q10 = 51 cfs
30Q10 = 30 cfs	High Flow 30Q10 = 62 cfs
30Q5 = 37 cfs	Harmonic Mean = 82 cfs

Reed Creek near Collinsville, VA (#02072600):
Drainage Area = 12.4 mi^2

1Q30 = 0.7 cfs	
1Q10 = 1.1 cfs	High Flow 1Q10 = 2.9 cfs
7Q10 = 1.2 cfs	High Flow 7Q10 = 3.3 cfs
30Q10 = 1.7 cfs	High Flow 30Q10 = 4.1 cfs
30Q5 = 2.2 cfs	Harmonic Mean = 5.8 cfs

Tanyard Branch at discharge point:
Drainage Area = 1.35 mi^2

1Q30 = 0.07 cfs	
1Q10 = 0.12 cfs	High Flow 1Q10 = 0.31 cfs
7Q10 = 0.14 cfs	High Flow 7Q10 = 0.36 cfs
30Q10 = 0.19 cfs	High Flow 30Q10 = 0.45 cfs
30Q5 = 0.24 cfs	Harmonic Mean = 0.63 cfs

1Q30 = 0.05 MGD	
1Q10 = 0.08 MGD	High Flow 1Q10 = 0.20 MGD
7Q10 = 0.09 MGD	High Flow 7Q10 = 0.23 MGD
30Q10 = 0.12 MGD	High Flow 30Q10 = 0.29 MGD
30Q5 = 0.16 MGD	Harmonic Mean = 0.41 MGD

This analysis assumes there are no discharges, withdrawals or springs influencing the flow in the Tanyard Branch upstream of the discharge point.

The high flow months are January through May.

Flow frequencies for gage site #02070000 were compiled in 2005.

Attached is a spreadsheet that calculates flow frequencies at the points of interest.

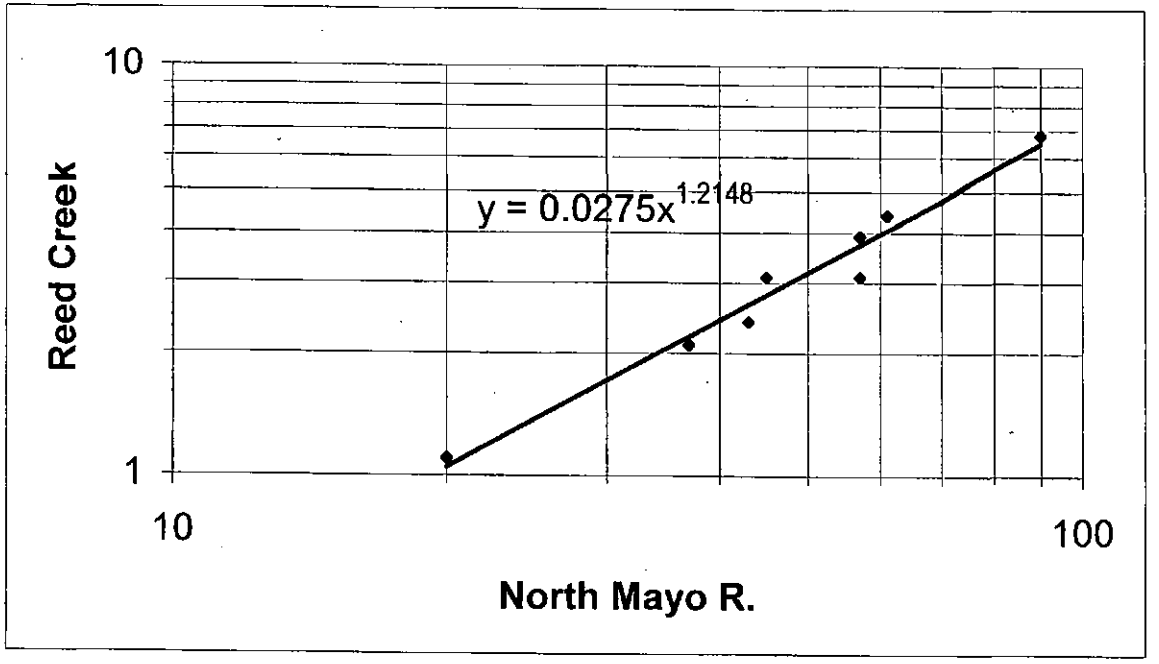
North Mayo River near Spencer, VA (reference gage #02070000)
vs Reed Creek near Collinsville, VA (measurement site #02072600)

Historic Flow Data (cfs)

Date	North Mayo	Reed Creek
8/26/1981	20	1.1
9/23/1981	43	2.4
10/22/1981	37	2.1
7/20/1982	57	3.1
10/19/1982	45	3.1
8/3/1983	57	3.92
11/9/1983	61	4.41
8/21/1984	90	6.82
	(Reference)	(Meas. Site)

2009 Flow Frequencies (cfs)

North Mayo		Reed Creek
14	1Q30	0.7
21	1Q10	1.1
23	7Q10	1.2
30	30Q10	1.7
37	30Q5	2.2
46	HF1Q10	2.9
51	HF7Q10	3.3
62	HF30Q10	4.1
82	Harmonic Mean	5.8
108	DA (mi^2)	12.4
Tanyard Br DA =	1.35	(discharge)



HARMEAN	HF30Q10	HF7Q10	HF1Q10	Z30Q5	Z30Q10	Z7Q10	Z1Q10	Z1Q30	HFMTHS	STATPERIOD	YRSTRN
82	62	51	46	37	30	23	21	14	JAN-MAY	1929-2003	2005

	Reed Creek Meas. Site, cfs	Reed Creek Meas. Site, mgd	Tanyard Branch discharge, cfs	Tanyard Branch discharge, mgd
1Q30	0.7	0.4	0.07	0.05
1Q10	1.1	0.7	0.12	0.08
7Q10	1.2	0.8	0.14	0.09
30Q10	1.7	1.1	0.19	0.12
30Q5	2.2	1.4	0.24	0.16
HF1Q10	2.9	1.9	0.31	0.20
HF7Q10	3.3	2.1	0.36	0.23
HF30Q10	4.1	2.7	0.45	0.29
Harmonic Mean	5.8	3.8	0.63	0.41

North Mayo Ref gage, cfs	North Mayo Ref gage, mgd
14	9.0
21	13.6
23	14.9
30	19.4
37	23.9
46	29.7
51	32.9
62	40.1
82	53.0

HF months January - May

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
West Central Regional Office
3019 Peters Creek Road Roanoke, Virginia 24019

SUBJECT: Flow Frequency Determination
Green Acres MHP STP VA0090174

FROM: Jason Winningham, WCRO

DATE: July 21, 2004

This memo is an update of the previous flow frequency determination memo from Paul Herman dated February 24, 1999 concerning the subject VPDES permit. The Green Acres MHP STP discharges to Tanyard Branch near Fieldale, VA. Stream flow frequencies are required at this site for use in developing effluent limitations for the VPDES permit.

The USGS conducted several flow measurements on Reed Creek from 1981 to 1984. The measurements were made near Collinsville, VA. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the North May Rover near Spencer, VA #02070000. The measurements and daily mean values were plotted by the USGS on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph.

The flow frequencies at the discharge point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site and the discharge point are presented below and the calculation spreadsheet is attached:

North Mayo River near Spencer, VA (#02070000):

Drainage Area = 108 mi^2

1Q10 =	14.9 MGD	High Flow 1Q10 =	31.0 MGD
7Q10 =	16.8 MGD	High Flow 7Q10 =	33.6 MGD
30Q5 =	18.7 MGD	HM =	54.3 MGD
30Q10 =	20.7 MGD		

Reed Creek near Collinsville, VA (#02072600):

Drainage Area = 12.4 mi^2

1Q10 =	0.8 MGD	High Flow 1Q10 =	2.0 MGD
7Q10 =	0.9 MGD	High Flow 7Q10 =	2.2 MGD
30Q5 =	1.1 MGD	HM =	3.9 MGD
30Q10 =	1.2 MGD		

Tanyard Branch at discharge point:

Drainage Area = 1.35 mi^2

1Q10 =	0.09 MGD	High Flow 1Q10 =	0.21 MGD
7Q10 =	0.10 MGD	High Flow 7Q10 =	0.24 MGD
30Q5 =	0.12 MGD	HM =	0.42 MGD
30Q10 =	0.13MGD		

The high flow months are January through May.

This analysis assumes there are no discharges, withdrawls or springs influencing the flow in the Tanyard Branch upstream of the discharge point.

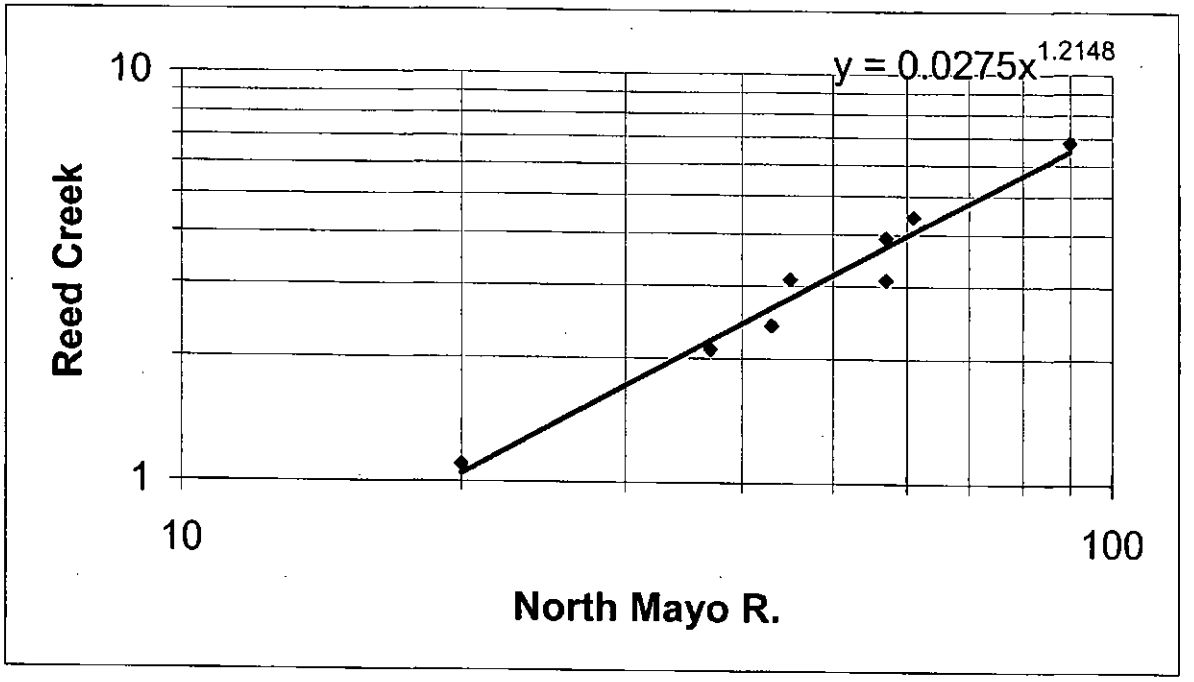
North Mayo River near Spencer, VA (reference gage #02070000)
vs Reed Creek near Collinsville, VA (measurement site #02072600)

Historic Flow Data (cfs)

Date	North Mayo	Reed Creek
8/26/1981	20	1.1
9/23/1981	43	2.4
10/22/1981	37	2.1
7/20/1982	57	3.1
10/19/1982	45	3.1
8/3/1983	57	3.92
11/9/1983	61	4.41
8/21/1984	90	6.82
	(Reference)	(Meas. Site)

2004 Flow Frequencies (cfs)

North Mayo		Reed Creek
23	1Q10	1.2
26	7Q10	1.4
29	30Q5	1.6
48	HF1Q10	3.0
52	HF7Q10	3.3
84	HM	6.0
32	30Q10	1.9
108	DA sqmi	12.4



Tanyard Branch DA = 1.35 (discharge)

	Meas. Site, cfs	Meas. Site, mgd	discharge, cfs	discharge, mgd	Ref gage, cfs	Ref gage, mgd
1q10	1.2	0.8	0.14	0.09	23	14.9
7q10	1.4	0.9	0.16	0.10	26	16.8
30q5	1.6	1.1	0.18	0.12	29	18.7
HF 1q10	3.0	2.0	0.33	0.21	48	31.0
HF 7q10	3.3	2.2	0.36	0.24	52	33.6
HM	6.0	3.9	0.65	0.42	84	54.3
30Q10	1.9	1.2	0.20	0.13	32	20.7
HF Months	Jan-May					

SUMMARY OUTPUT Regression Analysis for Reed Creek/N. Mayo River data

Regression Statistics	
Multiple R	0.977826144
R Square	0.956143967
Adjusted R Square	0.948834628
Standard Error	0.393081101
Observations	8

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	20.21201099	20.21201	130.8113	2.68048E-05
Residual	6	0.927076513	0.154513		
Total	7	21.1390875			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.873775216	0.396117931	-2.205846	0.06954	-1.843041585	0.095491153	-1.843041585	0.095491153
X Variable 1	0.08278098	0.007237823	11.43728	2.68E-05	0.065070652	0.100491308	0.065070652	0.100491308

TOTAL HARDNESS

Collection_Date_Time	$CaCO_3$ in mg/L
5/15/01 11:00	24.7
3/8/01 11:00	14.7
1/9/01 10:30	19.4
11/13/00 11:00	23.5
7/20/00 11:00	28
6/20/00 11:25	20.6
4/3/00 11:40	18
2/8/00 11:30	24.5
12/7/99 10:30	21.1
10/12/99 10:50	18.8
8/17/99 12:00	22.6
4/19/99 9:30	26
1/21/99 8:45	24
10/29/98 9:05	26
7/27/98 9:20	28.4
4/13/98 12:00	23.2
1/20/98 11:35	21
10/28/97 12:15	22.1
7/31/97 9:55	23.5
4/28/97 9:15	22.9
1/27/97 9:45	20.5
10/21/96 9:40	24
7/24/96 10:20	24
4/17/96 8:55	17
1/24/96 10:15	24
10/30/95 9:00	28
7/31/95 9:15	28
4/18/95 11:50	22
1/25/95 11:35	21
10/19/94 10:55	22
7/28/94 10:10	24
4/28/94 10:20	22
1/24/94 10:10	20
10/27/93 10:35	32
7/28/93 9:45	26
4/27/93 9:50	20
1/26/93 10:00	22
10/26/92 9:35	26
7/16/92 13:15	24
4/20/92 11:10	24
10/21/91 9:25	24
mean hardness	**23**

Station_ID: 4AREE000.80
Station_Description: Route 57 Bridge - Henry County
Latitude: 36-43-46
Longitude: 79-56-14
Stream_Name: Reed Creek
Watershed_Code: VAW-L53R

TEMPERATURE

°C	Collection_Date_Time	°C
15.5	5/15/01 11:00	15.5
4.9	3/8/01 11:00	4.9
0.9	1/9/01 10:30	0.9
9	11/13/00 11:00	
22	7/20/00 11:00	
22.2	6/20/00 11:25	
13.7	4/3/00 11:40	13.7
2.8	2/8/00 11:30	2.8
6.3	12/7/99 10:30	
16.9	10/12/99 10:50	
25.7	8/17/99 12:00	
10	4/19/99 9:30	10
4	1/21/99 8:45	4
12.3	10/29/98 9:05	
21.8	7/27/98 9:20	
12.8	4/13/98 12:00	12.8
4.7	1/20/98 11:35	4.7
10.2	10/28/97 12:15	
18.2	7/31/97 9:55	
11.6	4/28/97 9:15	11.6
3	1/27/97 9:45	3
12.3	10/21/96 9:40	
23.5	7/24/96 10:20	
8.6	4/17/96 8:55	8.6
5.4	1/24/96 10:15	5.4
7.8	10/30/95 9:00	
22.5	7/31/95 9:15	
16.9	4/18/95 11:50	16.9
1.5	1/25/95 11:35	1.5
11	10/19/94 10:55	
21.8	7/28/94 10:10	
16.7	4/28/94 10:20	16.7
0.9	1/24/94 10:10	0.9
10.5	10/27/93 10:35	
23.7	7/28/93 9:45	
10.4	4/27/93 9:50	10.4
2.7	1/26/93 10:00	2.7
7.9	10/26/92 9:35	
24.7	7/16/92 13:15	
19.8	4/20/92 11:10	19.8
9.5	10/21/91 9:25	9.5
22.5		**16.7**
90% annual temp		**90% wet season temp**

90% wet season months: Jan-May

Station_ID: 4AREE000.80
Station_Description: Route 57 Bridge - Henry County
Latitude: 36-43-46
Longitude: 79-56-14
Stream_Name: Reed Creek
Watershed_Code: VAW-L53R

pH	
Collection_Date_Time	SU
5/15/01 11:00	7.4
3/8/01 11:00	8.1
1/9/01 10:30	8
11/13/00 11:00	8.9
7/20/00 11:00	7.9
6/20/00 11:25	7.66
4/3/00 11:40	7.48
2/8/00 11:30	7.83
12/7/99 10:30	7.15
10/12/99 10:50	7.27
8/17/99 12:00	7.91
4/19/99 9:30	7.42
1/21/99 8:45	7.49
10/29/98 9:05	7.03
7/27/98 9:20	7.22
4/13/98 12:00	8
1/20/98 11:35	7.07
10/28/97 12:15	7.86
7/31/97 9:55	7.67
4/28/97 9:15	7.38
1/27/97 9:45	7.82
10/21/96 9:40	7.21
7/24/96 10:20	7.84
4/17/96 8:55	6.72
1/24/96 10:15	6.42
10/30/95 9:00	6.85
7/31/95 9:15	6.61
4/18/95 11:50	7.33
1/25/95 11:35	7.45
10/19/94 10:55	6.92
7/28/94 10:10	6.76
4/28/94 10:20	7.4
1/24/94 10:10	7.9
10/27/93 10:35	7
7/28/93 9:45	7.4
4/27/93 9:50	7.4
1/26/93 10:00	7.6
10/26/92 9:35	7.4
7/16/92 13:15	7
4/20/92 11:10	7.7
10/21/91 9:25	7.4
90% max pH	**7.9**
10% max pH	**6.9**

2008 Impaired Waters

Categories 4 and 5 by Cause Group Code

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Roanoke and Yadkin River Basins

Cause Group Code: **L53R-02-BAC** ***Jordan Creek***

Location: The mainstem waters of Jordan Creek from its headwaters to its mouth on the Smith River.

City / County: Henry Co.

Use(s): Recreation

Cause(s) /
VA Category: Escherichia coli/ 5A

The 2006 303(d) Listed 5.77 mile waters remain impaired for the Recreational Use.

4AJOR000.02- (Rt. 682 Bridge) Seven of 21 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values are 380 cfu/100 ml.

Assessment Unit /	Water Name /	Description	Cause Category /	Name	Cycle First Listed	TMDL Schedule	Size
VAW-L53R_JOR01A06 /	Jordan Creek /	The mainstem waters of Jordan Creek.	5A	Escherichia coli	2006	2018	5.77

Jordan Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**5.77**

Sources:

- Municipal (Urbanized High Density Area)
- Residential Districts
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

5.15 Smith River (VAW-L53R-01) TMDL

5.15.1 Smith River Waste Load Allocation

There are 4 facilities in this portion of the Smith 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 5-35** shows the loading from the permitted point source dischargers in the watershed. To account for future growth, the WLA was developed using 5 times the original allocation.

Table 5-35: Smith River (VAW-L53R-01) Waste load Allocation for *E. coli*

Point Source	Existing Load (cfu/day)	Allocated Load (cfu/day)	Allocated Load (cfu/year)	Percent Reduction
VA0029858	2.86E+08	2.86E+08	1.05E+11	0%
VA0090174	4.77E+07	4.77E+07	1.74E+10	0%
VA0090280	1.53E+08	1.53E+08	5.58E+10	0%
VAG402049	2.86E+06	2.86E+06	1.04E+09	0%
Total	**4.90E+08**	**4.90E+08**	**1.79E+11**	**0%**
Total (Future Growth)			**8.94E+11**	**-**

5.15.2 Smith River (VAW-L53R-01) Load Allocation

The scenarios considered for Smith River (Reach 42) load allocation are presented in **Table 5-36**. The following conclusions can be made:

1. In Scenario 0 (existing conditions), the water quality standard was violated more than 40 percent of the time in the Smith River.
2. In Scenario 3, elimination of the human sources (failed septic systems and straight pipes) and the livestock direct instream loading resulted in a 28 percent violation of this standard in the Smith River and a 45 percent violation of the *E. coli* instantaneous standard.
3. In Scenario 4, eliminating all sources except direct instream loading from wildlife resulted in no violations of either the *E. coli* geometric mean standard or the instantaneous *E. coli* standard.
4. No violations of either the *E. coli* geometric mean standard or the instantaneous *E. coli* standard occurred in the Smith River under Scenario 11.

APPENDIX C

DMR EFFLUENT DATA

Flow
pH
BOD
TSS
TRC
E. coli

Parameter Code	Parameter Description	Due Date	Quantity Average	Quantity Maximum
001	FLOW	10-Apr-2009	NULL	NULL
001	FLOW	10-Mar-2009	NULL	NULL
001	FLOW	10-Feb-2009	0.001811	0.002880
001	FLOW	10-Jan-2009	NULL	NULL
001	FLOW	10-Dec-2008	NULL	NULL
001	FLOW	10-Nov-2008	0.001672	0.002880
001	FLOW	10-Oct-2008	0.001440	0.001440
001	FLOW	10-Sep-2008	0.001440	0.001440
001	FLOW	10-Aug-2008	NULL	NULL
001	FLOW	10-Jul-2008	NULL	NULL
001	FLOW	10-Jun-2008	0.001440	0.001440
001	FLOW	10-May-2008	NULL	NULL
001	FLOW	10-Apr-2008	0.001440	0.001440
001	FLOW	10-Mar-2008	NULL	NULL
001	FLOW	10-Feb-2008	NULL	NULL
001	FLOW	10-Jan-2008	0.001440	0.001440
001	FLOW	10-Dec-2007	NULL	NULL
001	FLOW	10-Nov-2007	0.001440	0.001440
001	FLOW	10-Oct-2007	NULL	NULL
001	FLOW	10-Sep-2007	0.001440	0.001440
001	FLOW	10-Aug-2007	NULL	NULL
001	FLOW	10-Jul-2007	NULL	NULL
001	FLOW	10-Jun-2007	0.002183	0.004320
001	FLOW	10-May-2007	NULL	NULL
001	FLOW	10-Apr-2007	0.002647	0.00432
001	FLOW	10-Mar-2007	NULL	NULL
001	FLOW	10-Feb-2007	NULL	NULL
001	FLOW	10-Jan-2007	0.001672	0.002880
001	FLOW	10-Dec-2006	NULL	NULL
001	FLOW	10-Nov-2006	0.001440	0.001440
001	FLOW	10-Oct-2006	NULL	NULL
001	FLOW	10-Sep-2006	NULL	NULL
001	FLOW	10-Aug-2006	0.002554	0.005960
001	FLOW	10-Jul-2006	NULL	NULL
001	FLOW	10-Jun-2006	NULL	NULL
001	FLOW	10-May-2006	NULL	NULL
001	FLOW	10-Apr-2006	0.001904	0.00432
001	FLOW	10-Mar-2006	NULL	NULL
001	FLOW	10-Feb-2006	NULL	NULL
001	FLOW	10-Jan-2006	0.002740	0.005760
001	FLOW	10-Dec-2005	NULL	NULL
001	FLOW	10-Nov-2005	NULL	NULL
001	FLOW	10-Oct-2005	NULL	NULL
001	FLOW	10-Sep-2005	0.002323	0.005760
001	FLOW	10-Aug-2005	NULL	NULL
001	FLOW	10-Jul-2005	NULL	NULL
001	FLOW	10-Jun-2005	.003623	0.00576
001	FLOW	10-May-2005	NULL	NULL
001	FLOW	10-Apr-2005	0.001958	0.00576
001	FLOW	10-Mar-2005	NULL	NULL
001	FLOW	10-Feb-2005	NULL	NULL
001	FLOW	10-Jan-2005	0.002136	0.00432
001	FLOW	10-Dec-2004	NULL	NULL
001	FLOW	10-Nov-2004	0.001904	0.00288
			0.001904	**0.00288**
			average	**maximum**

Parameter Code	Parameter Description	Due Date	Concentration Minimum	Concentration Maximum
002	PH	10-Apr-2009	NULL	NULL
002	PH	10-Mar-2009	NULL	NULL
002	PH	10-Feb-2009	7.0	7.0
002	PH	10-Jan-2009	NULL	NULL
002	PH	10-Dec-2008	NULL	NULL
002	PH	10-Nov-2008	7.0	7.0
002	PH	10-Oct-2008	7.0	7.0
002	PH	10-Sep-2008	7.0	7.0
002	PH	10-Aug-2008	NULL	NULL
002	PH	10-Jul-2008	NULL	NULL
002	PH	10-Jun-2008	7.0	7.0
002	PH	10-May-2008	NULL	NULL
002	PH	10-Apr-2008	7.0	7.0
002	PH	10-Mar-2008	NULL	NULL
002	PH	10-Feb-2008	NULL	NULL
002	PH	10-Jan-2008	7.0	7.0
002	PH	10-Dec-2007	NULL	NULL
002	PH	10-Nov-2007	7.0	7.0
002	PH	10-Oct-2007	NULL	NULL
002	PH	10-Sep-2007	7.0	7.0
002	PH	10-Aug-2007	NULL	NULL
002	PH	10-Jul-2007	NULL	NULL
002	PH	10-Jun-2007	7.0	7.0
002	PH	10-May-2007	NULL	NULL
002	PH	10-Apr-2007	7.0	7.0
002	PH	10-Mar-2007	NULL	NULL
002	PH	10-Feb-2007	NULL	NULL
002	PH	10-Jan-2007	7.0	7.0
002	PH	10-Dec-2006	NULL	NULL
002	PH	10-Nov-2006	7.0	7.0
002	PH	10-Oct-2006	NULL	NULL
002	PH	10-Sep-2006	NULL	NULL
002	PH	10-Aug-2006	7.0	7.0
002	PH	10-Jul-2006	NULL	NULL
002	PH	10-Jun-2006	NULL	NULL
002	PH	10-May-2006	NULL	NULL
002	PH	10-Apr-2006	7.0	7.0
002	PH	10-Mar-2006	NULL	NULL
002	PH	10-Feb-2006	NULL	NULL
002	PH	10-Jan-2006	7.0	7.0
002	PH	10-Dec-2005	NULL	NULL
002	PH	10-Nov-2005	NULL	NULL
002	PH	10-Oct-2005	NULL	NULL
002	PH	10-Sep-2005	7.0	7.0
002	PH	10-Aug-2005	NULL	NULL
002	PH	10-Jul-2005	NULL	NULL
002	PH	10-Jun-2005	7.0	7.0
002	PH	10-May-2005	NULL	NULL
002	PH	10-Apr-2005	7.0	7.0
002	PH	10-Mar-2005	NULL	NULL
002	PH	10-Feb-2005	NULL	NULL
002	PH	10-Jan-2005	7.0	7.0
002	PH	10-Dec-2004	NULL	NULL
002	PH	10-Nov-2004	7.0	7.0
		limit	**6.0**	**9.0**

Parameter Code	Parameter Description	Due Date	Quantity Average	Quantity Maximum	Concentration Average	Concentration Maximum
003	BOD5	10-Apr-2009	NULL	NULL	NULL	NULL
003	BOD5	10-Mar-2009	NULL	NULL	NULL	NULL
003	BOD5	10-Feb-2009	0.20	0.20	36.6	36.6
003	BOD5	10-Jan-2009	NULL	NULL	NULL	NULL
003	BOD5	10-Dec-2008	NULL	NULL	NULL	NULL
003	BOD5	**10-Nov-2008**	1.02	0.22	**187.50**	41.0
003	BOD5	**10-Oct-2008**	0.55	0.55	**101**	**101**
003	BOD5	**10-Sep-2008**	1.02	1.02	**188**	**188**
003	BOD5	10-Aug-2008	NULL	NULL	NULL	NULL
003	BOD5	10-Jul-2008	NULL	NULL	NULL	NULL
003	BOD5	10-Jun-2008	0.08	0.08	14.1	14.1
003	BOD5	10-May-2008	NULL	NULL	NULL	NULL
003	BOD5	10-Apr-2008	0.19	0.19	35.1	35.1
003	BOD5	10-Mar-2008	NULL	NULL	NULL	NULL
003	BOD5	10-Feb-2008	NULL	NULL	NULL	NULL
003	BOD5	10-Jan-2008	0.2	0.2	37.0	37.0
003	BOD5	10-Dec-2007	NULL	NULL	NULL	NULL
003	BOD5	10-Nov-2007	0.11	0.11	20.2	20.2
003	BOD5	10-Oct-2007	NULL	NULL	NULL	NULL
003	BOD5	10-Sep-2007	0	0	7.1	7.1
003	BOD5	10-Aug-2007	NULL	NULL	NULL	NULL
003	BOD5	10-Jul-2007	NULL	NULL	NULL	NULL
003	BOD5	**10-Jun-2007**	0.6	0.6	**111**	**111**
003	BOD5	10-May-2007	NULL	NULL	NULL	NULL
003	BOD5	10-Apr-2007	0	0	20	20
003	BOD5	10-Mar-2007	NULL	NULL	NULL	NULL
003	BOD5	10-Feb-2007	NULL	NULL	NULL	NULL
003	BOD5	10-Jan-2007	0.2	0.2	23	23
003	BOD5	10-Dec-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Nov-2006	0.11	0.11	21	21
003	BOD5	10-Oct-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Sep-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Aug-2006	0.11	0.11	20	20
003	BOD5	10-Jul-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Jun-2006	NULL	NULL	NULL	NULL
003	BOD5	10-May-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Apr-2006	0.11	0.11	24	24
003	BOD5	10-Mar-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Feb-2006	NULL	NULL	NULL	NULL
003	BOD5	10-Jan-2006	0	0	24	24
003	BOD5	10-Dec-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Nov-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Oct-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Sep-2005	0	0	15	15
003	BOD5	10-Aug-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Jul-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Jun-2005	<QL	<QL	<QL	<QL
003	BOD5	10-May-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Apr-2005	0.08	0.08	15	15
003	BOD5	10-Mar-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Feb-2005	NULL	NULL	NULL	NULL
003	BOD5	10-Jan-2005	<QL	<QL	<QL	<QL
003	BOD5	10-Dec-2004	NULL	NULL	NULL	NULL
003	BOD5	10-Nov-2004	0	0	15	15
		max	**1.02**	**1.02**	**188**	**188**
		limit	**1.7**	**2.4**	**45**	**65**

Parameter Code	Parameter Description	Due Date	Quantity Average	Quantity Maximum	Concentration Average	Concentration Maximum
004	TSS	10-Apr-2009	NULL	NULL	NULL	NULL
004	TSS	10-Mar-2009	NULL	NULL	NULL	NULL
004	TSS	10-Feb-2009	0.08	0.08	7.3	7.3
004	TSS	10-Jan-2009	NULL	NULL	NULL	NULL
004	TSS	10-Dec-2008	NULL	NULL	NULL	NULL
004	TSS	10-Nov-2008	0.01	0.01	2.2	2.2
004	TSS	10-Oct-2008	NULL	NULL	<QL	<QL
004	TSS	10-Sep-2008	0.14	0.26	25.45	47.5
004	TSS	10-Aug-2008	NULL	NULL	NULL	NULL
004	TSS	10-Jul-2008	NULL	NULL	NULL	NULL
004	TSS	10-Jun-2008	0.02	0.02	3.8	3.8
004	TSS	10-May-2008	NULL	NULL	NULL	NULL
004	TSS	10-Apr-2008	0.05	0.05	8.6	8.6
004	TSS	10-Mar-2008	NULL	NULL	NULL	NULL
004	TSS	10-Feb-2008	NULL	NULL	NULL	NULL
004	TSS	10-Jan-2008	0.3	0.3	4.7	4.7
004	TSS	10-Dec-2007	NULL	NULL	NULL	NULL
004	TSS	10-Nov-2007	0.04	0.04	6.7	6.7
004	TSS	10-Oct-2007	NULL	NULL	NULL	NULL
004	TSS	10-Sep-2007	0	0	2.4	2.4
004	TSS	10-Aug-2007	NULL	NULL	NULL	NULL
004	TSS	10-Jul-2007	NULL	NULL	NULL	NULL
004	TSS	10-Jun-2007	0	0	5	5
004	TSS	10-May-2007	NULL	NULL	NULL	NULL
004	TSS	10-Apr-2007	0	0	5	5
004	TSS	10-Mar-2007	NULL	NULL	NULL	NULL
004	TSS	10-Feb-2007	NULL	NULL	NULL	NULL
004	TSS	10-Jan-2007	0	0	8.3	8.3
004	TSS	10-Dec-2006	NULL	NULL	NULL	NULL
004	TSS	**10-Nov-2006**	1.21	1.21	**222**	**222**
004	TSS	10-Oct-2006	NULL	NULL	NULL	NULL
004	TSS	10-Sep-2006	NULL	NULL	NULL	NULL
004	TSS	10-Aug-2006	0.05	0.05	10	10
004	TSS	10-Jul-2006	NULL	NULL	NULL	NULL
004	TSS	10-Jun-2006	NULL	NULL	NULL	NULL
004	TSS	10-May-2006	NULL	NULL	NULL	NULL
004	TSS	10-Apr-2006	0.04	0.04	6	6
004	TSS	10-Mar-2006	NULL	NULL	NULL	NULL
004	TSS	10-Feb-2006	NULL	NULL	NULL	NULL
004	TSS	10-Jan-2006	0	0	7	7
004	TSS	10-Dec-2005	NULL	NULL	NULL	NULL
004	TSS	10-Nov-2005	NULL	NULL	NULL	NULL
004	TSS	10-Oct-2005	NULL	NULL	NULL	NULL
004	TSS	10-Sep-2005	0	0	19	19
004	TSS	10-Aug-2005	NULL	NULL	NULL	NULL
004	TSS	10-Jul-2005	NULL	NULL	NULL	NULL
004	TSS	10-Jun-2005	0.1	0.1	17	17
004	TSS	10-May-2005	NULL	NULL	NULL	NULL
004	TSS	10-Apr-2005	0.11	0.11	18	18
004	TSS	10-Mar-2005	NULL	NULL	NULL	NULL
004	TSS	10-Feb-2005	NULL	NULL	NULL	NULL
004	TSS	10-Jan-2005	0.5	0.5	9	9
004	TSS	10-Dec-2004	NULL	NULL	NULL	NULL
004	TSS	10-Nov-2004	0	0	14	14
		max	**1.21**	**1.21**	**222**	**222**
		limit	**1.7**	**2.4**	**45**	**65**

Parameter Code	Parameter Description	Due Date	Concentration Average	Concentration Maximum
005	CL2, TOTAL	10-Apr-2009	NULL	NULL
005	CL2, TOTAL	10-Mar-2009	NULL	NULL
005	CL2, TOTAL	10-Feb-2009	<QL	<QL
005	CL2, TOTAL	10-Jan-2009	NULL	NULL
005	CL2, TOTAL	10-Dec-2008	NULL	NULL
005	CL2, TOTAL	10-Nov-2008	<QL	<QL
005	CL2, TOTAL	10-Oct-2008	<QL	<QL
005	CL2, TOTAL	10-Sep-2008	<QL	<QL
005	CL2, TOTAL	10-Aug-2008	NULL	NULL
005	CL2, TOTAL	10-Jul-2008	NULL	NULL
005	CL2, TOTAL	10-Jun-2008	<QL	<QL
005	CL2, TOTAL	10-May-2008	NULL	NULL
005	CL2, TOTAL	10-Apr-2008	<QL	<QL
005	CL2, TOTAL	10-Mar-2008	NULL	NULL
005	CL2, TOTAL	10-Feb-2008	NULL	NULL
005	CL2, TOTAL	10-Jan-2008	<QL	<QL
005	CL2, TOTAL	10-Dec-2007	NULL	NULL
005	CL2, TOTAL	10-Nov-2007	<QL	<QL
005	CL2, TOTAL	10-Oct-2007	NULL	NULL
005	CL2, TOTAL	10-Sep-2007	<QL	<QL
005	CL2, TOTAL	10-Aug-2007	NULL	NULL
005	CL2, TOTAL	10-Jul-2007	NULL	NULL
005	CL2, TOTAL	10-Jun-2007	<QL	<QL
005	CL2, TOTAL	10-May-2007	NULL	NULL
005	CL2, TOTAL	10-Apr-2007	<QL	<QL
005	CL2, TOTAL	10-Mar-2007	NULL	NULL
005	CL2, TOTAL	10-Feb-2007	NULL	NULL
005	CL2, TOTAL	10-Jan-2007	<QL	<QL
005	CL2, TOTAL	10-Dec-2006	NULL	NULL
005	CL2, TOTAL	10-Nov-2006	<QL	<QL
005	CL2, TOTAL	10-Oct-2006	NULL	NULL
005	CL2, TOTAL	10-Sep-2006	NULL	NULL
005	CL2, TOTAL	10-Aug-2006	<QL	<QL
005	CL2, TOTAL	10-Jul-2006	NULL	NULL
005	CL2, TOTAL	10-Jun-2006	NULL	NULL
005	CL2, TOTAL	10-May-2006	NULL	NULL
005	CL2, TOTAL	10-Apr-2006	<QL	<QL
005	CL2, TOTAL	10-Mar-2006	NULL	NULL
005	CL2, TOTAL	10-Feb-2006	NULL	NULL
005	CL2, TOTAL	10-Jan-2006	<QL	<QL
005	CL2, TOTAL	10-Dec-2005	NULL	NULL
005	CL2, TOTAL	10-Nov-2005	NULL	NULL
005	CL2, TOTAL	10-Oct-2005	NULL	NULL
005	CL2, TOTAL	10-Sep-2005	<QL	<QL
005	CL2, TOTAL	10-Aug-2005	NULL	NULL
005	CL2, TOTAL	10-Jul-2005	NULL	NULL
005	CL2, TOTAL	10-Jun-2005	<QL	<QL
005	CL2, TOTAL	10-May-2005	NULL	NULL
005	CL2, TOTAL	10-Apr-2005	<QL	<QL
005	CL2, TOTAL	10-Mar-2005	NULL	NULL
005	CL2, TOTAL	10-Feb-2005	NULL	NULL
005	CL2, TOTAL	10-Jan-2005	<QL	<QL
005	CL2, TOTAL	10-Dec-2004	NULL	NULL
005	CL2, TOTAL	10-Nov-2004	<QL	<QL
		max	**<QL**	**<QL**
		limit	**0.08**	**0.10**

Parameter Code	Parameter Description	Due Date	Concentration Average
120	E.COLI	10-Apr-2009	NULL
120	E.COLI	10-Mar-2009	NULL
120	E.COLI	10-Feb-2009	6
120	E.COLI	10-Jan-2009	NULL
120	E.COLI	10-Dec-2008	NULL
120	E.COLI	10-Nov-2008	0
120	E.COLI	10-Oct-2008	28
		max	**28**
		limit	**126**

APPENDIX D

WATER QUALITY BASED LIMITATIONS ANALYSES

MIX Program Results
Annual flows
Wet Season flows

Waste Load Allocation Spreadsheet with Antidegradation Baselines

STATS Program Results
Chlorine
Ammonia
annual
high flow

Mixing Zone Predictions for Green Hills MHP STP

Effluent Flow = 0.01 MGD
Stream 7Q10 = 0.09 MGD
Stream 30Q10 = 0.12 MGD
Stream 1Q10 = 0.08 MGD
Stream slope = 0.008 ft/ft
Stream width = 2.1 ft
Bottom scale = 1
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .1213 ft
Length = 49.97 ft
Velocity = .6075 ft/sec
Residence Time = .001 days

Recommendation:

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

Mixing Zone Predictions @ 30Q10

Depth = .143 ft
Length = 43.03 ft
Velocity = .6697 ft/sec
Residence Time = .0007 days

Recommendation:

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

Mixing Zone Predictions @ 1Q10

Depth = .1135 ft
Length = 53.08 ft
Velocity = .584 ft/sec
Residence Time = .0252 hours

Recommendation:

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

Virginia DEQ Mixing Zone Analysis Version 2.1

Mixing Zone Predictions for Green Hills MHP STP

Effluent Flow = 0.01 MGD
Stream 7Q10 = 0.23 MGD
Stream 30Q10 = 0.29 MGD
Stream 1Q10 = 0.20 MGD
Stream slope = 0.008 ft/ft
Stream width = 2.3 ft
Bottom scale = 1
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .1982 ft
Length = 38.51 ft
Velocity = .8149 ft/sec
Residence Time = .0005 days

Recommendation:

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

Mixing Zone Predictions @ 30Q10

Depth = .2285 ft
Length = 33.71 ft
Velocity = .8832 ft/sec
Residence Time = .0004 days

Recommendation:

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

Mixing Zone Predictions @ 1Q10

Depth = .1819 ft
Length = 41.71 ft
Velocity = .7764 ft/sec
Residence Time = .0149 hours

Recommendation:

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

Virginia DEQ Mixing Zone Analysis Version 2.1

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Green Acres MHP STP Permit No.: VA000090174

Receiving Stream: Tanyard Branch Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	23	mg/L
90% Temperature (Annual) =	22.5	deg C
90% Temperature (Wet season) =	16.7	deg C
90% Maximum pH =	7.9	SU
10% Maximum pH =	6.9	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	Y	
Trout Present Y/N? =	N	
Early Life Stages Present Y/N? =	Y	

Stream Flows

1Q10 (Annual) =	0.08	MGD
7Q10 (Annual) =	0.09	MGD
30Q10 (Annual) =	0.12	MGD
1Q10 (Wet season) =	0.2	MGD
30Q10 (Wet season)	0.23	MGD
30Q5 =	0.16	MGD
Harmonic Mean =	0.41	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) =	25	mg/L
90% Temp (Annual) =	22.4	deg C
90% Temp (Wet season) =	6.8	deg C
90% Maximum pH =	7	SU
10% Maximum pH =	7	SU
Discharge Flow =	0.01	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	--	--	1.2E+03	2.7E+03	--	--	2.0E+04	4.6E+04	--	--	1.2E+02	2.7E+02	--	--	2.0E+03	4.6E+03	--	--	2.0E+03	4.6E+03
Acrolein	0	--	--	3.2E+02	7.8E+02	--	--	5.4E+03	1.3E+04	--	--	3.2E+01	7.8E+01	--	--	5.4E+02	1.3E+03	--	--	5.4E+02	1.3E+03
Acrylonitrile[C]	0	--	--	5.9E-01	6.6E+00	--	--	2.5E+01	2.8E+02	--	--	5.9E-02	6.6E-01	--	--	2.5E+00	2.8E+01	--	--	2.5E+00	2.8E+01
Aldrin [C]	0	3.0E+00	--	1.3E-03	1.4E-03	2.7E+01	--	5.5E-02	5.9E-02	7.5E-01	--	1.3E-04	1.4E-04	6.8E+00	--	5.5E-03	5.9E-03	6.8E+00	--	5.5E-03	5.9E-03
Ammonia-N (mg/l) (Yearly)	0	1.57E+01	2.11E+00	--	--	1.4E+02	2.7E+01	--	--	3.91E+00	5.27E-01	--	--	3.5E+01	6.8E+00	--	--	3.5E+01	6.8E+00	--	--
Ammonia-N (mg/l) (High Flow)	0	1.27E+01	2.88E+00	--	--	2.7E+02	6.9E+01	--	--	3.17E+00	7.19E-01	--	--	6.6E+01	1.7E+01	--	--	6.6E+01	1.7E+01	--	--
Anthracene	0	--	--	9.6E+03	1.1E+05	--	--	1.6E+05	1.9E+06	--	--	9.6E+02	1.1E+04	--	--	1.6E+04	1.9E+05	--	--	1.6E+04	1.9E+05
Antimony	0	--	--	1.4E+01	4.3E+03	--	--	2.4E+02	7.3E+04	--	--	1.4E+00	4.3E+02	--	--	2.4E+01	7.3E+03	--	--	2.4E+01	7.3E+03
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.1E+03	1.5E+03	1.7E+02	--	8.5E+01	3.8E+01	1.0E+00	--	7.7E+02	3.8E+02	1.7E+01	--	7.7E+02	3.8E+02	1.7E+01	--
Barium	0	--	--	2.0E+03	--	--	--	3.4E+04	--	--	--	2.0E+02	--	--	--	3.4E+03	--	--	--	3.4E+03	--
Benzene [C]	0	--	--	1.2E+01	7.1E+02	--	--	5.0E+02	3.0E+04	--	--	1.2E+00	7.1E+01	--	--	5.0E+01	3.0E+03	--	--	5.0E+01	3.0E+03
Benzidine[C]	0	--	--	1.2E-03	5.4E-03	--	--	5.0E-02	2.3E-01	--	--	1.2E-04	5.4E-04	--	--	5.0E-03	2.3E-02	--	--	5.0E-03	2.3E-02
Benzo (a) anthracene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Benzo (b) fluoranthene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Benzo (k) fluoranthene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Benzo (a) pyrene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Bis2-Chloroethyl Ether	0	--	--	3.1E-01	1.4E+01	--	--	5.3E+00	2.4E+02	--	--	3.1E-02	1.4E+00	--	--	5.3E-01	2.4E+01	--	--	5.3E-01	2.4E+01
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	1.7E+05	--	--	2.4E+04	2.9E+06	--	--	1.4E+02	1.7E+04	--	--	2.4E+03	2.9E+05	--	--	2.4E+03	2.9E+05
Bromoform [C]	0	--	--	4.4E+01	3.6E+03	--	--	1.8E+03	1.5E+05	--	--	4.4E+00	3.6E+02	--	--	1.8E+02	1.5E+04	--	--	1.8E+02	1.5E+04
Butylbenzylphthalate	0	--	--	3.0E+03	5.2E+03	--	--	5.1E+04	8.8E+04	--	--	3.0E+02	5.2E+02	--	--	5.1E+03	8.8E+03	--	--	5.1E+03	8.8E+03
Cadmium	0	8.2E-01	3.8E-01	5.0E+00	--	7.4E+00	3.8E+00	8.5E+01	--	2.1E-01	9.5E-02	5.0E-01	--	1.8E+00	9.5E-01	8.5E+00	--	1.8E+00	9.5E-01	8.5E+00	--
Carbon Tetrachloride [C]	0	--	--	2.5E+00	4.4E+01	--	--	1.1E+02	1.8E+03	--	--	2.5E-01	4.4E+00	--	--	1.1E+01	1.8E+02	--	--	1.1E+01	1.8E+02
Chlordane [C]	0	2.4E+00	4.3E-03	2.1E-02	2.2E-02	2.2E+01	4.3E-02	8.8E-01	9.2E-01	6.0E-01	1.1E-03	2.1E-03	2.2E-03	5.4E+00	1.1E-02	8.8E-02	9.2E-02	5.4E+00	1.1E-02	8.8E-02	9.2E-02
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	7.7E+06	2.3E+06	4.3E+06	--	2.2E+05	5.8E+04	2.5E+04	--	1.9E+06	5.8E+05	4.3E+05	--	1.9E+06	5.8E+05	4.3E+05	--
TRC	0	1.9E+01	1.1E+01	--	--	1.7E+02	1.1E+02	--	--	4.8E+00	2.8E+00	--	--	4.3E+01	2.8E+01	--	--	4.3E+01	2.8E+01	--	--
Chlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	1.2E+04	3.6E+05	--	--	6.8E+01	2.1E+03	--	--	1.2E+03	3.6E+04	--	--	1.2E+03	3.6E+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	--	--	4.1E+00	3.4E+02	--	--	1.7E+02	1.4E+04	--	--	4.1E-01	3.4E+01	--	--	1.7E+01	1.4E+03	--	--	1.7E+01	1.4E+03
Chloroform [C]	0	--	--	3.5E+02	2.9E+04	--	--	1.5E+04	1.2E+06	--	--	3.5E+01	2.9E+03	--	--	1.5E+03	1.2E+05	--	--	1.5E+03	1.2E+05
2-Chloronaphthalene	0	--	--	1.7E+03	4.3E+03	--	--	2.9E+04	7.3E+04	--	--	1.7E+02	4.3E+02	--	--	2.9E+03	7.3E+03	--	--	2.9E+03	7.3E+03
2-Chlorophenol	0	--	--	1.2E+02	4.0E+02	--	--	2.0E+03	6.8E+03	--	--	1.2E+01	4.0E+01	--	--	2.0E+02	6.8E+02	--	--	2.0E+02	6.8E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	7.5E-01	4.1E-01	--	--	2.1E-02	1.0E-02	--	--	1.9E-01	1.0E-01	--	--	1.9E-01	1.0E-01	--	--
Chromium III	0	1.8E+02	2.4E+01	--	--	1.6E+03	2.4E+02	--	--	4.6E+01	6.0E+00	--	--	4.1E+02	6.0E+01	--	--	4.1E+02	6.0E+01	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.4E+02	1.1E+02	--	--	4.0E+00	2.8E+00	--	--	3.6E+01	2.8E+01	--	--	3.6E+01	2.8E+01	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	1.7E+03	--	--	--	1.0E+01	--	--	--	1.7E+02	--	--	--	1.7E+02	--
Chrysene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Copper	0	3.6E+00	2.7E+00	1.3E+03	--	3.3E+01	2.7E+01	2.2E+04	--	9.1E-01	6.8E-01	1.3E+02	--	8.2E+00	6.8E+00	2.2E+03	--	8.2E+00	6.8E+00	2.2E+03	--
Cyanide	0	2.2E+01	5.2E+00	7.0E+02	2.2E+05	2.0E+02	5.2E+01	1.2E+04	3.7E+06	5.5E+00	1.3E+00	7.0E+01	2.2E+04	5.0E+01	1.3E+01	1.2E+03	3.7E+05	5.0E+01	1.3E+01	1.2E+03	3.7E+05
DDD [C]	0	--	--	8.3E-03	8.4E-03	--	--	3.5E-01	3.5E-01	--	--	8.3E-04	8.4E-04	--	--	3.5E-02	3.5E-02	--	--	3.5E-02	3.5E-02
DDE [C]	0	--	--	5.9E-03	5.9E-03	--	--	2.5E-01	2.5E-01	--	--	5.9E-04	5.9E-04	--	--	2.5E-02	2.5E-02	--	--	2.5E-02	2.5E-02
DDT [C]	0	1.1E+00	1.0E-03	5.9E-03	5.9E-03	9.9E+00	1.0E-02	2.5E-01	2.5E-01	2.8E-01	2.5E-04	5.9E-04	5.9E-04	2.5E+00	2.5E-03	2.5E-02	2.5E-02	2.5E+00	2.5E-03	2.5E-02	2.5E-02
Demeton	0	--	1.0E-01	--	--	--	1.0E+00	--	--	--	2.5E-02	--	--	--	2.5E-01	--	--	--	2.5E-01	--	--
Dibenz(a,h)anthracene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Dibutyl phthalate	0	--	--	2.7E+03	1.2E+04	--	--	4.6E+04	2.0E+05	--	--	2.7E+02	1.2E+03	--	--	4.6E+03	2.0E+04	--	--	4.6E+03	2.0E+04
Dichloromethane (Methylene Chloride) [C]	0	--	--	4.7E+01	1.6E+04	--	--	2.0E+03	6.7E+05	--	--	4.7E+00	1.6E+03	--	--	2.0E+02	6.7E+04	--	--	2.0E+02	6.7E+04
1,2-Dichlorobenzene	0	--	--	2.7E+03	1.7E+04	--	--	4.6E+04	2.9E+05	--	--	2.7E+02	1.7E+03	--	--	4.6E+03	2.9E+04	--	--	4.6E+03	2.9E+04
1,3-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	6.8E+03	4.4E+04	--	--	4.0E+01	2.6E+02	--	--	6.8E+02	4.4E+03	--	--	6.8E+02	4.4E+03
1,4-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	6.8E+03	4.4E+04	--	--	4.0E+01	2.6E+02	--	--	6.8E+02	4.4E+03	--	--	6.8E+02	4.4E+03
3,3-Dichlorobenzidine[C]	0	--	--	4.0E-01	7.7E-01	--	--	1.7E+01	3.2E+01	--	--	4.0E-02	7.7E-02	--	--	1.7E+00	3.2E+00	--	--	1.7E+00	3.2E+00
Dichlorobromomethane [C]	0	--	--	5.6E+00	4.6E+02	--	--	2.4E+02	1.9E+04	--	--	5.6E-01	4.6E+01	--	--	2.4E+01	1.9E+03	--	--	2.4E+01	1.9E+03
1,2-Dichloroethane [C]	0	--	--	3.8E+00	9.9E+02	--	--	1.6E+02	4.2E+04	--	--	3.8E-01	9.9E+01	--	--	1.6E+01	4.2E+03	--	--	1.6E+01	4.2E+03
1,1-Dichloroethylene	0	--	--	3.1E+02	1.7E+04	--	--	5.3E+03	2.9E+05	--	--	3.1E+01	1.7E+03	--	--	5.3E+02	2.9E+04	--	--	5.3E+02	2.9E+04
1,2-trans-dichloroethylene	0	--	--	7.0E+02	1.4E+05	--	--	1.2E+04	2.4E+06	--	--	7.0E+01	1.4E+04	--	--	1.2E+03	2.4E+05	--	--	1.2E+03	2.4E+05
2,4-Dichlorophenol	0	--	--	9.3E+01	7.9E+02	--	--	1.6E+03	1.3E+04	--	--	9.3E+00	7.9E+01	--	--	1.6E+02	1.3E+03	--	--	1.6E+02	1.3E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.7E+03	--	--	--	1.0E+01	--	--	--	1.7E+02	--	--	--	1.7E+02	--
1,2-Dichloropropane[C]	0	--	--	5.2E+00	3.9E+02	--	--	2.2E+02	1.6E+04	--	--	5.2E-01	3.9E+01	--	--	2.2E+01	1.6E+03	--	--	2.2E+01	1.6E+03
1,3-Dichloropropene	0	--	--	1.0E+01	1.7E+03	--	--	1.7E+02	2.9E+04	--	--	1.0E+00	1.7E+02	--	--	1.7E+01	2.9E+03	--	--	1.7E+01	2.9E+03
Dieldrin [C]	0	2.4E-01	5.6E-02	1.4E-03	1.4E-03	2.2E+00	5.6E-01	5.9E-02	5.9E-02	6.0E-02	1.4E-02	1.4E-04	1.4E-04	5.4E-01	1.4E-01	5.9E-03	5.9E-03	5.4E-01	1.4E-01	5.9E-03	5.9E-03
Diethyl Phthalate	0	--	--	2.3E+04	1.2E+05	--	--	3.9E+05	2.0E+06	--	--	2.3E+03	1.2E+04	--	--	3.9E+04	2.0E+05	--	--	3.9E+04	2.0E+05
Di-2-Ethylhexyl Phthalate [C]	0	--	--	1.8E+01	5.9E+01	--	--	7.6E+02	2.5E+03	--	--	1.8E+00	5.9E+00	--	--	7.6E+01	2.5E+02	--	--	7.6E+01	2.5E+02
2,4-Dimethylphenol	0	--	--	5.4E+02	2.3E+03	--	--	9.2E+03	3.9E+04	--	--	5.4E+01	2.3E+02	--	--	9.2E+02	3.9E+03	--	--	9.2E+02	3.9E+03
Dimethyl Phthalate	0	--	--	3.1E+05	2.9E+06	--	--	5.3E+06	4.9E+07	--	--	3.1E+04	2.9E+05	--	--	5.3E+05	4.9E+06	--	--	5.3E+05	4.9E+06
Di-n-Butyl Phthalate	0	--	--	2.7E+03	1.2E+04	--	--	4.6E+04	2.0E+05	--	--	2.7E+02	1.2E+03	--	--	4.6E+03	2.0E+04	--	--	4.6E+03	2.0E+04
2,4 Dinitrophenol	0	--	--	7.0E+01	1.4E+04	--	--	1.2E+03	2.4E+05	--	--	7.0E+00	1.4E+03	--	--	1.2E+02	2.4E+04	--	--	1.2E+02	2.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	7.65E+02	--	--	2.3E+02	1.3E+04	--	--	1.3E+00	7.7E+01	--	--	2.3E+01	1.3E+03	--	--	2.3E+01	1.3E+03
2,4-Dinitrotoluene [C]	0	--	--	1.1E+00	9.1E+01	--	--	4.6E+01	3.8E+03	--	--	1.1E-01	9.1E+00	--	--	4.6E+00	3.8E+02	--	--	4.6E+00	3.8E+02
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	1.2E-06	1.2E-06	--	--	1.2E-06	1.2E-06	--	--	1.2E-07	1.2E-07	--	--	1.2E-07	1.2E-07	--	--	1.2E-07	1.2E-07
1,2-Diphenylhydrazine[C]	0	--	--	4.0E-01	5.4E+00	--	--	1.7E+01	2.3E+02	--	--	4.0E-02	5.4E-01	--	--	1.7E+00	2.3E+01	--	--	1.7E+00	2.3E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	2.0E+00	5.6E-01	1.9E+03	4.1E+03	5.5E-02	1.4E-02	1.1E+01	2.4E+01	5.0E-01	1.4E-01	1.9E+02	4.1E+02	5.0E-01	1.4E-01	1.9E+02	4.1E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	2.0E+00	5.6E-01	1.9E+03	4.1E+03	5.5E-02	1.4E-02	1.1E+01	2.4E+01	5.0E-01	1.4E-01	1.9E+02	4.1E+02	5.0E-01	1.4E-01	1.9E+02	4.1E+02
Endosulfan Sulfate	0	--	--	1.1E+02	2.4E+02	--	--	1.9E+03	4.1E+03	--	--	1.1E+01	2.4E+01	--	--	1.9E+02	4.1E+02	--	--	1.9E+02	4.1E+02
Endrin	0	8.6E-02	3.6E-02	7.6E-01	8.1E-01	7.7E-01	3.6E-01	1.3E+01	1.4E+01	2.2E-02	9.0E-03	7.6E-02	8.1E-02	1.9E-01	9.0E-02	1.3E+00	1.4E+00	1.9E-01	9.0E-02	1.3E+00	1.4E+00
Endrin Aldehyde	0	--	--	7.6E-01	8.1E-01	--	--	1.3E+01	1.4E+01	--	--	7.6E-02	8.1E-02	--	--	1.3E+00	1.4E+00	--	--	1.3E+00	1.4E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	3.1E+03	2.9E+04	--	--	5.3E+04	4.9E+05	--	--	3.1E+02	2.9E+03	--	--	5.3E+03	4.9E+04	--	--	5.3E+03	4.9E+04
Fluoranthene	0	--	--	3.0E+02	3.7E+02	--	--	5.1E+03	6.3E+03	--	--	3.0E+01	3.7E+01	--	--	5.1E+02	6.3E+02	--	--	5.1E+02	6.3E+02
Fluorene	0	--	--	1.3E+03	1.4E+04	--	--	2.2E+04	2.4E+05	--	--	1.3E+02	1.4E+03	--	--	2.2E+03	2.4E+04	--	--	2.2E+03	2.4E+04
Foaming Agents	0	--	--	5.0E+02	--	--	--	8.5E+03	--	--	--	5.0E+01	--	--	--	8.5E+02	--	--	--	8.5E+02	--
Guthion	0	--	1.0E-02	--	--	--	1.0E-01	--	--	--	2.5E-03	--	--	--	2.5E-02	--	--	--	2.5E-02	--	--
Heptachlor [C]	0	5.2E-01	3.8E-03	2.1E-03	2.1E-03	4.7E+00	3.8E-02	8.8E-02	8.8E-02	1.3E-01	9.5E-04	2.1E-04	2.1E-04	1.2E+00	9.5E-03	8.8E-03	8.8E-03	1.2E+00	9.5E-03	8.8E-03	8.8E-03
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	1.0E-03	1.1E-03	4.7E+00	3.8E-02	4.2E-02	4.6E-02	1.3E-01	9.5E-04	1.0E-04	1.1E-04	1.2E+00	9.5E-03	4.2E-03	4.6E-03	1.2E+00	9.5E-03	4.2E-03	4.6E-03
Hexachlorobenzene[C]	0	--	--	7.5E-03	7.7E-03	--	--	3.2E-01	3.2E-01	--	--	7.5E-04	7.7E-04	--	--	3.2E-02	3.2E-02	--	--	3.2E-02	3.2E-02
Hexachlorobutadiene[C]	0	--	--	4.4E+00	5.0E+02	--	--	1.8E+02	2.1E+04	--	--	4.4E-01	5.0E+01	--	--	1.8E+01	2.1E+03	--	--	1.8E+01	2.1E+03
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	3.9E-02	1.3E-01	--	--	1.6E+00	5.5E+00	--	--	3.9E-03	1.3E-02	--	--	1.6E-01	5.5E-01	--	--	1.6E-01	5.5E-01
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	1.4E-01	4.6E-01	--	--	5.9E+00	1.9E+01	--	--	1.4E-02	4.6E-02	--	--	5.9E-01	1.9E+00	--	--	5.9E-01	1.9E+00
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	--	1.9E-01	6.3E-01	8.6E+00	--	8.0E+00	2.6E+01	2.4E-01	--	1.9E-02	6.3E-02	2.1E+00	--	8.0E-01	2.6E+00	2.1E+00	--	8.0E-01	2.6E+00
Hexachlorocyclopentadiene	0	--	--	2.4E+02	1.7E+04	--	--	4.1E+03	2.9E+05	--	--	2.4E+01	1.7E+03	--	--	4.1E+02	2.9E+04	--	--	4.1E+02	2.9E+04
Hexachloroethane[C]	0	--	--	1.9E+01	8.9E+01	--	--	8.0E+02	3.7E+03	--	--	1.9E+00	8.9E+00	--	--	8.0E+01	3.7E+02	--	--	8.0E+01	3.7E+02
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+01	--	--	--	5.0E-01	--	--	--	5.0E+00	--	--	--	5.0E+00	--	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	4.4E-02	4.9E-01	--	--	1.8E+00	2.1E+01	--	--	4.4E-03	4.9E-02	--	--	1.8E-01	2.1E+00	--	--	1.8E-01	2.1E+00
Iron	0	--	--	3.0E+02	--	--	--	5.1E+03	--	--	--	3.0E+01	--	--	--	5.1E+02	--	--	--	5.1E+02	--
Isophorone[C]	0	--	--	3.6E+02	2.6E+04	--	--	1.5E+04	1.1E+06	--	--	3.6E+01	2.6E+03	--	--	1.5E+03	1.1E+05	--	--	1.5E+03	1.1E+05
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	2.0E+01	2.3E+00	1.5E+01	--	1.8E+02	2.3E+01	2.6E+02	--	5.1E+00	5.8E-01	1.5E+00	--	4.6E+01	5.8E+00	2.6E+01	--	4.6E+01	5.8E+00	2.6E+01	--
Malathion	0	--	1.0E-01	--	--	--	1.0E+00	--	--	--	2.5E-02	--	--	--	2.5E-01	--	--	--	2.5E-01	--	--
Manganese	0	--	--	5.0E+01	--	--	--	8.5E+02	--	--	--	5.0E+00	--	--	--	8.5E+01	--	--	--	8.5E+01	--
Mercury	0	1.4E+00	7.7E-01	5.0E-02	5.1E-02	1.3E+01	7.7E+00	8.5E-01	8.7E-01	3.5E-01	1.9E-01	5.0E-03	5.1E-03	3.2E+00	1.9E+00	8.5E-02	8.7E-02	3.2E+00	1.9E+00	8.5E-02	8.7E-02
Methyl Bromide	0	--	--	4.8E+01	4.0E+03	--	--	8.2E+02	6.8E+04	--	--	4.8E+00	4.0E+02	--	--	8.2E+01	6.8E+03	--	--	8.2E+01	6.8E+03
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E-01	1.7E+03	--	--	7.5E-03	1.0E+01	--	--	7.5E-02	1.7E+02	--	--	7.5E-02	1.7E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Monochlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	1.2E+04	3.6E+05	--	--	6.8E+01	2.1E+03	--	--	1.2E+03	3.6E+04	--	--	1.2E+03	3.6E+04
Nickel	0	5.6E+01	6.3E+00	6.1E+02	4.6E+03	5.1E+02	6.3E+01	1.0E+04	7.8E+04	1.4E+01	1.6E+00	6.1E+01	4.6E+02	1.3E+02	1.6E+01	1.0E+03	7.8E+03	1.3E+02	1.6E+01	1.0E+03	7.8E+03
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.7E+05	--	--	--	1.0E+03	--	--	--	1.7E+04	--	--	--	1.7E+04	--
Nitrobenzene	0	--	--	1.7E+01	1.9E+03	--	--	2.9E+02	3.2E+04	--	--	1.7E+00	1.9E+02	--	--	2.9E+01	3.2E+03	--	--	2.9E+01	3.2E+03
N-Nitrosodimethylamine[C]	0	--	--	6.9E-03	8.1E+01	--	--	2.9E-01	3.4E+03	--	--	6.9E-04	8.1E+00	--	--	2.9E-02	3.4E+02	--	--	2.9E-02	3.4E+02
N-Nitrosodiphenylamine[C]	0	--	--	5.0E+01	1.6E+02	--	--	2.1E+03	6.7E+03	--	--	5.0E+00	1.6E+01	--	--	2.1E+02	6.7E+02	--	--	2.1E+02	6.7E+02
N-Nitrosodi-n-propylamine[C]	0	--	--	5.0E-02	1.4E+01	--	--	2.1E+00	5.9E+02	--	--	5.0E-03	1.4E+00	--	--	2.1E-01	5.9E+01	--	--	2.1E-01	5.9E+01
Parathion	0	6.5E-02	1.3E-02	--	--	5.9E-01	1.3E-01	--	--	1.6E-02	3.3E-03	--	--	1.5E-01	3.3E-02	--	--	1.5E-01	3.3E-02	--	--
PCB-1016	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB-1221	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB-1232	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB-1242	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB-1248	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB-1254	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB-1260	0	--	1.4E-02	--	--	--	1.4E-01	--	--	--	3.5E-03	--	--	--	3.5E-02	--	--	--	3.5E-02	--	--
PCB Total[C]	0	--	--	1.7E-03	1.7E-03	--	--	7.1E-02	7.1E-02	--	--	1.7E-04	1.7E-04	--	--	7.1E-03	7.1E-03	--	--	7.1E-03	7.1E-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	8.0E+00	6.1E+00	2.8E+00	8.2E+01	7.2E+01	6.1E+01	1.2E+02	3.4E+03	2.0E+00	1.5E+00	2.8E-01	8.2E+00	1.8E+01	1.5E+01	1.2E+01	3.4E+02	**1.8E+01**	**1.5E+01**	**1.2E+01**	**3.4E+02**
Phenol	0	--	--	2.1E+04	4.6E+06	--	--	3.6E+05	7.8E+07	--	--	2.1E+03	4.6E+05	--	--	3.6E+04	7.8E+06	--	--	**3.6E+04**	**7.8E+06**
Pyrene	0	--	--	9.6E+02	1.1E+04	--	--	1.6E+04	1.9E+05	--	--	9.6E+01	1.1E+03	--	--	1.6E+03	1.9E+04	--	--	**1.6E+03**	**1.9E+04**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity	0	--	--	1.5E+01	1.5E+01	--	--	2.6E+02	2.6E+02	--	--	1.5E+00	1.5E+00	--	--	2.6E+01	2.6E+01	--	--	**2.6E+01**	**2.6E+01**
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	6.8E+01	6.8E+01	--	--	4.0E-01	4.0E-01	--	--	6.8E+00	6.8E+00	--	--	**6.8E+00**	**6.8E+00**
Strontium-90	0	--	--	8.0E+00	8.0E+00	--	--	1.4E+02	1.4E+02	--	--	8.0E-01	8.0E-01	--	--	1.4E+01	1.4E+01	--	--	**1.4E+01**	**1.4E+01**
Tritium	0	--	--	2.0E+04	2.0E+04	--	--	3.4E+05	3.4E+05	--	--	2.0E+03	2.0E+03	--	--	3.4E+04	3.4E+04	--	--	**3.4E+04**	**3.4E+04**
Selenium	0	2.0E+01	5.0E+00	1.7E+02	1.1E+04	1.8E+02	5.0E+01	2.9E+03	1.9E+05	5.0E+00	1.3E+00	1.7E+01	1.1E+03	4.5E+01	1.3E+01	2.9E+02	1.9E+04	**4.5E+01**	**1.3E+01**	**2.9E+02**	**1.9E+04**
Silver	0	3.2E-01	--	--	--	2.9E+00	--	--	--	7.9E-02	--	--	--	7.2E-01	--	--	--	**7.2E-01**	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	4.3E+06	--	--	--	2.5E+04	--	--	--	4.3E+05	--	--	--	**4.3E+05**	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	1.1E+02	--	--	7.1E+01	4.6E+03	--	--	1.7E-01	1.1E+01	--	--	7.1E+00	4.6E+02	--	--	**7.1E+00**	**4.6E+02**
Tetrachloroethylene[C]	0	--	--	8.0E+00	8.9E+01	--	--	3.4E+02	3.7E+03	--	--	8.0E-01	8.9E+00	--	--	3.4E+01	3.7E+02	--	--	**3.4E+01**	**3.7E+02**
Thallium	0	--	--	1.7E+00	6.3E+00	--	--	2.9E+01	1.1E+02	--	--	1.7E-01	6.3E-01	--	--	2.9E+00	1.1E+01	--	--	**2.9E+00**	**1.1E+01**
Toluene	0	--	--	6.8E+03	2.0E+05	--	--	1.2E+05	3.4E+06	--	--	6.8E+02	2.0E+04	--	--	1.2E+04	3.4E+05	--	--	**1.2E+04**	**3.4E+05**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	8.5E+06	--	--	--	5.0E+04	--	--	--	8.5E+05	--	--	--	**8.5E+05**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	7.3E-03	7.5E-03	6.6E+00	2.0E-03	3.1E-01	3.2E-01	1.8E-01	5.0E-05	7.3E-04	7.5E-04	1.6E+00	5.0E-04	3.1E-02	3.2E-02	**1.6E+00**	**5.0E-04**	**3.1E-02**	**3.2E-02**
Tributyltin	0	4.6E-01	6.3E-02	--	--	4.1E+00	6.3E-01	--	--	1.2E-01	1.6E-02	--	--	1.0E+00	1.6E-01	--	--	**1.0E+00**	**1.6E-01**	--	--
1,2,4-Trichlorobenzene	0	--	--	2.6E+02	9.4E+02	--	--	4.4E+03	1.6E+04	--	--	2.6E+01	9.4E+01	--	--	4.4E+02	1.6E+03	--	--	**4.4E+02**	**1.6E+03**
1,1,2-Trichloroethane[C]	0	--	--	6.0E+00	4.2E+02	--	--	2.5E+02	1.8E+04	--	--	6.0E-01	4.2E+01	--	--	2.5E+01	1.8E+03	--	--	**2.5E+01**	**1.8E+03**
Trichloroethylene [C]	0	--	--	2.7E+01	8.1E+02	--	--	1.1E+03	3.4E+04	--	--	2.7E+00	8.1E+01	--	--	1.1E+02	3.4E+03	--	--	**1.1E+02**	**3.4E+03**
2,4,6-Trichlorophenol [C]	0	--	--	2.1E+01	6.5E+01	--	--	8.8E+02	2.7E+03	--	--	2.1E+00	6.5E+00	--	--	8.8E+01	2.7E+02	--	--	**8.8E+01**	**2.7E+02**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	8.5E+02	--	--	--	5.0E+00	--	--	--	8.5E+01	--	--	--	**8.5E+01**	--
Vinyl Chloride[C]	0	--	--	2.3E-01	6.1E+01	--	--	9.7E+00	2.6E+03	--	--	2.3E-02	6.1E+00	--	--	9.7E-01	2.6E+02	--	--	**9.7E-01**	**2.6E+02**
Zinc	0	3.6E+01	3.6E+01	9.1E+03	6.9E+04	3.3E+02	3.6E+02	1.5E+05	1.2E+06	9.1E+00	9.1E+00	9.1E+02	6.9E+03	8.1E+01	9.1E+01	1.5E+04	1.2E+05	**8.1E+01**	**9.1E+01**	**1.5E+04**	**1.2E+05**

Notes:

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

Metal	Target Value (SSTV)
Antimony	2.4E+01
Arsenic	1.7E+01
Barium	3.4E+03
Cadmium	5.7E-01
Chromium III	3.6E+01
Chromium VI	1.4E+01
Copper	3.3E+00
Iron	5.1E+02
Lead	3.5E+00
Manganese	8.5E+01
Mercury	8.5E-02
Nickel	9.4E+00
Selenium	7.5E+00
Silver	2.9E-01
Zinc	3.3E+01

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

3/31/2009 12:56:41 PM

Facility = Green Acres MHP STP all values in mg/L
Chemical = chlorine
Chronic averaging period = 4
WLAa = 0.17
WLAc = 0.11
Q.L. = 0.10
# samples/mo. = 30
# samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = 20
Variance = 144
C.V. = 0.6
97th percentile daily values = 48.6683
97th percentile 4 day average = 33.2758
97th percentile 30 day average= 24.1210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 0.160883226245855 N/A
Average Weekly limit = 9.59676626920106E-02 → 0.10
Average Monthly LImit = 0.079737131838758 → 0.08

The data are:

20

3/31/2009 1:08:59 PM

Facility = Green Acres MHP STP all values in mg/L
Chemical = ammonia (yearly)
Chronic averaging period = 30
WLAa = 140
WLAc = 27
Q.L. = 0.20
# 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

3/31/2009 1:12:00 PM

Facility = Green Acres MHP STP all values in mg/L
Chemical = ammonia (high flow)
Chronic averaging period = 30
WLAa = 270
WLAc = 69
Q.L. = 0.20
# 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

APPENDIX E

DISSOLVED OXYGEN MODELING

April 10, 2009

April 1, 1999

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to TANYARD BRANCH.

File Information

File Name:	I:\rstate\Green Acres MHP\VPDES permitting\DO model run 2.mod
Date Modified:	April 10, 2009

Water Quality Standards Information

Stream Name:	TANYARD BRANCH
River Basin:	Roanoke River Basin
Section:	4a
Class:	III - Nontidal Waters (Coastal and Piedmont)
Special Standards:	PWS

Background Flow Information

Gauge Used:	NA - calculated
Gauge Drainage Area:	1.35 Sq.Mi.
Gauge 7Q10 Flow:	0.09 MGD
Headwater Drainage Area:	1.35 Sq.Mi.
Headwater 7Q10 Flow:	0.09 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges:	0 MGD
Incremental Flow in Segments:	6.666667E-02 MGD/Sq.Mi.

Background Water Quality

Background Temperature:	22.5 Degrees C
Background cBOD5:	2 mg/l
Background TKN:	0 mg/l
Background D.O.:	7.592517 mg/l

Model Segmentation

Number of Segments:	1
Model Start Elevation:	847 ft above MSL
Model End Elevation:	820 ft above MSL

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to TANYARD BRANCH.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	GREEN ACRES MOBILE HOME PARK
VPDES Permit No.:	

Discharger Flow Information

Flow:	0.01 MGD
cBOD5:	65 mg/l
TKN:	20 mg/l
D.O.:	5 mg/l
Temperature:	22.5 Degrees C

Geographic Information

Segment Length:	0.66 miles
Upstream Drainage Area:	1.35 Sq.Mi.
Downstream Drainage Area:	0 Sq.Mi.
Upstream Elevation:	847 Ft.
Downstream Elevation:	820 Ft.

Hydraulic Information

Segment Width:	4.001 Ft.
Segment Depth:	0.091 Ft.
Segment Velocity:	0.427 Ft./Sec.
Segment Flow:	0.1 MGD
Incremental Flow:	-0.09 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Irregular
Character:	Mostly Straight
Pool and Riffle:	Yes
Percent Pools:	80
Percent Riffles:	20
Pool Depth:	0.1 Ft.
Riffle Depth:	0.05 Ft.
Bottom Type:	Silt
Sludge:	None
Plants:	None
Algae:	None

```
"Model Run For I:\rstate\Green Acres MHP\VPDES permitting\DO model run 2.mod On
4/10/2009 1:50:31 PM"

"Model is for TANYARD BRANCH."
"Model starts at the GREEN ACRES MOBILE HOME PARK discharge."

"Background Data"
"7Q10",  "cBOD5",  "TKN",     "DO",      "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
.09,     2,        0,        7.593,     22.5

"Discharge/Tributary Input Data for Segment 1"
"Flow",  "cBOD5",  "TKN",     "DO",      "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
.01,     65,       20,       ,5,        22.5

"Hydraulic Information for Segment 1"
"Length","Width",  "Depth",  "Velocity"
"(mi)",  "(ft)",   "(ft)",   "(ft/sec)"
.66,     4.001,    .091,     .427

"Initial Mix Values for Segment 1"
"Flow",  "DO",     "cBOD",   "nBOD",   "DOSat",  "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
.1,      7.333,    20.75,    7.361,    8.44,     22.5

"Rate Constants for Segment 1. - (All units Per Day)"
"k1",  "k1@T", "k2",   "k2@T", "kn",   "kn@T", "BD",   "BD@T"
1.2,   1.346,  20,     21.222, .3,     .364,   0,      0

"Output for Segment 1"
"Segment starts at GREEN ACRES MOBILE HOME PARK"
"Total", "Segm."
"Dist.", "Dist.",  "DO",     "cBOD",   "nBOD"
"(mi)",  "(mi)",   "(mg/l)", "(mg/l)", "(mg/l)"
0,       0,        7.333,    20.75,    7.361
.1,      .1,       7.249,    20.354,   7.323
.2,      .2,       7.193,    19.966,   7.285
.3,      .3,       7.159,    19.585,   7.247
.4,      .4,       7.14,     19.211,   7.209
.5,      .5,       7.132,    18.844,   7.172
.6,      .6,       7.133,    18.484,   7.135
.66,     .66,      7.136,    18.272,   7.113


"END OF FILE"
```

********** ********** **********

REGIONAL MODELING SYSTEM VERSION 3.2

****

MODEL SIMULATION FOR THE Green Acres STP DISCHARGE

TO Tanyard Branch

THE SIMULATION STARTS AT THE Green Acres STP DISCHARGE

********** PROPOSED PERMIT LIMITS **********

FLOW = .01 MGD cBOD5 = 65 Mg/L TKN = 20 Mg/L D.O. = 5 Mg/L

**** THE MAXIMUM CHLORINE ALLOWABLE IN THE DISCHARGE IS 0.124 Mg/L ****

THE SECTION BEING MODELED IS 1 SEGMENT LONG
RESULTS WILL BE GIVEN AT 0.1 MILE INTERVALS

********** BACKGROUND CONDITIONS **********

THE 7Q10 STREAM FLOW AT THE DISCHARGE IS 0.10300 MGD
THE DISSOLVED OXYGEN OF THE STREAM IS 6.644 Mg/L
THE BACKGROUND cBODu OF THE STREAM IS 5 Mg/L
THE BACKGROUND nBOD OF THE STREAM IS 0 Mg/L

********** MODEL PARAMETERS **********

SEG.	LEN. Mi	VEL. F/S	K2 1/D	K1 1/D	KN 1/D	BENTHIC Mg/L	ELEV. Ft	TEMP. °C	DO-SAT Mg/L
1	1.00	0.310	12.000	1.200	0.400	0.000	850.00	31.00	7.382

(The K Rates shown are at 20°C ... the model corrects them for temperature.)

********** RESPONSE FOR SEGMENT 1 **********

TOTAL STREAMFLOW = 0.1130 MGD
(Including Discharge)

DISTANCE FROM HEAD OF SEGMENT (MI.)	TOTAL DISTANCE FROM MODEL BEGINNING (MI.)	DISSOLVED OXYGEN (Mg/L)	cBODu (Mg/L)	nBODu (Mg/L)
0.000	0.000	6.499	18.938	6.514
0.100	0.100	6.004	18.210	6.396
0.200	0.200	5.666	17.510	6.279
0.300	0.300	5.442	16.837	6.165
0.400	0.400	5.302	16.190	6.052
0.500	0.500	5.222	15.568	5.942
0.600	0.600	5.185	14.969	5.834
0.700	0.700	5.179	14.394	5.728
0.800	0.800	5.196	13.840	5.623
0.900	0.900	5.228	13.309	5.521
1.000	1.000	5.271	12.797	5.420

****

REGIONAL MODELING SYSTEM Ver 3.2 (OWRM - 9/90)
04-01-1999 15:12:52

DATA FILE = GRNACRES.MOD

****

REGIONAL MODELING SYSTEM VERSION 3.2

DATA FILE SUMMARY

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THE NAME OF THE DATA FILE IS: GRNACRES.MOD

THE STREAM NAME IS: Tanyard Branch
THE RIVER BASIN IS: Roanoke River
THE SECTION NUMBER IS: 4a
THE CLASSIFICATION IS: III

STANDARDS VIOLATED (Y/N) = N
STANDARDS APPROPRIATE (Y/N) = Y

DISCHARGE WITHIN 3 MILES (Y/N) = N

THE DISCHARGE BEING MODELED IS: Green Acres STP

PROPOSED LIMITS ARE:
FLOW = .01 MGD
BOD5 = 65 MG/L
TKN = 20 MG/L
D.O. = 5 MG/L

THE NUMBER OF SEGMENTS TO BE MODELED = 1

7Q10 WILL BE CALCULATED BY: DRAINAGE AREA COMPARISON
THE GAUGE NAME IS: No gage
GAUGE DRAINAGE AREA = 1.35 SQ.MI.
GAUGE 7Q10 = .103 MGD
DRAINAGE AREA AT DISCHARGE = 1.35 SQ.MI.

STREAM A DRY DITCH AT DISCHARGE (Y/N) = N
ANTIDEGRADATION APPLIES (Y/N) = N

ALLOCATION DESIGN TEMPERATURE = 31 °C

SEGMENT INFORMATION

####### SEGMENT # 1 #######

SEGMENT ENDS BECAUSE: THE MODEL ENDS

SEGMENT LENGTH = 1 MI

SEGMENT WIDTH = 2.1 FT
SEGMENT DEPTH = .21 FT
SEGMENT VELOCITY = .36 FT/SEC

DRAINAGE AREA AT SEGMENT START = 1.35 SQ.MI.
DRAINAGE AREA AT SEGMENT END = 1.35 SQ.MI.

ELEVATION AT UPSTREAM END = 860 FT
ELEVATION AT DOWNSTREAM END = 840 FT

THE CROSS SECTION IS: RECTANGULAR
THE CHANNEL IS: SEVERELY MEANDERING

POOLS AND RIFFLES (Y/N) = N

THE BOTTOM TYPE = SILT
SLUDGE DEPOSITS = NONE
AQUATIC PLANTS = NONE
ALGAE OBSERVED = VISIBLE ONLY ON EDGES
WATER COLORED GREEN (Y/N) = N

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REGIONAL MODELING SYSTEM Ver 3.2 (OWRM - 9/90)
04-01-1999 15:13:01

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: Green Acres Mobile Home Park STP

NPDES Permit Number: VA0064599

Permit Writer Name: Bob Tate

Date: April 24, 2009

Major [ ] **Minor** [x] **Industrial** [ ] **Municipal** [x]

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

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

I.B. Permit/Facility Characteristics – cont. (FY2003)	Yes	No	N/A
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?	X		
5. Has there been any change in streamflow characteristics since the last permit was developed?	X		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		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?			
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 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	Bob Tate
Title	water permit writer
Signature	Bob Tate
Date	April 24, 2009