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 et seq. The discharge results from the operation of a sewage treatment plant. This permit action consists of updating the permit to reflect changes in the Water Quality Standards, the permitting boilerplate, tightening the copper limitation, and adding a zinc limitation. SIC Code: 4952.

1. **Facility Name:** Town of Alberta WWTP
   Address: P.O. Box 157
   Alberta, VA 23821

   Location 8794 Boydton Plank Road
   Alberta, VA 23821

2. **Permit Number** VA0026816
   Existing Permit Expiration Date: January 19, 2009

3. **Owner Contact**
   Name: Mr. Jeff Swenson
   Title: Public Utilities Superintendent
   Telephone No: (434)949-7443/ (804)894-1009

4. **Application Complete Date:** October 31, 2008 (Attachment A results received)
   Permit Drafted By: Jaime Bauer, Piedmont Regional Office
   Reviewed By: Emilee Carpenter **Date:** December 2, 2008
   Reviewed By: Curt Linderman **Date:** December 18, 2008

   Public Notice Dates: First Publication Date: January 28, 2009
   Second Publication Date: February 4, 2009
   Public Comment Period: January 28, 2009 to 5 p.m. on February 27, 2009

5. **SCC Certification Verification as required by Section 62.1-44.15:3 of the State Water Control Law:** Applies only to privately owned treatment works.

6. **Financial Assurance/Closure as required by 9 VAC 25-650-10:** Applies only to privately owned treatment works and does not apply to design flows greater than 40,000 gallon per day.

7. **Receiving Stream Name:** Roses Creek
   Basin: Chowan River and Dismal Swamp
   Section: 3
   Class: III
   Special Standards: None
   River Mile: 5ARSE009.83

1-Day, 30-Year Low Flows:	0.011	MGD	0.017	cfs
1-Day, 10-Year Low Flows:	0.023	MGD	0.036	cfs
7-Day, 10-Year Low Flows:	0.027	MGD	0.042	cfs
30-Day, 10-Year Low Flows:	0.047	MGD	0.073	cfs
30-Day, 5-Year Low Flows:	0.070	MGD	0.110	cfs
1-Day, 10-Year High Flows:	0.021	MGD	0.32	cfs
7-Day, 10-Year High Flows:	0.276	MGD	0.426	cfs
30-Day, 10-Year High Flows:	0.424	MGD	0.656	cfs
Harmonic Mean Flow:	0.315	MGD	0.487	cfs

   Tidal: No

On 303(d) List: Yes
See Flow Frequency Memo dated August 6, 2008 (Attachment 1)

8. **Operator License Requirements**: Class III
(9 VAC 25-790-300)

9. **Reliability Class**: Class II
(9 VAC 25-790-70)

10. **Permit Characterization:**

___ Private ___ Federal _____ State X POTW ___ PVOTW

___ Possible Interstate Effect _____ Interim Limits in Other Document

11. **Table 1: Wastewater Flow and Treatment**

Outfall Number	Discharge Source	Treatment	Flow Design Capacity
001	Domestic Waste from Residential and Commercial Sources	Contact stabilization plant with chlorine disinfection, dechlorination, and post aeration.	0.10 MGD

(See Attachment 2 for facility diagram)

12. **Sewage Sludge Use or Disposal:**
Sludge is dried on drying beds then hauled to Allied Waste Management in Brunswick County for disposal. See Attachment 3 for haul route and map.

13. **Discharge Location Description**:
The facility discharges to Roses Creek which is a tributary of the Meherrin River. See Attachment 3 for the Alberta Quadrangle topographic map (041C).

14. **Material Storage**:
Chlorination and dechlorination tablets are stored under roof.

15. **Ambient Water Quality Information**: Ambient water quality data collected at station 5ARSE006.68 (except for hardness) approximately 3 mile downstream of the outfall was used in this analysis. This station was selected upon the advice of Senior Water Quality Planner, J. V. Palmore (Attachment 1 – email dated December 15, 2008 from J. Palmore to J. Bauer). The data is representative of historic stream conditions and is therefore appropriate for use. In addition, data measured at 5ARSE006.68 is similar to data measured at other stations along Roses Creek. No hardness data was collected at this station; therefore, hardness data from 5ARSE001.22 at the Route 678 bridge, approximately 8.6 miles downstream of the discharge, was used.

16. **Antidegradation Review & Comments:** **Tier 1** X **Tier 2** _____ **Tier 3** _____
The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters. The limitations in this permit were developed in accordance with 303(d)(4) of the Clean Water Act. Therefore, antidegradation restrictions do not apply.

The antidegradation review begins with a Tier determination. The receiving stream, Roses Creek, is

considered to be a Tier 1 water body. This determination is based on modeling and in-stream monitoring that showed violations of the Water Quality Standards at previous permit limitations. However, during the 2008 assessment cycle, the segment was considered fully supporting of the aquatic life, fish consumption, and wildlife uses.

17. **Site Inspection**: Date: January 11, 2008 Performed by: Charles Stitizer (See Attachment 4).

18. **Effluent Screening & Limitation Development**:
The effluent was analyzed for ammonia, TRC, copper, and zinc. The MSTRANTI Excel Spreadsheet was used to calculate acute and chronic WLAs. The WLAs are entered in to the STATS.exe statistical software application to determine the need for a permit limitation and calculate the limitation. See Attachments 5 and 6 for input data and evaluation.

Table 2a. Basis for Interim Effluent Limitations in Part I.A.1

Parameter	Limitation	Basis for Limitation
Flow	Monitoring Only	Not Applicable
pH	6.0 to 9.0 Standard Units	Water Quality Standards
TSS	30 mg/L; 11000 g/d monthly average 45 mg/L; 17000 g/d weekly average	Federal Effluent Guidelines (Secondary Treatment Requirements)
$cBOD_5$	12 mg/L; 4500 g/d monthly average 18 mg/L; 6800 g/d weekly average	Water Quality Modeling (1996 and 2003)
TKN	3.0 mg/L; 1100 g/d monthly average 4.5 mg/L; 1700 g/d weekly average	Water Quality Modeling (1996 and 2003)
Dissolved Oxygen	6.5 mg/L daily minimum	Water Quality Modeling (1996 and 2003)
Ammonia-N (May-Oct)	1.9 mg/L monthly average 1.9 mg/L weekly average	Water Quality Standards
E. coli	126 N/100 mL Geometric Mean	Water Quality Standards
TRC	0.0010 mg/L monthly average 0.0012 mg/L weekly average	Water Quality Standards
Copper	7.7 ug/L monthly average 7.7 ug/L weekly average	Water Quality Standards

Table 2b. Basis for Final Effluent Limitations in Part I.A.2

Parameter	Limitation	Basis for Limitation
Flow	Monitoring Only	Not Applicable
pH	6.0 to 9.0 Standard Units	Water Quality Standards
TSS	30 mg/L; 11000 g/d monthly average 45 mg/L; 17000 g/d weekly average	Federal Effluent Guidelines (Secondary Treatment Requirements)
$cBOD_5$	12 mg/L; 4500 g/d monthly average 18 mg/L; 6800 g/d weekly average	Water Quality Modeling (1996 and 2003)
TKN	3.0 mg/L; 1100 g/d monthly average 4.5 mg/L; 1700 g/d weekly average	Water Quality Modeling (1996 and 2003)
Dissolved Oxygen	6.5 mg/L daily minimum	Water Quality Modeling (1996 and 2003)
Ammonia-N (May-Oct)	1.9 mg/L monthly average 1.9 mg/L weekly average	Water Quality Standards
E. coli	126 N/100 mL Geometric Mean	Water Quality Standards
TRC	0.0010 mg/L monthly average 0.0012 mg/L weekly average	Water Quality Standards
Copper	4.4 ug/L monthly average 4.4 ug/L weekly average	Water Quality Standards

Parameter	Limitation	Basis for Limitation
Zinc	44 ug/L monthly average 44 ug/L weekly average	Water Quality Standards

Ammonia: The need for an ammonia limitation was evaluated based on annual and winter season temperature tiers. Previous permits provided relief from the ammonia limitation in the winter months. In a Flow Frequency Determination memo dated December 21, 1993 from Paul Herman, OWRM-WQAP, the temperature months are stated to be November through April. However, evaluation of stream data for Roses Creek indicates that the winter months are October through April. Stream temperature data from station 5ARSE006.68 was used to calculate the average and 90th percentile annual temperatures for input into MSTRANTI Stream Information. The average monthly temperatures were then calculated and plotted against the annual average temperature to determine the winter season months. Based on the interpretation of the graph, the winter season months are from October through April. Temperature data for October through April were then used to calculate the 90th percentile winter temperature for input into MSTRANTI. See Attachment 5 for temperature data analysis.

For annual conditions, acute and chronic WLAs of 12 mg/L and 2.5 mg/L, respectively, were entered into STATS.exe with a quantification level of 0.20 mg/L. For the winter season, acute and chronic WLAs of 12 mg/L and 3.7 mg/L, respectively, were entered into STATS.exe with a quantification level of 0.20 mg/L. An expected value of 9.00 mg/L was used as recommend by GM 00-2011 under both conditions. The evaluation of annual conditions resulted in a recommended ammonia limitation of 5.04 mg/L to protect water quality. The evaluation of winter temperature conditions indicated that a limitation of 7.46 mg/L is needed to be protective of water quality. Note that the limitation for ammonia and the expected value are expressed in three significant digits because the water quality standard for ammonia is expressed in three significant digits.

The ammonia limitation of 1.9 mg/L during the months of May through September will be retained since it is more stringent than the 5.04 mg/L annual concentration limitation calculated for this reissuance. Additionally, the 1.9 mg/L limitation will apply during October to avoid back-sliding even though the temperature data indicates that October falls into the category of winter months. No seasonal limitation for ammonia for November to April will be included since TKN is limited year round to 3.0 mg/L. TKN is assumed to be 40-60% ammonia; therefore, the TKN limitation during the winter months is protective of water quality for ammonia.

The previous permit ammonia evaluation and a copy of the December 21, 1993 memo from Paul Herman have been included in Attachment 9.

Total Residual Chlorine (TRC): A limitation evaluation was conducted for TRC. The chronic and acute WLAs were calculated using the MSTRANTI Excel Spreadsheet. Acute and chronic WLA for TRC were calculated as 0.0023 mg/L and 0.0014 mg/L, respectively. Following the procedures in GM 00-2011, since the WLAa was less than 4.0 mg/L, the actual WLA were entered into STATS.exe to determine the need for a permit limitation and calculate the limitation. A quantification level of 0.10 mg/L and a data point of 20 mg/L were used as recommended by the VPDES permit manual. The evaluation produced recommended limitations of 0.0010 mg/L for average monthly and 0.0012 mg/L for average weekly in order to protect water quality. The 0.0010 mg/L is more stringent than the 2004 permit limitation of 0.0011 mg/L. However, no compliance schedule is being included because the facility is already demonstrating compliance with the new TRC limits as per the requirements of the Compliance Reporting Special Condition.

Water Quality Monitoring Results (See Attachment 7)

As part of the permit reissuance process, the permittee was required to perform effluent monitoring in accordance with the VPDES Permit Attachment A – Water Quality Monitoring table. The results indicated the presence of the pollutants listed in Table 3 below in the facility's effluent. The need for a limitation was only analyzed for copper and zinc since there are no aquatic life standards for the rest of the pollutants identified as present. The need for a limitation was evaluated using the results reported for copper and zinc as the expected value.

Copper: The acute and chronic WLA for copper from the MSTRANTI spreadsheet of 4.4 ug/L and 3.5 ug/L, respectively, were entered into the STATS.exe software. A quantification level of 5.0 ug/L and a expected value of 10 ug/L were used as reported on the result lab sheets. The evaluation produced a recommended copper limitation of 4.4 ug/L. The recommended permit limitation is more stringent than the 2004 permit limitation. See Section 21 for Compliance Schedule information.

Zinc: The acute and chronic WLA for zinc from the MSTRANTI spreadsheet of 44 ug/L and 46 ug/L, respectively, was entered into the STATS.exe software. A quantification level of 5.0 ug/L and an expected value of 31 ug/L were used as reported on the result lab sheets. The evaluation produced a recommended zinc limitation of 44 ug/L. The facility does not currently have a zinc permit limitation. See Section 21 for Compliance Schedule information.

Table 3: Water Quality Monitoring Summary

Parameter	Result	Aquatic Life Standard		Human Health Standard		Further Action Necessary
		Acute	Chronic	PWS[1]	Other Surface Water	
Chloroform	24 ug/L	NA	NA	NA	120000 ug/L	None
Dissolved Barium	10 ug/L	NA	NA	2000 ug/L	NA	None
Dissolved Copper	10 ug/L	4.4 ug/L	3.5 ug/L	1300 ug/L	NA	Permit Limit Evaluation
Dissolved Iron	53 ug/L	NA	NA	300 ug/L	NA	None
Dissolved Manganese	6 ug/L	NA	NA	50 ug/L	NA	None
Dissolved Zinc	31 ug/L	44 ug/L	46 ug/L	9100 ug/L	69000 ug/L	Permit Limit Evaluation
Gross Beta	14.2 pCi	NA	NA	4 mrem/yr	4 mrem/yr	None[2]
Foaming Agents	100 ug/L	NA	NA	500 ug/L	NA	None
Sulfate	31000 ug/L	NA	NA	250000 ug/L	NA	None

(1) Pollutant of concern for PWS. This facility is not subject to the PWS standards.

(2) Federal regulation states that compliance with the potable water standard may be assumed if the average annual concentration of beta particles and photon activity is less than 50 pCi/L and the average annual concentrations of tritium and strontium-90 are less than 20,000 pCi/L and 8 pCi/L, respectively. Based on this information, human health is protected for beta total.

19. **Basis for Sludge Use & Disposal Requirements:**
A sludge management plan for the pump and haul disposal of sludge from this facility is required according to 9VAC 25-31-100 P. Sludge is dried and hauled to the Allied Waste Management landfill for disposal located in Brunswick County. No further requirements are applicable.

20. **Antibacksliding Statement**:
9VAC 25-31-220.L and DEQ Guidance Memo 00-2011 do not allow re-issued permits to contain a less stringent water-quality based effluent limitation, unless under certain specified exceptions.

All limits are at least as stringent as in the previous permit.

21. **Compliance Schedules:**
Rationale: The VPDES Permit Regulation at 9 VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them. 9VAC 25-31-250 allocates facilities up to four years to demonstrate compliance with new limitations.

The TRC limitation 0.0010 mg/L is more stringent than the 2004 permit limitation of 0.0011 mg/L. However,

no compliance schedule is being included because the facility is already demonstrating compliance with the new TRC limits as per the requirements of the Compliance Reporting Special Condition.

A more stringent limitation for copper and a new limitation for zinc are assigned with this reissuance. The facility has four years to demonstrate compliance with the limitations. Annual reports of progress will be required each year preceding the final compliance deadline. In addition, the 2004 permit limitation on copper of 7.7 mg/L will remain effective as an interim limitation until the conclusion of the compliance schedule.

22. **Special Conditions:**

B. Compliance Schedule
Rationale: The VPDES Permit Regulation at 9VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them. See discussion in item 21 above.

C. Additional Chlorine Limitations and Monitoring Requirements
Rationale: Required by VA Water Quality Standards, 9VAC 25-260-170 B. Bacteria: 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.

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

D.2. O&M Manual Requirement
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.

D.3. Materials Handling/Storage
Rationale: 9VAC 25-31-50 A. prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia Section §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

D.4. Licensed Operator Requirement
Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 C. and the Code of Virginia §54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC 160-20-10 et seq.), require licensure of operators.

D.5. Reliability Class
Rationale: Required by Sewage Collection and Treatment Regulations, 9VAC 25-790 for all municipal facilities.

D.6. Sludge Reopener
Rationale: Required by VPDES Permit Regulation, 9VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

D.7. Sludge Use and Disposal
Rationale: VPDES Permit Regulation, 9VAC 25-31-100 P; 220 B 2; 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.

D.8. CTC, CTO Requirement
Rationale: Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

D.9. Compliance Reporting
Rationale: Authorized by VPDES Permit Regulation, 9VAC 25-31-190 J 4 and 220 I. This condition is necessary when 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.

D.10. Industrial Pretreatment Program/Significant Discharger Survey
Rationale: VPDES Permit Regulation, 9VAC 25-31-730 through 900 and CFR part 403 require certain existing and new source of pollution to meet specified requirement.

D.11. TMDL Reopener
Rationale: Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act. This reopener is included in all permits.

D.12. Indirect Dischargers
Rationale Required by VPDES Permit Regulation, 9VAC 25-31-200 B 1 and 2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

D.13. Facility Closure
Rationale Required by Code of Virginia §62.1-44.19. This condition is used to notify the owner of the need for a closure plan where a treatment works is being replaced or expected to close.

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

23. **Changes to the Permit:**

Item	**RATIONALE**
Permit Cover Page: Initial paragraph; signatory authority	Updated language to reflect current agency guidance that incorporates the permit application as part of the permit.
Part I.A.1 – Previous Permit Cycle: Removed because interim limitations became final	
Part I.A.1 (Part I.A.2 – Previous Permit Cycle):	

Parameter Changed	**Monitoring Requirement Changed**		**Effluent Limits Changed**		**Reason for Change**	**Date**
	From	To	From	To		
TSS	-	-	11 kg/d 17 kg/d	11000 g/d 17000 g/d	Updated to provide consistency in load monitoring and limitation units.	11/08
TKN	-	-	1.1 kg/d 1.7 kg/d	1100 g/d 1700 g/d		

$cBOD_5$	-	-	4.6 kg/d 6.9 kg/d	4600 g/d 6900 g/d	Updated units to g/d per agency guidance in GM 06-2016 to express units in 2 significant figures.	11/08
Fecal Coliform	1/Week	-	200 N/100mL	-	Update to reflect removal of fecal coliform from WQS.	11/08
E. coli	-	1/Week-	-	126 N/100mL		
TRC	-	-	11 ug/L 13 ug/L	0.0010 mg/L 0.0012 mg/L	Updated to reflect need for more stringent limitations to protect water quality.	11/08

FROM	TO	RATIONALE
Part I.A.2.a	Footnote (1)	Updated language to reflect current VPDES Permit Manual dated February 16, 2007.
-	Footnote (2)	Updated language to reflect current VPDES Permit Manual dated February 16, 2007.
Part I.A.2.b	Footnote (3)	Updated language to reflect current VPDES Permit Manual dated February 16, 2007.
Part I.A.2.c	Footnote (4)	Updated language to reflect current VPDES Permit Manual dated February 16, 2007.
Part I.A.2.d	Part I.A.1.a	No Change
Part I.A.2.e	Part I.A.1.b	No Change

Part 1.A.2 - Final Part I.A. page added to include more stringent copper and zinc limitations that become applicable after end of compliance schedule.

Parameter Changed	Monitoring Requirement Changed		Effluent Limits Changed		Reason for Change	Date
	From	To	From	To		
Copper	-	-	7.7 ug/L	4.4 ug/L	Updated to reflect need for more stringent limitation to protect water quality.	11/08
Zinc	-	1/Month	-	44 ug/L	Updated to reflect need for more stringent limitation to protect water quality.	11/08

Special Condition Changes:

FROM	TO	RATIONALE
Part I.C	Part I.B	**Schedule of Compliance for Copper and Zinc.** Evaluation of effluent data indicated a needed for a more stringent copper limitation and addition of a zinc limitation to maintain water quality.
B.1	C	**TRC Limitations and Monitoring Requirements:** 0.6 mg/L changed to 0.60 mg/L to reflect significant digit guidance.

B.2	Removed	**Bacterial Limitations and Monitoring Requirements:** Facility performed bacterial (E. coli) study establishing chlorination as a surrogate for bacteria monitoring and submitted data to DEQ for review in January 2005, and documented a satisfactory demonstration. However, the demonstration study results were superseded by the need to include an e-coli limitation in conformance with the bacteria TMDL permitting requirements.
D.1	D.1	**95% Capacity Reopener**: No Change
D.2	D.2	**Operations and Maintenance Manual Requirement:** Updated language to reflect current VPDES Permit Manual dated February 16, 2007.
D.3	D.3	**Materials Handling/Storage:** No Change
D.5	D.4	**Licensed Operator Requirement:** No Change
D.4	D.5	**Reliability Class:** No Change
D.6	D.6	**Sludge Reopener:** No Change
D.7	D.7	**Sludge Use and Disposal:** Updated language to reflect current VPDES Permit Manual dated February 16, 2007. Change also reflects transfer of the program from VDH to DEQ.
--	D.8	**CTC, CTO Requirement:** New condition. Added to reflect current agency guidance.
D.9	D.9	**Compliance Reporting:** Updated language to reflect current agency guidance on compliance reporting and significant digits.
D.10	D.10	**Industrial Pretreatment Program/Significant Discharger Survey:** Updated language to reflect current agency guidance
D.11	C.11	**TMDL Reopener:** New condition. Added to reflect current agency guidance.
D.12	C.12	**Indirect Discharges**: Unchanged
D.8	D.13	**Closure Plans:** Included per PRO VPDES decisions on December 2, 2008.

24. **Variances/Alternate Limits or Conditions**:
    None

25. **Regulation of Users (9 VAC 25-31-280 B 9):**
    Not Applicable - The facility is owned by a municipality.

26. **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:

    Ms. Jaime Bauer at:
    Virginia DEQ Piedmont Regional Office
    4949-A Cox Road
    Glen Allen, VA 23060
    Telephone No. (804) 527-5015
    Email Address: jlbauer@deq.virginia.gov

    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, 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, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by

the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action.

The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

27. **Additional Comments**:

a. **Previous Board Action**:
On March 26, 2001, the Water Control Board closed the Consent Special Order that was issued for the Town of Alberta on October 8, 1999 following a sludge release into Roses Creek. The Town applied for and obtained a loan from the Virginia Clean Water Revolving Loan Fund (VCWRLF) and installed 6 new sewage pumps, 2 new grinder duplex control panels, new ventilation system in the chlorine building, new generator, new dialer system, new chlorine flow pacing unit, and a new chlorine gas detection system.

b. **Staff Comments:**

- Reduced monitoring was not considered because the facility received Warning Letters on 1/24/05, 10/1/08, and 11/4/08.

- The Stream Sanitation Data Analysis dated August 18, 2003 recommended consideration of a permit limitation controlling the rise above natural temperature. From 1999 to 2004 the facility was required to perform in-stream monitoring and submitted the date to the DEQ. The data showed no violations of the maximum temperature standard (32°C) at stations located upstream and downstream of the Alberta discharge. On two (of 44) sampling runs however, the rise in stream temperature between the upstream and downstream stations exceeded the water quality standard of a change in temperature of 3°C. The permittee routinely monitors the temperature of the clarifier effluent, which can reasonably be taken as the temperature of the final effluent. On one of the two days that the stream temperature exceeded +3°C, the change in temperature between the upstream sample location and the clarifier effluent was +2.9°C, so it would appear that additional warming took place in stream to cause the standard violation. On the other of the two days, the change in temperature between the upstream sample location and the clarifier effluent was +4.0°C. The permittee also routinely measures the temperature of the raw influent. Comparison of that data with the clarifier effluent data indicates that the wastewater is warmed while being treated, probably due to the effect of direct sunlight on the treatment unit, which is an above ground tank. This one instance where the Alberta WWTP discharge apparently caused a standard violation regarding in-stream change in temperature does not warrant establishing a temperature limitation at this time. It is appropriate, however, that practical measures be taken to minimize the warming that is occurring during treatment and the staff will work with Alberta to identify such measures especially as this upgrade proceeds. An example of a step in that direction is to paint the tanks, which are currently gray, a lighter color when painting is next required.

- The permit expired on January 19, 2009. The permit reissuance did not occur prior to its expiration or within 120 days of the application complete date due issues regarding previous ammonia tier limitations and selection of appropriate ambient stream temperature data. The application was submitted in a timely manner and thus the permit had been administratively continued since the expiration date.

- Two typographical errors were corrected in the opening paragraphs of Part I.A.1 and Part I.A.2 following the close of the public comment period. Language of the opening paragraph was updated so that the effective end date in Part I.A.1 matches identically the effective begin date in Part I.A.2. Additionally, the schedule of compliance footnote was added to Part I.A.2 and the direct reference of the schedule of compliance permit section in the opening paragraph was removed. Since both changes were to correct typographical errors, the intent of the permit is the same, additional public participation is not warranted.

c. **Public Comment:** None

28. **303(d) Listed Segments (TMDL)**:
The facility discharges directly to Roses Creek that has been considered impaired for the Recreation use support goal since 1998 based on fecal coliform standard violations. In the bacteria TMDL for Roses Creek approved by the State Water Control Board on 12/2/04 and modified in 2007, the facility received a bacterial wasteload allocation of 1.74 E+11 E.coli cfu/year. The wasteload allocation is based on the facility's permitted flow of 0.10 MGD and an E. coli count of 126 N/100 mL. The permit includes an effluent E. coli limitation of 126 N/mL in order to meet the TMDL wasteload allocation. The segment was assessed during the 2008 assessment cycle as impaired for E.coli and therefore is considered Category 4A water. See Attachment 8 for the TMDL Fact Sheet.

29. **Summary of Attachments:**
1. Flow Frequency Memorandum & 2003 Stream Sanitation Data Analysis
2. Facility Diagram
3. Topographic Map & Sludge Haul Route Directions
4. Site Inspection – January 11, 2008 by Charles Stitzer
5. Temperature Analysis
6. Permit Limit Development
7. Water Quality Monitoring Data – Attachment A Results
8. TMDL Fact Sheet
9. January 1999 Permit Ammonia Evaluation & December 21, 1993 Flow Frequency Determination Memo

Attachment 1 – Flow Frequency Memorandum & 2003 Stream Sanitation Data Analysis

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office
4949-A Cox Road Glen Allen, Virginia 23060

SUBJECT: Flow Frequency Determination / 303(d) Status
Alberta STP – VA0026816

TO: Jaime Bauer

FROM: Jennifer V. Palmore, P.G.

DATE: August 6, 2008

A flow frequency request was received for Roses Creek at the discharge of the Alberta sewage treatment plant in Brunswick County. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit. The outfall is located at rivermile 5ARSE009.83.

During the years 2002-2003, ten streamflow measurements were made on Roses Creek at the Route 646 bridge (#02051625), approximately 3.15 miles downstream of the discharge. The measurements were recalculated to remove the effect that the STP itself may have had on the streamflow. The effluent flow on the days of the streamflow measurements were obtained from the permittee's discharge monitoring reports and were subtracted from the streamflow measured downstream. These recalculated flows were correlated against the flow measurements at the continuous record gage on the Meherrin River near Lawrenceville (#02051500). This gage has been in operation from 1928 to present. There is good confidence in the results because a very good correlation was obtained and several of the daily streamflow measurements on the Meherrin were below its 7Q10. The calculations are attached.

The flow frequencies of Roses Creek at the discharge point were calculated by drainage area proportions with the flow frequencies at the measurement site downstream on Roses Creek. The calculations do not address any other withdrawals, discharges, or springs lying upstream.

Meherrin River near Lawrenceville, VA (#02051500)
Drainage Area: 552 mi^2
Statistical period: 1929-2003
High Flow Months: January - April

1Q30 = 6.0 cfs	High Flow 1Q10 = 90 cfs
1Q10 = 12 cfs	High Flow 7Q10 = 116 cfs
7Q10 = 14 cfs	High Flow 30Q10 = 172 cfs
30Q10 = 23 cfs	HM = 131 cfs
30Q5 = 35 cfs	

Roses Creek at Route 646, near Alberta, VA (#02051625)

Drainage Area = 5.29 mi^2

1Q30 = 0.036 cfs	High Flow 1Q10 = 0.70 cfs
1Q10 = 0.077 cfs	High Flow 7Q10 = 0.928 cfs
7Q10 = 0.092 cfs	High Flow 30Q10 = 1.43 cfs
30Q10 = 0.16 cfs	HM = 1.06 cfs
30Q5 = 0.25 cfs	

Roses Creek at discharge point:

Drainage area = 2.43 mi^2

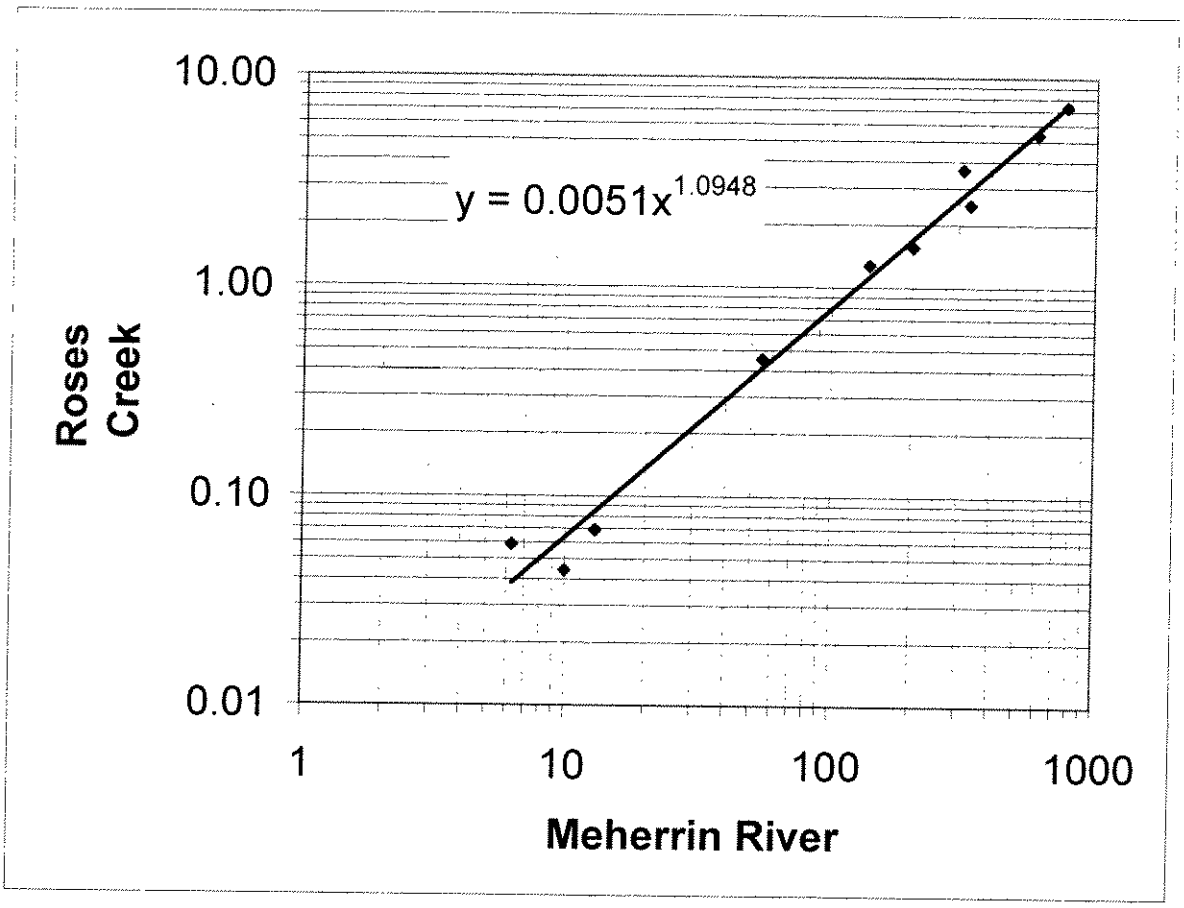
1Q30 = 0.017 cfs (0.011 MGD)	High Flow 1Q10 = 0.32 cfs (0.021 MGD)
1Q10 = 0.036 cfs (0.023 MGD)	High Flow 7Q10 = 0.426 cfs (0.276 MGD)
7Q10 = 0.042 cfs (0.027 MGD)	High Flow 30Q10 = 0.656 cfs (0.424 MGD)
30Q10 = 0.073 cfs (0.047 MGD)	HM = 0.487 cfs (0.315 MGD)
30Q5 = 0.11 cfs (0.07 MGD)	

Roses Creek from the Alberta STP discharge downstream to its mouth at Great Creek has been considered impaired of the Recreation use support goal since 1998 based on fecal coliform standard violations at the Route 678 bridge (5ARSE001.22). The bacteria TMDL was completed and was adopted by the State Water Control Board on 12/2/2004. The Alberta STP received a wasteload allocation of 3.24E+10 E. coli cfu/year based on a flow of 100,000 gpd. During the 2008 assessment cycle, the segment remained impaired for E. coli and was therefore considered a Category 4A water. The segment was considered fully supporting of the Aquatic Life, Fish Consumption, and Wildlife Uses.

The data analysis that you requested is attached. The field data was collected at station 5ARSE009.87, which is located immediately upstream of the outfall and represents the unmixed stream condition. However, hardness data was not collected at this station; therefore, the data from station 5ARSE001.22 was used. This station is located at the Route 678 bridge, which is approximately 8.6 miles downstream of the discharge.

If you have any questions, please do not hesitate to ask.

Meherrin River near Lawrenceville, VA (#02051500)
vs Roses Creek at Rt. 646, near Alberta (#02051625)



Flow Data (cfs)

Date	Meherrin	Roses	Roses minus STP
4/16/2002	138	1.30	1.27
6/4/2002	55	0.49	0.45
7/17/2002	6.3	0.10	0.06
8/6/2002	10	0.08	0.04
10/7/2002	13	0.11	0.07
11/25/2002	202	1.61	1.55
3/11/2003	599	5.43	5.37
6/17/2003	773	7.38	7.28
8/19/2003	334	2.53	2.48
10/15/2003	312	3.7	3.6

Date	STP flow(MGD)	STP flow(cfs)
4/16/2002	0.0168	0.0260
6/4/2002	0.0238	0.0368
7/17/2002	0.0255	0.0395
8/6/2002	0.0251	0.0388
10/7/2002	0.0267	0.0413
11/25/2002	0.0364	0.0563
3/11/2003	0.0414	0.0641
6/17/2003	0.0634	0.0981
8/19/2003	0.0354	0.0548
10/15/2003	0.0331	0.0512

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.990182
R Square	0.980461
Adjusted R Square	0.978019
Standard Error	0.370238
Observations	10

Flow Frequencies (cfs)

Meherrin		Roses	Roses at discharge (cfs)	Roses at discharge (MGD)
6.0	1Q30	0.036	0.017	0.011
12	1Q10	0.077	0.036	0.023
14	7Q10	0.092	0.042	0.027
23	30Q10	0.16	0.073	0.047
35	30Q5	0.25	0.11	0.07
90	HF 1Q10	0.70	0.32	0.21
116	HF 7Q10	0.928	0.426	0.276
172	HF 30Q10	1.43	0.656	0.424
131	HM	1.06	0.487	0.315
552	DA	5.29	2.43	
	Jan-Apr			

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe
5ARSE009.87	10/25/1996	S	.30	15.00	6.90	9.90
5ARSE009.87	5/30/1997	S	.30	18.00	6.80	9.50
5ARSE009.87	11/18/1997	S	.30	11.00	6.50	10.00
5ARSE009.87	5/15/1998	S	.30	18.00	6.50	6.50
5ARSE009.87	4/2/2003	S	.30	11.41	6.08	10.11
5ARSE009.87	4/21/2003	S	.30	12.86	6.13	9.77
5ARSE009.87	5/1/2003	S	.30	20.48	6.05	8.17
5ARSE009.87	5/28/2003	S	.30	17.30	6.02	8.49
5ARSE009.87	6/5/2003	S	.30	19.31	6.28	7.68
5ARSE009.87	6/17/2003	S	.30	19.32	5.96	7.43
5ARSE009.87	7/1/2003	S	.30	22.17	6.36	6.81
5ARSE009.87	7/17/2003	S	.30	22.42	6.67	6.85
5ARSE009.87	8/5/2003	S	.30	22.85	6.97	7.55
5ARSE009.87	8/19/2003	S	.30	23.37	6.59	6.70
5ARSE009.87	9/9/2003	S	.30	19.73	7.04	8.45
5ARSE009.87	9/23/2003	S	.30	22.42	6.12	6.57
5ARSE009.87	10/1/2003	S	.30	15.54	6.60	7.30
5ARSE009.87	10/1/2003	S	.30			
5ARSE009.87	10/20/2003	S	.30	12.74	6.50	7.81
5ARSE009.87	12/4/2003	S	.30			
90th Percentile				**22.5**	**6.9**	
10th Percentile				**12.3**	**6.0**	

						00900 HARDNESS, TOTAL (MG/L AS CACO3)	
Sta Id	Collection Date Time	Depth Desc	Depth	Container	Comment	Value	Com Code
5ARSE001.22	07/13/1994 10:51	S	0.3	R	STORET DATA CONVERSION	36.0	
5ARSE001.22	10/19/1994 11:00	S	0.3	R	STORET DATA CONVERSION	27.0	
5ARSE001.22	01/11/1995 11:54	S	0.3	R	STORET DATA CONVERSION	22.0	
5ARSE001.22	04/24/1995 11:00	S	0.3	R	STORET DATA CONVERSION	32.0	
5ARSE001.22	07/26/1995 08:45	S	0.3	R	STORET DATA CONVERSION	40.0	
5ARSE001.22	10/30/1995 09:55	S	0.3	R	STORET DATA CONVERSION	24.0	
5ARSE001.22	01/23/1996 10:30	S	0.3	R	STORET DATA CONVERSION	15.0	
5ARSE001.22	04/16/1996 12:00	S	0.3	R	STORET DATA CONVERSION	21.0	
5ARSE001.22	07/08/1996 12:00	S	0.3	R	STORET DATA CONVERSION	28.0	
5ARSE001.22	10/02/1996 10:00	S	0.3	R	STORET DATA CONVERSION	27.0	
5ARSE001.22	01/06/1997 09:00	S	0.3	R	STORET DATA CONVERSION	24.0	
5ARSE001.22	04/15/1997 08:44	S	0.3	R	STORET DATA CONVERSION	24.3	
5ARSE001.22	07/21/1997 11:23	S	0.3	R	STORET DATA CONVERSION	25.8	
5ARSE001.22	09/18/1997 11:30	S	0.3	R	STORET DATA CONVERSION	13.7	
5ARSE001.22	11/24/1997 09:10	S	0.3	R	STORET DATA CONVERSION	26.0	
5ARSE001.22	01/28/1998 09:45	S	0.3	R	STORET DATA CONVERSION	12.8	
5ARSE001.22	03/25/1998 10:45	S	0.3	R	STORET DATA CONVERSION	10.7	
5ARSE001.22	05/21/1998 07:20	S	0.3	R	STORET DATA CONVERSION	20.0	
5ARSE001.22	07/30/1998 07:15	S	0.3	R	STORET DATA CONVERSION	32.0	
5ARSE001.22	09/24/1998 07:55	S	0.3	R	STORET DATA CONVERSION	25.2	
5ARSE001.22	11/19/1998 08:45	S	0.3	R	STORET DATA CONVERSION	25.4	
5ARSE001.22	01/21/1999 09:30	S	0.3	R		30.0	
5ARSE001.22	03/10/1999 11:45	S	0.3	R		40.0	
5ARSE001.22	05/19/1999 08:50	S	0.3	R		30.0	
5ARSE001.22	07/22/1999 12:44	S	0.3	R		32.8	
5ARSE001.22	09/15/1999 12:00	S	0.3	R		20.5	
5ARSE001.22	01/19/2000 10:20	S	0.3	R		18.5	
5ARSE001.22	03/08/2000 09:45	S	0.3	R		17.0	
5ARSE001.22	05/08/2000 10:20	S	0.3	R	FLOW NORMAL	16.0	
5ARSE001.22	06/29/2000 10:00	S	0.3	R		18.5	
5ARSE001.22	09/06/2000 09:30	S	0.3	R		20.5	
5ARSE001.22	11/29/2000 09:20	S	0.3	R		21.4	
5ARSE001.22	02/01/2001 12:00	S	0.3	R		20.6	
5ARSE001.22	03/29/2001 12:30	S	0.3	R		22.9	
5ARSE001.22	07/02/2002 14:00	S	0.3	R		44.6	
5ARSE001.22	05/23/2005 12:10	S	0.3	R	LOW FLOW	28.0	
5ARSE001.22	07/12/2005 11:30	S	0.3	R	NORMAL FLOW.	34.0	
5ARSE001.22	09/27/2005 12:00	S	0.3	S1		32.0	
5ARSE001.22	11/21/2005 12:40	S	0.3	R	NORMAL FLOW	26.0	
5ARSE001.22	01/25/2006 12:05	S	0.3	R	NORMAL FLOW.	23.0	
5ARSE001.22	03/09/2006 12:55	S	0.3	R	LOW FLOW	24.0	
5ARSE001.22	05/23/2006 13:00	S	0.3	R		34.0	
5ARSE001.22	07/24/2006 12:05	S	0.3	R	NORMAL FLOW	24.0	
5ARSE001.22	09/20/2006 12:12	S	0.3	R	NORMAL FLOW	26.0	
5ARSE001.22	11/30/2006 12:44	S	0.3	S1	ABOVE NORMAL FLOW	28.0	
Average						**25.4**	

Bauer,Jaime

From: Palmore,Jennifer
Sent: Monday, December 15, 2008 2:32 PM
To: Bauer,Jaime
Subject: RE: Roses

Yes. That is correct. Thanks for pointing out that station 5ARSE009.87 did not have data during several winter months. Sorry that I missed that. Due to this, I believe that the next downstream station, 5ARSE006.68, is more appropriate. The station is located at the Rt. 646 (Prestwood Road) bridge approximately 3 miles downstream of the discharge.

Thanks and sorry again!

Jennifer Palmore

From: Bauer,Jaime
Sent: Monday, December 15, 2008 2:24 PM
To: Palmore,Jennifer
Subject: RE: Roses

I know you are going to send me an email to follow up, but are these the correct stations to use:

pH & Temp: 5ARSE006.68 ~ 3 miles downstream of outfall
Hardness: 5ARSE001.22 ~8.6 miles downstream of outfall

...and ditch any use of data from 5ARSE009.87 (upstream station)? Thanks again for your help in getting this figured out.

Jaime

From: Palmore,Jennifer
Sent: Monday, December 15, 2008 12:22 PM
To: Bauer,Jaime
Subject: Roses

Try this one. This is a better station anyway.

Jennifer V. Palmore, P.G.
Senior Environmental Engineer
Dept. of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
(804) 527-5058
(804) 527-5106 (fax)

VA0026816 - Roses Creek (5ARSE006.68) STORET Data

Station ID	Collection Date Time	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Salinity	Do Winkler
5ARSE006.68	10/21/1974	S	304.50	7.78	7.00			
5ARSE006.68	11/21/1974	S	304.50	7.78	6.80			11.29
5ARSE006.68	12/8/1974	S	304.50	10.00	6.50			12.00
5ARSE006.68	1/7/1975	S	304.50	7.22	7.00			12.50
5ARSE006.68	2/4/1975	S	304.50	4.44	7.00			12.00
5ARSE006.68	3/14/1975	S	304.50	4.44	6.30			10.79
5ARSE006.68	4/14/1975	S	304.50	12.22	7.00			11.59
5ARSE006.68	5/27/1975	S	304.50	20.00	7.00			8.00
5ARSE006.68	6/16/1975	S	304.50	24.44	7.00			7.80
5ARSE006.68	7/9/1975	S	304.50	21.11	7.50			7.80
5ARSE006.68	8/19/1975	S	304.50	22.22	7.70			
5ARSE006.68	9/1/1975	S	304.50	26.67	7.00			7.30
5ARSE006.68	10/16/1975	S	304.50	18.89	7.00			8.00
5ARSE006.68	11/19/1975	S	304.50	11.11	7.00			10.79
5ARSE006.68	12/1/1975	S	304.50	12.22	7.00			9.00
5ARSE006.68	3/23/1976	S	304.50	10.00	7.50			11.79
5ARSE006.68	5/25/1976	S	304.50	13.00				9.00
5ARSE006.68	6/11/1976	S	304.50	22.22				7.60
5ARSE006.68	7/12/1976	S	304.50	23.33	7.00			6.90
5ARSE006.68	8/12/1976	S	304.50	22.22	7.50			7.80
5ARSE006.68	11/4/1976	S	304.50	8.89	7.00			11.00
5ARSE006.68	3/30/1977	S	304.50	17.00	7.50			8.50
5ARSE006.68	4/21/1977	S	304.50	18.00	7.50			8.60
5ARSE006.68	6/7/1977	S	304.50	1.60	7.50			7.70
5ARSE006.68	7/17/1977	S	304.50	2.40	7.40			5.00
5ARSE006.68	8/10/1977	S	304.50	24.50	6.90			3.80
5ARSE006.68	10/14/1977	S	304.50	1.30	7.00			10.50
5ARSE006.68	11/9/1977	S	304.50	1.90	6.80			8.20
5ARSE006.68	1/31/1978	S	304.50	1.50	6.90			12.59
5ARSE006.68	4/24/1978	S	304.50	16.00	7.00			9.50
5ARSE006.68	6/13/1978	S	304.50	19.50	7.10			8.10
5ARSE006.68	7/5/1978	S	304.50	19.00	7.00			11.20
5ARSE006.68	8/9/1978	S	304.50	25.00	7.00			7.30
5ARSE006.68	8/31/1978	S	304.50	23.50	7.00			7.70
5ARSE006.68	10/23/1978	S	304.50	13.00	6.80			7.80
5ARSE006.68	1/16/1979	S	304.50	3.00	7.00			12.00
5ARSE006.68	4/11/1979	S	304.50	13.00	6.70			12.00
5ARSE006.68	6/20/1979	S	304.50	19.00	7.10			8.20
5ARSE006.68	10/25/1996	S	.30	15.00	6.80	9.70		
5ARSE006.68	5/30/1997	S	.30	21.00	7.80	8.90		
5ARSE006.68	11/18/1997	S	.30	11.00	7.00	10.00		
5ARSE006.68	5/15/1998	S	.30	19.00	7.00	6.50		
5ARSE006.68	7/25/2002	S	.30	22.47	6.63	7.02	.00	
5ARSE006.68	8/22/2002	S	.30	26.63	7.16	5.53	.00	
5ARSE006.68	10/4/2002	S	.30	22.00	7.10	8.10		
5ARSE006.68	10/29/2002	S	.30	12.14	6.46	8.67	.00	
5ARSE006.68	11/25/2002	S	.30	8.02	5.98	11.34	.00	
5ARSE006.68	12/10/2002	S	.30	3.26	6.98	13.02		
5ARSE006.68	1/13/2003	S	.30	2.86	6.90	13.53		
5ARSE006.68	2/11/2003	S	.30	3.94	6.71	14.58	.00	
5ARSE006.68	3/11/2003	S	.30	6.98	6.63	11.69		
5ARSE006.68	4/2/2003	S	.30	12.40	6.51	10.47		
5ARSE006.68	4/21/2003	S	.30	12.86	6.25	9.98		
5ARSE006.68	4/25/2003	S	.30	13.70	6.45	9.41	.00	
5ARSE006.68	5/1/2003	S	.30	19.44	6.40	8.90	.02	

VA0026816 - Roses Creek (5ARSE006.68) STORET Data

Station ID	Collection Date Time	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Salinity	Do Winkler
5ARSE006.68	5/28/2003	S	.30	16.04	6.26	8.97		
5ARSE006.68	6/5/2003	S	.30	18.49	6.48	8.40	.02	
5ARSE006.68	6/17/2003	S	.30	19.05	6.19	7.78		
5ARSE006.68	7/1/2003	S	.30	21.33	6.45	7.62	.00	
5ARSE006.68	7/17/2003	S	.30	22.27	6.78	7.16		
5ARSE006.68	7/28/2003	S	.30	21.71	6.89	7.28	.00	
5ARSE006.68	8/5/2003	S	.30	26.38	7.24	7.63	.00	
5ARSE006.68	8/19/2003	S	.30	22.73	6.75	7.36		
5ARSE006.68	9/9/2003	S	.30	19.06	6.92	10.77		
5ARSE006.68	9/23/2003	S	.30	21.37	6.48	7.70	.00	
5ARSE006.68	10/1/2003	S	.30	15.21	7.04	9.36	.00	
5ARSE006.68	10/1/2003	S	.30					
5ARSE006.68	10/20/2003	S	.30	13.21	6.83	9.46	.00	
5ARSE006.68	11/19/2003	S	.30	15.34	6.39	8.17		
5ARSE006.68	12/4/2003	S	.30					
5ARSE006.68	12/10/2003	S	.30	5.64	6.52	11.93	.00	
Average				**14.8**				
90th Percentile				**23.4**	**7.5**			
10th Percentile				**3.2**	**6.4**			

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office

4949-A Cox Road, Glen Allen, VA 23060-6296 804/527-5020

SUBJECT: Stream Monitoring Data Analysis – Roses Creek
Town of Alberta STP discharge (VA0026816)

TO: Oula Shehab

FROM: Jennifer Palmore JW

DATE: August 18, 2003

COPIES: Curt Linderman, Mark Alling, Model File

A request for a stream monitoring data analysis for Roses Creek was received on July 24th. The permittee has submitted instream monitoring results taken monthly during the period December 1999 through June 2003.

Background

Alberta's discharge was modeled in 1996 using the Regional Model 3.2 to analyze any effect it may have on Roses Creek at the downstream Lawrenceville outfall (refer to Jon van Soestbergen's memo dated April 11, 1996). The model predicted that a significant DO sag started approximately 0.5 miles downstream of the outfall and peaked at 1.4 miles downstream and that the existing limits are not protective of the water quality standard during low flow conditions. The model predicted that the following water quality based limits are necessary for the Alberta STP during dry season, low flow conditions (May-December):

Q = 0.1 MGD
$CBOD_5$ = 12.0 mg/L
TKN = 3.0 mg/L
Dissolved Oxygen = 6.5 mg/L

During the 1999 permit reissuance it was decided that the effluent limits would remain the same as the previous permit (technology-based limits), but an instream monitoring requirement was added to confirm the dissolved oxygen predictions (refer to Jon van Soestbergen's memo dated January 11, 1999). The study consisted of 4 monitoring stations along Roses Creek:

Upstream of outfall – background
Station #1 – 1000 ft downstream
Station #2 – 1700 ft./1.25 miles downstream
Station #3 – 2.5 miles downstream

Note: Station #2 was originally 1700 ft downstream but was relocated in June 2000 to 1.25 miles downstream due to excessive vegetative growth along the banks. There is no data in the modeling file for the new station #2 after June 2001, and it is unclear why that station was discontinued.

Results

The results of the monitoring program have been plotted. Refer to the attached graphs.

Dissolved oxygen at station #1 is well below the instantaneous water quality standard on a number of dates and the creek went completely anoxic on one occasion (0.04 mg/L), even though the upstream dissolved oxygen on that day was 6.8 mg/L. The upstream dissolved oxygen only violated the standard once (3.72 mg/L).

Although on many days the downstream temperature was actually lower than the upstream temperature, on two dates the downstream temperature exceeded a 3°C rise over the upstream background temperature, which is a violation of the water quality standards.

Roses Creek was dry during July through September 2002. During this time, downstream Roses Creek consisted entirely of effluent. A BOD_5 result of 75 mg/L was recorded on September 25, 2002 at Station #1 and it was noted that due to low stream velocity duckweed covered the entire stream surface.

The Alberta effluent appears to have a tempering effect on the stream pH. Only one instance was noted (1/17/00) where a pH violation was noted at a downstream station. Upstream pH is below the water quality standard on multiple dates.

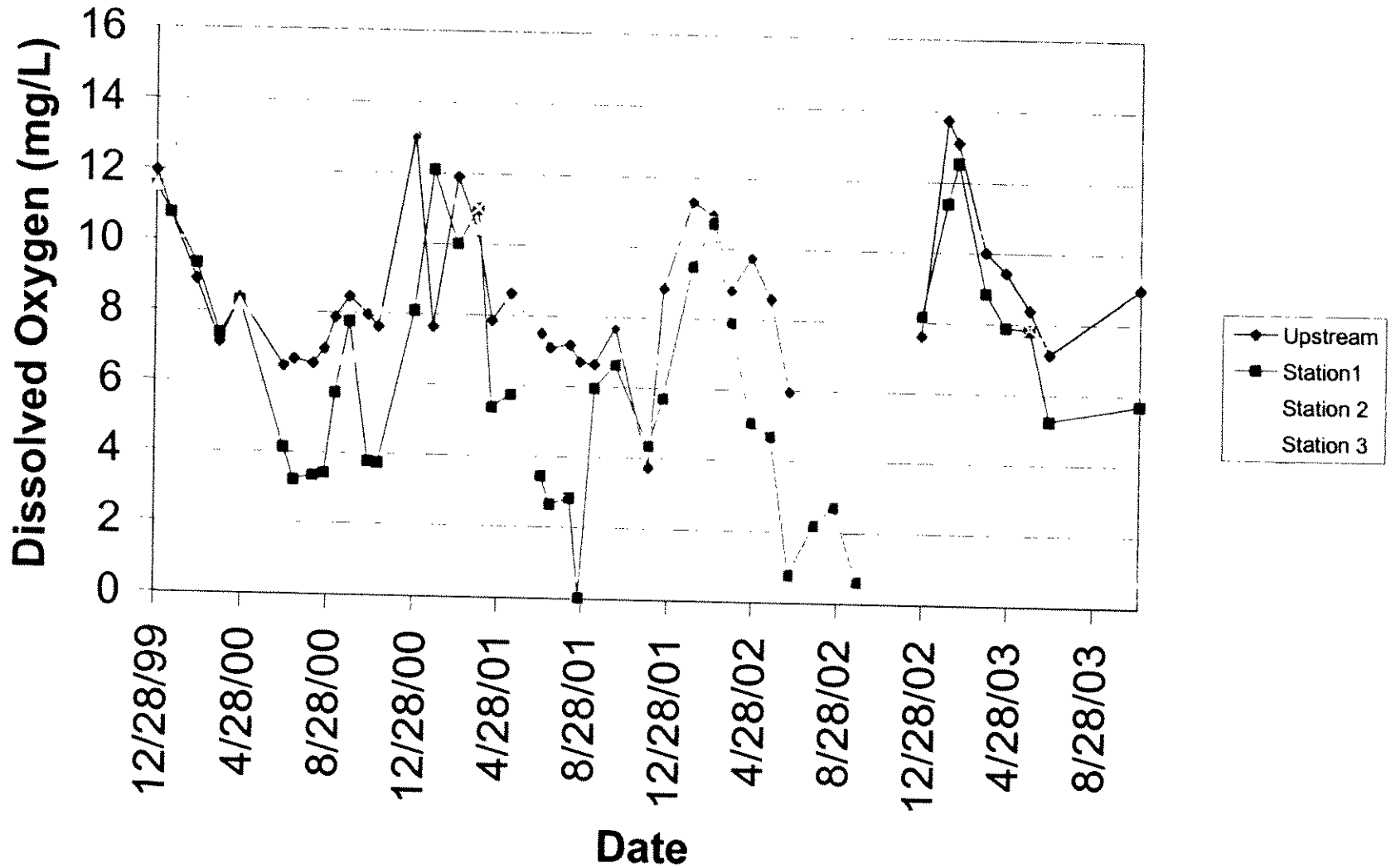
The downstream ammonia shows a marked increase over background ammonia, however no violation of the acute ammonia standard was noted.

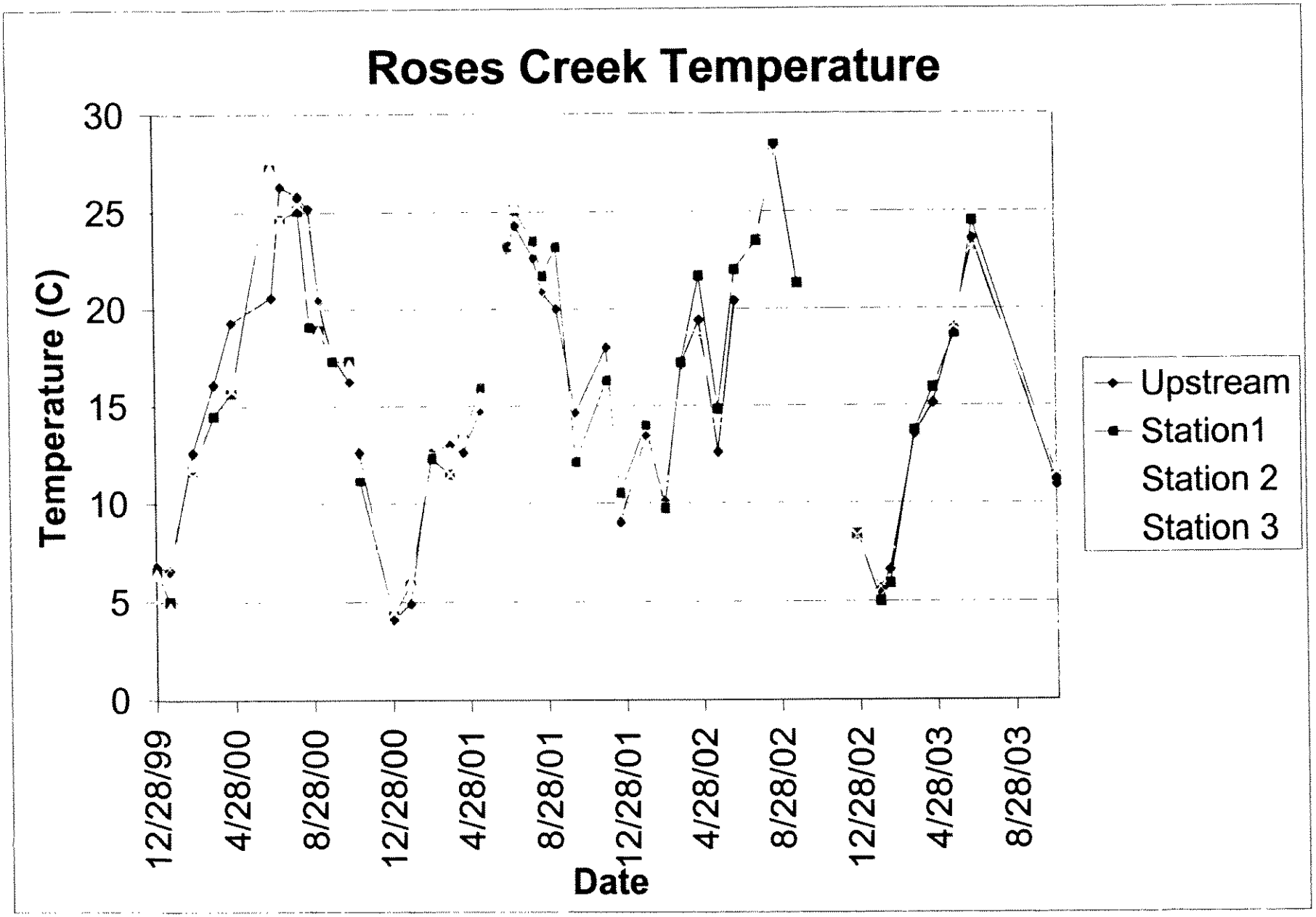
Recommendations

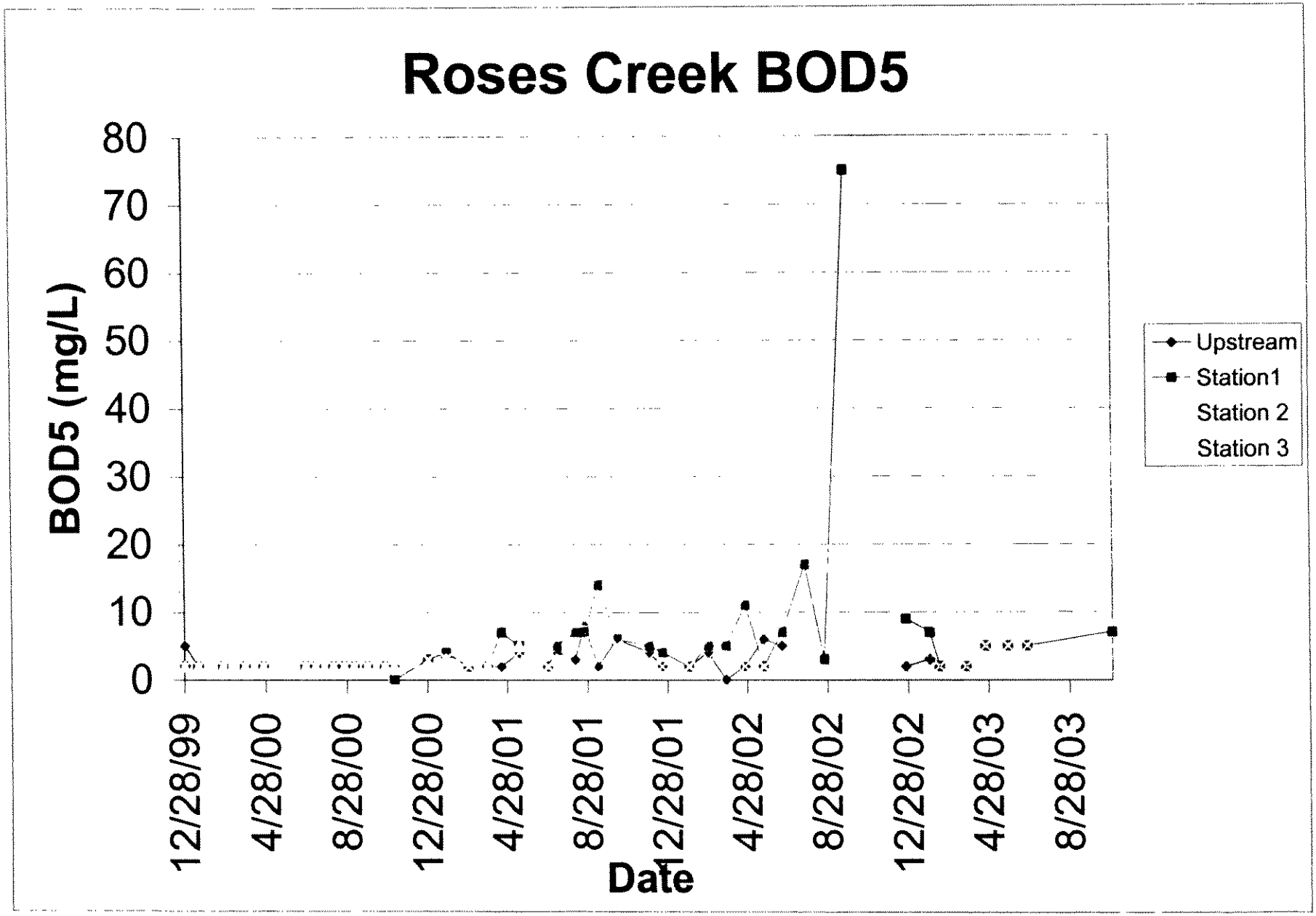
A review of the monitoring data shows that the Alberta STP has a significant negative impact on the dissolved oxygen in Roses Creek. Multiple, severe violations of the water quality were noted at downstream stations. Due to the results of the instream monitoring program, I recommend that the effluent limits be reduced to those predicted by the 1996 model. In addition, due to the temperature exceedances, a permit limit controlling the rise above natural temperature should be considered.

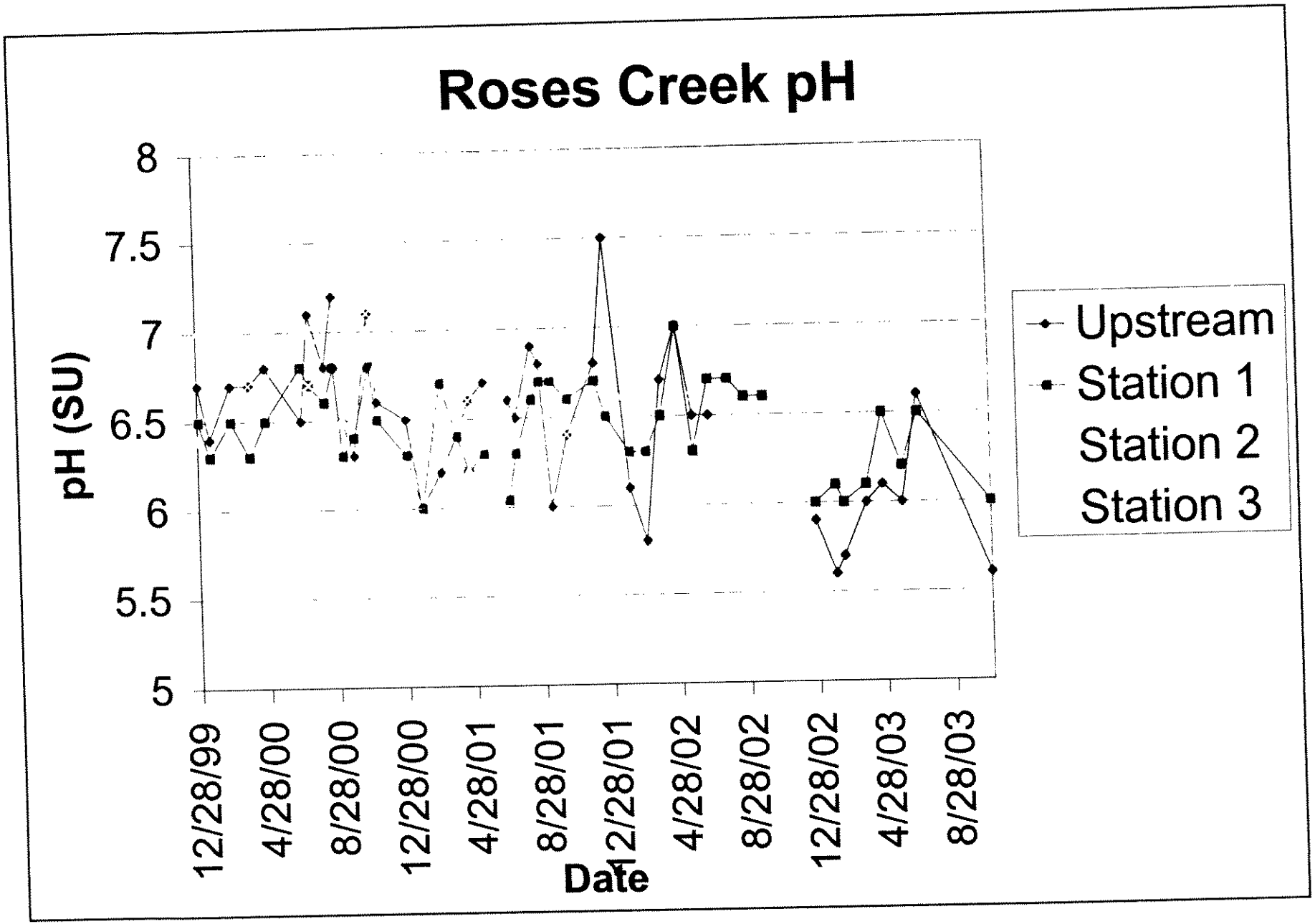
If you have any questions or need any additional information, please do not hesitate to contact me.

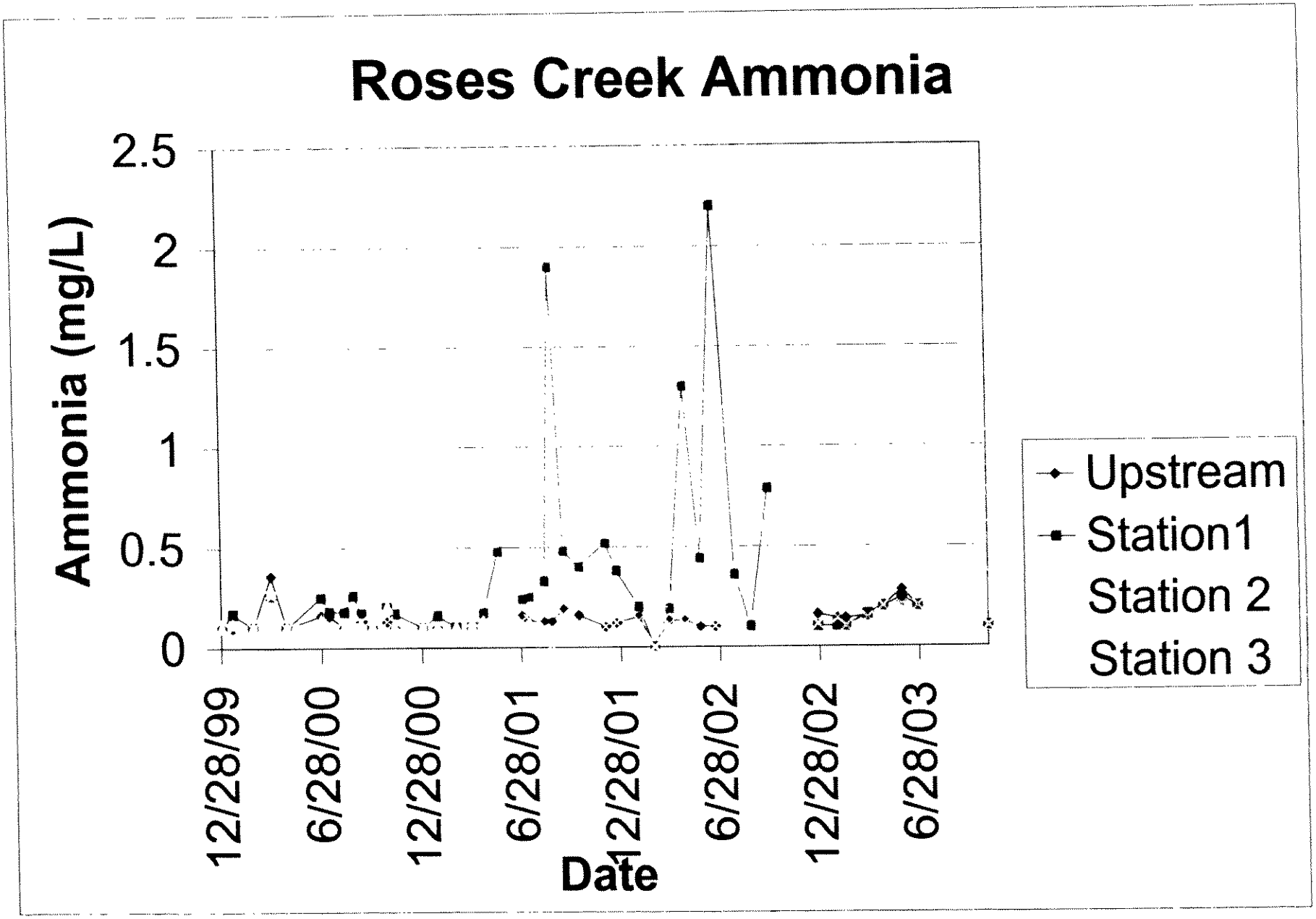
Roses Creek Dissolved Oxygen



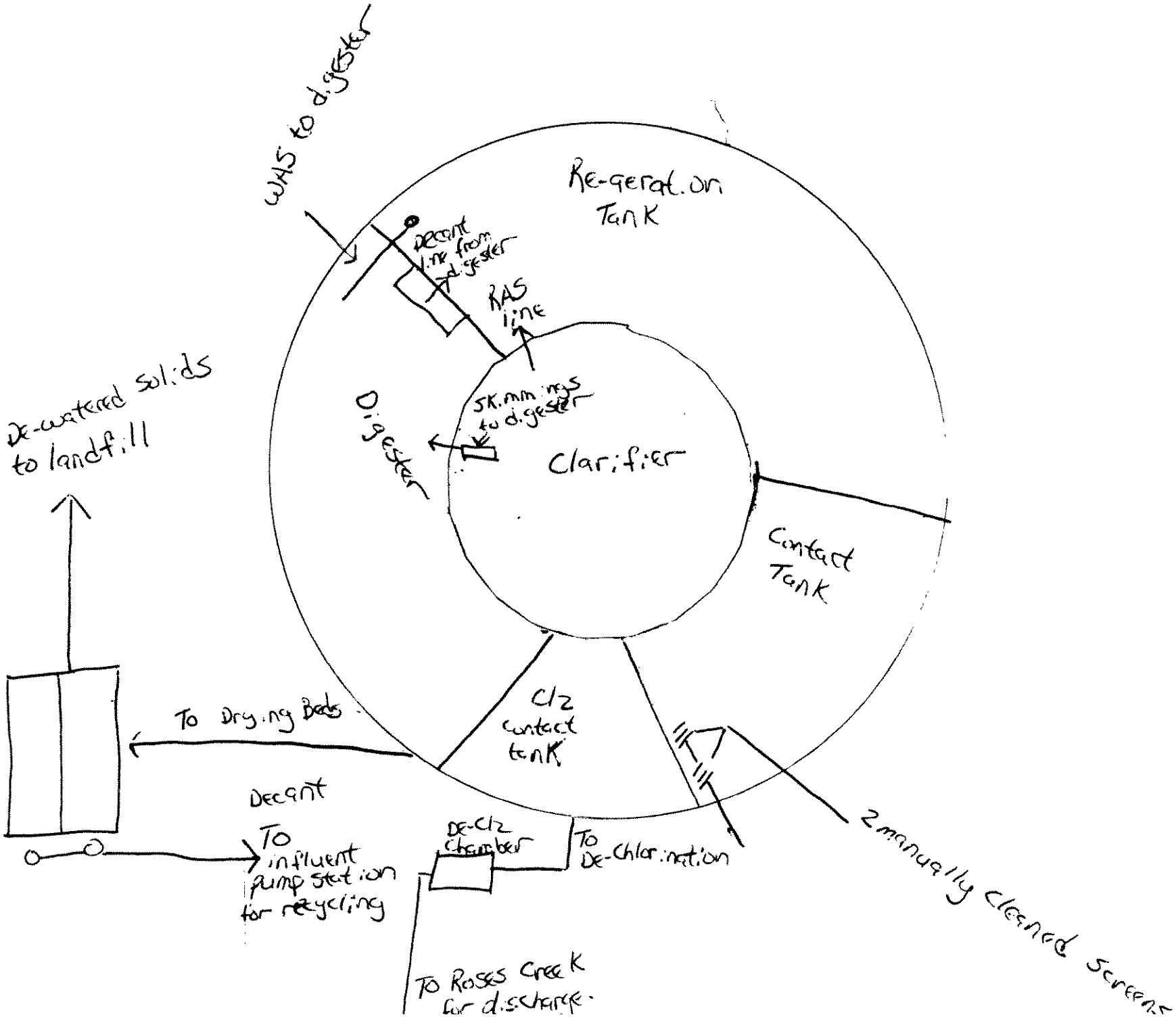

Roses Creek Temperature
Temperature (C)
30
25
20
15
10
5
0
12/28/99
4/28/00
8/28/00
12/28/00
4/28/01
8/28/01
12/28/01
4/28/02
8/28/02
12/28/02
4/28/03
8/28/03
Date
Upstream
Station1
Station 2
Station 3


Roses Creek BOD5
BOD5 (mg/L)
80
70
60
50
40
30
20
10
0
12/28/99
4/28/00
8/28/00
12/28/00
4/28/01
8/28/01
12/28/01
4/28/02
8/28/02
12/28/02
4/28/03
8/28/03
Date
Upstream
Station1
Station 2
Station 3

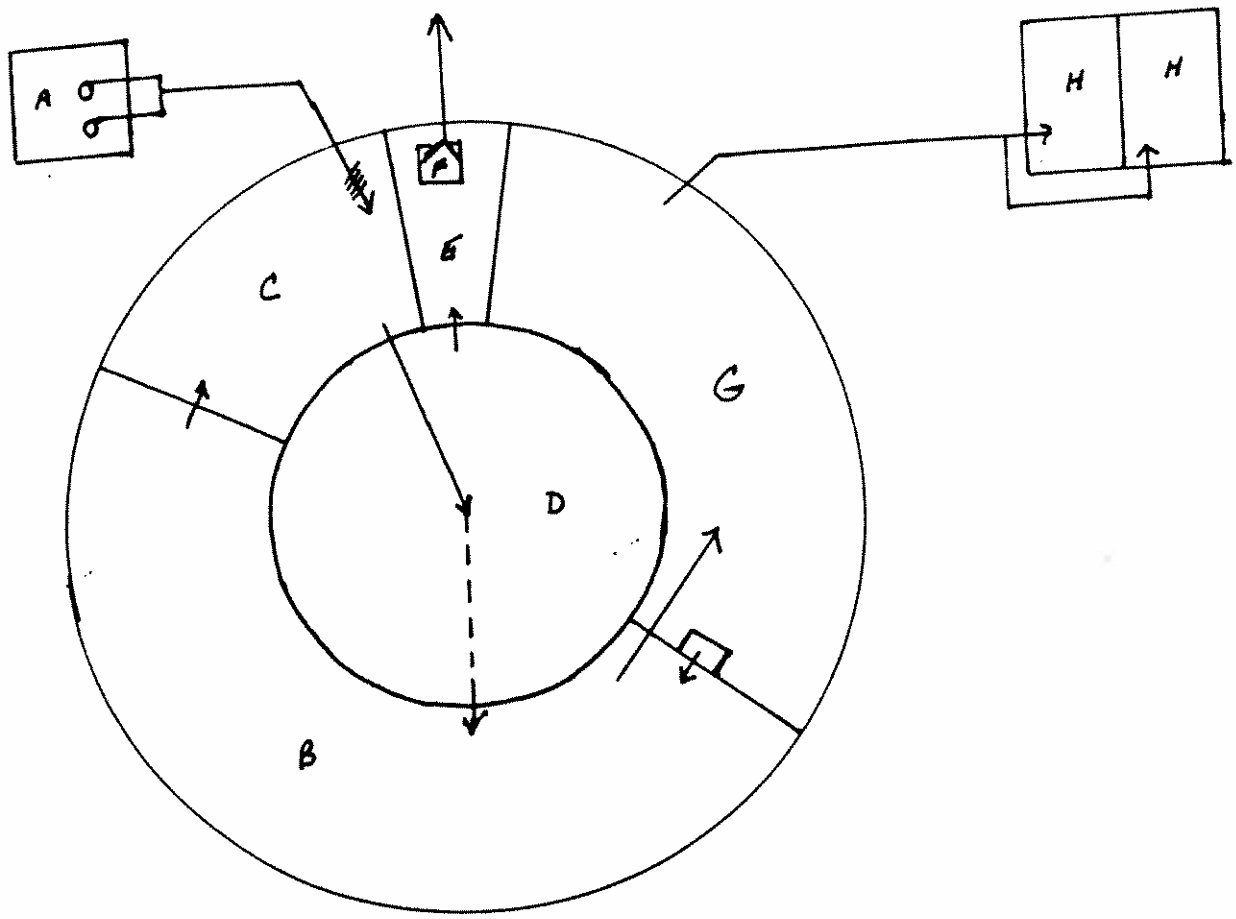

Roses Creek pH
pH (SU)
8
7.5
7
6.5
6
5.5
5
12/28/99
4/28/00
8/28/00
12/28/00
4/28/01
8/28/01
12/28/01
4/28/02
8/28/02
12/28/02
4/28/03
8/28/03
Date
Upstream
Station 1
Station 2
Station 3


Roses Creek Ammonia
Ammonia (mg/L)
2.5
2
1.5
1
0.5
0
12/28/99
6/28/00
12/28/00
6/28/01
12/28/01
6/28/02
12/28/02
6/28/03
Date
Upstream
Station1
Station 2
Station 3

Attachment 2 - Facility Diagram


WAS to digester
Re-aeration Tank
Decant line from digester
RAS line
Skimmings to digester
Digester
Clarifier
Contact Tank
Cl2 contact tank
De-watered solids to landfill
To Drying Beds
Decant
To influent pump station for recycling
De-Cl2 Chamber
To De-Chlorination
To Roses Creek for discharge.
2 manually cleaned screens

ATTACHMENT 1
FLOW DIAGRAM

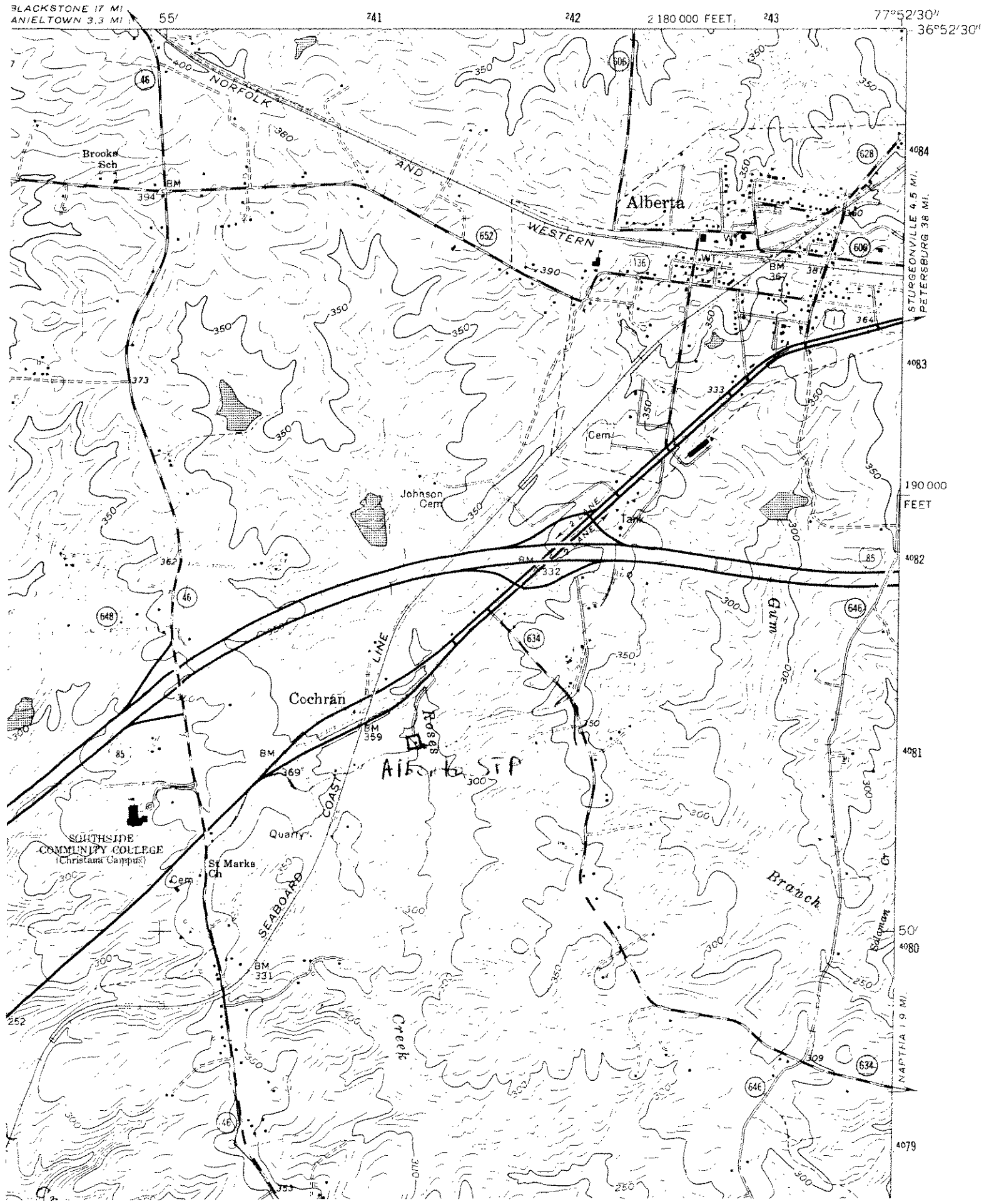


A - Influent Pump Station
B - Activated Sludge Reaeration Tank
C - Activated Sludge Contact Tank
D - Secondary Settling Tank
E - Chlorine Contact Tank
F - Effluent Flow Measurement
G - Aerobic Sludge Digestion
H - Sand Sludge Drying Beds

Attachment 3 – Topographic Map & Sludge Haul Route Directions

ALBERTA QUADRANGLE
VIRGINIA–BRUNSWICK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

5457 IV NE (WARFIELD)



Sludge disposal in landfill (route)

1. From Alberta WWTP Turn right on Boydton Plank Road. Go appx. 1/2 mile to Liberty Road. Turn Right.

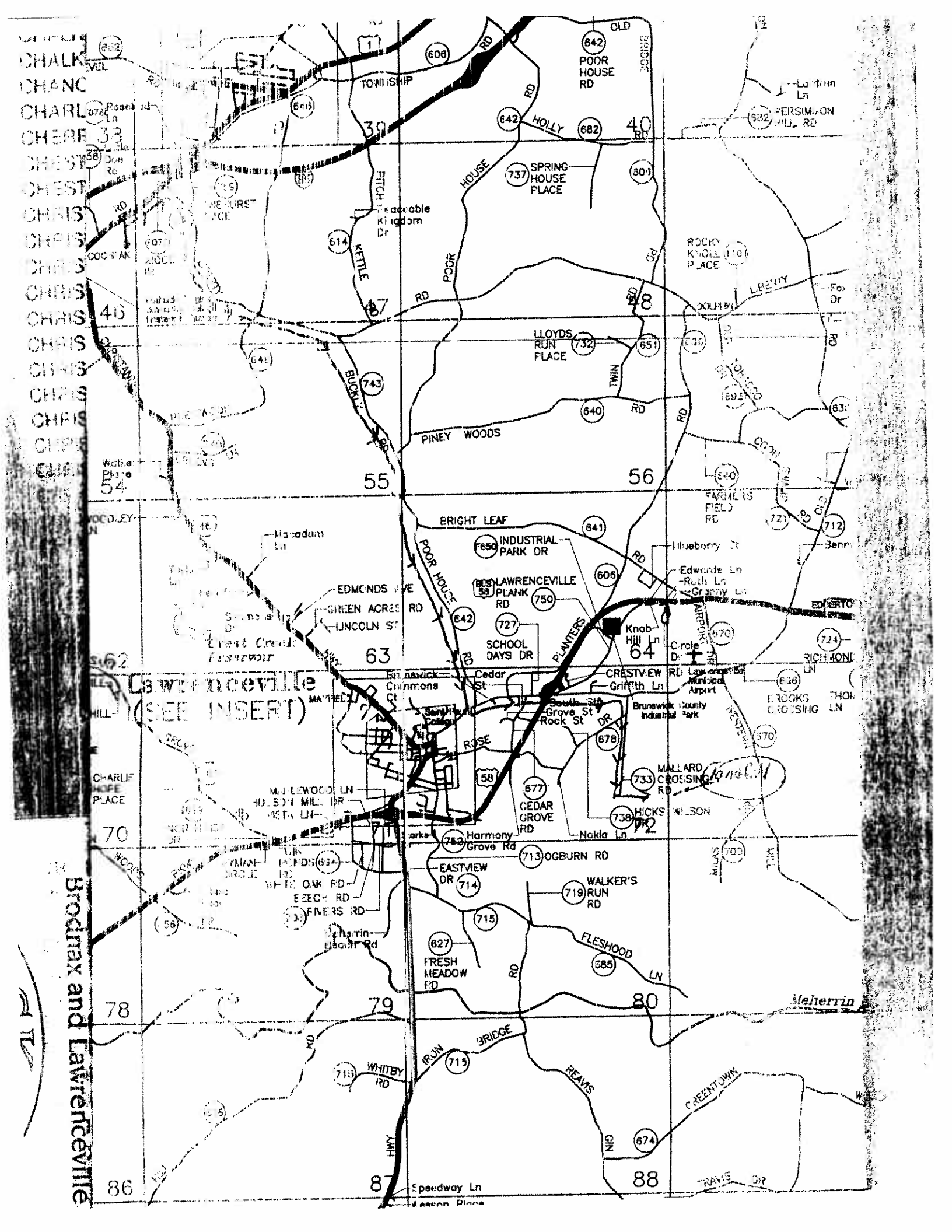
2. Follow Liberty Road To the Y intersection. Take the right fork

3. This is now Buckly Road. Follow Buckly Road to the Y intersection. take the right fork. This is now Poor House Road follow Poor House Road to the stop sign. Turn left on Lawrenceville Plank Road.

4. Go straight on Lawrenceville Plank Road [redacted] to mallard Crossing road.

5. Turn right on mallard Crossing Road. The landfill is appx. 1 mile.

Distance from Alberta WWTP to landfill is approximately 15 miles.



Lawrenceville
(SEE INSERT)
Brodnax and Lawrenceville
Meherrin
TOWNSHIP
POOR HOUSE RD
HOLLY RD
SPRING HOUSE PLACE
PITCH
KETTLE
POOR HOUSE RD
ROCKY KNOLL PLACE
LIBERTY
LLOYDS RUN PLACE
TWIN
BUCKLY
PINEY WOODS
BRIGHT LEAF
INDUSTRIAL PARK DR
LAWRENCEVILLE PLANK RD
EDMONDS AVE
GREEN ACRES RD
LINCOLN ST
Great Creek Reservoir
SCHOOL DAYS DR
PLANTERS
Knob Hill Ln
CRESTVIEW RD
Griffith Ln
Brunswick County Industrial Park
Cedar St
Brunswick Commons Ct
South St
Grove St
Rock St
ROSE
MALLARD CROSSING RD
CEDAR GROVE RD
HICKS WILSON DR
Nakia Ln
Harmony Grove Rd
OGBURN RD
EASTVIEW DR
WALKER'S RUN RD
FLESHOOD LN
FRESH MEADOW RD
IRON BRIDGE
WHITBY RD
REAVIS GIN
GREENTOWN
Speedway Ln
Messon Place
CHARLIE HOPE PLACE
MAPLEWOOD LN
HUDSON MILL DR
WHITE OAK RD
BEECH RD
RIVERS RD
Macadam Ln
Walker Place
FARMERS FIELD RD
Blueberry Ct
Edwards Ln
Ruth Ln
Granny Ln
RICHMOND LN
BROOKS CROSSING
Lawrenceville Municipal Airport

Attachment 4 – Site Inspection – January 11, 2008
by Charles Stitzer

VA0026816
RR/L

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE
4949-A Cox Road, Glen Allen, Virginia 23060
(804) 527-5020 Fax (804) 527-5106
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Gerard Seeley, Jr.
Regional Director

February 7, 2008

Mr. Jeff Swenson, Chief Operator
Town of Alberta WWTP
P.O. Box 157
Alberta, VA 23821

RE: VPDES Permit No. VA0026816, Town of Alberta WWTP

Dear Mr. Swenson:

Enclosed are copies of the Technical and Laboratory Inspection Reports regarding the inspection conducted at the Town of Alberta's Wastewater Treatment Plant on January 11, 2008.

There were no deficiencies listed in the Laboratory Inspection report. However, note on the individual parameter checksheets, I have written "new guidance" where recent changes in 40CFR part 136 will impact the way you are required to perform your wastewater analyses. The changes (mostly in QAQC) must be implemented immediately. These changes will be required in future inspections. To assist you, I have included an information sheet regarding some of the changes that affect you.

I have listed one Compliance Recommendation in your Technical Inspection Report; recertify your RPZ (backflow preventer). It is my understanding that you have scheduled recertification of the RPZ for mid February of 2008. Please acquire this certification by no later than March 1, 2008 and notify me when the certification has been performed.

If you or Mayor Parrish have any questions or comments regarding the report or the invitation to tour the Dinwiddie Courthouse STP, feel free to call me at (804) 527-5060.

Sincerely,

Charles R. Stitzer
Environmental Inspector

Enclosures (3)
cc: DEQ, PRO - Water Compliance file RR/L
The Honorable Melissa Parrish

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Wastewater Facility Inspection Report

Facility Name:	Alberta WWTP	**Facility No.:**	VA0026816
City/County:	Brunswick County	**Inspection Agency:**	DEQ
Inspection Date:	January 11, 2008	**Date Form Completed:**	February 6, 2008
Inspector:	Charles Stitzer CRS 2/6/08	**Time Spent:**	16 hrs. w/ travel & report
Reviewed By:	[illegible]	**Unannounced Insp.?**	Yes
		FY-Scheduled Insp.?	Yes

Present at Inspection: Jeff Swenson, Mary Markle,

TYPE OF FACILITY:

Domestic		Industrial	
[ ] Federal	[ ] Major	[ ] Major	[ ] Primary
[x] Non-Federal	[x] Minor	[ ] Minor	[ ] Secondary

Population Served: approx.: 350

Number of Connections: approx.: 250

TYPE OF INSPECTION:

[x] Routine — Date of last inspection: last technical 2/02/06

[ ] Compliance — Agency: DEQ/PRO

[ ] Reinspection

INFLUENT/EFFLUENT MONITORING: See Compliance file:

(Influent) Date: N/A – the facility does not perform influent testing for these parameters

Average: BOD: N/A mg/L TSS: N/A mg/L Flow: N/A MGD

Other: N/A mg/L

(Effluent) Date: See file

Average: BOD: ____ mg/L TSS: ___ mg/L Flow:___ MGD

Other: _____

CHANGES AND/OR CONSTRUCTION

DATA VERIFIED IN PREFACE	[ ] Updated	[X] No changes
Has there been any new construction?	[ ] Yes*	[X] No
If yes, were plans and specifications approved?	[ ] Yes	[ ] No* [X] N/A

DEQ approval date:

(A) PLANT OPERATION AND MAINTENANCE

1. Class and number of licensed operators: Class I – 1; and two operators in training (Class III required)
2. Hours per day plant is staffed: at least 8 hours/day, 7 days/week
3. Describe adequacy of staffing: [ ] Good [x] Average [ ] Poor*
4. Does the plant have an established program for training personnel? [x] Yes [ ] No
5. Describe the adequacy of the training program: [x] Good [ ] Average [ ] Poor*
6. Are preventive maintenance tasks scheduled? [x] Yes [ ] No*
7. Describe the adequacy of maintenance: [x] Good [ ] Average [ ] Poor*
8. Does the plant experience any organic/hydraulic overloading? [x] Yes* [ ] No

   If yes, identify cause and impact on plant: I&I typical of old sewerage system. Excessive flows can wash out plant, resulting in damage to the environment through the deposition of solids in the receiving stream and chronic damage caused by generally degraded treatment.

9. Any bypassing since last inspection? [ ] Yes* [x] No
10. Is the on-site electric generator operational? [x] Yes [ ] No* [ ] N/A
11. Is the STP alarm system operational? [x] Yes [ ] No * [ ] N/A
12. How often is the standby generator exercised? [x] Weekly [ ] Monthly [ ] Other:

    Power Transfer Switch? [ ] Weekly [ ] Monthly [x] Other: N/A

    Alarm System? [ ] Weekly [x] Monthly [ ]Other:
13. When were the cross connection control devices last tested on the potable water service? Jan '07 Recertification scheduled for Feb 08.
14. Is sludge disposed in accordance with the approved sludge disposal plan? [x] Yes [ ] No* [ ] N/A
15. Is septage received by the facility? [ ] Yes [x] No

    Is septage loading controlled? [ ] Yes [ ] No * [x] N/A

    Are records maintained? [ ] Yes [ ] No* [x] N/A
16. Overall appearance of facility: [ ] Good [X] Average [ ] Poor*

Comments: #1 The two OITs are progressing well and exhibit competency in plant and lab operations. **PLEASE NOTE,** however, a class 3 license is required to operate this plant and having these two operators become licensed is recommended. Until then, all operational changes must be under the supervision of the Class I Operator. #4 Training includes OJT, Sacramento Course, DEQ classes. #14 The approved plan calls for landfill disposal. #16 Plant in good condition. All facilities operational. Grounds neat and well groomed.

(B) PLANT RECORDS

1. Which of the following records does the plant maintain?

Operational Logs for each unit process	[x] Yes	[ ] No*	[ ] N/A
Instrument maintenance and calibration	[x] Yes	[ ] No*	[ ] N/A
Mechanical equipment maintenance	[x] Yes	[ ] No*	[ ] N/A
Industrial waste contribution **(Municipal Facilities)**	[ ] Yes	[ ] No*	[x] N/A

2. What does the operational log contain?

Visual Observations	[x] Yes	[ ] No	[ ] N/A
Flow Measurement	[x] Yes	[ ] No	[ ] N/A
Laboratory Results	[x] Yes	[ ] No	[ ] N/A
Process Adjustments	[x] Yes	[ ] No*	[ ] N/A
Control Calculations	[x] Yes	[ ] No	[ ] N/A
Other:			

3. What do the mechanical equipment records contain:

As built plans and specs?	[x] Yes	[ ] No*	[ ] N/A
Spare parts inventory?	[x] Yes	[ ] No*	[ ] N/A
Manufacturers instructions?	[x] Yes	[ ] No*	[ ] N/A
Equipment/parts suppliers?	[x] Yes	[ ] No*	[ ] N/A
Lubrication schedules?	[x] Yes	[ ] No*	[ ] N/A
Other:			
Comments:	None		

4. What do the industrial waste contribution records contain: ***(Applicable to municipal facilities only)***

Waste characteristics?	[ ] Yes	[ ] No*	[x] N/A
Locations and discharge types?	[ ] Yes	[ ] No*	[x] N/A
Impact on plant?	[ ] Yes	[ ] No*	[x] N/A
Other:	N/A		
Comments:	None		

5. Are the following records maintained at the plant:

Equipment maintenance records	[x] Yes	[ ] No*	[ ] N/A
Operational Log	[x] Yes	[ ] No*	[ ] N/A
Industrial contributor records	[ ] Yes	[ ] No*	[x] N/A
Instrumentation records	[x] Yes	[ ] No*	[ ] N/A
Sampling and testing records	[x] Yes	[ ] No*	[ ] N/A

6. Are records maintained at a different location? [ ] Yes [x] No
   Where are the records maintained? Recent records are at STP, Historical records are available on site and at Town Office

7. Were the records reviewed during the inspection [x] Yes [ ] No

8. Are the records adequate and the O & M Manual current? [x] Yes [ ] No* [ ] N/A
   O&M Manual updated: August 5, 1997
   Date DEQ approved original O&M: January 26, 1980

9. Are the records maintained for required 3-year period? [x] Yes [ ] No*

Comments: Records are neat, complete and well organized. Records are tracked on a computerized spreadsheet.

(C) SAMPLING

1.	Are sampling locations capable of providing representative samples?	[x] Yes	[ ] No*	[ ] N/A
2.	Do sample types correspond to those required by the permit?	[x] Yes	[ ] No*	[ ] N/A
3.	Do sampling frequencies correspond to those required by the permit?	[x] Yes	[ ] No*	[ ] N/A
4.	Are composite samples collected in proportion to flow?	[x] Yes	[ ] No*	[ ] N/A
5.	Are composite samples refrigerated during collection?	[x] Yes	[ ] No*	[ ] N/A
6.	Does plant maintain required records of sampling?	[x] Yes	[ ] No*	[ ] N/A
7.	Does plant run operational control tests?	[x] Yes	[ ] No*	[ ] N/A

Comments: None

(D) TESTING

1. Who performs the testing?
   [x] Plant/ Lab
   [ ] Central Lab
   [x] Commercial Lab - Name: **B & B Consultants, Inc.**

If plant performs any testing, complete 2-4.

2.	What method is used for chlorine analysis?	HACH Pocket Colorimeter		
3.	Is sufficient equipment available to perform required tests?	[x] Yes	[ ] No*	[ ] N/A
4.	Does testing equipment appear to be clean and/or operable?	[x] Yes	[ ] No*	[ ] N/A

Comments: Please see enclosed DEQ *Laboratory Inspection Report.*

(E) FOR INDUSTRIAL FACILITIES W/ TECHNOLOGY BASED LIMITS N/A

1. Is the production process as described in the permit application? (If no, describe changes in comments)

   [ ] Yes [ ] No* [x] N/A

2. Do products and production rates correspond to the permit application? (If no, list differences in comments section)

   [ ] Yes [ ] No* [x] N/A

3. Has the State been notified of the changes and their impact on plant effluent?

   [ ] Yes [ ] No* [x] N/A

Comments: None

FOLLOW UP TO COMPLIANCE RECOMMENDATIONS FROM THE FEBRUARY 2, 2006 INSPECTION:

Update RPZ Certification DONE

FOLLOW UP TO GENERAL RECOMMENDATIONS FROM THE FEBRUARY 2, 2006 INSPECTION:

Continue with I&I reduction efforts. ONGOING

Mark manholes to indicate where their flows go. Find original blueprints and/or reproduce a flow diagram of the plant to avoid accidental discharges such as was experienced on 2/1/06. VALVES NOW LABELED

The plant is becoming obsolete and will probably need upgrading within the next few years. It is highly recommended that the mayor familiarize herself with the size and complexity of a modern wastewater treatment facility and laboratory. Dinwiddie Court House STP is reasonably close and has a modern lab. A tour of this plant and lab would be a good start toward preparing for what Alberta may have to construct in the not too distant future. INVITATION IS STILL OPEN

INSPECTION REPORT SUMMARY

Compliance Recommendations/Request for Corrective Action:

Obtain RPZ certification by March 1, 2008

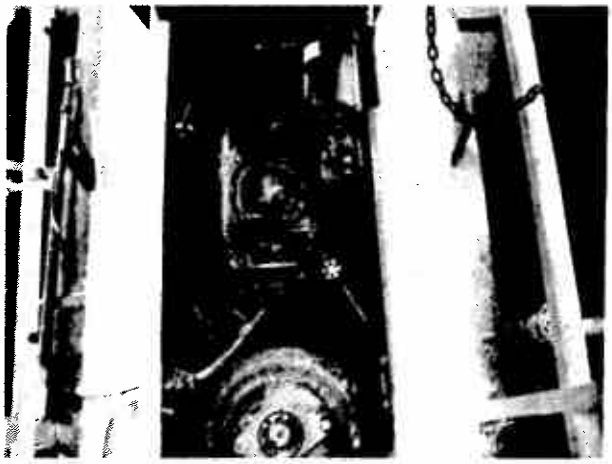
General Recommendations/Observations:

1. The Dayton Gear Reducer on the clarifier is worn and will eventually need major maintenance or be replaced. Parts for the reducer are not maintained in spare parts inventory. Preventative maintenance of the reducer is recommended or, at least, appropriate spare parts should be maintained on site in case of catastrophic failure.

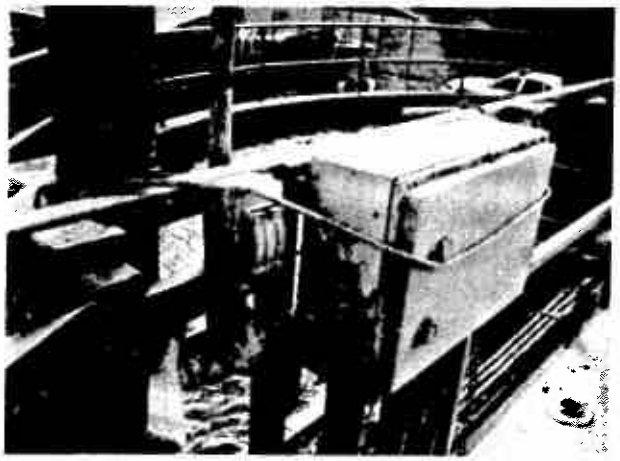
2. Paint on some of the pipes, valves, railings, etc. is beginning to peel. This is not only an esthetic problem but contributes to corrosion and premature wear. Consider adding repainting these peeling areas to your 2008 scheduled maintenance items.

3. Since this is a "single train" facility, preventative maintenance is difficult and often deferred because of the problems associated with performing visual inspections on a plant that is in operation. Consider taking advantage of summer low flows to visually inspect portions of the plant that are normally submerged. For example, a portable pump truck can be used to temporarily hold your aeration tank's mixed liquor and/or clarifier's contents while they are drained and inspected. This will allow visual inspection of valves and rakes normally submerged and out-of-sight.

GEAR REDUCER



CONTROL BOX SHOWING PEELING PAINT



UNIT PROCESS: Sewage Pumping

1. Name of station: Samford Street Pump Station (a.k.a. #3)
2. Location (if not at STP): The end of Samford St. in town
3. Following equipment operable:
   - a. All pumps? [x] Yes [ ] No*
   - b. Ventilation? [x] Yes [ ] No* [ ] N/A
   - c. Control system? [x] Yes [ ] No* [ ] N/A
   - d. Sump pump? [ ] Yes [ ] No* [x] N/A
   - e. Seal water system? [ ] Yes [ ] No* [x] N/A

4. Reliability considerations:
   - a. Class [ ] I [x] II [ ] III
   - b. Alarm system operable? [x] Yes [ ] No [ ] N/A
   - c. Alarm conditions monitored:
     1. high water level: [x] Yes [ ] No* [ ] N/A
     2. high liquid level in dry well: [ ] Yes [ ] No* [x] N/A
     3. main electric power: [x] Yes [ ] No* [ ] N/A
     4. auxiliary electric power: [x] Yes [ ] No* [ ] N/A
     5. failure of pump motors to start: [x] Yes [ ] No* [ ] N/A
     6. test function: [x] Yes [ ] No*
     7. other: N/A
   - d. Backup for alarm system operational? [x] Yes [ ] No* [ ] N/A
   - e. Alarm signal reported to (identify): Local visual. Also on-duty personnel notified via RACO dialer
   - f. Continuous operability provisions:
     1. Generator hook up? [x] Yes [ ] No
     2. Two sources of electricity? [ ] Yes [X] No
     3. Portable pump? [x] Yes [ ] No
     4. 1 day storage? [ ] Yes [x] No
     5. other: N/A

5. Does station have bypass? [ ] Yes* [x] No
   - a. Evidence of bypass use? [ ] Yes* [ ] No [x] N/A
   - b. Can bypass be disinfected? [ ] Yes [ ] No* [x] N/A
   - c. Can bypass be measured? [ ] Yes [ ] No* [x] N/A

6. How often is station checked? 3X Wk

7. General condition: [X] Good [ ] Fair [ ] Poor*

Comments: Generator hookup, trash pump connection, alarm battery backup and a RACO dialing system have been installed.

UNIT PROCESS: Sewage Pumping

1. Name of station: Church Street Pump Station (a.k.a. #2)
2. Location (if not at STP): Church Street
3. Following equipment operable:
   a. All pumps? [x] Yes [ ] No*
   b. Ventilation? [x] Yes [ ] No* [ ] N/A
   c. Control system? [x] Yes [ ] No* [ ] N/A
   d. Sump pump? [ ] Yes [ ] No* [x] N/A
   e. Seal water system? [ ] Yes [ ] No* [x] N/A

4. Reliability considerations:
   a. Class [ ] I [x] II [ ] III
   b. Alarm system operable? [x] Yes [ ] No [ ] N/A
   c. Alarm conditions monitored:
      1. high water level: [x] Yes [ ] No* [ ] N/A
      2. high liquid level in dry well: [ ] Yes [ ] No* [x] N/A
      3. main electric power: [x] Yes [ ] No* [ ] N/A
      4. auxiliary electric power: [x] Yes [ ] No* [ ] N/A
      5. failure of pump motors to start: [x] Yes [ ] No* [ ] N/A
      6. test function: [x] Yes [ ] No*
      7. other: N/A
   d. Backup for alarm system operational? [x] Yes [ ] No* [ ] N/A
   e. Alarm signal reported to (identify): Local visual. Also on duty personnel notified via RACO dialer
   f. Continuous operability provisions:
      1. Generator hook up? [x] Yes [ ] No
      2. Two sources of electricity? [ ] Yes [x] No
      3. Portable pump? [x] Yes [ ] No
      4. 1 day storage? [ ] Yes [x] No
      5. other: N/A

5. Does station have bypass? [ ] Yes* [x] No
   a. Evidence of bypass use? [ ] Yes* [ ] No [x] N/A
   b. Can bypass be disinfected? [ ] Yes [ ] No* [x] N/A
   c. Can bypass be measured? [ ] Yes [ ] No* [x] N/A

6. How often is station checked? 3X Wk

7. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: Generator hookup, trash pump connection, alarm battery backup and a RACO dialing system have been installed. Pump station not observed this inspection. Operator reports it is fully operational.

UNIT PROCESS: Sewage Pumping

1. Name of station: Bay 16 Pump Station (a.k.a. #1)
2. Location (if not at STP): Behind warehouse on Rout 1
3. Following equipment operable:
   - a. All pumps? [x] Yes [ ] No*
   - b. Ventilation? [x] Yes [ ] No* [ ] N/A
   - c. Control system? [x] Yes [ ] No* [ ] N/A
   - d. Sump pump? [ ] Yes [ ] No* [x] N/A
   - e. Seal water system? [ ] Yes [ ] No* [x] N/A

4. Reliability considerations:
   - a. Class [ ] I [x] II [ ] III
   - b. Alarm system operable? [x] Yes [ ] No [ ] N/A
   - c. Alarm conditions monitored:
     - 1. high water level: [x] Yes [ ] No* [ ] N/A
     - 2. high liquid level in dry well: [ ] Yes [ ] No* [x] N/A
     - 3. main electric power: [x] Yes [ ] No* [ ] N/A
     - 4. auxiliary electric power: [x] Yes [ ] No* [ ] N/A
     - 5. failure of pump motors to start: [x] Yes [ ] No* [ ] N/A
     - 6. test function: [x] Yes [ ] No*
     - 7. other: N/A
   - d. Backup for alarm system operational? [ ] Yes [x] No* [ ] N/A
   - e. Alarm signal reported to (identify): Local visual. Also on duty personnel notified via RACO dialer
   - f. Continuous operability provisions:
     - 1. Generator hook up? [x] Yes [x] No
     - 2. Two sources of electricity? [ ] Yes [x] No
     - 3. Portable pump? [x] Yes [ ] No
     - 4. 1 day storage? [ ] Yes [x] No
     - 5. other: N/A

5. Does station have bypass? [ ] Yes* [x] No
   - a. Evidence of bypass use? [ ] Yes* [ ] No [x] N/A
   - b. Can bypass be disinfected? [ ] Yes [ ] No* [x] N/A
   - c. Can bypass be measured? [ ] Yes [ ] No* [x] N/A

6. How often is station checked? 3X Wk

7. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: Generator hookup, trash pump connection, alarm battery backup and a RACO dialing system have been installed. Pump station not observed this inspection. Operator reports it is fully operational.

UNIT PROCESS: Sewage Pumping

1. Name of station: Influent Pump Station
2. Location (if not at STP): N/A
3. Following equipment operable:
   a. All pumps? [x] Yes [ ] No*
   b. Ventilation? [x] Yes [ ] No* [ ] N/A
   c. Control system? [x] Yes [ ] No* [ ] N/A
   d. Sump pump? [ ] Yes [ ] No* [x] N/A
   e. Seal water system? [ ] Yes [ ] No* [x] N/A

4. Reliability considerations:
   a. Class [ ] I [x] II [ ] III
   b. Alarm system operable? [x] Yes [ ] No [ ] N/A
   c. Alarm conditions monitored:
      1. high water level: [x] Yes [ ] No* [ ] N/A
      2. high liquid level in dry well: [ ] Yes [ ] No* [x] N/A
      3. main electric power: [x] Yes [ ] No* [ ] N/A
      4. auxiliary electric power: [x] Yes [ ] No* [ ] N/A
      5. failure of pump motors to start: [x] Yes [ ] No* [ ] N/A
      6. test function: [x] Yes [ ] No*
      7. other: N/A
   d. Backup for alarm system operational? [x] Yes [ ] No* [ ] N/A
   e. Alarm signal reported to (identify): Lab is adjacent. In addition, RACO dialer signals on-duty personnel.
   f. Continuous operability provisions:
      1. Generator hook up? [x] Yes [ ] No
      2. Two sources of electricity? [ ] Yes [x] No
      3. Portable pump? [x] Yes [ ] No
      4. 1 day storage? [ ] Yes [x] No
      5. other: N/A

5. Does station have bypass?
   a. Evidence of bypass use? [x] Yes* [ ] No
   b. Can bypass be disinfected? [ ] Yes* [x] No [ ] N/A
   c. Can bypass be measured? [x] Yes [ ] No* [ ] N/A

6. How often is station checked? [x] Yes [ ] No* [ ] N/A

7. General condition: several times each day

[x] Good [ ] Fair [ ] Poor*

Comments: Alarm system operational.

UNIT PROCESS: Screening/Comminution

1. Number of units: Manual: 2 Mechanical: 0
   Number of units in operation: Manual: 2 Mechanical: 0

2. Bypass channel provided? [ ] Yes [x] No
   Bypass channel in use? [ ] Yes [ ] No [x] N/A

3. Area adequately ventilated? [x] Yes [ ] No*

4. Alarm system for equipment failure or overloads? [ ] Yes [x] No [ ] N/A
   If present, is the alarm system operational? [ ] Yes [ ] No * [x] N/A

5. Proper flow-distribution between units? [x] Yes [ ] No * [ ] N/A

6. How often are units checked and cleaned? several times each day

7. Cycle of operation: continuous

8. Volume of screenings removed: not measured (estimated at less than ½ 30 gal trash can per day)

9. General condition:
   [x] Good [ ] Fair [ ] Poor*

Comments: Operational. The racks/screens were clean. Screenings were limed and covered.

UNIT PROCESS: Activated Sludge Aeration

1. Number of units: 1
   Number of units in operation: 1

2. Mode of operation: extended aeration

3. Proper flow distribution between units? [ ] Yes [ ] No* [x] N/A

4. Foam control operational? [ ] Yes [ ] No* [x] N/A

5. Scum control operational? [ ] Yes [ ] No* [x] N/A

6. Evidence of the following problems:
   a. Dead spots? [ ] Yes* [x] No
   b. Excessive foam? [ ] Yes* [x] No
   c. Poor aeration? [ ] Yes* [x] No
   d. Excessive aeration? [ ] Yes* [x] No
   e. Excessive scum? [ ] Yes* [x] No
   f. Aeration equipment malfunction? [ ] Yes* [x] No
   g. Other:

7. Mixed liquor characteristics: Not recorded this inspection.

pH:	____SU	MLSS:	___mg/L (TARGET IS 3200 mg/L)
DO:	____mg/L	SDI:	
SVI:		Color:	Light Brown
Odor:	earthy	Settleability:	____% in 30 minutes
		Other:	

8. Return/waste sludge:
   a. return rate: the rate is not measured MGD
   b. waste rate: the rate is not measured MGD
   c. frequency of wasting: as needed based on operational control data (~5d/week)

9. Aeration system control: [ ] Time Clock [ ] Manual [x] Continuous [ ] Other

10. Effluent control devices working properly ***(oxidation ditches)***? [ ] Yes [ ] No [x] N/A

11. General condition: [x] Good [ ] Fair [ ] Poor *

Comments: The basin consists of a contact stabilization chamber and a re-aeration chamber. Air is provided by two blowers which also serve the Aerobic Digester. The blowers are alternated automatically. Both blowers were operational. The aeration cycle and activated sludge return (airlift) are continuous. The activated sludge appeared to be in good condition. Solids are wasted as needed (usually around 1.5 hours/day). Simplicity of facility lends itself to operation by observation by operator. Very little process control testing is required.

UNIT PROCESS: Sedimentation

[ ] Primary [x] Secondary [ ] Tertiary

1.	Number of units:	1		
	In operation:	1		
2.	Proper flow-distribution between units?	[ ] Yes	[ ] No*	[x] N/A
3.	Signs of short-circuiting and/or overloads?	[ ] Yes*	[x] No	
4.	Effluent weirs level?	[x] Yes	[ ] No*	[ ] N/A
	Clean?	[x] Yes	[ ] No*	
5.	Scum collection system working properly?	[X] Yes	[ ] No*	[ ] N/A
6.	Sludge-collection system working properly?	[x] Yes	[ ] No*	[ ] N/A
7.	Influent, effluent baffle systems working properly?	[x] Yes	[ ] No*	[ ] N/A
8.	Chemical addition?	[ ] Yes	[x] No	
	Chemicals:	N/A		
9.	Effluent characteristics:	Clear		
10.	General condition:	[X] Good	[ ] Fair	[ ] Poor*

Comments: None

UNIT PROCESS: Sludge Pumping

(WAS and RAS)

1. Number of Pumps: 1
   Number of pumps in operation: 1

2. Type of sludge pumped: [ ] Primary [ ] Secondary [x] Return Activated [ ] Combination [x] Other: WAS

3. Type of pump: [ ] Plunger [ ] Diaphragm [ ] Screwlift [ ] Centrifugal [ ] Progressing cavity [x] Other: air lift

4. Mode of operation: [x] Manual [ ] Automatic [ ] Other:

5. Sludge volume pumped: not measured MGD

6. Alarm system for equipment failures or overloads operational? [ ] Yes [ ] No* [x] N/A

7. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: Sludge is returned to the re-aeration tank, and wasted to the aerated sludge-holding tank. Valves are used to control the discharge rates.

UNIT PROCESS: Aerobic Digestion

1. Number of units: 1

   Number of units in operation: 1

2. Type of sludge treated: [ ] Primary [x] WAS [ ] Other:

3. Frequency of sludge application to digesters: usually 1/day

4. Supernatant return rate: estimated 20 min/hr or 3-4 hrs/day ~6000 gal

5. pH adjustment provided? [ ] Yes [x] No

   Utilized: [ ] Yes [ ] No [x] N/A

6. Tank contents well-mixed and relatively free of odors? [x] Yes [ ] No*

7. If diffused aeration is used, do diffusers require frequent cleaning? [ ] Yes [ ] No [x] N/A

8. Location of supernatant return: [ ] Head [ ] Primary [x] Other re-aeration tank

9. Process control testing: **performed approximately monthly**

   a. percent solids: [ ] Yes _____ % [ ]No

   b. pH: [ ] Yes _____SU [ ] No

   c. alkalinity: [ ] Yes _____ mg/L [ ] No

   d. dissolved oxygen: [ ] Yes _____ mg/L [ ] No

10. Foaming problem present? [ ] Yes * [x] No

11. Signs of short-circuiting or overloads?: [ ] Yes * [x] No

12. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: The tank is equipped with an adjustable decant box. Supernatant is returned continuously when the tank is full and receiving wasted sludge. #9 Operator adjusts MLSS to achieve ~3200 Mg/L MLSS target.

UNIT PROCESS: Drying Beds

1. Number of units: 2
   Number of units in operation: 2
   Number of beds with sludge: 1

2. Cover in good condition? [ ] Yes [ ] No [x] N/A

3. Typical sand depth in beds: ~ 12 inches

4. Typical drying time: seasonal

5. Frequency of usage: as needed to maintain target solids conc. (approx. 1.5hr/day – 5d/wk)

6. Underflow recycle location: Influent pump station

7. Sludge distributed evenly across bed(s)? [x] Yes [ ] No* [ ] N/A

8. Following problems noted:
   a. Odors? [ ] Yes* [x] No
   b. Flies? [ ] Yes* [x] No
   c. Weed growth? [ ] Yes* [x] No
   d. Leakage from bed(s)? [ ] Yes* [x] No

9. If the facility does not have an approved sludge plan, what is the current method of sludge disposal?

   The approved plan calls for landfill disposal.

10. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: Beds are in excellent condition. Extremely well maintained.

UNIT PROCESS: Chlorination

1. Number of chlorinators: 2
   Number in operation: 1

2. Number of evaporators: 0
   Number in operation: 0

3. Number of chlorine contact tanks: 1
   Number in operation: 1

4. Proper flow-distribution between units? [ ] Yes [ ] No * [x] N/A

5. How is chlorine introduced into the wastewater?
   [x] Perforated diffusers
   [ ] Injector with single entry point
   [ ] Other

6. Chlorine residual in basin effluent: 2 mg/L @ 0910 hours

7. Applied chlorine dosage: 17 tabs./day (~2-3 lbs)

8. Contact basins adequately baffled? [ ] Yes [ ] No * [x] N/A

9. Adequate ventilation in:
   a. Chemical storage area? [ ] Yes [ ] No * [x] N/A
   b. Equipment room? [ ] Yes [ ] No * [x] N/A

10. Proper safety precautions used? [x] Yes [ ] No *

11. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: 6 tubes were stocked with chlorine hypochlorite tabs

UNIT PROCESS: Dechlorination

1. Chemical used: [ ] Sulfur Dioxide [ ] Bisulfite [x] Other bisulfite tablets

2. Number of sulfonators: 0
   Number in operation: 0

3. Number of evaporators: 0
   Number in operation: 0

4. Number of chemical feeders: 2 in parallel (4 tubes each)
   Number in operation: 2 (6 tubes filled)

5. Number of contact tanks: 0
   Number in operation: 0

6. Proper flow-distribution between units? [x] Yes [ ] No * [ ] N/A

7. How is chemical introduced? [ ] Perforated diffusers
   [ ] Injector with single entry point
   [x] Other tablet feeders

8. Control system operational? [x] Yes [ ] No *
   a. Residual analyzers? [ ] Yes [ ] No * [x] N/A
   b. System adjusted: [ ] Automatic [x] Manual [ ] Other:

9. Applied dechlorinating dose: 12-15 tabs./day (2-3 lbs)

10. Chlorine residual in basin effluent: Non Detect. mg/L (@ 0910 hours)

11. Contact basins adequately baffled? [ ] Yes [ ] No * [x] N/A

12. Adequate ventilation in:
    a. Chemical storage area? [x] Yes [ ] No *
    b. Equipment room? [x] Yes [ ] No *

13. Proper safety precautions used? [x] Yes [ ] No *

14. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: Bi sulfite tablets are also placed in aeration tank to insure complete dechlorination. Please note that excessive Bi Sulfite in the discharge can cause interference in BOD tests.

UNIT PROCESS: Flow Measurement

[ ] Influent [ ] Intermediate [x] Effluent

1. Type measuring device: 60° v-notch weir and an ultra-sonic sensor

2. Present reading: 4.6 g.p.m. @1300 hrs

3. Bypass channel? [ ] Yes [x] No
   Metered? [ ] Yes [ ] No* [x] N/A

4. Return flows discharged upstream from meter? [ ] Yes [x] No
   If Yes, identify: N/A

5. Device operating properly? [x] Yes [ ] No*

6. Date of last calibration: 05/16/07

7. Evidence of following problems:
   a. Obstructions? [ ] Yes* [x] No
   b. Grease? [ ] Yes* [x] No

8. General condition: [x] Good [ ] Fair [ ] Poor*

Comments: Totalizing, indicating, and recording (circular chart) equipment are maintained; Prosonic Flow V 861.

UNIT PROCESS: Effluent/Plant Outfall

1. Type outfall: [x] Shore based [ ] Submerged
2. Type if shore based: [ ] Wingwall [X] Headwall [ ] Rip Rap [ ] N/A
3. Flapper valve? [ ] Yes [x] No
4. Erosion of bank? [ ] Yes* [x] No [ ] N/A
5. Effluent plume visible? [X] Yes * [ ] No (Effluent was clear, stream was muddy)

Comments: The final discharge was clear. Creek substrate appeared normal, no evidence of sludge deposits.

6. Condition of outfall and supporting structures: [x] Good [ ] Fair [ ] Poor *
7. Final effluent, evidence of following problems:
   a. Oil sheen? [ ] Yes* [x] No
   b. Grease? [ ] Yes* [x] No
   c. Sludge bar? [ ] Yes* [x] No
   d. Turbid effluent? [ ] Yes* [x] No
   e. Visible foam? [ ] Yes* [x] No
   f. Unusual odor? [ ] Yes* [x] No

Comments : Effluent very good quality.

cc:

[x] Owner: c/o The Honorable Melissa Parrish, Mayor, Town of Alberta
[ ] Operator: Jeff Swenson
[ ] Local Health Department:
[ ] VDH Engineering Field Office:
[ ] VDH/Central Office - DWE
[ ] DEQ - OWCP
[x] DEQ - Regional Office File
[ ] EPA - Region III

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
LABORATORY INSPECTION REPORT

Form Updated 8/3/2000

FACILITY NO:	INSPECTION DATE:	PREVIOUS INSP. DATE:	PREVIOUS RATING:	TIME SPENT:
VA0026816	January 11, 2008	February 02, 2006	No Deficiencies noted	16 hrs w/ travel & report

NAME/ADDRESS OF FACILITY:	FACILITY CLASS:	FACILITY TYPE:	UNANNOUNCED INSPECTION?
Town of Alberta WWTP P.O. Box 157 Alberta, Virginia 23821	( ) MAJOR (x) MINOR ( ) SMALL ( ) VPA/NDC	(x) MUNICIPAL ( ) INDUSTRIAL ( ) FEDERAL ( ) COMMERCIAL LAB	(x) YES ( ) NO **FY-SCHEDULED INSPECTION?** (x) YES ( ) NO

INSPECTOR(S):	REVIEWERS:	PRESENT AT INSPECTION:
Charles Stitzer CPS 2/8/08	[illegible] 2/8/08	Jeff Swenson, Mary Markle

LABORATORY EVALUATION	DEFICIENCIES	
	YES	NO
LABORATORY RECORDS		X
GENERAL SAMPLING & ANALYSIS		X
LABORATORY EQUIPMENT		X
DISSOLVED OXYGEN ANALYSIS PROCEDURES		X
pH ANALYSIS PROCEDURES		X
TOTAL RESIDUAL CHLORINE ANALYSIS PROCEDURES		X

QUALITY ASSURANCE/QUALITY CONTROL

Y/N	QUALITY ASSURANCE METHOD	PARAMETERS	FREQUENCY
N	REPLICATE SAMPLES		
N	SPIKED SAMPLES		
N	STANDARD SAMPLES		
N	SPLIT SAMPLES		
N	SAMPLE BLANKS		
N	OTHER		
N	EPA-DMR PE SAMPLES?	RATING: N/A	
N	QC SAMPLES PROVIDED?	RATING: ( ) SAT ( ) UNSAT (X) NA	

COPIES TO: (X) DEQ - PRO; (X) OWPC; ( ) VDH-Danville FO and DWE; (X) OWNER; ( ) EPA-Region III; (X) Other: Mayor of Alberta

FACILITY #: VA0026816

LABORATORY RECORDS INCLUDE THE FOLLOWING:

X	SAMPLING DATE	X	ANALYSIS DATE	X	CONT MONITORING CHART
X	SAMPLING TIME	X	ANALYSIS TIME	X	INSTRUMENT CALIBRATION
X	SAMPLE LOCATION	X	TEST METHOD	X	INSTRUMENT MAINTENANCE
				X	CERTIFICATE OF ANALYSIS

WRITTEN INSTRUCTIONS INCLUDE THE FOLLOWING:

X	SAMPLING SCHEDULES	X	CALCULATIONS	X	ANALYSIS PROCEDURES

	YES	NO	N/A
DO ALL ANALYSTS INITIAL THEIR WORK?	X		
DO BENCH SHEETS INCLUDE ALL INFORMATION NECESSARY TO DETERMINE RESULTS?	New guidance		
IS THE DMR COMPLETE AND CORRECT? MONTH(S) REVIEWED: Oct, 2007DMR only spot checked. Full data analysis not performed.	X		
ARE ALL MONITORING VALUES REQUIRED BY THE PERMIT REPORTED?	X		

GENERAL SAMPLING AND ANALYSIS SECTION

	YES	NO	N/A
ARE SAMPLE LOCATION(S) ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE SAMPLE COLLECTION PROCEDURES APPROPRIATE?	X		
IS SAMPLE EQUIPMENT CONDITION ADEQUATE?	X		
IS FLOW MEASUREMENT ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE COMPOSITE SAMPLES REPRESENTATIVE OF FLOW?	X		
ARE SAMPLE HOLDING TIMES AND PRESERVATION ADEQUATE?	X		
IF ANALYSIS IS PERFORMED AT ANOTHER LOCATION, ARE SHIPPING PROCEDURES ADEQUATE? LIST PARAMETERS AND NAME & ADDRESS OF LAB: **B and B Consultants, Inc., all VPDES parameters with the exception of D.O., pH, and TRC.**	X		

LABORATORY EQUIPMENT SECTION

	YES	NO	N/A
IS LABORATORY EQUIPMENT IN PROPER OPERATING RANGE?	X		
ARE ANNUAL THERMOMETER CALIBRATION(S) ADEQUATE?	X		
IS THE LABORATORY GRADE WATER SUPPLY ADEQUATE?			X
ARE ANALYTICAL BALANCE(S) ADEQUATE?			X

LABORATORY INSPECTION REPORT SUMMARY

FACILITY NAME:	FACILITY NO:	INSPECTION DATE:
Town of Alberta WWTP	VA0026816	January 11, 2008
OVERALL LABORATORY EVALUATION:	( ) **Deficiencies** (x) **No Deficiencies**	

LABORATORY RECORDS
No Deficiencies noted
GENERAL SAMPLING AND ANALYSIS
New guidance (see comments, below)
LABORATORY EQUIPMENT
No Deficiencies noted
INDIVIDUAL PARAMETERS
New guidance (see comments, below)

COMMENTS

Due to recent changes to 40CFR part 136 (wastewater analysis), some EPA wastewater analysis methods are no longer approved. In most cases, wastewater operators are choosing to use analyses in accordance with Standard Methods©. The most notable changes between EPA and Standard Methods© are in the QAQC procedures. A fact sheet regarding the field analysis performed at most small WWTPs is enclosed for your use.

ANALYST:	Mary Markle	VPDES NO	VA0026816

Meter: YSI 55

Parameter: Dissolved Oxygen
Method: Membrane Electrode
Facility Elevation 100 '
1/08

METHOD OF ANALYSIS:

x	18th Edition of Standard Methods – 4500-O G
	21st or Online Editions of Standard Methods – 4500-O G (01)

	DO is a method-defined analyte so modifications are not allowed. [40 CFR Part 136.6]	Y	N
1)	If samples are collected, is collection carried out with a minimum of turbulence and air bubble formation and is the sample bottle allowed to overflow several times its volume? [1.c]	x	
2)	Are meter and electrode operable and providing consistent readings? [3]	x	
3)	Is membrane in good condition without trapped air bubbles? [3.b]	x	
4)	Is correct filling solution used in electrode? [Mfr.]	x	
5)	Are water droplets shaken off the membrane prior to calibration? [Mfr.]	x	
6)	Is meter calibrated before use or at least daily? [Mfr. & Part 1020]	x	
7)	Is calibration procedure performed according to manufacturer's instructions? [Mfr.]	x	
8)	Is sample stirred during analysis? [Mfr.]	*In situ*	
9)	Is the sample analysis procedure performed according to manufacturer's instructions? [Mfr.]	x	
10)	Is meter stabilized before reading D.O.? [Mfr.]	x	
11)	Is electrode stored according to manufacturer's instructions? [Mfr.]	x	
12)	Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition or daily if citing 20th or 21st Edition? [Part 1020] **NOTE**: Not required for *in situ* samples.	New guidance	
13)	If a duplicate sample is analyzed, is the reported value for that sampling event the average concentration of the sample and the duplicate? [DEQ]	New guidance	
14)	If a duplicate sample is analyzed, is the relative percent difference (RPD) ≤20? [18th ed. Table 1020 I; 21st ed. DEQ]	New guidance	

COMMENTS: See enclosed information sheet regarding 40CFR Part 136 changes

ANALYST:	Mary Markle	VPDES NO	VA0026816

Parameter: Hydrogen Ion (pH)
1/08

Method: Electrometric

METHOD OF ANALYSIS:

x	18th Edition of Standard Methods – 4500-H^+ B
	21st or Online Editions of Standard Methods – 4500-H^+ B (00)

		Y	N
	pH is a method-defined analyte so modifications are not allowed. [40 CFR Part 136.6]		
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? **NOTE**: Analyze 4 samples of known pH. May use external source of buffer (different lot/manufacturer than buffers used to calibrate meter). Recovery for each of the 4 samples must be +/- 0.1 SU of the known concentration of the sample. [SM 1020 B.1]	New guidance	
2)	Is the electrode in good condition (no chloride precipitate, scratches, deterioration, etc.)? [2.b/c and 5.b]	x	
3)	Is electrode storage solution in accordance with manufacturer's instructions? [Mfr.]	x	
4)	Is meter calibrated on at least a daily basis using **three buffers** all of which are at the same temperature? [4.a] **NOTE**: Follow manufacturer's instructions.	New guidance	
5)	After calibration, is a buffer analyzed as a check sample to verify that calibration is correct? Agreement should be within +/- 0.1 SU. [4.a]	x	
6)	Do the buffer solutions appear to be free of contamination or growths? [3.1]	x	
7)	Are buffer solutions within the listed shelf-life or have they been prepared within the last 4 weeks? [3.a]	x	
8)	Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]	Gell	
9)	For meters with ATC that also have temperature display, is the thermometer verified annually? [SM 2550 B.1]	x	
10)	Is temperature of buffer solutions and samples recorded when determining pH? [4.a]	x	
11)	Is sample analyzed within 15 minutes of collections? [40 CFR Part 136]	x	
12)	Is the electrode rinsed and then blotted dry between reading solutions (Disregard if a portion of the next sample analyzed is used as the rinsing solution.)? [4.a]	x	
13)	Is the sample stirred gently at a constant speed during measurement? [4.b]	*insitu*	
14)	Does the meter hold a steady reading after reaching equilibrium? [4.b]	x	
15)	Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition or daily for 20th or 21st Edition? [Part 1020] **NOTE**: Not required for *in situ* samples.	New guidance	
16)	Is the pH of duplicate samples within 0.1SU of the original sample? [Part 1020]	New guidance	
17)	Is there a written procedure for which result will be reported on DMR (Sample or Duplicate) and is this procedure followed? [DEQ]	New guidance	

COMMENTS: See enclosed information sheet regarding 40CFR Part 136 changes

ANALYST:	**Mary Markle**	VPDES NO.	VA0026816

Parameter: Total Residual Chlorine (TRC)
Method: DPD Colorimetric (HACH Pocket Colorimeter)
1/08

METHOD OF ANALYSIS:

x	HACH Manufacturer's Instructions (Method 8167) plus an edition of *Standard Methods*
x	18th Edition of *Standard Methods* 4500-Cl G
	21st Edition of *Standard Methods* 4500-Cl G (00)

		Y	N
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? **NOTE:** Analyze 4 samples of known TRC. Must use a lot number or source that is different from that used to prepare calibration standards. May not use Spec√™. [SM 1020 B.1]	**New guidance**	
2)	Are the DPD PermaChem™ Powder Pillows stored in a cool, dry place? [Mfr.]	x	
3)	Are the pillows within the manufacturer's expiration date? [Mfr.]	x	
4)	Has buffering capability of DPD pillows been checked annually? (Pillows should adjust sample pH to between 6 and 7) [Mfr.]	x	
5)	When pH adjustment is required, is H_2SO_4 or NaOH used? [Hach 11.3.1]	x	
6)	Are cells clean and in good condition? [Mfr]	x	
7)	Is the low range (0.01 mg/L resolution) used for samples containing residuals from 0.2.00 mg/L? [Mfr.]	x	
8)	Is calibration curve developed (may use manufacturer's calibration) with daily verification using a high and a low standard? **NOTE:** May use manufacturer's installed calibration and commercially available chlorine standards for daily calibration verifications. [18th ed 1020 B.5; 21st ed 4020 B.2.b]	**New guidance**	
9)	Is the 10-mL cell (2.5-cm diameter) used for samples from 0-2.00 mg/L? [Mfr.]	x	
10)	Is meter zeroed correctly by using sample as blank for the cell used? [Mfr.]	x	
11)	Is the instrument cap placed correctly on the meter body when the meter is zeroed and when the sample is analyzed? [Mfr.]	x	
12)	Is the DPD Total Chlorine PermaChem™ Powder Pillow mixed into the sample? [Hach 11.1]	x	
13)	Is the analysis made at least three minutes but not more than six minutes after PermaChem™ Powder Pillow addition? [Hach 11.2]	x	
14)	If read-out is flashing [2.20], is sample diluted correctly, and then reanalyzed? [Hach 1.2 & 2.0]	x	
15)	Are samples analyzed within 15 minutes of collection? [40 CFR Part 136]	x	
16)	Is a duplicate sample analyzed after every 20 samples if citing 18th Edition [SM 1020 B.6] or daily for 21st Edition [SM 4020 B.3.c]?	**New guidance**	
17)	If duplicate sample is analyzed, is the relative percent difference (RPD) ≤20? [18th ed. Table 1020 I; 21st ed. DEQ]	**New guidance**	

COMMENTS: See enclosed information sheet regarding 40CFR Part 136 changes

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
SAMPLE ANALYSIS HOLDING TIME/CONTAINER/PRESERVATION CHECK SHEET
Revised 7/05 [40 CFR, Part 136.3, Table II]

FACILITY NAME:	Alberta WWTP	VPDES NO	VA0026816	DATE:	January 11, 2008

HOLDING TIMES						SAMPLE CONTAINER				PRESERVATION				
PARAMETER	APPROVED	MET?		LOGGED?		ADEQ. VOLUME		APPROP. TYPE		APPROVED	MET?		CHECKED?	
		Y	N	Y	N	Y	N	Y	N		Y	N	Y	N
BOD5 & CBOD5	48 HOURS	x		x		x		x		ANALYZE 2 HRS or 4° C	x		x	
TSS	7 DAYS	x		x		x		x		4° C	x		x	
FECAL COLIFORM / *E. coli / Enterococci*	6 HRS & 2 HRS TO PROCESS	x		x		x		x		10° C (1 HOUR)+0.008% $Na_2S_2O_3$				
pH	15 MIN.	x		x						N/A				
CHLORINE	15 MIN.	x		x						N/A				
DISSOLVED O_2	15 MIN./IN SITU	x		x						N/A				
TEMPERATURE	IMMERSION STAB.									N/A				
OIL & GREASE	28 DAYS									4° C+H_2SO_4/HCL pH<2				
AMMONIA	28 DAYS	x		x		x		x		4° C+H_2SO_4 pH<2 DECHLOR	x		x	
TKN	28 DAYS									4° C+H_2SO_4 pH<2 DECHLOR				
NITRATE	48 HOURS									4° C				
NITRATE+NITRITE	28 DAYS									4° C+H_2SO_4 pH<2				
NITRITE	48 HOURS									4° C				
PHOSPHATE, ORTHO	48 HOURS									FILTER, 4° C				
TOTAL PHOS.	28 DAYS									4° C+H_2SO_4 pH<2				
METALS (except Hg)	6 MONTHS									HNO_3 pH<2				
MERCURY	28 DAYS									HNO_3 pH<2				
PROBLEMS:										PROBLEMS:				

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
EQUIPMENT TEMPERATURE LOG/THERMOMETER VERIFICATION CHECK SHEET
1/08

FACILITY NAME:	Alberta WWTP	VPDES NO:	VA0026816	DATE:	January 11, 2008

EQUIPMENT	RANGE	IN RANGE		INSPECT READING °C	CHECK & LOG DAILY		CORRECT INCREMENT		ANNUAL THERMOMETER VERIFICATION				
									Is the NIST / NIST-Traceable Reference Thermometer within the manufacturer's expiration date or recertified yearly?				Y/N / NA
									DATE CHECKED	MARKED		CORR FACTOR °C	INSPECT TEMP °C
		Y	N		Y	N	Y	N		Y	N		
SAMPLE REFRIGER.	1-6°C												
AUTO SAMPLER	1-6° C												
BOD INCUBATOR	20 ± 1° C												
SOLIDS DRYING OVEN	103-105° C												
WATER BATH	44.5 ± .2° C												
INCUBATOR	35± .5° C												
AUTOCLAVE	121° C IN 30 MIN												
HOT AIR STERILIZING	170 ± 10° C												
O & G WATER BATH	70± 2° C												
REAGENT REFRIGER.	1-6° C												
pH METER	± 1° C	x		ATC					5/16/07			0	Not checked
DO METER	± 1° C	x		ATC					5/16/07			0	Not checked
THERMOMETER-OUTFALL	± 1° C												
Hg WATER BATH	95 ° C												

COMMENTS: **Samples are iced and kept in a cooler prior to being hand delivered to B&B Consultants and Laboratory.**

Due to the recent changes to 40 CFR Part 136, some EPA Methods are no longer approved. For example, EPA Methods for pH, TRC, and DO are now unacceptable for use. Standard Methods for these field parameters should be used. The following information highlights some of the QC requirements needed for these Standard Methods that were not required by EPA Methods.

pH requirements: *[SM 4500-H^+ B]*

- 3 buffers are required for calibrations. Meters that are only capable of performing a 2 point calibration may read the 3rd buffer as a sample to verify the meter can accurately read a pH within the range of 4-10. Continue to recheck buffer 7 to verify calibration. While performing the calibrations, it is also required that the temperature of the buffers be recorded.

- Each analyst that will be performing pH analysis must perform an Initial Demonstration of Capability (IDC). Calibrate the meter as normal. Select a buffer that you do not use for routine calibration. It may be a 4, 7 or 10 from a different lot # or a different manufacturer or a buffer of a value different from those used to calibrate – (5.0, 6.0, 7.4, etc.) Pour at least 4 individual aliquots of the buffer to be analyzed. Read each aliquot of buffer as a sample and record the results, including temperature. Results should be ±0.1 S.U. of the known value. Document the results for each analyst.. This is just a one-time analysis per analyst.

- Duplicates are now required at least daily if referencing the 20th or 21st edition, or at least one in every 20 samples referencing 18th and 19th editions. Take a grab sample of the discharge and pour it into two separate containers. Analyze the sample and the duplicate for pH within 15 minutes of collection. Results should agree within ±0.1 S.U. Record both results in lab records. Do not average the results. Develop a Standard Operating Procedure that states whether the sample or the duplicate will always be reported on the DMR.

- Record sample temperature.

Total Residual Chlorine (TRC) requirements: *[SM 4500-Cl G]*

- A daily verification of calibration using 2 standards that bracket the expected result is now required. Using the SpecCheck standards is acceptable. Record results.

- An Initial Demonstration of Capability (IDC) is now required for each analyst who performs the test. Prepare 1 chlorine standard of known concentration, and perform at least 4 replicate analyses. Document results for each analyst. This is just a one-time test for each analyst.

- A duplicate is required to be analyzed at least daily if referencing the 20th or 21st edition, or at least one in every 20 samples referencing 18th and 19th editions. Take a grab sample and pour it into 2 separate containers. Analyze the sample and the duplicate within 15 minutes of collection. Relative Percent Difference should be ≤20%. The results should be averaged before reporting. Analyze 1 duplicate per 20 samples daily (if less than 20 samples are analyzed per day, only 1 duplicate is required).

Dissolved Oxygen requirements: *[SM 4500-O G]*

- Verify temperature correction data by frequently checking 1 or 2 temperature points. To do this, calibrate the meter and then set it to %Cal, document the %Cal and the temperature. Now increase or lower the temperature and read %Cal. The %Cal should be the same at both temperatures. This proves the meter is compensating for the different temperatures. "Frequently" is not defined by Standard Methods. Use your best professional judgment.

- A duplicate is required to be analyzed daily only if a grab sample is collected. Grab a large sample and divide into 2 BOD Bottles. Analyze the sample and duplicate for D.O. within 15 minutes of collection. Relative Percent Difference should be ≤20%. If D.O. is measured *in situ*, no duplicate is required. Average the sample result and duplicate result and report as 1 value.

- Record sample temperature when taking D.O. measurements.

Relative Percent Difference (RPD)

- RPD = difference between concentration of the duplicates ÷ avg. concentration x 100

Attachment 5 –Temperature Analysis

VA0026816 - Roses Creek (5ARSE006.68) Winter Temperature Analysis

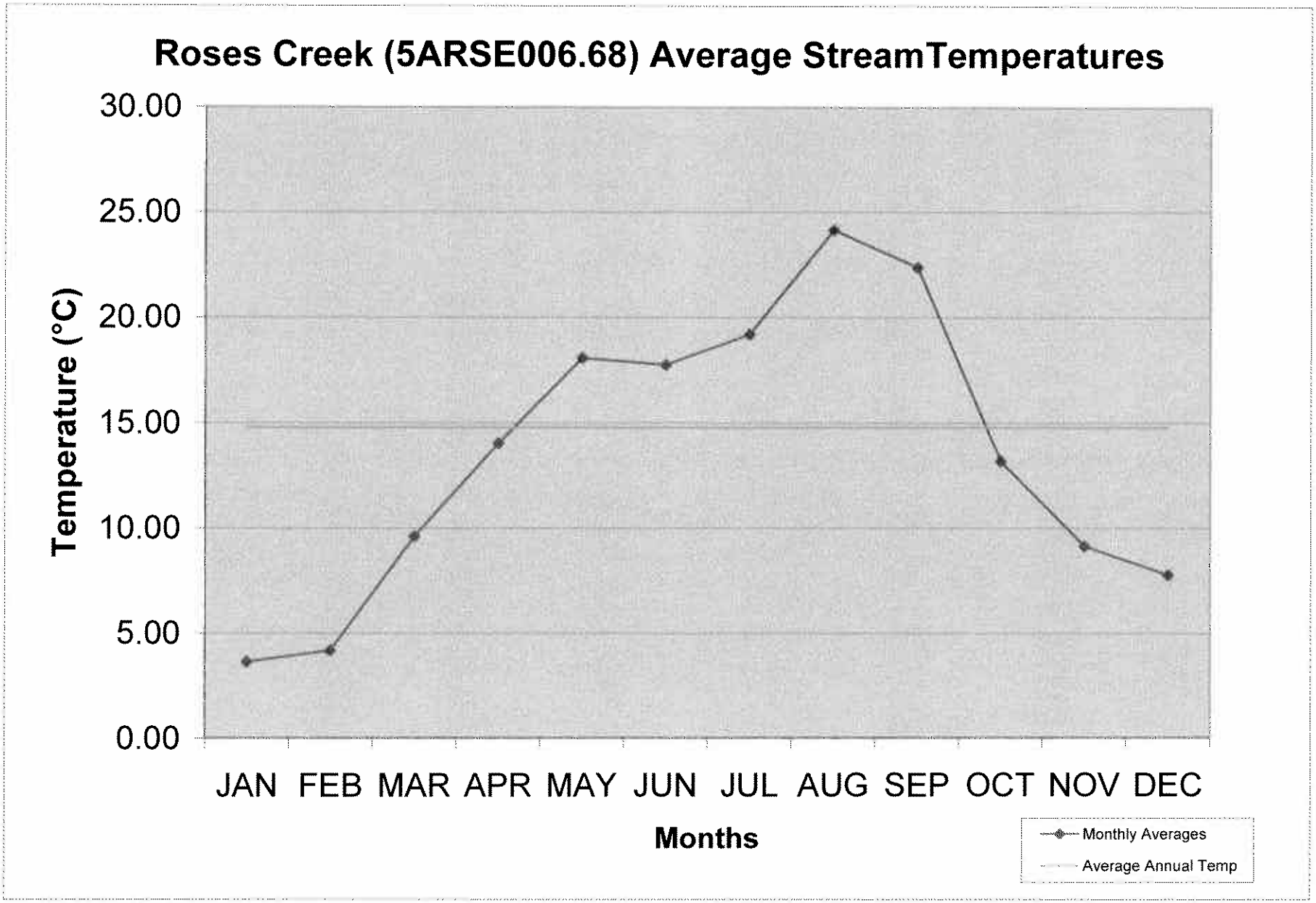
Month	Day	Year	Temp (°C)
OCT	21	1974	7.78
OCT	16	1975	18.89
OCT	14	1977	1.3
OCT	23	1978	13
OCT	25	1996	15
OCT	4	2002	22
OCT	29	2002	12.14
OCT	1	2003	15.21
OCT	20	2003	13.21
NOV	21	1974	7.78
NOV	19	1975	11.11
NOV	4	1976	8.89
NOV	9	1977	1.9
NOV	18	1997	11
NOV	25	2002	8.02
NOV	19	2003	15.34
DEC	8	1974	10
DEC	1	1975	12.22
DEC	10	2002	3.26
DEC	10	2003	5.64
JAN	7	1975	7.22
JAN	31	1978	1.50
JAN	16	1979	3.00
JAN	13	2003	2.86
FEB	4	1975	4.44
FEB	11	2003	3.94
MAR	14	1975	4.44
MAR	23	1976	10.00
MAR	30	1977	17.00
MAR	11	2003	6.98
APR	14	1975	12.22
APR	21	1977	18.00
APR	24	1978	16.00
APR	11	1979	13.00
APR	2	2003	12.40
APR	21	2003	12.86
APR	25	2003	13.70
90th Percentile			16.4

VA0026816 - Roses Creek (5ARSE006.68) Annual Temperature Analysis

Month	Day	Year	Temp (°C)
JAN	7	1975	7.22
JAN	31	1978	1.50
JAN	16	1979	3.00
JAN	13	2003	2.86
FEB	4	1975	4.44
FEB	11	2003	3.94
MAR	14	1975	4.44
MAR	23	1976	10.00
MAR	30	1977	17.00
MAR	11	2003	6.98
APR	14	1975	12.22
APR	21	1977	18.00
APR	24	1978	16.00
APR	11	1979	13.00
APR	2	2003	12.40
APR	21	2003	12.86
APR	25	2003	13.70
MAY	27	1975	20.00
MAY	25	1976	13.00
MAY	30	1997	21.00
MAY	15	1998	19.00
MAY	1	2003	19.44
MAY	28	2003	16.04
JUN	16	1975	24.44
JUN	11	1976	22.22
JUN	7	1977	1.60
JUN	13	1978	19.50
JUN	20	1979	19.00
JUN	5	2003	18.49
JUN	17	2003	19.05
JUL	9	1975	21.11
JUL	12	1976	23.33
JUL	17	1977	2.40
JUL	5	1978	19.00
JUL	25	2002	22.47
JUL	1	2003	21.33
JUL	17	2003	22.27
JUL	28	2003	21.71
AUG	19	1975	22.22
AUG	12	1976	22.22
AUG	10	1977	24.50
AUG	9	1978	25.00
AUG	31	1978	23.50
AUG	22	2002	26.63
AUG	5	2003	26.38
AUG	19	2003	22.73

Month	Day	Year	Temp (°C)
SEP	1	1975	26.67
SEP	9	2003	19.06
SEP	23	2003	21.37
OCT	21	1974	7.78
OCT	16	1975	18.89
OCT	14	1977	1.3
OCT	23	1978	13
OCT	25	1996	15
OCT	4	2002	22
OCT	29	2002	12.14
OCT	1	2003	15.21
OCT	20	2003	13.21
NOV	21	1974	7.78
NOV	19	1975	11.11
NOV	4	1976	8.89
NOV	9	1977	1.9
NOV	18	1997	11
NOV	25	2002	8.02
NOV	19	2003	15.34
DEC	8	1974	10
DEC	1	1975	12.22
DEC	10	2002	3.26
DEC	10	2003	5.64
Average			14.7815942
90th Percentile			23.432
10th Percentile			3.376

	Monthly Averages	Average Annual
JAN	3.65	14.78
FEB	4.19	14.78
MAR	9.61	14.78
APR	14.03	14.78
MAY	18.08	14.78
JUN	17.76	14.78
JUL	19.20	14.78
AUG	24.15	14.78
SEP	22.37	14.78
OCT	13.17	14.78
NOV	9.15	14.78
DEC	7.78	14.78


Roses Creek (5ARSE006.68) Average StreamTemperatures
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Temperature (°C)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Months
Monthly Averages
Average Annual Temp

VA0026816 - Town of Alberta WWTP Effluent Annual Temperature Data

Year	Month	Day	Temp
2004	Jan	1	11.8
2004	Jan	2	11.7
2004	Jan	3	13.0
2004	Jan	4	15.2
2004	Jan	5	15.5
2004	Jan	6	10.6
2004	Jan	7	10.8
2004	Jan	8	10.8
2004	Jan	9	10.6
2004	Jan	10	9.3
2004	Jan	11	9.1
2004	Jan	12	9.5
2004	Jan	13	10.3
2004	Jan	14	10.7
2004	Jan	15	9.9
2004	Jan	16	9.8
2004	Jan	17	11.5
2004	Jan	18	10.6
2004	Jan	19	10.6
2004	Jan	20	9.1
2004	Jan	21	9.0
2004	Jan	22	10.0
2004	Jan	23	9.3
2004	Jan	24	11.0
2004	Jan	25	9.3
2004	Jan	26	7.4
2004	Jan	27	10.1
2004	Jan	28	8.1
2004	Jan	29	9.3
2004	Jan	30	10.1
2004	Jan	31	7.9
2004	Feb	1	9.7
2004	Feb	2	7.6
2004	Feb	3	9.1
2004	Feb	4	10.1
2004	Feb	5	10.5
2004	Feb	6	11.1
2004	Feb	7	12.2
2004	Feb	8	10.8
2004	Feb	9	9.8
2004	Feb	10	10.1
2004	Feb	11	10.2
2004	Feb	12	10.6
2004	Feb	13	9.5
2004	Feb	14	10.3
2004	Feb	15	10.0
2004	Feb	16	7.6
2004	Feb	17	8.5
2004	Feb	18	8.9
2004	Feb	19	10.2
2004	Feb	20	13.4
2004	Feb	21	14.9
2004	Feb	22	13.1
2004	Feb	23	10.1
2004	Feb	24	10.9
2004	Feb	25	9.8
2004	Feb	26	10.0
2004	Feb	27	10.3

Year	Month	Day	Temp
2004	Feb	28	12.6
2004	Feb	29	13.3
2004	Mar	1	12.0
2004	Mar	2	15.1
2004	Mar	3	13.3
2004	Mar	4	15.6
2004	Mar	5	15.1
2004	Mar	6	16.5
2004	Mar	7	14.5
2004	Mar	8	13.3
2004	Mar	9	11.4
2004	Mar	10	11.7
2004	Mar	11	11.0
2004	Mar	12	12.4
2004	Mar	13	13.0
2004	Mar	14	13.3
2004	Mar	15	12.5
2004	Mar	16	14.2
2004	Mar	17	12.6
2004	Mar	18	11.9
2004	Mar	19	13.0
2004	Mar	20	14.1
2004	Mar	21	16.0
2004	Mar	22	12.2
2004	Mar	23	10.7
2004	Mar	24	11.5
2004	Mar	25	15.5
2004	Mar	26	13.9
2004	Mar	27	13.7
2004	Mar	28	14.7
2004	Mar	29	13.3
2004	Mar	30	12.7
2004	Mar	31	14.0
2004	Apr	1	13.1
2004	Apr	2	13.8
2004	Apr	3	14.6
2004	Apr	4	14.9
2004	Apr	5	11.7
2004	Apr	6	12.0
2004	Apr	7	12.5
2004	Apr	8	15.8
2004	Apr	9	14.2
2004	Apr	10	14.5
2004	Apr	11	14.1
2004	Apr	12	13.4
2004	Apr	13	14.1
2004	Apr	14	14.0
2004	Apr	15	13.1
2004	Apr	16	14.5
2004	Apr	17	17.4
2004	Apr	19	19.5
2004	Apr	20	17.4
2004	Apr	21	17.9
2004	Apr	22	20.1
2004	Apr	23	18.8
2004	Apr	24	17.8
2004	Apr	25	16.6
2004	Apr	26	16.9

Year	Month	Day	Temp
2004	Apr	27	16.8
2004	Apr	28	15.0
2004	Apr	29	15.6
2004	Apr	30	17.4
2004	May	1	19.7
2004	May	2	19.8
2004	May	3	18.1
2004	May	4	16.1
2004	May	5	16.4
2004	May	6	18.1
2004	May	7	18.0
2004	May	8	19.2
2004	May	9	19.1
2004	May	10	19.5
2004	May	11	21.5
2004	May	12	20.1
2004	May	13	20.5
2004	May	14	20.2
2004	May	15	23.7
2004	May	16	23.0
2004	May	17	20.3
2004	May	18	20.0
2004	May	19	20.7
2004	May	20	21.7
2004	May	21	21.5
2004	May	22	22.1
2004	May	23	23.4
2004	May	24	22.7
2004	May	25	22.5
2004	May	26	22.8
2004	May	27	21.8
2004	May	28	22.5
2004	May	29	22.8
2004	May	30	22.2
2004	May	31	20.3
2004	Jun	1	21.8
2004	Jun	2	23.1
2004	Jun	4	21.4
2004	Jun	5	20.3
2004	Jun	6	22.0
2004	Jun	7	20.6
2004	Jun	8	21.2
2004	Jun	9	22.6
2004	Jun	10	22.1
2004	Jun	11	24.1
2004	Jun	12	24.2
2004	Jun	13	21.3
2004	Jun	14	23.1
2004	Jun	15	22.5
2004	Jun	16	22.8
2004	Jun	17	24.0
2004	Jun	18	23.3
2004	Jun	19	25.4
2004	Jun	20	24.6
2004	Jun	21	22.5
2004	Jun	22	23.2
2004	Jun	23	24.2
2004	Jun	24	23.4

VA0026816 - Town of Alberta WWTP Effluent Annual Temperature Data

Year	Month	Day	Temp
2004	Jun	25	23.7
2004	Jun	26	23.8
2004	Jun	27	22.1
2004	Jun	28	22.1
2004	Jun	29	22.2
2004	Jun	30	22.2
2004	Jul	1	23.9
2004	Jul	2	24.0
2004	Jul	3	23.6
2004	Jul	4	23.6
2004	Jul	5	23.6
2004	Jul	6	23.7
2004	Jul	7	24.2
2004	Jul	8	23.7
2004	Jul	9	24.9
2004	Jul	10	25.1
2004	Jul	11	25.7
2004	Jul	12	24.1
2004	Jul	13	24.9
2004	Jul	14	24.2
2004	Jul	15	24.6
2004	Jul	16	24.0
2004	Jul	17	23.4
2004	Jul	18	23.9
2004	Jul	19	23.7
2004	Jul	20	23.6
2004	Jul	21	24.0
2004	Jul	22	24.1
2004	Jul	23	24.9
2004	Jul	24	24.7
2004	Jul	25	23.9
2004	Jul	26	23.6
2004	Jul	27	23.8
2004	Jul	28	23.6
2004	Jul	29	26.3
2004	Jul	30	25.3
2004	Jul	31	25.9
2004	Aug	1	24.6
2004	Aug	2	24.6
2004	Aug	3	23.6
2004	Aug	4	23.8
2004	Aug	5	26.4
2004	Aug	6	23.4
2004	Aug	7	22.9
2004	Aug	8	23.5
2004	Aug	9	23.5
2004	Aug	10	22.9
2004	Aug	11	23.4
2004	Aug	12	23.7
2004	Aug	13	23.3
2004	Aug	15	22.8
2004	Aug	16	22.6
2004	Aug	17	23.0
2004	Aug	18	23.1
2004	Aug	19	23.0
2004	Aug	20	23.6
2004	Aug	21	25.3
2004	Aug	22	23.9

Year	Month	Day	Temp
2004	Aug	23	22.4
2004	Aug	24	22.6
2004	Aug	25	22.5
2004	Aug	26	22.9
2004	Aug	27	23.0
2004	Aug	28	22.0
2004	Aug	29	23.7
2004	Aug	30	24.0
2004	Aug	31	23.2
2004	Sept	1	23.7
2004	Sept	2	22.9
2004	Sept	3	22.7
2004	Sept	4	23.7
2004	Sept	5	23.9
2004	Sept	6	23.3
2004	Sept	7	23.9
2004	Sept	8	23.3
2004	Sept	9	23.4
2004	Sept	10	23.3
2004	Sept	11	23.6
2004	Sept	12	23.5
2004	Sept	13	22.6
2004	Sept	14	22.6
2004	Sept	15	21.8
2004	Sept	16	22.7
2004	Sept	17	23.0
2004	Sept	18	22.8
2004	Sept	19	23.4
2004	Sept	20	20.5
2004	Sept	21	20.3
2004	Sept	22	21.2
2004	Sept	23	21.5
2004	Sept	24	22.7
2004	Sept	25	20.7
2004	Sept	26	20.9
2004	Sept	27	22.8
2004	Sept	28	22.5
2004	Sept	29	21.8
2004	Sept	30	21.8
2004	Oct	1	22.1
2004	Oct	2	22.2
2004	Oct	3	23.2
2004	Oct	4	21.7
2004	Oct	5	20.9
2004	Oct	6	18.9
2004	Oct	7	18.9
2004	Oct	8	18.9
2004	Oct	9	20.2
2004	Oct	10	22.0
2004	Oct	11	18.7
2004	Oct	12	17.9
2004	Oct	13	18.8
2004	Oct	14	19.4
2004	Oct	15	20.1
2004	Oct	16	20.3
2004	Oct	17	19.6
2004	Oct	18	17.8
2004	Oct	19	19.6

Year	Month	Day	Temp
2004	Oct	20	19.9
2004	Oct	21	19.7
2004	Oct	22	18.8
2004	Oct	23	18.4
2004	Oct	24	18.5
2004	Oct	25	18.3
2004	Oct	26	17.6
2004	Oct	27	18.2
2004	Oct	28	18.8
2004	Oct	29	18.5
2004	Oct	30	21.2
2004	Oct	31	21.9
2004	Nov	1	20.0
2004	Nov	2	20.2
2004	Nov	3	20.2
2004	Nov	4	18.6
2004	Nov	5	18.0
2004	Nov	6	18.1
2004	Nov	7	19.3
2004	Nov	8	17.8
2004	Nov	9	16.1
2004	Nov	10	16.9
2004	Nov	11	15.6
2004	Nov	12	18.0
2004	Nov	13	17.8
2004	Nov	14	16.5
2004	Nov	15	14.6
2004	Nov	16	15.9
2004	Nov	17	15.7
2004	Nov	18	16.6
2004	Nov	19	18.6
2004	Nov	20	18.4
2004	Nov	21	18.8
2004	Nov	22	17.7
2004	Nov	23	18.0
2004	Nov	24	18.2
2004	Nov	25	19.1
2004	Nov	26	15.1
2004	Nov	27	15.5
2004	Nov	28	16.9
2004	Nov	29	16.7
2004	Nov	30	14.9
2004	Dec	1	17.5
2004	Dec	2	14.0
2004	Dec	3	14.0
2004	Dec	4	15.2
2004	Dec	5	15.2
2004	Dec	6	15.8
2004	Dec	7	17.7
2004	Dec	8	16.2
2004	Dec	9	15.7
2004	Dec	10	16.5
2004	Dec	11	16.0
2004	Dec	12	14.7
2004	Dec	13	14.1
2004	Dec	14	12.5
2004	Dec	15	12.3
2004	Dec	16	11.1

VA0026816 - Town of Alberta WWTP Effluent Annual Temperature Data

Year	Month	Day	Temp
2004	Dec	17	12.7
2004	Dec	18	13.1
2004	Dec	19	13.4
2004	Dec	20	11.6
2004	Dec	21	12.0
2004	Dec	22	14.1
2004	Dec	23	16.2
2004	Dec	24	12.6
2004	Dec	25	11.1
2004	Dec	26	11.5
2004	Dec	27	10.9
2004	Dec	28	13.0
2004	Dec	29	14.4
2004	Dec	30	14.5
2004	Dec	31	15.4
2005	Jan	1	15.0
2005	Jan	2	15.5
2005	Jan	3	14.1
2005	Jan	4	15.7
2005	Jan	5	15.7
2005	Jan	6	15.0
2005	Jan	7	15.8
2005	Jan	8	15.5
2005	Jan	9	15.0
2005	Jan	10	12.9
2005	Jan	11	14.1
2005	Jan	12	15.4
2005	Jan	13	16.5
2005	Jan	14	16.6
2005	Jan	15	13.6
2005	Jan	16	13.5
2005	Jan	17	10.7
2005	Jan	18	10.1
2005	Jan	20	10.3
2005	Jan	21	10.3
2005	Jan	22	9.9
2005	Jan	23	9.3
2005	Jan	24	8.8
2005	Jan	25	9.8
2005	Jan	26	9.8
2005	Jan	27	9.6
2005	Jan	28	8.0
2005	Jan	29	9.0
2005	Jan	30	9.0
2005	Jan	31	9.6
2005	Feb	1	11.1
2005	Feb	2	9.0
2005	Feb	3	11.1
2005	Feb	4	11.0
2005	Feb	5	11.2
2005	Feb	6	11.9
2005	Feb	7	13.3
2005	Feb	8	12.7
2005	Feb	9	13.0
2005	Feb	10	14.3
2005	Feb	11	10.6
2005	Feb	12	10.8
2005	Feb	13	11.7

Year	Month	Day	Temp
2005	Feb	14	12.7
2005	Feb	15	13.0
2005	Feb	16	14.0
2005	Feb	17	12.5
2005	Feb	18	11.9
2005	Feb	19	10.0
2005	Feb	20	11.6
2005	Feb	21	12.4
2005	Feb	22	13.5
2005	Feb	23	12.0
2005	Feb	24	12.3
2005	Feb	25	11.1
2005	Feb	26	10.4
2005	Feb	27	11.4
2005	Feb	28	10.9
2005	Mar	1	11.4
2005	Mar	2	11.6
2005	Mar	3	10.9
2005	Mar	4	10.5
2005	Mar	5	11.5
2005	Mar	6	11.2
2005	Mar	7	12.4
2005	Mar	8	13.6
2005	Mar	9	11.4
2005	Mar	10	11.5
2005	Mar	11	11.6
2005	Mar	12	11.7
2005	Mar	13	12.9
2005	Mar	14	12.0
2005	Mar	15	11.1
2005	Mar	16	12.3
2005	Mar	17	10.9
2005	Mar	18	12.6
2005	Mar	19	11.8
2005	Mar	20	12.4
2005	Mar	21	13.1
2005	Mar	22	12.5
2005	Mar	23	13.7
2005	Mar	24	13.8
2005	Mar	25	13.2
2005	Mar	26	12.9
2005	Mar	27	13.4
2005	Mar	28	14.6
2005	Mar	29	14.5
2005	Mar	30	14.1
2005	Mar	31	15.1
2005	Apr	1	15.4
2005	Apr	2	15.6
2005	Apr	3	13.0
2005	Apr	4	14.1
2005	Apr	5	13.9
2005	Apr	6	15.3
2005	Apr	7	17.8
2005	Apr	8	16.9
2005	Apr	9	15.1
2005	Apr	10	14.4
2005	Apr	11	14.5
2005	Apr	12	16.1

Year	Month	Day	Temp
2005	Apr	13	14.2
2005	Apr	14	14.7
2005	Apr	15	14.5
2005	Apr	16	13.8
2005	Apr	17	14.4
2005	Apr	18	15.5
2005	Apr	19	16.8
2005	Apr	20	18.2
2005	Apr	21	18.1
2005	Apr	22	17.8
2005	Apr	23	17.1
2005	Apr	24	14.4
2005	Apr	25	15.3
2005	Apr	26	16.2
2005	Apr	27	16.8
2005	Apr	28	15.9
2005	Apr	29	17.3
2005	Apr	30	16.9
2005	May	1	16.7
2005	May	2	15.7
2005	May	3	16.6
2005	May	4	16.5
2005	May	5	15.9
2005	May	6	15.1
2005	May	7	14.8
2005	May	8	15.1
2005	May	9	16.8
2005	May	10	17.9
2005	May	11	19.5
2005	May	12	18.8
2005	May	13	18.2
2005	May	14	18.3
2005	May	15	19.6
2005	May	16	20.2
2005	May	17	18.5
2005	May	18	19.4
2005	May	19	19.7
2005	May	20	19.8
2005	May	21	19.6
2005	May	22	18.2
2005	May	23	19.2
2005	May	24	19.9
2005	May	25	18.3
2005	May	26	17.9
2005	May	27	20.2
2005	May	28	19.4
2005	May	29	18.9
2005	May	30	20.1
2005	May	31	20.6
2005	Jun	1	20.6
2005	Jun	2	20.0
2005	Jun	3	19.4
2005	Jun	4	19.5
2005	Jun	5	20.2
2005	Jun	6	21.1
2005	Jun	7	22.4
2005	Jun	8	21.7
2005	Jun	9	22.2

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Year	Month	Day	Temp
2005	Jun	10	23.2
2005	Jun	11	21.9
2005	Jun	12	22.6
2005	Jun	13	23.6
2005	Jun	14	23.6
2005	Jun	15	24.3
2005	Jun	16	23.4
2005	Jun	17	22.9
2005	Jun	18	22.2
2005	Jun	19	22.4
2005	Jun	20	21.4
2005	Jun	21	21.1
2005	Jun	22	22.0
2005	Jun	23	22.6
2005	Jun	24	22.3
2005	Jun	25	23.1
2005	Jun	26	23.4
2005	Jun	27	23.6
2005	Jun	28	24.5
2005	Jun	29	23.7
2005	Jun	30	23.8
2005	Jul	1	24.4
2005	Jul	2	25.0
2005	Jul	3	24.5
2005	Jul	4	24.3
2005	Jul	5	25.1
2005	Jul	6	24.6
2005	Jul	7	25.9
2005	Jul	8	24.4
2005	Jul	9	22.9
2005	Jul	10	24.0
2005	Jul	11	24.6
2005	Jul	12	25.4
2005	Jul	13	25.5
2005	Jul	14	25.3
2005	Jul	15	24.8
2005	Jul	16	25.5
2005	Jul	17	26.7
2005	Jul	18	27.0
2005	Jul	19	26.7
2005	Jul	20	26.9
2005	Jul	21	27.2
2005	Jul	22	27.5
2005	Jul	23	26.2
2005	Jul	24	25.6
2005	Jul	25	26.0
2005	Jul	26	27.3
2005	Jul	27	27.1
2005	Jul	28	27.3
2005	Jul	29	25.6
2005	Jul	30	25.0
2005	Jul	31	24.7
2005	Aug	1	24.6
2005	Aug	2	24.2
2005	Aug	3	25.0
2005	Aug	4	25.4
2005	Aug	5	25.9
2005	Aug	6	26.3

Year	Month	Day	Temp
2005	Aug	7	25.5
2005	Aug	8	25.2
2005	Aug	9	25.3
2005	Aug	10	24.8
2005	Aug	11	24.7
2005	Aug	12	25.6
2005	Aug	13	26.0
2005	Aug	14	26.8
2005	Aug	15	25.9
2005	Aug	16	26.7
2005	Aug	17	26.1
2005	Aug	18	24.4
2005	Aug	19	25.0
2005	Aug	20	25.4
2005	Aug	21	26.1
2005	Aug	22	25.3
2005	Aug	23	25.3
2005	Aug	24	24.7
2005	Aug	25	23.5
2005	Aug	26	23.2
2005	Aug	27	23.8
2005	Aug	28	24.4
2005	Aug	29	25.0
2005	Aug	30	25.4
2005	Aug	31	26.2
2005	Sept	1	24.7
2005	Sept	2	24.6
2005	Sept	3	24.1
2005	Sept	4	24.0
2005	Sept	5	23.0
2005	Sept	6	22.9
2005	Sept	7	23.3
2005	Sept	8	22.4
2005	Sept	9	22.7
2005	Sept	10	23.6
2005	Sept	11	22.4
2005	Sept	12	22.1
2005	Sept	13	23.2
2005	Sept	14	24.8
2005	Sept	15	24.4
2005	Sept	16	25.1
2005	Sept	17	24.7
2005	Sept	18	24.7
2005	Sept	19	24.4
2005	Sept	20	24.9
2005	Sept	21	24.4
2005	Sept	22	23.2
2005	Sept	23	23.4
2005	Sept	24	24.6
2005	Sept	25	24.3
2005	Sept	26	23.4
2005	Sept	27	23.7
2005	Sept	28	22.4
2005	Sept	29	22.2
2005	Sept	30	21.9
2005	Oct	1	21.4
2005	Oct	2	21.0
2005	Oct	3	21.2

Year	Month	Day	Temp
2005	Oct	4	22.2
2005	Oct	5	23.0
2005	Oct	6	22.8
2005	Oct	7	22.9
2005	Oct	8	23.4
2005	Oct	9	22.2
2005	Oct	10	21.9
2005	Oct	11	22.1
2005	Oct	12	21.8
2005	Oct	13	20.8
2005	Oct	14	21.6
2005	Oct	15	20.7
2005	Oct	16	19.8
2005	Oct	17	18.9
2005	Oct	18	18.8
2005	Oct	19	18.8
2005	Oct	20	20.8
2005	Oct	21	20.5
2005	Oct	22	19.9
2005	Oct	23	17.6
2005	Oct	24	17.6
2005	Oct	25	18.1
2005	Oct	26	17.4
2005	Oct	27	16.3
2005	Oct	28	16.9
2005	Oct	29	15.4
2005	Oct	30	15.2
2005	Oct	31	15.0
2005	Nov	1	17.2
2005	Nov	2	17.8
2005	Nov	3	16.6
2005	Nov	4	17.4
2005	Nov	5	17.3
2005	Nov	6	17.3
2005	Nov	7	17.8
2005	Nov	8	16.5
2005	Nov	9	18.5
2005	Nov	10	18.8
2005	Nov	11	16.0
2005	Nov	12	15.0
2005	Nov	13	15.9
2005	Nov	14	17.0
2005	Nov	15	18.1
2005	Nov	16	19.4
2005	Nov	17	16.2
2005	Nov	18	14.7
2005	Nov	19	14.2
2005	Nov	20	14.3
2005	Nov	21	16.4
2005	Nov	22	15.4
2005	Nov	23	14.5
2005	Nov	24	15.2
2005	Nov	25	13.7
2005	Nov	26	12.5
2005	Nov	27	13.3
2005	Nov	28	17.2
2005	Nov	29	16.7
2005	Nov	30	16.4

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Year	Month	Day	Temp
2005	Dec	1	15.5
2005	Dec	2	14.2
2005	Dec	3	13.0
2005	Dec	4	13.9
2005	Dec	5	14.0
2005	Dec	6	14.7
2005	Dec	7	12.5
2005	Dec	8	13.2
2005	Dec	9	14.0
2005	Dec	10	12.7
2005	Dec	11	12.7
2005	Dec	12	13.1
2005	Dec	13	13.4
2005	Dec	14	11.0
2005	Dec	15	11.3
2005	Dec	16	13.6
2005	Dec	17	12.0
2005	Dec	18	12.3
2005	Dec	19	11.7
2005	Dec	20	11.5
2005	Dec	21	10.1
2005	Dec	22	10.4
2005	Dec	23	9.6
2005	Dec	24	10.8
2005	Dec	25	11.7
2005	Dec	26	12.9
2005	Dec	27	12.3
2005	Dec	28	11.8
2005	Dec	29	14.0
2005	Dec	30	13.4
2005	Dec	31	13.6
2006	Jan	1	12.2
2006	Jan	2	12.5
2006	Jan	3	13.1
2006	Jan	4	13.5
2006	Jan	5	12.5
2006	Jan	6	12.9
2006	Jan	7	11.6
2006	Jan	8	11.9
2006	Jan	9	12.9
2006	Jan	10	12.9
2006	Jan	11	13.4
2006	Jan	12	14.1
2006	Jan	13	14.2
2006	Jan	14	13.8
2006	Jan	15	11.9
2006	Jan	16	11.4
2006	Jan	17	12.7
2006	Jan	18	14.3
2006	Jan	19	12.2
2006	Jan	20	12.0
2006	Jan	21	12.8
2006	Jan	22	12.4
2006	Jan	23	12.3
2006	Jan	24	13.5
2006	Jan	25	12.3
2006	Jan	26	11.8
2006	Jan	27	10.7

Year	Month	Day	Temp
2006	Jan	28	10.9
2006	Jan	29	12.9
2006	Jan	30	12.4
2006	Jan	31	12.4
2006	Feb	1	12.2
2006	Feb	2	12.1
2006	Feb	3	14.4
2006	Feb	4	13.7
2006	Feb	5	11.1
2006	Feb	6	12.2
2006	Feb	7	12.1
2006	Feb	8	11.2
2006	Feb	9	12.1
2006	Feb	10	10.4
2006	Feb	11	10.5
2006	Feb	12	9.6
2006	Feb	13	10.5
2006	Feb	14	10.9
2006	Feb	15	11.0
2006	Feb	16	11.2
2006	Feb	17	13.3
2006	Feb	18	12.1
2006	Feb	19	8.6
2006	Feb	20	9.4
2006	Feb	21	12.0
2006	Feb	22	12.9
2006	Feb	23	11.9
2006	Feb	24	11.2
2006	Feb	25	11.4
2006	Feb	26	11.0
2006	Feb	27	10.8
2006	Feb	28	11.6
2006	Mar	1	12.1
2006	Mar	2	12.1
2006	Mar	3	13.3
2006	Mar	4	9.2
2006	Mar	5	11.9
2006	Mar	6	13.2
2006	Mar	7	11.2
2006	Mar	8	11.5
2006	Mar	9	12.5
2006	Mar	10	13.9
2006	Mar	11	15.1
2006	Mar	12	17.2
2006	Mar	13	17.7
2006	Mar	14	17.4
2006	Mar	15	13.9
2006	Mar	16	14.0
2006	Mar	17	14.5
2006	Mar	18	12.6
2006	Mar	19	11.8
2006	Mar	20	11.3
2006	Mar	21	12.4
2006	Mar	22	10.7
2006	Mar	23	11.3
2006	Mar	24	11.8
2006	Mar	25	12.1
2006	Mar	26	11.4

Year	Month	Day	Temp
2006	Mar	27	12.8
2006	Mar	28	13.4
2006	Mar	29	13.4
2006	Mar	30	14.4
2006	Mar	31	14.7
2006	Apr	1	15.5
2006	Apr	2	15.0
2006	Apr	3	16.2
2006	Apr	4	14.8
2006	Apr	5	15.0
2006	Apr	6	14.6
2006	Apr	7	15.5
2006	Apr	9	13.7
2006	Apr	10	14.6
2006	Apr	11	14.7
2006	Apr	12	14.9
2006	Apr	13	16.0
2006	Apr	14	16.6
2006	Apr	15	17.8
2006	Apr	16	17.9
2006	Apr	17	18.7
2006	Apr	18	14.9
2006	Apr	19	15.5
2006	Apr	20	16.4
2006	Apr	21	17.6
2006	Apr	22	17.6
2006	Apr	23	17.3
2006	Apr	24	18.0
2006	Apr	25	17.9
2006	Apr	26	18.5
2006	Apr	27	17.2
2006	Apr	28	16.1
2006	Apr	29	16.3
2006	Apr	30	15.3
2006	May	1	15.9
2006	May	2	16.0
2006	May	3	17.9
2006	May	4	17.7
2006	May	5	19.6
2006	May	6	18.8
2006	May	7	17.7
2006	May	8	16.7
2006	May	9	16.2
2006	May	10	17.1
2006	May	11	18.5
2006	May	12	17.6
2006	May	13	17.6
2006	May	14	17.7
2006	May	15	17.0
2006	May	16	17.5
2006	May	17	17.2
2006	May	18	17.7
2006	May	19	18.0
2006	May	20	18.7
2006	May	21	18.1
2006	May	22	18.8
2006	May	23	17.9
2006	May	24	18.1

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Year	Month	Day	Temp
2006	May	25	18.6
2006	May	26	20.8
2006	May	27	20.9
2006	May	28	21.2
2006	May	29	20.2
2006	May	30	21.3
2006	May	31	21.6
2006	Jun	1	22.3
2006	Jun	2	22.9
2006	Jun	3	22.4
2006	Jun	4	21.9
2006	Jun	5	20.8
2006	Jun	6	21.0
2006	Jun	7	20.7
2006	Jun	8	20.9
2006	Jun	9	21.5
2006	Jun	10	21.8
2006	Jun	11	21.7
2006	Jun	12	21.0
2006	Jun	13	21.0
2006	Jun	14	20.8
2006	Jun	15	20.8
2006	Jun	16	20.7
2006	Jun	17	21.7
2006	Jun	18	22.0
2006	Jun	19	22.4
2006	Jun	20	22.8
2006	Jun	21	23.1
2006	Jun	22	23.4
2006	Jun	23	24.2
2006	Jun	24	23.1
2006	Jun	25	24.7
2006	Jun	26	23.8
2006	Jun	27	22.3
2006	Jun	28	22.8
2006	Jun	29	22.8
2006	Jun	30	22.8
2006	Jul	1	23.6
2006	Jul	2	24.6
2006	Jul	3	24.7
2006	Jul	4	24.4
2006	Jul	5	24.8
2006	Jul	6	22.6
2006	Jul	7	21.8
2006	Jul	8	23.2
2006	Jul	9	22.5
2006	Jul	10	22.2
2006	Jul	11	23.2
2006	Jul	12	24.3
2006	Jul	13	24.9
2006	Jul	14	24.0
2006	Jul	15	24.6
2006	Jul	16	24.9
2006	Jul	17	23.9
2006	Jul	18	24.6
2006	Jul	19	25.1
2006	Jul	20	24.1
2006	Jul	21	25.0

Year	Month	Day	Temp
2006	Jul	22	25.1
2006	Jul	23	24.8
2006	Jul	24	23.5
2006	Jul	25	24.6
2006	Jul	26	24.4
2006	Jul	27	25.5
2006	Jul	28	24.5
2006	Jul	29	25.6
2006	Jul	30	25.5
2006	Jul	31	26.3
2006	Aug	1	26.3
2006	Aug	2	27.1
2006	Aug	3	27.6
2006	Aug	4	26.5
2006	Aug	5	26.5
2006	Aug	6	25.7
2006	Aug	7	26.5
2006	Aug	8	26.2
2006	Aug	9	26.3
2006	Aug	10	25.7
2006	Aug	11	25.0
2006	Aug	12	24.3
2006	Aug	13	24.2
2006	Aug	14	24.2
2006	Aug	15	25.2
2006	Aug	16	25.9
2006	Aug	17	24.9
2006	Aug	18	25.2
2006	Aug	19	25.8
2006	Aug	20	27.0
2006	Aug	21	26.2
2006	Aug	22	25.7
2006	Aug	23	25.7
2006	Aug	24	25.5
2006	Aug	25	25.1
2006	Aug	26	25.9
2006	Aug	27	25.3
2006	Aug	28	25.8
2006	Aug	29	26.0
2006	Aug	30	26.7
2006	Aug	31	25.8
2006	Sept	1	23.4
2006	Sept	2	23.1
2006	Sept	3	23.6
2006	Sept	4	23.9
2006	Sept	5	23.7
2006	Sept	6	23.3
2006	Sept	7	23.6
2006	Sept	8	23.8
2006	Sept	9	23.3
2006	Sept	10	23.7
2006	Sept	11	24.0
2006	Sept	12	23.3
2006	Sept	13	22.6
2006	Sept	14	22.4
2006	Sept	15	22.2
2006	Sept	16	22.5
2006	Sept	17	23.1

Year	Month	Day	Temp
2006	Sept	18	22.3
2006	Sept	19	22.9
2006	Sept	20	21.8
2006	Sept	21	20.7
2006	Sept	22	20.5
2006	Sept	23	21.9
2006	Sept	24	23.6
2006	Sept	25	22.4
2006	Sept	26	20.8
2006	Sept	27	20.7
2006	Sept	28	20.8
2006	Sept	29	20.9
2006	Sept	30	19.5
2006	Oct	1	20.5
2006	Oct	2	20.1
2006	Oct	3	19.7
2006	Oct	4	20.6
2006	Oct	5	21.2
2006	Oct	6	21.1
2006	Oct	7	18.9
2006	Oct	8	19.6
2006	Oct	9	20.0
2006	Oct	10	19.8
2006	Oct	11	20.2
2006	Oct	12	20.4
2006	Oct	13	18.7
2006	Oct	14	17.3
2006	Oct	15	16.0
2006	Oct	16	16.7
2006	Oct	17	18.1
2006	Oct	18	19.9
2006	Oct	19	19.9
2006	Oct	20	20.4
2006	Oct	21	18.2
2006	Oct	22	16.8
2006	Oct	23	17.7
2006	Oct	24	16.8
2006	Oct	25	16.2
2006	Oct	26	15.5
2006	Oct	27	16.7
2006	Oct	28	18.1
2006	Oct	29	17.5
2006	Oct	30	17.5
2006	Oct	31	17.0
2006	Nov	1	17.7
2006	Nov	2	18.0
2006	Nov	3	15.9
2006	Nov	4	15.2
2006	Nov	5	15.5
2006	Nov	6	14.8
2006	Nov	7	15.0
2006	Nov	8	18.0
2006	Nov	9	17.4
2006	Nov	10	17.1
2006	Nov	11	17.1
2006	Nov	12	15.9
2006	Nov	13	16.4
2006	Nov	14	16.0

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Year	Month	Day	Temp
2006	Nov	15	16.3
2006	Nov	16	18.3
2006	Nov	17	16.7
2006	Nov	18	16.8
2006	Nov	19	15.6
2006	Nov	20	16.5
2006	Nov	21	15.1
2006	Nov	22	14.5
2006	Nov	23	14.7
2006	Nov	24	16.1
2006	Nov	25	14.7
2006	Nov	26	13.9
2006	Nov	27	14.8
2006	Nov	28	15.2
2006	Nov	29	15.5
2006	Nov	30	16.7
2006	Dec	1	17.6
2006	Dec	2	15.7
2006	Dec	3	14.4
2006	Dec	4	14.7
2006	Dec	5	13.2
2006	Dec	6	12.5
2006	Dec	7	14.9
2006	Dec	8	11.5
2006	Dec	9	11.7
2006	Dec	10	12.5
2006	Dec	11	13.0
2006	Dec	12	12.5
2006	Dec	13	13.5
2006	Dec	14	12.7
2006	Dec	15	12.8
2006	Dec	16	12.7
2006	Dec	17	12.8
2006	Dec	18	14.7
2006	Dec	19	13.8
2006	Dec	20	12.2
2006	Dec	21	13.3
2006	Dec	22	13.6
2006	Dec	23	16.1
2006	Dec	24	13.4
2006	Dec	25	13.9
2006	Dec	26	13.6
2006	Dec	27	13.4
2006	Dec	28	12.7
2006	Dec	29	13.4
2006	Dec	30	12.0
2006	Dec	31	13.2
2007	Jan	1	16.4
2007	Jan	2	13.9
2007	Jan	3	13.2
2007	Jan	4	12.9
2007	Jan	5	15.0
2007	Jan	6	15.2
2007	Jan	7	14.5
2007	Jan	8	15.1
2007	Jan	9	12.5
2007	Jan	10	12.0
2007	Jan	11	12.0

Year	Month	Day	Temp
2007	Jan	12	12.8
2007	Jan	13	13.0
2007	Jan	14	14.9
2007	Jan	15	15.7
2007	Jan	16	15.1
2007	Jan	17	13.4
2007	Jan	18	12.0
2007	Jan	19	11.4
2007	Jan	20	10.5
2007	Jan	21	10.3
2007	Jan	22	11.1
2007	Jan	23	11.7
2007	Jan	24	10.8
2007	Jan	25	11.8
2007	Jan	26	10.1
2007	Jan	27	10.4
2007	Jan	28	12.5
2007	Jan	29	8.8
2007	Jan	30	10.8
2007	Jan	31	10.6
2007	Feb	1	10.0
2007	Feb	2	9.9
2007	Feb	3	9.3
2007	Feb	4	9.6
2007	Feb	5	9.2
2007	Feb	6	6.2
2007	Feb	7	9.8
2007	Feb	8	9.2
2007	Feb	9	8.4
2007	Feb	10	8.2
2007	Feb	11	8.4
2007	Feb	12	9.9
2007	Feb	13	11.1
2007	Feb	14	10.7
2007	Feb	15	9.3
2007	Feb	16	7.8
2007	Feb	17	8.5
2007	Feb	18	9.4
2007	Feb	19	8.2
2007	Feb	20	11.1
2007	Feb	21	11.1
2007	Feb	22	12.1
2007	Feb	23	10.1
2007	Feb	24	10.5
2007	Feb	25	11.0
2007	Feb	26	11.8
2007	Feb	27	10.4
2007	Feb	28	11.1
2007	Mar	1	12.6
2007	Mar	2	13.2
2007	Mar	3	11.7
2007	Mar	4	10.7
2007	Mar	5	9.7
2007	Mar	6	11.6
2007	Mar	7	11.2
2007	Mar	8	10.6
2007	Mar	9	10.8
2007	Mar	10	11.5

Year	Month	Day	Temp
2007	Mar	11	12.7
2007	Mar	12	12.0
2007	Mar	13	12.8
2007	Mar	14	13.0
2007	Mar	15	14.5
2007	Mar	16	14.0
2007	Mar	17	11.6
2007	Mar	18	11.6
2007	Mar	19	10.3
2007	Mar	20	12.8
2007	Mar	21	13.0
2007	Mar	22	12.6
2007	Mar	23	14.0
2007	Mar	24	15.7
2007	Mar	25	17.0
2007	Mar	26	15.7
2007	Mar	27	15.4
2007	Mar	28	15.8
2007	Mar	29	15.4
2007	Mar	30	13.5
2007	Mar	31	14.5
2007	Apr	1	15.1
2007	Apr	2	17.4
2007	Apr	3	15.8
2007	Apr	4	17.6
2007	Apr	5	14.9
2007	Apr	6	13.0
2007	Apr	7	12.7
2007	Apr	8	10.7
2007	Apr	9	11.6
2007	Apr	10	12.5
2007	Apr	11	12.9
2007	Apr	12	14.8
2007	Apr	13	14.7
2007	Apr	14	14.6
2007	Apr	15	16.9
2007	Apr	16	12.7
2007	Apr	17	14.4
2007	Apr	18	15.6
2007	Apr	19	14.8
2007	Apr	20	14.5
2007	Apr	21	13.7
2007	Apr	22	17.3
2007	Apr	23	16.3
2007	Apr	24	17.4
2007	Apr	25	18.1
2007	Apr	26	17.0
2007	Apr	27	17.5
2007	Apr	28	17.9
2007	Apr	29	17.2
2007	Apr	30	18.2
2007	May	1	17.9
2007	May	2	19.4
2007	May	3	17.8
2007	May	4	17.3
2007	May	5	16.6
2007	May	6	16.0
2007	May	7	16.2

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Year	Month	Day	Temp
2007	May	8	16.2
2007	May	9	18.2
2007	May	10	18.9
2007	May	11	18.6
2007	May	12	20.0
2007	May	13	18.5
2007	May	14	17.6
2007	May	15	18.6
2007	May	16	18.8
2007	May	17	19.4
2007	May	18	18.6
2007	May	19	17.5
2007	May	20	18.4
2007	May	21	19.5
2007	May	22	19.3
2007	May	23	19.6
2007	May	24	19.1
2007	May	25	19.7
2007	May	26	21.2
2007	May	27	20.9
2007	May	28	21.8
2007	May	29	21.4
2007	May	30	21.4
2007	May	31	21.4
2007	Jun	1	21.4
2007	Jun	2	22.2
2007	Jun	3	21.0
2007	Jun	4	20.8
2007	Jun	5	20.6
2007	Jun	6	20.8
2007	Jun	7	21.1
2007	Jun	8	22.0
2007	Jun	9	23.4
2007	Jun	10	25.3
2007	Jun	11	21.6
2007	Jun	12	21.3
2007	Jun	13	21.6
2007	Jun	14	210.2
2007	Jun	15	21.2
2007	Jun	16	23.1
2007	Jun	17	22.2
2007	Jun	18	22.2
2007	Jun	19	23.7
2007	Jun	20	23.6
2007	Jun	21	22.3
2007	Jun	22	22.6
2007	Jun	23	24.1
2007	Jun	24	24.0
2007	Jun	25	24.0
2007	Jun	26	23.4
2007	Jun	27	24.0
2007	Jun	28	25.0
2007	Jun	29	25.1
2007	Jun	30	25.7
2007	Jul	1	24.5
2007	Jul	2	23.2
2007	Jul	3	22.8
2007	Jul	4	23.9

Year	Month	Day	Temp
2007	Jul	5	24.0
2007	Jul	6	24.1
2007	Jul	7	27.0
2007	Jul	8	26.0
2007	Jul	9	25.7
2007	Jul	10	26.3
2007	Jul	11	25.7
2007	Jul	12	24.8
2007	Jul	13	24.5
2007	Jul	14	22.9
2007	Jul	15	24.1
2007	Jul	16	25.2
2007	Jul	17	25.1
2007	Jul	18	25.0
2007	Jul	19	25.8
2007	Jul	20	26.0
2007	Jul	21	25.3
2007	Jul	22	24.9
2007	Jul	23	24.2
2007	Jul	24	23.3
2007	Jul	25	24.0
2007	Jul	26	24.3
2007	Jul	27	24.8
2007	Jul	28	25.3
2007	Jul	29	27.1
2007	Jul	30	25.8
2007	Jul	31	24.3
2007	Aug	1	25.1
2007	Aug	2	25.6
2007	Aug	3	25.1
2007	Aug	4	25.2
2007	Aug	5	26.7
2007	Aug	6	26.3
2007	Aug	7	26.4
2007	Aug	8	27.0
2007	Aug	9	28.0
2007	Aug	10	28.8
2007	Aug	11	27.4
2007	Aug	12	27.3
2007	Aug	13	25.2
2007	Aug	14	25.3
2007	Aug	15	25.0
2007	Aug	16	26.5
2007	Aug	17	26.0
2007	Aug	18	25.2
2007	Aug	19	25.3
2007	Aug	20	24.6
2007	Aug	21	25.6
2007	Aug	22	25.4
2007	Aug	23	25.4
2007	Aug	24	25.4
2007	Aug	25	26.7
2007	Aug	26	25.9
2007	Aug	27	25.1
2007	Aug	28	25.5
2007	Aug	29	25.4
2007	Aug	30	24.6
2007	Aug	31	24.6

Year	Month	Day	Temp
2007	Sept	1	25.3
2007	Sept	2	23.8
2007	Sept	3	23.0
2007	Sept	4	23.8
2007	Sept	5	23.9
2007	Sept	6	24.4
2007	Sept	7	24.6
2007	Sept	8	24.3
2007	Sept	9	23.3
2007	Sept	10	24.8
2007	Sept	11	24.7
2007	Sept	12	23.8
2007	Sept	13	23.8
2007	Sept	14	24.0
2007	Sept	15	23.6
2007	Sept	16	21.4
2007	Sept	17	21.5
2007	Sept	18	21.6
2007	Sept	19	22.4
2007	Sept	20	22.4
2007	Sept	21	22.4
2007	Sept	22	23.6
2007	Sept	23	23.4
2007	Sept	24	23.4
2007	Sept	25	22.8
2007	Sept	26	23.1
2007	Sept	27	23.2
2007	Sept	28	23.3
2007	Sept	29	21.6
2007	Sept	30	20.8
2007	Oct	1	21.1
2007	Oct	2	21.8
2007	Oct	3	22.3
2007	Oct	4	22.8
2007	Oct	5	22.8
2007	Oct	6	23.4
2007	Oct	7	22.7
2007	Oct	8	22.9
2007	Oct	9	23.4
2007	Oct	10	23.6
2007	Oct	11	21.8
2007	Oct	12	19.8
2007	Oct	13	18.5
2007	Oct	14	18.3
2007	Oct	15	18.5
2007	Oct	16	19.4
2007	Oct	17	19.6
2007	Oct	18	20.9
2007	Oct	19	21.7
2007	Oct	20	20.4
2007	Oct	21	21.9
2007	Oct	22	19.8
2007	Oct	23	20.0
2007	Oct	24	21.7
2007	Oct	25	20.8
2007	Oct	26	20.2
2007	Oct	27	20.7
2007	Oct	28	18.9

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Year	Month	Day	Temp
2007	Oct	29	16.2
2007	Oct	30	16.9
2007	Oct	31	16.4
2007	Nov	1	17.6
2007	Nov	2	16.8
2007	Nov	3	15.9
2007	Nov	4	14.3
2007	Nov	5	13.6
2007	Nov	6	15.9
2007	Nov	7	14.3
2007	Nov	8	14.4
2007	Nov	9	14.5
2007	Nov	10	15.1
2007	Nov	11	12.8
2007	Nov	12	14.9
2007	Nov	13	15.1
2007	Nov	14	16.1
2007	Nov	15	15.6
2007	Nov	16	15.0
2007	Nov	17	13.6
2007	Nov	18	13.4
2007	Nov	19	14.5
2007	Nov	20	15.1
2007	Nov	21	15.3
2007	Nov	22	16.4
2007	Nov	23	15.0
2007	Nov	24	12.9
2007	Nov	25	14.1
2007	Nov	26	14.2
2007	Nov	27	15.5
2007	Nov	28	14.4
2007	Nov	29	13.5
2007	Nov	30	13.1
2007	Dec	1	13.8
2007	Dec	2	12.9
2007	Dec	3	14.7
2007	Dec	4	11.5
2007	Dec	5	12.0
2007	Dec	6	11.2
2007	Dec	7	10.4
2007	Dec	8	12.7
2007	Dec	9	13.6
2007	Dec	10	15.7
2007	Dec	11	14.5
2007	Dec	12	15.2
2007	Dec	13	14.9
2007	Dec	14	14.3
2007	Dec	15	13.6
2007	Dec	16	12.2
2007	Dec	17	11.9
2007	Dec	18	10.8
2007	Dec	19	11.3
2007	Dec	20	10.4
2007	Dec	21	11.1
2007	Dec	22	12.0
2007	Dec	23	12.7
2007	Dec	24	13.0
2007	Dec	25	12.1

Year	Month	Day	Temp
2007	Dec	26	10.9
2007	Dec	27	12.2
2007	Dec	28	12.7
2007	Dec	29	14.9
2007	Dec	30	12.7
2007	Dec	31	11.6
2008	Jan	1	13.1
2008	Jan	2	10.3
2008	Jan	3	9.3
2008	Jan	4	8.6
2008	Jan	5	11.2
2008	Jan	6	12.5
2008	Jan	7	13.2
2008	Jan	8	12.7
2008	Jan	9	14.4
2008	Jan	10	12.5
2008	Jan	11	14.8
2008	Jan	12	12.2
2008	Jan	13	12.4
2008	Jan	14	11.2
2008	Jan	15	10.5
2008	Jan	16	9.4
2008	Jan	17	9.9
2008	Jan	18	10.7
2008	Jan	19	10.9
2008	Jan	20	9.1
2008	Jan	21	7.7
2008	Jan	22	9.3
2008	Jan	23	10.3
2008	Jan	24	9.3
2008	Jan	25	8.2
2008	Jan	26	9.2
2008	Jan	27	9.7
2008	Jan	28	8.6
2008	Jan	29	9.8
2008	Jan	30	12.4
2008	Jan	31	9.0
2008	Feb	1	9.6
2008	Feb	2	11.1
2008	Feb	3	10.2
2008	Feb	4	11.4
2008	Feb	5	12.3
2008	Feb	6	14.0
2008	Feb	7	13.5
2008	Feb	8	11.9
2008	Feb	9	12.3
2008	Feb	10	12.0
2008	Feb	11	8.6
2008	Feb	12	10.5
2008	Feb	13	11.0
2008	Feb	14	10.0
2008	Feb	15	10.9
2008	Feb	16	11.5
2008	Feb	17	12.4
2008	Feb	18	14.6
2008	Feb	19	9.5
2008	Feb	20	11.1
2008	Feb	21	11.2

Year	Month	Day	Temp
2008	Feb	22	10.2
2008	Feb	23	11.4
2008	Feb	24	10.8
2008	Feb	25	10.9
2008	Feb	26	13.4
2008	Feb	27	11.9
2008	Feb	28	9.7
2008	Feb	29	9.3
2008	Mar	1	11.0
2008	Mar	2	11.2
2008	Mar	3	11.9
2008	Mar	4	13.3
2008	Mar	5	13.2
2008	Mar	6	13.8
2008	Mar	7	12.8
2008	Mar	8	15.0
2008	Mar	9	10.8
2008	Mar	10	11.6
2008	Mar	11	12.2
2008	Mar	12	11.1
2008	Mar	13	12.6
2008	Mar	14	12.8
2008	Mar	15	14.1
2008	Mar	16	13.1
2008	Mar	17	11.9
2008	Mar	18	12.6
2008	Mar	19	14.7
2008	Mar	20	13.6
2008	Mar	21	12.5
2008	Mar	22	14.3
2008	Mar	23	12.5
2008	Mar	24	12.4
2008	Mar	25	12.0
2008	Mar	26	13.0
2008	Mar	27	13.7
2008	Mar	28	14.7
2008	Mar	29	13.5
2008	Mar	30	12.1
2008	Mar	31	12.6
2008	Apr	1	15.1
2008	Apr	2	14.6
2008	Apr	3	14.0
2008	Apr	4	13.8
2008	Apr	5	15.5
2008	Apr	6	14.2
2008	Apr	7	13.9
2008	Apr	8	13.9
2008	Apr	9	14.7
2008	Apr	10	15.2
2008	Apr	11	16.3
2008	Apr	12	19.2
2008	Apr	13	16.2
2008	Apr	14	14.4
2008	Apr	15	13.7
2008	Apr	16	14.1
2008	Apr	17	14.7
2008	Apr	18	15.6
2008	Apr	19	17.5

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Year	Month	Day	Temp
2008	Apr	20	16.4
2008	Apr	21	16.6
2008	Apr	22	16.7
2008	Apr	23	17.3
2008	Apr	24	17.7
2008	Apr	25	17.6
2008	Apr	26	18.9
2008	Apr	27	17.9
2008	Apr	28	18.6
2008	Apr	29	16.2
2008	Apr	30	15.9
2008	May	1	16.4
2008	May	2	17.5
2008	May	3	18.2
2008	May	4	20.9
2008	May	5	18.6
2008	May	6	18.1
2008	May	7	18.5
2008	May	8	19.1
2008	May	9	19.3
2008	May	10	17.8
2008	May	11	17.2
2008	May	12	16.7
2008	May	13	16.0
2008	May	14	17.1
2008	May	15	18.4
2008	May	16	18.8
2008	May	17	17.1
2008	May	18	18.6
2008	May	19	18.4
2008	May	20	18.9
2008	May	21	18.2
2008	May	22	17.9
2008	May	23	18.4
2008	May	24	19.4
2008	May	25	19.7
2008	May	26	19.0
2008	May	27	20.6
2008	May	28	20.3
2008	May	29	19.0
2008	May	30	19.7
2008	May	31	21.5
2008	Jun	1	22.8
2008	Jun	2	20.8
2008	Jun	3	21.7
2008	Jun	4	21.9
2008	Jun	5	23.3
2008	Jun	6	24.3
2008	Jun	7	24.2
2008	Jun	8	25.1
2008	Jun	9	24.8
2008	Jun	10	24.6
2008	Jun	11	24.5
2008	Jun	12	24.3
2008	Jun	13	25.3
2008	Jun	14	25.0
2008	Jun	15	24.5
2008	Jun	16	23.7

Year	Month	Day	Temp
2008	Jun	17	24.0
2008	Jun	18	23.1
2008	Jun	19	23.1
2008	Jun	20	23.0
2008	Jun	21	23.6
2008	Jun	22	24.5
2008	Jun	23	23.5
2008	Jun	24	23.4
2008	Jun	25	23.4
2008	Jun	26	23.6
2008	Jun	27	24.0
2008	Jun	28	25.6
2008	Jun	29	26.5
2008	Jun	30	20.8
2008	Jul	1	23.8
2008	Jul	2	23.4
2008	Jul	3	25.3
2008	Jul	4	24.6
2008	Jul	5	24.5
2008	Jul	6	24.4
2008	Jul	7	24.5
2008	Jul	8	24.6
2008	Jul	9	23.8
2008	Jul	10	24.3
2008	Jul	11	24.5
2008	Jul	12	25.2
2008	Jul	13	26.0
2008	Jul	14	24.4
2008	Jul	15	24.1
2008	Jul	16	24.3
2008	Jul	17	24.3
2008	Jul	18	24.1
2008	Jul	19	25.3
2008	Jul	20	25.0
2008	Jul	21	26.0
2008	Jul	22	25.4
2008	Jul	23	25.5
2008	Jul	24	24.5
2008	Jul	25	24.6
2008	Jul	26	24.2
2008	Jul	27	26.1
2008	Jul	28	24.4
2008	Jul	29	25.3
2008	Jul	30	25.7
2008	Jul	31	26.1
2008	Aug	1	25.9
2008	Aug	2	25.4
2008	Aug	3	27.0
2008	Aug	4	25.1
2008	Aug	5	25.3
2008	Aug	6	25.5
2008	Aug	7	25.6
2008	Aug	8	24.9
2008	Aug	9	24.4
2008	Aug	10	25.1
2008	Aug	11	24.1
2008	Aug	12	23.3
2008	Aug	13	24.3

Year	Month	Day	Temp
2008	Aug	14	23.6
2008	Aug	15	23.9
2008	Aug	16	23.7
2008	Aug	17	23.5
2008	Aug	18	23.9
2008	Aug	19	24.5
2008	Aug	20	24.4
2008	Aug	21	24.7
2008	Aug	22	24.2
2008	Aug	23	25.6
2008	Aug	24	25.1
2008	Aug	25	24.8
2008	Aug	26	24.4
2008	Aug	27	23.7
2008	Aug	28	24.2
2008	Aug	29	24.0
2008	Aug	30	24.5
2008	Aug	31	25.4
2008	Sept	1	24.2
2008	Sept	2	23.7
2008	Sept	3	23.6
2008	Sept	4	23.9
2008	Sept	5	24.1
2008	Sept	6	24.2
2008	Sept	7	24.6
2008	Sept	8	23.9
2008	Sept	9	24.4
2008	Sept	10	24.4
2008	Sept	11	23.6
2008	Sept	12	24.0
2008	Sept	13	25.5
2008	Sept	14	24.8
2008	Sept	15	25.1
2008	Sept	16	25.0
2008	Sept	17	23.0
2008	Sept	18	22.3
2008	Sept	19	22.8
2008	Sept	20	21.6
2008	Sept	21	22.8
2008	Sept	22	22.2
2008	Sept	23	22.4
2008	Sept	24	21.8
2008	Sept	25	20.7
2008	Sept	26	21.1
2008	Sept	27	22.5
2008	Sept	28	22.5
2008	Sept	29	22.5
2008	Sept	30	22.1

90th Percentile: 24.8

VA0026816 - Town of Alberta Effluent Winter Temperature Data

Year	Month	Day	Temp
2004	Jan	1	11.8
2004	Jan	2	11.7
2004	Jan	3	13.0
2004	Jan	4	15.2
2004	Jan	5	15.5
2004	Jan	6	10.6
2004	Jan	7	10.8
2004	Jan	8	10.8
2004	Jan	9	10.6
2004	Jan	10	9.3
2004	Jan	11	9.1
2004	Jan	12	9.5
2004	Jan	13	10.3
2004	Jan	14	10.7
2004	Jan	15	9.9
2004	Jan	16	9.8
2004	Jan	17	11.5
2004	Jan	18	10.6
2004	Jan	19	10.6
2004	Jan	20	9.1
2004	Jan	21	9.0
2004	Jan	22	10.0
2004	Jan	23	9.3
2004	Jan	24	11.0
2004	Jan	25	9.3
2004	Jan	26	7.4
2004	Jan	27	10.1
2004	Jan	28	8.1
2004	Jan	29	9.3
2004	Jan	30	10.1
2004	Jan	31	7.9
2004	Feb	1	9.7
2004	Feb	2	7.6
2004	Feb	3	9.1
2004	Feb	4	10.1
2004	Feb	5	10.5
2004	Feb	6	11.1
2004	Feb	7	12.2
2004	Feb	8	10.8
2004	Feb	9	9.8
2004	Feb	10	10.1
2004	Feb	11	10.2
2004	Feb	12	10.6
2004	Feb	13	9.5
2004	Feb	14	10.3
2004	Feb	15	10.0
2004	Feb	16	7.6
2004	Feb	17	8.5
2004	Feb	18	8.9
2004	Feb	19	10.2
2004	Feb	20	13.4
2004	Feb	21	14.9
2004	Feb	22	13.1
2004	Feb	23	10.1

Year	Month	Day	Temp
2004	Feb	24	10.9
2004	Feb	25	9.8
2004	Feb	26	10.0
2004	Feb	27	10.3
2004	Feb	28	12.6
2004	Feb	29	13.3
2004	Mar	1	12.0
2004	Mar	2	15.1
2004	Mar	3	13.3
2004	Mar	4	15.6
2004	Mar	5	15.1
2004	Mar	6	16.5
2004	Mar	7	14.5
2004	Mar	8	13.3
2004	Mar	9	11.4
2004	Mar	10	11.7
2004	Mar	11	11.0
2004	Mar	12	12.4
2004	Mar	13	13.0
2004	Mar	14	13.3
2004	Mar	15	12.5
2004	Mar	16	14.2
2004	Mar	17	12.6
2004	Mar	18	11.9
2004	Mar	19	13.0
2004	Mar	20	14.1
2004	Mar	21	16.0
2004	Mar	22	12.2
2004	Mar	23	10.7
2004	Mar	24	11.5
2004	Mar	25	15.5
2004	Mar	26	13.9
2004	Mar	27	13.7
2004	Mar	28	14.7
2004	Mar	29	13.3
2004	Mar	30	12.7
2004	Mar	31	14.0
2004	Apr	1	13.1
2004	Apr	2	13.8
2004	Apr	3	14.6
2004	Apr	4	14.9
2004	Apr	5	11.7
2004	Apr	6	12.0
2004	Apr	7	12.5
2004	Apr	8	15.8
2004	Apr	9	14.2
2004	Apr	10	14.5
2004	Apr	11	14.1
2004	Apr	12	13.4
2004	Apr	13	14.1
2004	Apr	14	14.0
2004	Apr	15	13.1
2004	Apr	16	14.5
2004	Apr	17	17.4

Year	Month	Day	Temp
2004	Apr	19	19.5
2004	Apr	20	17.4
2004	Apr	21	17.9
2004	Apr	22	20.1
2004	Apr	23	18.8
2004	Apr	24	17.8
2004	Apr	25	16.6
2004	Apr	26	16.9
2004	Apr	27	16.8
2004	Apr	28	15.0
2004	Apr	29	15.6
2004	Apr	30	17.4
2004	Oct	1	22.1
2004	Oct	2	22.2
2004	Oct	3	23.2
2004	Oct	4	21.7
2004	Oct	5	20.9
2004	Oct	6	18.9
2004	Oct	7	18.9
2004	Oct	8	18.9
2004	Oct	9	20.2
2004	Oct	10	22.0
2004	Oct	11	18.7
2004	Oct	12	17.9
2004	Oct	13	18.8
2004	Oct	14	19.4
2004	Oct	15	20.1
2004	Oct	16	20.3
2004	Oct	17	19.6
2004	Oct	18	17.8
2004	Oct	19	19.6
2004	Oct	20	19.9
2004	Oct	21	19.7
2004	Oct	22	18.8
2004	Oct	23	18.4
2004	Oct	24	18.5
2004	Oct	25	18.3
2004	Oct	26	17.6
2004	Oct	27	18.2
2004	Oct	28	18.8
2004	Oct	29	18.5
2004	Oct	30	21.2
2004	Oct	31	21.9
2004	Nov	1	20.0
2004	Nov	2	20.2
2004	Nov	3	20.2
2004	Nov	4	18.6
2004	Nov	5	18.0
2004	Nov	6	18.1
2004	Nov	7	19.3
2004	Nov	8	17.8
2004	Nov	9	16.1
2004	Nov	10	16.9
2004	Nov	11	15.6

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Year	Month	Day	Temp
2004	Nov	12	18.0
2004	Nov	13	17.8
2004	Nov	14	16.5
2004	Nov	15	14.6
2004	Nov	16	15.9
2004	Nov	17	15.7
2004	Nov	18	16.6
2004	Nov	19	18.6
2004	Nov	20	18.4
2004	Nov	21	18.8
2004	Nov	22	17.7
2004	Nov	23	18.0
2004	Nov	24	18.2
2004	Nov	25	19.1
2004	Nov	26	15.1
2004	Nov	27	15.5
2004	Nov	28	16.9
2004	Nov	29	16.7
2004	Nov	30	14.9
2004	Dec	1	17.5
2004	Dec	2	14.0
2004	Dec	3	14.0
2004	Dec	4	15.2
2004	Dec	5	15.2
2004	Dec	6	15.8
2004	Dec	7	17.7
2004	Dec	8	16.2
2004	Dec	9	15.7
2004	Dec	10	16.5
2004	Dec	11	16.0
2004	Dec	12	14.7
2004	Dec	13	14.1
2004	Dec	14	12.5
2004	Dec	15	12.3
2004	Dec	16	11.1
2004	Dec	17	12.7
2004	Dec	18	13.1
2004	Dec	19	13.4
2004	Dec	20	11.6
2004	Dec	21	12.0
2004	Dec	22	14.1
2004	Dec	23	16.2
2004	Dec	24	12.6
2004	Dec	25	11.1
2004	Dec	26	11.5
2004	Dec	27	10.9
2004	Dec	28	13.0
2004	Dec	29	14.4
2004	Dec	30	14.5
2004	Dec	31	15.4
2005	Jan	1	15.0
2005	Jan	2	15.5
2005	Jan	3	14.1
2005	Jan	4	15.7

Year	Month	Day	Temp
2005	Jan	5	15.7
2005	Jan	6	15.0
2005	Jan	7	15.8
2005	Jan	8	15.5
2005	Jan	9	15.0
2005	Jan	10	12.9
2005	Jan	11	14.1
2005	Jan	12	15.4
2005	Jan	13	16.5
2005	Jan	14	16.6
2005	Jan	15	13.6
2005	Jan	16	13.5
2005	Jan	17	10.7
2005	Jan	18	10.1
2005	Jan	20	10.3
2005	Jan	21	10.3
2005	Jan	22	9.9
2005	Jan	23	9.3
2005	Jan	24	8.8
2005	Jan	25	9.8
2005	Jan	26	9.8
2005	Jan	27	9.6
2005	Jan	28	8.0
2005	Jan	29	9.0
2005	Jan	30	9.0
2005	Jan	31	9.6
2005	Feb	1	11.1
2005	Feb	2	9.0
2005	Feb	3	11.1
2005	Feb	4	11.0
2005	Feb	5	11.2
2005	Feb	6	11.9
2005	Feb	7	13.3
2005	Feb	8	12.7
2005	Feb	9	13.0
2005	Feb	10	14.3
2005	Feb	11	10.6
2005	Feb	12	10.8
2005	Feb	13	11.7
2005	Feb	14	12.7
2005	Feb	15	13.0
2005	Feb	16	14.0
2005	Feb	17	12.5
2005	Feb	18	11.9
2005	Feb	19	10.0
2005	Feb	20	11.6
2005	Feb	21	12.4
2005	Feb	22	13.5
2005	Feb	23	12.0
2005	Feb	24	12.3
2005	Feb	25	11.1
2005	Feb	26	10.4
2005	Feb	27	11.4
2005	Feb	28	10.9

Year	Month	Day	Temp
2005	Mar	1	11.4
2005	Mar	2	11.6
2005	Mar	3	10.9
2005	Mar	4	10.5
2005	Mar	5	11.5
2005	Mar	6	11.2
2005	Mar	7	12.4
2005	Mar	8	13.6
2005	Mar	9	11.4
2005	Mar	10	11.5
2005	Mar	11	11.6
2005	Mar	12	11.7
2005	Mar	13	12.9
2005	Mar	14	12.0
2005	Mar	15	11.1
2005	Mar	16	12.3
2005	Mar	17	10.9
2005	Mar	18	12.6
2005	Mar	19	11.8
2005	Mar	20	12.4
2005	Mar	21	13.1
2005	Mar	22	12.5
2005	Mar	23	13.7
2005	Mar	24	13.8
2005	Mar	25	13.2
2005	Mar	26	12.9
2005	Mar	27	13.4
2005	Mar	28	14.6
2005	Mar	29	14.5
2005	Mar	30	14.1
2005	Mar	31	15.1
2005	Apr	1	15.4
2005	Apr	2	15.6
2005	Apr	3	13.0
2005	Apr	4	14.1
2005	Apr	5	13.9
2005	Apr	6	15.3
2005	Apr	7	17.8
2005	Apr	8	16.9
2005	Apr	9	15.1
2005	Apr	10	14.4
2005	Apr	11	14.5
2005	Apr	12	16.1
2005	Apr	13	14.2
2005	Apr	14	14.7
2005	Apr	15	14.5
2005	Apr	16	13.8
2005	Apr	17	14.4
2005	Apr	18	15.5
2005	Apr	19	16.8
2005	Apr	20	18.2
2005	Apr	21	18.1
2005	Apr	22	17.8
2005	Apr	23	17.1

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Year	Month	Day	Temp
2005	Apr	24	14.4
2005	Apr	25	15.3
2005	Apr	26	16.2
2005	Apr	27	16.8
2005	Apr	28	15.9
2005	Apr	29	17.3
2005	Apr	30	16.9
2005	Oct	1	21.4
2005	Oct	2	21.0
2005	Oct	3	21.2
2005	Oct	4	22.2
2005	Oct	5	23.0
2005	Oct	6	22.8
2005	Oct	7	22.9
2005	Oct	8	23.4
2005	Oct	9	22.2
2005	Oct	10	21.9
2005	Oct	11	22.1
2005	Oct	12	21.8
2005	Oct	13	20.8
2005	Oct	14	21.6
2005	Oct	15	20.7
2005	Oct	16	19.8
2005	Oct	17	18.9
2005	Oct	18	18.8
2005	Oct	19	18.8
2005	Oct	20	20.8
2005	Oct	21	20.5
2005	Oct	22	19.9
2005	Oct	23	17.6
2005	Oct	24	17.6
2005	Oct	25	18.1
2005	Oct	26	17.4
2005	Oct	27	16.3
2005	Oct	28	16.9
2005	Oct	29	15.4
2005	Oct	30	15.2
2005	Oct	31	15.0
2005	Nov	1	17.2
2005	Nov	2	17.8
2005	Nov	3	16.6
2005	Nov	4	17.4
2005	Nov	5	17.3
2005	Nov	6	17.3
2005	Nov	7	17.8
2005	Nov	8	16.5
2005	Nov	9	18.5
2005	Nov	10	18.8
2005	Nov	11	16.0
2005	Nov	12	15.0
2005	Nov	13	15.9
2005	Nov	14	17.0
2005	Nov	15	18.1
2005	Nov	16	19.4

Year	Month	Day	Temp
2005	Nov	17	16.2
2005	Nov	18	14.7
2005	Nov	19	14.2
2005	Nov	20	14.3
2005	Nov	21	16.4
2005	Nov	22	15.4
2005	Nov	23	14.5
2005	Nov	24	15.2
2005	Nov	25	13.7
2005	Nov	26	12.5
2005	Nov	27	13.3
2005	Nov	28	17.2
2005	Nov	29	16.7
2005	Nov	30	16.4
2005	Dec	1	15.5
2005	Dec	2	14.2
2005	Dec	3	13.0
2005	Dec	4	13.9
2005	Dec	5	14.0
2005	Dec	6	14.7
2005	Dec	7	12.5
2005	Dec	8	13.2
2005	Dec	9	14.0
2005	Dec	10	12.7
2005	Dec	11	12.7
2005	Dec	12	13.1
2005	Dec	13	13.4
2005	Dec	14	11.0
2005	Dec	15	11.3
2005	Dec	16	13.6
2005	Dec	17	12.0
2005	Dec	18	12.3
2005	Dec	19	11.7
2005	Dec	20	11.5
2005	Dec	21	10.1
2005	Dec	22	10.4
2005	Dec	23	9.6
2005	Dec	24	10.8
2005	Dec	25	11.7
2005	Dec	26	12.9
2005	Dec	27	12.3
2005	Dec	28	11.8
2005	Dec	29	14.0
2005	Dec	30	13.4
2005	Dec	31	13.6
2006	Jan	1	12.2
2006	Jan	2	12.5
2006	Jan	3	13.1
2006	Jan	4	13.5
2006	Jan	5	12.5
2006	Jan	6	12.9
2006	Jan	7	11.6
2006	Jan	8	11.9
2006	Jan	9	12.9

Year	Month	Day	Temp
2006	Jan	10	12.9
2006	Jan	11	13.4
2006	Jan	12	14.1
2006	Jan	13	14.2
2006	Jan	14	13.8
2006	Jan	15	11.9
2006	Jan	16	11.4
2006	Jan	17	12.7
2006	Jan	18	14.3
2006	Jan	19	12.2
2006	Jan	20	12.0
2006	Jan	21	12.8
2006	Jan	22	12.4
2006	Jan	23	12.3
2006	Jan	24	13.5
2006	Jan	25	12.3
2006	Jan	26	11.8
2006	Jan	27	10.7
2006	Jan	28	10.9
2006	Jan	29	12.9
2006	Jan	30	12.4
2006	Jan	31	12.4
2006	Feb	1	12.2
2006	Feb	2	12.1
2006	Feb	3	14.4
2006	Feb	4	13.7
2006	Feb	5	11.1
2006	Feb	6	12.2
2006	Feb	7	12.1
2006	Feb	8	11.2
2006	Feb	9	12.1
2006	Feb	10	10.4
2006	Feb	11	10.5
2006	Feb	12	9.6
2006	Feb	13	10.5
2006	Feb	14	10.9
2006	Feb	15	11.0
2006	Feb	16	11.2
2006	Feb	17	13.3
2006	Feb	18	12.1
2006	Feb	19	8.6
2006	Feb	20	9.4
2006	Feb	21	12.0
2006	Feb	22	12.9
2006	Feb	23	11.9
2006	Feb	24	11.2
2006	Feb	25	11.4
2006	Feb	26	11.0
2006	Feb	27	10.8
2006	Feb	28	11.6
2006	Mar	1	12.1
2006	Mar	2	12.1
2006	Mar	3	13.3
2006	Mar	4	9.2

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Year	Month	Day	Temp
2006	Mar	5	11.9
2006	Mar	6	13.2
2006	Mar	7	11.2
2006	Mar	8	11.5
2006	Mar	9	12.5
2006	Mar	10	13.9
2006	Mar	11	15.1
2006	Mar	12	17.2
2006	Mar	13	17.7
2006	Mar	14	17.4
2006	Mar	15	13.9
2006	Mar	16	14.0
2006	Mar	17	14.5
2006	Mar	18	12.6
2006	Mar	19	11.8
2006	Mar	20	11.3
2006	Mar	21	12.4
2006	Mar	22	10.7
2006	Mar	23	11.3
2006	Mar	24	11.8
2006	Mar	25	12.1
2006	Mar	26	11.4
2006	Mar	27	12.8
2006	Mar	28	13.4
2006	Mar	29	13.4
2006	Mar	30	14.4
2006	Mar	31	14.7
2006	Apr	1	15.5
2006	Apr	2	15.0
2006	Apr	3	16.2
2006	Apr	4	14.8
2006	Apr	5	15.0
2006	Apr	6	14.6
2006	Apr	7	15.5
2006	Apr	9	13.7
2006	Apr	10	14.6
2006	Apr	11	14.7
2006	Apr	12	14.9
2006	Apr	13	16.0
2006	Apr	14	16.6
2006	Apr	15	17.8
2006	Apr	16	17.9
2006	Apr	17	18.7
2006	Apr	18	14.9
2006	Apr	19	15.5
2006	Apr	20	16.4
2006	Apr	21	17.6
2006	Apr	22	17.6
2006	Apr	23	17.3
2006	Apr	24	18.0
2006	Apr	25	17.9
2006	Apr	26	18.5
2006	Apr	27	17.2
2006	Apr	28	16.1

Year	Month	Day	Temp
2006	Apr	29	16.3
2006	Apr	30	15.3
2006	Oct	1	20.5
2006	Oct	2	20.1
2006	Oct	3	19.7
2006	Oct	4	20.6
2006	Oct	5	21.2
2006	Oct	6	21.1
2006	Oct	7	18.9
2006	Oct	8	19.6
2006	Oct	9	20.0
2006	Oct	10	19.8
2006	Oct	11	20.2
2006	Oct	12	20.4
2006	Oct	13	18.7
2006	Oct	14	17.3
2006	Oct	15	16.0
2006	Oct	16	16.7
2006	Oct	17	18.1
2006	Oct	18	19.9
2006	Oct	19	19.9
2006	Oct	20	20.4
2006	Oct	21	18.2
2006	Oct	22	16.8
2006	Oct	23	17.7
2006	Oct	24	16.8
2006	Oct	25	16.2
2006	Oct	26	15.5
2006	Oct	27	16.7
2006	Oct	28	18.1
2006	Oct	29	17.5
2006	Oct	30	17.5
2006	Oct	31	17.0
2006	Nov	1	17.7
2006	Nov	2	18.0
2006	Nov	3	15.9
2006	Nov	4	15.2
2006	Nov	5	15.5
2006	Nov	6	14.8
2006	Nov	7	15.0
2006	Nov	8	18.0
2006	Nov	9	17.4
2006	Nov	10	17.1
2006	Nov	11	17.1
2006	Nov	12	15.9
2006	Nov	13	16.4
2006	Nov	14	16.0
2006	Nov	15	16.3
2006	Nov	16	18.3
2006	Nov	17	16.7
2006	Nov	18	16.8
2006	Nov	19	15.6
2006	Nov	20	16.5
2006	Nov	21	15.1

Year	Month	Day	Temp
2006	Nov	22	14.5
2006	Nov	23	14.7
2006	Nov	24	16.1
2006	Nov	25	14.7
2006	Nov	26	13.9
2006	Nov	27	14.8
2006	Nov	28	15.2
2006	Nov	29	15.5
2006	Nov	30	16.7
2006	Dec	1	17.6
2006	Dec	2	15.7
2006	Dec	3	14.4
2006	Dec	4	14.7
2006	Dec	5	13.2
2006	Dec	6	12.5
2006	Dec	7	14.9
2006	Dec	8	11.5
2006	Dec	9	11.7
2006	Dec	10	12.5
2006	Dec	11	13.0
2006	Dec	12	12.5
2006	Dec	13	13.5
2006	Dec	14	12.7
2006	Dec	15	12.8
2006	Dec	16	12.7
2006	Dec	17	12.8
2006	Dec	18	14.7
2006	Dec	19	13.8
2006	Dec	20	12.2
2006	Dec	21	13.3
2006	Dec	22	13.6
2006	Dec	23	16.1
2006	Dec	24	13.4
2006	Dec	25	13.9
2006	Dec	26	13.6
2006	Dec	27	13.4
2006	Dec	28	12.7
2006	Dec	29	13.4
2006	Dec	30	12.0
2006	Dec	31	13.2
2007	Jan	1	16.4
2007	Jan	2	13.9
2007	Jan	3	13.2
2007	Jan	4	12.9
2007	Jan	5	15.0
2007	Jan	6	15.2
2007	Jan	7	14.5
2007	Jan	8	15.1
2007	Jan	9	12.5
2007	Jan	10	12.0
2007	Jan	11	12.0
2007	Jan	12	12.8
2007	Jan	13	13.0
2007	Jan	14	14.9

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Year	Month	Day	Temp
2007	Jan	15	15.7
2007	Jan	16	15.1
2007	Jan	17	13.4
2007	Jan	18	12.0
2007	Jan	19	11.4
2007	Jan	20	10.5
2007	Jan	21	10.3
2007	Jan	22	11.1
2007	Jan	23	11.7
2007	Jan	24	10.8
2007	Jan	25	11.8
2007	Jan	26	10.1
2007	Jan	27	10.4
2007	Jan	28	12.5
2007	Jan	29	8.8
2007	Jan	30	10.8
2007	Jan	31	10.6
2007	Feb	1	10.0
2007	Feb	2	9.9
2007	Feb	3	9.3
2007	Feb	4	9.6
2007	Feb	5	9.2
2007	Feb	6	6.2
2007	Feb	7	9.8
2007	Feb	8	9.2
2007	Feb	9	8.4
2007	Feb	10	8.2
2007	Feb	11	8.4
2007	Feb	12	9.9
2007	Feb	13	11.1
2007	Feb	14	10.7
2007	Feb	15	9.3
2007	Feb	16	7.8
2007	Feb	17	8.5
2007	Feb	18	9.4
2007	Feb	19	8.2
2007	Feb	20	11.1
2007	Feb	21	11.1
2007	Feb	22	12.1
2007	Feb	23	10.1
2007	Feb	24	10.5
2007	Feb	25	11.0
2007	Feb	26	11.8
2007	Feb	27	10.4
2007	Feb	28	11.1
2007	Mar	1	12.6
2007	Mar	2	13.2
2007	Mar	3	11.7
2007	Mar	4	10.7
2007	Mar	5	9.7
2007	Mar	6	11.6
2007	Mar	7	11.2
2007	Mar	8	10.6
2007	Mar	9	10.8

Year	Month	Day	Temp
2007	Mar	10	11.5
2007	Mar	11	12.7
2007	Mar	12	12.0
2007	Mar	13	12.8
2007	Mar	14	13.0
2007	Mar	15	14.5
2007	Mar	16	14.0
2007	Mar	17	11.6
2007	Mar	18	11.6
2007	Mar	19	10.3
2007	Mar	20	12.8
2007	Mar	21	13.0
2007	Mar	22	12.6
2007	Mar	23	14.0
2007	Mar	24	15.7
2007	Mar	25	17.0
2007	Mar	26	15.7
2007	Mar	27	15.4
2007	Mar	28	15.8
2007	Mar	29	15.4
2007	Mar	30	13.5
2007	Mar	31	14.5
2007	Apr	1	15.1
2007	Apr	2	17.4
2007	Apr	3	15.8
2007	Apr	4	17.6
2007	Apr	5	14.9
2007	Apr	6	13.0
2007	Apr	7	12.7
2007	Apr	8	10.7
2007	Apr	9	11.6
2007	Apr	10	12.5
2007	Apr	11	12.9
2007	Apr	12	14.8
2007	Apr	13	14.7
2007	Apr	14	14.6
2007	Apr	15	16.9
2007	Apr	16	12.7
2007	Apr	17	14.4
2007	Apr	18	15.6
2007	Apr	19	14.8
2007	Apr	20	14.5
2007	Apr	21	13.7
2007	Apr	22	17.3
2007	Apr	23	16.3
2007	Apr	24	17.4
2007	Apr	25	18.1
2007	Apr	26	17.0
2007	Apr	27	17.5
2007	Apr	28	17.9
2007	Apr	29	17.2
2007	Apr	30	18.2
2007	Oct	1	21.1
2007	Oct	2	21.8

Year	Month	Day	Temp
2007	Oct	3	22.3
2007	Oct	4	22.8
2007	Oct	5	22.8
2007	Oct	6	23.4
2007	Oct	7	22.7
2007	Oct	8	22.9
2007	Oct	9	23.4
2007	Oct	10	23.6
2007	Oct	11	21.8
2007	Oct	12	19.8
2007	Oct	13	18.5
2007	Oct	14	18.3
2007	Oct	15	18.5
2007	Oct	16	19.4
2007	Oct	17	19.6
2007	Oct	18	20.9
2007	Oct	19	21.7
2007	Oct	20	20.4
2007	Oct	21	21.9
2007	Oct	22	19.8
2007	Oct	23	20.0
2007	Oct	24	21.7
2007	Oct	25	20.8
2007	Oct	26	20.2
2007	Oct	27	20.7
2007	Oct	28	18.9
2007	Oct	29	16.2
2007	Oct	30	16.9
2007	Oct	31	16.4
2007	Nov	1	17.6
2007	Nov	2	16.8
2007	Nov	3	15.9
2007	Nov	4	14.3
2007	Nov	5	13.6
2007	Nov	6	15.9
2007	Nov	7	14.3
2007	Nov	8	14.4
2007	Nov	9	14.5
2007	Nov	10	15.1
2007	Nov	11	12.8
2007	Nov	12	14.9
2007	Nov	13	15.1
2007	Nov	14	16.1
2007	Nov	15	15.6
2007	Nov	16	15.0
2007	Nov	17	13.6
2007	Nov	18	13.4
2007	Nov	19	14.5
2007	Nov	20	15.1
2007	Nov	21	15.3
2007	Nov	22	16.4
2007	Nov	23	15.0
2007	Nov	24	12.9
2007	Nov	25	14.1

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Year	Month	Day	Temp
2007	Nov	26	14.2
2007	Nov	27	15.5
2007	Nov	28	14.4
2007	Nov	29	13.5
2007	Nov	30	13.1
2007	Dec	1	13.8
2007	Dec	2	12.9
2007	Dec	3	14.7
2007	Dec	4	11.5
2007	Dec	5	12.0
2007	Dec	6	11.2
2007	Dec	7	10.4
2007	Dec	8	12.7
2007	Dec	9	13.6
2007	Dec	10	15.7
2007	Dec	11	14.5
2007	Dec	12	15.2
2007	Dec	13	14.9
2007	Dec	14	14.3
2007	Dec	15	13.6
2007	Dec	16	12.2
2007	Dec	17	11.9
2007	Dec	18	10.8
2007	Dec	19	11.3
2007	Dec	20	10.4
2007	Dec	21	11.1
2007	Dec	22	12.0
2007	Dec	23	12.7
2007	Dec	24	13.0
2007	Dec	25	12.1
2007	Dec	26	10.9
2007	Dec	27	12.2
2007	Dec	28	12.7
2007	Dec	29	14.9
2007	Dec	30	12.7
2007	Dec	31	11.6
2008	Jan	1	13.1
2008	Jan	2	10.3
2008	Jan	3	9.3
2008	Jan	4	8.6
2008	Jan	5	11.2
2008	Jan	6	12.5
2008	Jan	7	13.2
2008	Jan	8	12.7
2008	Jan	9	14.4
2008	Jan	10	12.5
2008	Jan	11	14.8
2008	Jan	12	12.2
2008	Jan	13	12.4
2008	Jan	14	11.2
2008	Jan	15	10.5
2008	Jan	16	9.4
2008	Jan	17	9.9
2008	Jan	18	10.7

Year	Month	Day	Temp
2008	Jan	19	10.9
2008	Jan	20	9.1
2008	Jan	21	7.7
2008	Jan	22	9.3
2008	Jan	23	10.3
2008	Jan	24	9.3
2008	Jan	25	8.2
2008	Jan	26	9.2
2008	Jan	27	9.7
2008	Jan	28	8.6
2008	Jan	29	9.8
2008	Jan	30	12.4
2008	Jan	31	9.0
2008	Feb	1	9.6
2008	Feb	2	11.1
2008	Feb	3	10.2
2008	Feb	4	11.4
2008	Feb	5	12.3
2008	Feb	6	14.0
2008	Feb	7	13.5
2008	Feb	8	11.9
2008	Feb	9	12.3
2008	Feb	10	12.0
2008	Feb	11	8.6
2008	Feb	12	10.5
2008	Feb	13	11.0
2008	Feb	14	10.0
2008	Feb	15	10.9
2008	Feb	16	11.5
2008	Feb	17	12.4
2008	Feb	18	14.6
2008	Feb	19	9.5
2008	Feb	20	11.1
2008	Feb	21	11.2
2008	Feb	22	10.2
2008	Feb	23	11.4
2008	Feb	24	10.8
2008	Feb	25	10.9
2008	Feb	26	13.4
2008	Feb	27	11.9
2008	Feb	28	9.7
2008	Feb	29	9.3
2008	Mar	1	11.0
2008	Mar	2	11.2
2008	Mar	3	11.9
2008	Mar	4	13.3
2008	Mar	5	13.2
2008	Mar	6	13.8
2008	Mar	7	12.8
2008	Mar	8	15.0
2008	Mar	9	10.8
2008	Mar	10	11.6
2008	Mar	11	12.2
2008	Mar	12	11.1

Year	Month	Day	Temp
2008	Mar	13	12.6
2008	Mar	14	12.8
2008	Mar	15	14.1
2008	Mar	16	13.1
2008	Mar	17	11.9
2008	Mar	18	12.6
2008	Mar	19	14.7
2008	Mar	20	13.6
2008	Mar	21	12.5
2008	Mar	22	14.3
2008	Mar	23	12.5
2008	Mar	24	12.4
2008	Mar	25	12.0
2008	Mar	26	13.0
2008	Mar	27	13.7
2008	Mar	28	14.7
2008	Mar	29	13.5
2008	Mar	30	12.1
2008	Mar	31	12.6
2008	Apr	1	15.1
2008	Apr	2	14.6
2008	Apr	3	14.0
2008	Apr	4	13.8
2008	Apr	5	15.5
2008	Apr	6	14.2
2008	Apr	7	13.9
2008	Apr	8	13.9
2008	Apr	9	14.7
2008	Apr	10	15.2
2008	Apr	11	16.3
2008	Apr	12	19.2
2008	Apr	13	16.2
2008	Apr	14	14.4
2008	Apr	15	13.7
2008	Apr	16	14.1
2008	Apr	17	14.7
2008	Apr	18	15.6
2008	Apr	19	17.5
2008	Apr	20	16.4
2008	Apr	21	16.6
2008	Apr	22	16.7
2008	Apr	23	17.3
2008	Apr	24	17.7
2008	Apr	25	17.6
2008	Apr	26	18.9
2008	Apr	27	17.9
2008	Apr	28	18.6
2008	Apr	29	16.2
2008	Apr	30	15.9

90th Percentile 18.7

Attachment 6 – Permit Limit Development

Mixing Zone Predictions for:
VA0026816 – Alberta Annual Flows

Effluent Flow = 0.1 MGD
Stream 7Q10 = 0.027 MGD
Stream 30Q10 = 0.047 MGD
Stream 1Q10 = 0.023 MGD
Stream slope = 0.001 ft/ft
Stream width = 12 ft
Bottom scale = 3
Channel scale = 2

Mixing Zone Predictions @ 7Q10

Depth = .1424 ft
Length = 458.01 ft
Velocity = .115 ft/sec
Residence Time = .0461 days

Recommendation:

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

Mixing Zone Predictions @ 30Q10

Depth = .1556 ft
Length = 424.68 ft
Velocity = .1218 ft/sec
Residence Time = .0403 days

Recommendation:

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

Mixing Zone Predictions @ 1Q10

Depth = .1397 ft
Length = 465.61 ft
Velocity = .1136 ft/sec
Residence Time = 1.1388 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 87.81% of the 1Q10 is used.

MSTRANTI DATA SOURCE REPORT

VA0026816 –Alberta WWTP

Stream Information:	
Mean Hardness	Field data from station 5ARSE001.22 provided with Flow Frequency Memo dated August 6, 2008.
90th Percentile Temperature (Annual) 90th Percentile Temperature (Wet)	Field data from station 5ARSE006.68 provided in email from J.V. Palmore on December 15, 2008.
90th Percentile Maximum pH	
10th Percentile Maximum pH	
Tier Designation	Flow Frequency Memo dated August 6, 2008 (Attachment 1).
****Stream Flows:**	
All Data	Flow Frequency Memo dated August 6, 2008 (Attachment 1).
****Mixing Information:**	
Flow Analysis	MIX.exe was used to estimate mixing.
Effluent Information:	
Mean Hardness	BPJ. Effluent data not available. Used conservative assumption.
90th Percentile Temperature (Annual) 90th Percentile Temperature (Wet)	2004-2008 effluent temperature data submitted by the permittee with monthly DMRs.
90th Percentile Maximum pH	2004-2008 pH data submitted on monthly DMRs was used for calculating 90th and 10th percentile maximum pH.
10th Percentile Maximum pH	
Discharge Flow	Design Flow as reported in Permit Application Form 2A.

**Note: In the MSTRANTI spreadsheet, the annual stream flow and mixing inputs for 1Q10 and 30Q10 conditions were entered into the annual field as well as the wet season field in order to calculate tiered limitations based on temperatures only. Leaving the wet season fields blank result in no calculation of a WLA for ammonia for temperature only. Entering the actual wet season data results in a WLA for ammonia tiered for both temperature and flow in this case.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Town of Alberta WWTP Permit No.: VA0026816

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

Stream Information

Mean Hardness (as CaCO3) =	25.4	mg/L
90% Temperature (Annual) =	23.4	deg C
90% Temperature (Wet season) =	16.4	deg C
90% Maximum pH =	7.5	SU
10% Maximum pH =	6.4	SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	N	
Trout Present Y/N? =	N	
Early Life Stages Present Y/N? =	Y	

Stream Flows

1Q10 (Annual) =	0.023	MGD
7Q10 (Annual) =	0.027	MGD
30Q10 (Annual) =	0.047	MGD
1Q10 (Wet season) =	0.023	MGD
30Q10 (Wet season)	0.047	MGD
30Q5 =	0.07	MGD
Harmonic Mean =	0.315	MGD
Annual Average =	n/a	MGD

Mixing Information

Annual - 1Q10 Mix =	87.81	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	87.81	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	25	mg/L
90% Temp (Annual) =	24.8	deg C
90% Temp (Wet season) =	18.7	deg C
90% Maximum pH =	8.1	SU
10% Maximum pH =	7.45	SU
Discharge Flow =	0.1	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Acenapthene	0	--	--	na	2.7E+03	--	--	na	4.6E+03	--	--	--	--	--	--	--	--	--	--	na	**4.6E+03**
Acrolein	0	--	--	na	7.8E+02	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	**1.3E+03**
Acrylonitrile[C]	0	--	--	na	6.6E+00	--	--	na	2.7E+01	--	--	--	--	--	--	--	--	--	--	na	**2.7E+01**
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	3.6E+00	--	na	5.8E-03	--	--	--	--	--	--	--	--	**3.6E+00**	--	na	**5.8E-03**
Ammonia-N (mg/l) (Yearly)	0	9.70E+00	1.67E+00	na	--	1.2E+01	2.5E+00	na	--	--	--	--	--	--	--	--	--	**1.2E+01**	**2.5E+00**	na	--
Ammonia-N (mg/l) (High Flow)	0	9.70E+00	2.52E+00	na	--	1.2E+01	3.7E+00	na	--	--	--	--	--	--	--	--	--	**1.2E+01**	**3.7E+00**	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.9E+05	--	--	--	--	--	--	--	--	--	--	na	**1.9E+05**
Antimony	0	--	--	na	4.3E+03	--	--	na	7.3E+03	--	--	--	--	--	--	--	--	--	--	na	**7.3E+03**
Arsenic	0	3.4E+02	1.5E+02	na	--	4.1E+02	1.9E+02	na	--	--	--	--	--	--	--	--	--	**4.1E+02**	**1.9E+02**	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	2.9E+03	--	--	--	--	--	--	--	--	--	--	na	**2.9E+03**
Benzidine[C]	0	--	--	na	5.4E-03	--	--	na	2.2E-02	--	--	--	--	--	--	--	--	--	--	na	**2.2E-02**
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	**2.0E+00**
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	**2.0E+00**
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	**2.0E+00**
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	**2.0E+00**
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	**2.4E+01**
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	2.9E+05	--	--	--	--	--	--	--	--	--	--	na	**2.9E+05**
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	1.5E+04	--	--	--	--	--	--	--	--	--	--	na	**1.5E+04**
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	8.8E+03	--	--	--	--	--	--	--	--	--	--	na	**8.8E+03**
Cadmium	0	8.2E-01	3.8E-01	na	--	9.9E-01	4.9E-01	na	--	--	--	--	--	--	--	--	--	**9.9E-01**	**4.9E-01**	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	**1.8E+02**
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	2.9E+00	5.5E-03	na	9.1E-02	--	--	--	--	--	--	--	--	**2.9E+00**	**5.5E-03**	na	**9.1E-02**
Chloride	0	8.6E+05	2.3E+05	na	--	1.0E+06	2.9E+05	na	--	--	--	--	--	--	--	--	--	**1.0E+06**	**2.9E+05**	na	--
TRC	0	1.9E+01	1.1E+01	na	--	2.3E+01	1.4E+01	na	--	--	--	--	--	--	--	--	--	**2.3E+01**	**1.4E+01**	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	3.6E+04	--	--	--	--	--	--	--	--	--	--	na	**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	--	--	na	3.4E+02	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	1.2E+05	--	--	--	--	--	--	--	--	--	--	na	1.2E+05
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	7.3E+03	--	--	--	--	--	--	--	--	--	--	na	7.3E+03
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	6.8E+02	--	--	--	--	--	--	--	--	--	--	na	6.8E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	1.0E-01	5.2E-02	na	--	--	--	--	--	--	--	--	--	1.0E-01	5.2E-02	na	--
Chromium III	0	1.8E+02	2.4E+01	na	--	2.2E+02	3.0E+01	na	--	--	--	--	--	--	--	--	--	2.2E+02	3.0E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.9E+01	1.4E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.4E+01	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Copper	0	3.6E+00	2.7E+00	na	--	4.4E+00	3.5E+00	na	--	--	--	--	--	--	--	--	--	4.4E+00	3.5E+00	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.6E+01	6.6E+00	na	3.7E+05	--	--	--	--	--	--	--	--	2.6E+01	6.6E+00	na	3.7E+05
DDD [C]	0	--	--	na	8.4E-03	--	--	na	3.5E-02	--	--	--	--	--	--	--	--	--	--	na	3.5E-02
DDE [C]	0	--	--	na	5.9E-03	--	--	na	2.4E-02	--	--	--	--	--	--	--	--	--	--	na	2.4E-02
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	1.3E+00	1.3E-03	na	2.4E-02	--	--	--	--	--	--	--	--	1.3E+00	1.3E-03	na	2.4E-02
Demeton	0	--	1.0E-01	na	--	--	1.3E-01	na	--	--	--	--	--	--	--	--	--	--	1.3E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	6.6E+04	--	--	--	--	--	--	--	--	--	--	na	6.6E+04
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	4.4E+03	--	--	--	--	--	--	--	--	--	--	na	4.4E+03
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	4.4E+03	--	--	--	--	--	--	--	--	--	--	na	4.4E+03
3,3-Dichlorobenzidine[C]	0	--	--	na	7.7E-01	--	--	na	3.2E+00	--	--	--	--	--	--	--	--	--	--	na	3.2E+00
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	4.1E+03	--	--	--	--	--	--	--	--	--	--	na	4.1E+03
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	2.4E+05	--	--	--	--	--	--	--	--	--	--	na	2.4E+05
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	3.9E+02	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	2.9E+03	--	--	--	--	--	--	--	--	--	--	na	2.9E+03
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	2.9E-01	7.1E-02	na	5.8E-03	--	--	--	--	--	--	--	--	2.9E-01	7.1E-02	na	5.8E-03
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	2.0E+05	--	--	--	--	--	--	--	--	--	--	na	2.0E+05
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	2.4E+02
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	3.9E+03	--	--	--	--	--	--	--	--	--	--	na	3.9E+03
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	4.9E+06	--	--	--	--	--	--	--	--	--	--	na	4.9E+06
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	2.4E+04	--	--	--	--	--	--	--	--	--	--	na	2.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	3.8E+02	--	--	--	--	--	--	--	--	--	--	na	3.8E+02
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	--	--	--	na	na
1,2-Diphenylhydrazine[C]	0	--	--	na	5.4E+00	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.6E-01	7.1E-02	na	4.1E+02	--	--	--	--	--	--	--	--	2.6E-01	7.1E-02	na	4.1E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.6E-01	7.1E-02	na	4.1E+02	--	--	--	--	--	--	--	--	2.6E-01	7.1E-02	na	4.1E+02
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	4.1E+02	--	--	--	--	--	--	--	--	--	--	na	4.1E+02
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	1.0E-01	4.6E-02	na	1.4E+00	--	--	--	--	--	--	--	--	1.0E-01	4.6E-02	na	1.4E+00
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	1.4E+00	--	--	--	--	--	--	--	--	--	--	na	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	--	--	na	2.9E+04	--	--	na	4.9E+04	--	--	--	--	--	--	--	--	--	--	na	4.9E+04
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	6.3E+02	--	--	--	--	--	--	--	--	--	--	na	6.3E+02
Fluorene	0	--	--	na	1.4E+04	--	--	na	2.4E+04	--	--	--	--	--	--	--	--	--	--	na	2.4E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.3E-02	na	--	--	--	--	--	--	--	--	--	--	1.3E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	2.1E-03	6.3E-01	4.8E-03	na	8.7E-03	--	--	--	--	--	--	--	--	6.3E-01	4.8E-03	na	8.7E-03
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	1.1E-03	6.3E-01	4.8E-03	na	4.6E-03	--	--	--	--	--	--	--	--	6.3E-01	4.8E-03	na	4.6E-03
Hexachlorobenzene [C]	0	--	--	na	7.7E-03	--	--	na	3.2E-02	--	--	--	--	--	--	--	--	--	--	na	3.2E-02
Hexachlorobutadiene [C]	0	--	--	na	5.0E+02	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	1.3E-01	--	--	na	5.4E-01	--	--	--	--	--	--	--	--	--	--	na	5.4E-01
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	4.6E-01	--	--	na	1.9E+00	--	--	--	--	--	--	--	--	--	--	na	1.9E+00
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	6.3E-01	1.1E+00	--	na	2.6E+00	--	--	--	--	--	--	--	--	1.1E+00	--	na	2.6E+00
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
Hexachloroethane [C]	0	--	--	na	8.9E+01	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.5E+00	na	--	--	--	--	--	--	--	--	--	--	2.5E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	2.6E+04	--	--	na	1.1E+05	--	--	--	--	--	--	--	--	--	--	na	1.1E+05
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	2.0E+01	2.3E+00	na	--	2.5E+01	3.0E+00	na	--	--	--	--	--	--	--	--	--	2.5E+01	3.0E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.3E-01	na	--	--	--	--	--	--	--	--	--	--	1.3E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	1.7E+00	9.8E-01	na	8.7E-02	--	--	--	--	--	--	--	--	1.7E+00	9.8E-01	na	8.7E-02
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	6.8E+03	--	--	--	--	--	--	--	--	--	--	na	6.8E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.8E-02	na	--	--	--	--	--	--	--	--	--	--	3.8E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	3.6E+04	--	--	--	--	--	--	--	--	--	--	na	3.6E+04
Nickel	0	5.7E+01	6.3E+00	na	4.6E+03	6.8E+01	8.0E+00	na	7.8E+03	--	--	--	--	--	--	--	--	6.8E+01	8.0E+00	na	7.8E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03
N-Nitrosodimethylamine [C]	0	--	--	na	8.1E+01	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
N-Nitrosodiphenylamine [C]	0	--	--	na	1.6E+02	--	--	na	6.6E+02	--	--	--	--	--	--	--	--	--	--	na	6.6E+02
N-Nitrosodi-n-propylamine [C]	0	--	--	na	1.4E+01	--	--	na	5.8E+01	--	--	--	--	--	--	--	--	--	--	na	5.8E+01
Parathion	0	6.5E-02	1.3E-02	na	--	7.8E-02	1.7E-02	na	--	--	--	--	--	--	--	--	--	7.8E-02	1.7E-02	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.8E-02	na	--	--	--	--	--	--	--	--	--	--	1.8E-02	na	--
PCB Total [C]	0	--	--	na	1.7E-03	--	--	na	7.1E-03	--	--	--	--	--	--	--	--	--	--	na	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 9E+00	6 4E+00	na	8 2E+01	1 1E+01	8 1E+00	na	3 4E+02	--	--	--	--	--	--	--	--	**1.1E+01**	**8.1E+00**	**na**	**3.4E+02**
Phenol	0	--	--	na	4 6E+06	--	--	na	7.8E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.8E+06**
Pyrene	0	--	--	na	1.1E+04	--	--	na	1 9E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.9E+04**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Gross Alpha Activity	0	--	--	na	1 5E+01	--	--	na	2 6E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.6E+01**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4 0E+00	--	--	na	6 8E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.8E+00**
Strontium-90	0	--	--	na	8 0E+00	--	--	na	1 4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.4E+01**
Tritium	0	--	--	na	2 0E+04	--	--	na	3 4E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.4E+04**
Selenium	0	2 0E+01	5 0E+00	na	1 1E+04	2 4E+01	6 4E+00	na	1 9E+04	--	--	--	--	--	--	--	--	**2.4E+01**	**6.4E+00**	**na**	**1.9E+04**
Silver	0	3 2E-01	--	na	--	3 8E-01	--	na	--	--	--	--	--	--	--	--	--	**3.8E-01**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	1 1E+02	--	--	na	4 6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.6E+02**
Tetrachloroethylene[C]	0	--	--	na	8 9E+01	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.7E+02**
Thallium	0	--	--	na	6.3E+00	--	--	na	1 1E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.1E+01**
Toluene	0	--	--	na	2 0E+05	--	--	na	3 4E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.4E+05**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7 3E-01	2 0E-04	na	7.5E-03	8 8E-01	2 5E-04	na	3 1E-02	--	--	--	--	--	--	--	--	**8.8E-01**	**2.5E-04**	**na**	**3.1E-02**
Tributyltin	0	4.6E-01	6 3E-02	na	--	5 5E-01	8 0E-02	na	--	--	--	--	--	--	--	--	--	**5.5E-01**	**8.0E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	9 4E+02	--	--	na	1 6E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+03**
1,1,2-Trichloroethane[C]	0	--	--	na	4.2E+02	--	--	na	1 7E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.7E+03**
Trichloroethylene [C]	0	--	--	na	8 1E+02	--	--	na	3 4E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.4E+03**
2,4,6-Trichlorophenol [C]	0	--	--	na	6 5E+01	--	--	na	2 7E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.7E+02**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	6 1E+01	--	--	na	2 5E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.5E+02**
Zinc	0	3.6E+01	3 7E+01	na	6 9E+04	4 4E+01	4 6E+01	na	1 2E+05	--	--	--	--	--	--	--	--	**4.4E+01**	**4.6E+01**	**na**	**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	7 3E+03
Arsenic	1 1E+02
Barium	na
Cadmium	2 9E-01
Chromium III	1 8E+01
Chromium VI	7 7E+00
Copper	1 8E+00
Iron	na
Lead	1 8E+00
Manganese	na
Mercury	8 7E-02
Nickel	4 8E+00
Selenium	3 8E+00
Silver	1 5E-01
Zinc	1.7E+01

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

Chemical = Ammonia - Annual
Chronic averaging period = 30
WLAa = 12
WLAc = 2.5
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29. t6
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.04417523354078
Average Weekly limit = 5.04417523354078
Average Monthly LImit = 5.04417523354078

The data are:

9.00

Chemical = Ammonia - Winter
Chronic averaging period = 30
WLAa = 12
WLAc = 3.7
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

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

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 7.46537934564035
Average Weekly limit = 7.46537934564035
Average Monthly LImit = 7.46537934564035

The data are:

9.00

See Fact Sheet Item 18 for a discussion of limitations included in the permit.

Facility = VA0026816 - Alberta WWTP
Chemical = TRC
Chronic averaging period = 4
WLAa = 0.023 mg/L
WLAc = 0.014 mg/L
Q.L. = 0.1
# samples/mo. = 30
# samples/wk. = 7

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 = 2.04760469767452E-02 mg/L
Average Weekly limit = 1.25048694544914E-02mg/L
Average Monthly LImit = 1.01483622340237E-02 mg/L

The data are:

20 mg/L

Facility = VA0026816 - Alberta WWTP
Chemical = Copper
Chronic averaging period = 4
WLAa = 4.4 ug/L
WLAc = 3.5 ug/L
Q.L. = ~~0.5~~ 5.0
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 10
Variance = 36
C.V. = 0.6
97th percentile daily values = 24.3341
97th percentile 4 day average = 16.6379
97th percentile 30 day average= 12.0605
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 4.4 ug/L
Average Weekly limit = 4.4 ug/l
Average Monthly Limit = 4.4 ug/L

The data are:

10 ug/L

Facility = VA0026816 - Alberta WWTP
Chemical = Zinc
Chronic averaging period = 4
WLAa = 44 ug/L
WLAc = 46 ug/L
Q.L. = ~~0.5~~ 5.0
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 31
Variance = 345.96
C.V. = 0.6
97th percentile daily values = 75.4359
97th percentile 4 day average = 51.5774
97th percentile 30 day average= 37.3876
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 44ug/L
Average Weekly limit = 44 ug/L
Average Monthly Limit = 44 ug/l

The data are:

31 ug/L

Attachment 7 – Water Quality Monitoring Data – Attachment A Results

B and B CONSULTANTS, INC.
316 EAST THIRD STREET
CHASE CITY, VA 23924
(434)372-3393

CERTIFICATE OF ANALYSIS

RECEIVED
OCT [illegible]

DATE: 19-Aug-08

CLIENT TOWN OF ALBERTA
CONTACT JEFF SWENSON
ADDRESS PO BOX 157
ALBERTA VA 23821

PERMIT TESTING

WWTP

SAMPLE LOCATION:	EFFLUENT	DATE TIME OF ANALYSIS		DATE TIME OF ANALYSIS		
SAMPLE DATE:	08/04-05/08*					
SAMPLE TIME :	13:35/10:45*					
SAMPLE TYPE:	GB* COM		GB COM			
COLLECTED BY:	J SWENSON				ANALYST INITIAL	METHOD
SAMPLE ID #	8-2119					
PARAMETER						
AMMONIA	0.36	8/8/08 14:00			D.L.	SM18 4500-NH_3 B + C
CHLORIDE	58	8/18/08 13:15			D.L.	SM18 4500 C/C
E. COLI *	2	8/5/08 14:09			A.A.	HACH 10029
NITRATE	29.1	8/6/08 10:30			D.L.	EPA 352.1
T. DISSOLVED SOLID	486	8/5/08 14:12			A.A.	SM18 2540C

SAMPLE LOCATION:		DATE TIME OF ANALYSIS		DATE TIME OF ANALYSIS		
SAMPLE DATE:						
SAMPLE TIME :						
SAMPLE TYPE:						
COLLECTED BY:					ANALYST INITIAL	METHOD
SAMPLE ID #						
PARAMETER						

Values above in mg/L except pH
pH=S.U.
COLIFORM=C/100mL
TIME = 24 Hour

REVIEWED BY: [signature]

SAMPLE CONDITION
(X) GOOD
( ) OTHER (SEE C-O-C)

ALB-0808

CLIENT: B & B Consultants
ATTN: Denise Longo
ADDRESS: 316 E. Third Street
Chase City, VA 23924
PHONE: (434) 372-3393
FAX: (434) 372-0709

Special Notes:
RE: Alberta

SAMPLE COLLECTED BY: CLIENT
GRAB COLLECTION DATE/TIME:
8/5/08@1150

COMPOSITE COLLECTION:
Start Date: Time:
End Date: Time:
PICK UP BY: UPS
SAMPLE RECEIPT:
Date: 8/6/08 Time: 0945
NUMBER OF CONTAINERS: 22
SAMPLE CONDITION: ☑ Good ☐ Other (See C-O-C)

SAMPLE ID: FINAL EFFLUENT
SAMPLE NO: 08-14153

Parameter	Method Number	JRA QL	Result	Unit	Analyst	Date	Time
Volatiles							
Bromomethane	624	10	< 10	ug/L	TAG	8/9/08	0618
Vinyl Chloride	624	10	< 10	ug/L	TAG	8/9/08	0618
Methylene Chloride/Dichloromethane	624	5	< 5	ug/L	TAG	8/9/08	0618
1,1-Dichloroethene	624	5	< 5	ug/L	TAG	8/9/08	0618
trans-1,2-Dichloroethene	624	5	< 5	ug/L	TAG	8/9/08	0618
Chloroform	624	5	24	ug/L	TAG	8/9/08	0618
1,2-Dichloroethane	624	5	< 5	ug/L	TAG	8/9/08	0618
Carbon Tetrachloride	624	5	< 5	ug/L	TAG	8/9/08	0618
Bromodichloromethane	624	5	< 5	ug/L	TAG	8/9/08	0618
1,1,2,2-Tetrachloroethane	624	5	< 5	ug/L	TAG	8/9/08	0618
1,2-Dichloropropane	624	5	< 5	ug/L	TAG	8/9/08	0618
Trichloroethene	624	5	< 5	ug/L	TAG	8/9/08	0618
Dibromochloromethane	624	5	< 5	ug/L	TAG	8/9/08	0618
1,1,2-Trichloroethane	624	5	< 5	ug/L	TAG	8/9/08	0618
Benzene	624	5	< 5	ug/L	TAG	8/9/08	0618
Bromoform	624	5	< 5	ug/L	TAG	8/9/08	0618
Tetrachloroethene	624	5	< 5	ug/L	TAG	8/9/08	0618
Toluene	624	5	< 5	ug/L	TAG	8/9/08	0618
Chlorobenzene/Monochlorobenzene	624	5	< 5	ug/L	TAG	8/9/08	0618
Ethylbenzene	624	5	< 5	ug/L	TAG	8/9/08	0618
Acrolein	624	50	< 50	ug/L	TAG	8/9/08	0618
Acrylonitrile	624	50	< 50	ug/L	TAG	8/9/08	0618
1,3-Dichloropropene(cis & trans)	624	5	< 5	ug/L	TAG	8/9/08	0618
1,2-Dichlorobenzene	624	5	< 5	ug/L	TAG	8/9/08	0618
1,3-Dichlorobenzene	624	5	< 5	ug/L	TAG	8/9/08	0618
1,4-Dichlorobenzene	624	5	< 5	ug/L	TAG	8/9/08	0618
Semi-Volatiles							
Hexachloroethane	625	5	< 5	ug/L	CLH	8/14/08	1816
1,2,4-Trichlorobenzene	625	5	< 5	ug/L	CLH	8/14/08	1816
Hexachlorobutadiene	625	5	< 5	ug/L	CLH	8/14/08	1816
Hexachlorocyclopentadiene	625	5	< 5	ug/L	CLH	8/14/08	1816

REPORT OF ANALYSIS

SAMPLE ID: FINAL EFFLUENT
SAMPLE NO: 08-14153

Parameter	Method Number	JRA QL	Result	Unit	Analyst	Date	Time
Semi-Volatiles							
2-Chloronaphthalene	625	5	< 5	ug/L	CLH	8/14/08	1816
Hexachlorobenzene	625	5	< 5	ug/L	CLH	8/14/08	1816
N-Nitrosodimethylamine	625	5	< 5	ug/L	CLH	8/14/08	1816
Bis(2-chloroethyl) ether	625	5	< 5	ug/L	CLH	8/14/08	1816
Bis(2-chloroisopropyl) ether	625	5	< 5	ug/L	CLH	8/14/08	1816
N-Nitroso-di-n-propylamine	625	5	< 5	ug/L	CLH	8/14/08	1816
Nitrobenzene	625	5	< 5	ug/L	CLH	8/14/08	1816
Isophorone	625	5	< 5	ug/L	CLH	8/14/08	1816
Dimethyl phthalate	625	5	< 5	ug/L	CLH	8/14/08	1816
Acenaphthene	625	5	< 5	ug/L	CLH	8/14/08	1816
2,4-Dinitrotoluene	625	5	< 5	ug/L	CLH	8/14/08	1816
Fluorene	625	5	< 5	ug/L	CLH	8/14/08	1816
Diethyl phthalate	625	5	< 5	ug/L	CLH	8/14/08	1816
1,2,-Diphenylhydrazine	625	5	< 5	ug/L	CLH	8/14/08	1816
N-nitroso-di-phenylamine	625	5	< 5	ug/L	CLH	8/14/08	1816
Anthracene	625	5	< 5	ug/L	CLH	8/14/08	1816
di-n-Butyl phthalate	625	5	< 5	ug/L	CLH	8/14/08	1816
Fluoranthene	625	5	< 5	ug/L	CLH	8/14/08	1816
Pyrene	625	5	< 5	ug/L	CLH	8/14/08	1816
Benzidine	625	5	< 5	ug/L	CLH	8/14/08	1816
Butyl benzyl phthalate	625	5	< 5	ug/L	CLH	8/14/08	1816
Benzo[a]Anthracene	625	5	< 5	ug/L	CLH	8/14/08	1816
Chrysene	625	5	< 5	ug/L	CLH	8/14/08	1816
3,3-Dichlorobenzidine	625	5	< 5	ug/L	CLH	8/14/08	1816
Bis(2-ethylhexyl) phthalate	625	5	< 5	ug/L	CLH	8/14/08	1816
Benzo[b]Fluoranthene	625	5	< 5	ug/L	CLH	8/14/08	1816
Benzo[k]Fluoranthene	625	5	< 5	ug/L	CLH	8/14/08	1816
Benzo[a]Pyrene	625	5	< 5	ug/L	CLH	8/14/08	1816
Indeno[1,2,3-c,d]Pyrene	625	5	< 5	ug/L	CLH	8/14/08	1816
Dibenz[a,h]Anthracene	625	5	< 5	ug/L	CLH	8/14/08	1816
2-Chlorophenol	625	5	< 5	ug/L	CLH	8/14/08	1816
Phenol	625	5	< 5	ug/L	CLH	8/14/08	1816
2,4-Dimethylphenol	625	5	< 5	ug/L	CLH	8/14/08	1816
2,4-Dichlorophenol	625	5	< 5	ug/L	CLH	8/14/08	1816
2,4,6-Trichlorophenol	625	5	< 5	ug/L	CLH	8/14/08	1816
2,4-Dinitrophenol	625	20	< 20	ug/L	CLH	8/14/08	1816
4,6 Dinitro-o-cresol	625	5	< 5	ug/L	CLH	8/14/08	1816
Pentachlorophenol	625	10	< 10	ug/L	CLH	8/14/08	1816
Organophosphorous Pesticides							
Demeton	622	1	< 1	ug/L	DLL	8/19/08	0517
Malathion	622	1	< 1	ug/L	DLL	8/19/08	0517
Chlorpyrifos	622	0.2	< 0.2	ug/L	DLL	8/19/08	0517
Parathion	622	1	< 1	ug/L	DLL	8/19/08	0517
Guthion	622	1	< 1	ug/L	DLL	8/19/08	0517
Chlorinated Pesticides and PCBs							
Aldrin	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Dieldrin	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Chlordane	608	0.2	< 0.2	ug/L	DLL	8/7/08	1008

REPORT OF ANALYSIS

SAMPLE ID: FINAL EFFLUENT
SAMPLE NO: 08-14153

Parameter	Method Number	JRA QL	Result	Unit	Analyst	Date	Time
Chlorinated Pesticides and PCBs							
4,4-DDT	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
4,4-DDE	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
4,4-DDD	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Endosulfan I	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Endosulfan II	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Endosulfan sulfate	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Endrin	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Endrin aldehyde	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Heptachlor	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Heptachlor epoxide	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
BHC-Alpha	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
BHC-Beta	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
BHC-Gamma (Lindane)	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Methoxychlor	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Mirex (Modified)	608	0.05	< 0.05	ug/L	DLL	8/7/08	1008
Toxaphene	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Arochlor 1016	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Arochlor 1221	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Arochlor 1232	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Arochlor 1242	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Arochlor 1248	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Arochlor 1254	608	0.2	< 0.2	ug/L	DLL	8/7/08	1008
Arochlor 1260	608	0.2	< 0.2	ug/L	DLL	8/7/08	1008
Total Arochlors	608	0.5	< 0.5	ug/L	DLL	8/7/08	1008
Chlorinated Herbicides							
2,4-D	615	0.2	< 0.2	ug/L	DLL	8/10/08	1346
2,4,5-TP	615	0.2	< 0.2	ug/L	DLL	8/10/08	1346
Dissolved Antimony	200.7	0.005	< 0.005	mg/L	EFA	8/14/08	1437
Dissolved Arsenic	200.7	0.005	< 0.005	mg/L	EFA	8/14/08	1437
Dissolved Barium	200.7	0.005	0.010	mg/L	EFA	8/14/08	1437
Dissolved Cadmium	200.7	0.0005	< 0.0005	mg/L	EFA	8/14/08	1437
Dissolved Chromium III	200.7	0.003	< 0.003	mg/L	EFA	8/14/08	1437
Dissolved Copper	200.7	0.005	0.010	mg/L	EFA	8/14/08	1437
Dissolved Iron	200.7	0.010	0.053	mg/L	EFA	8/14/08	1437
Dissolved Lead	200.7	0.005	< 0.005	mg/L	EFA	8/14/08	1437
Dissolved Manganese	200.7	0.005	0.006	mg/L	EFA	8/14/08	1437
Dissolved Mercury	245.1	0.0002	< 0.0002	mg/L	EFA	8/14/08	1437
Dissolved Nickel	200.7	0.005	< 0.005	mg/L	LEF	8/14/08	1225
Dissolved Selenium	200.7	0.005	< 0.005	mg/L	EFA	8/14/08	1437
Dissolved Silver	200.7	0.001	< 0.001	mg/L	EFA	8/14/08	1437
Dissolved Thallium	200.7	0.005	< 0.005	mg/L	EFA	8/14/08	1437
Dissolved Zinc	200.7	0.005	0.031	mg/L	EFA	8/14/08	1437
Kepone	8270C	5	< 5	ug/L	CLH	8/14/08	1816
Cyanide	335.4	0.005	< 0.005	mg/L	LEF	8/7/08	1735
Dissolved Hexavalent Chromium	*3500Cr B	0.003	< 0.003	mg/L	EFA	8/6/08	1048
Strontium 90	905.0	0.5	<0.5	pCi	JE	9/30/08	0000
Tritium	906.0	143	<143	pCi	JE	10/9/08	0000
Gross Beta	900.0	1.6	14.2	pCi	MJN	8/20/08	1355

REPORT OF ANALYSIS

SAMPLE ID: FINAL EFFLUENT
SAMPLE NO: 08-14153

Parameter	Method Number	JRA QL	Result	Unit	Analyst	Date	Time
Foaming Agents	*5540C	0.05	0.10	mg/L	LEF	8/7/08	1032
Sulfate	SM15/426C	5	31	mg/L	LEF	8/18/08	0859
pH (lab)	*4500H+B		7.70@19oC	s.u.	JGM	8/6/08	1105
Conductivity	*2510B	2	716	umhos/c	JGM	8/6/08	1105
Hydrogen Sulfide	*4500S2H	0.029	< 0.029	mg/L	EFA	8/8/08	1350
Tributyltin	NBSIR-85-329	0.025	< 0.025	ug/L	DAT	8/11/08	1604
Dioxin(2,3,7,8 TCDD)	1613	10	<10	pg/L	PAC	8/15/08	1147
Cobalt 60	901.1	2.8	<2.8	pCi	JE	8/26/08	0000
Gross Alpha	900.0	1.8	<1.8	pCi	MJN	8/20/08	1355
Cesium 134	901.1	2.8	<2.8	pCi	JE	8/26/08	0000
Cesium 137	901.1	2.7	<2.7	pCi	JE	8/26/08	0000

NOTES:

JRA Quantification Level is the concentration of the lowest calibration standard above zero with a reliable signal.

Reproduction of this report is not permitted, except in full, without written approval from James R Reed & Associates.

[SAMPLE COMMENT]

RE: Alberta

RESPECTFULLY SUBMITTED

Elaine Claiborne

Elaine Claiborne
Laboratory Director
Date: 16-Oct-08

Dissolved Metals filtered and preserved in the field
*SM 20 Ed.
TBT subcontracted to DAT Laboratories.
Radiological subcontracted to Florida Radiochemistry.
2,3,7,8-TCDD subcontracted to Pace Analytical.
Endosulfan I = Alpha Endosulfan
Endosulfan II = Beta Endosulfan
Bis (2-ethylhexyly) phthalate = Di-2-Ethylhexyl phthalate
4,6 Dinitro-o-cresol = 2 Methyl 4,6 Dinitrophenol
Bromomethane = Methyl bromide
Bromodichloromethane = Dichlorobromomethane
Dibromochloromethane = Chlorodibromomethane

Attachment 8 – TMDL Fact Sheet

2002 PART 1A IMPAIRED WATERS FACT SHEET

RIVER BASIN: CHOWAN RIVER AND DISMAL SWAMP BASIN

CITY/COUNTY: Brunswick

STREAM NAME: Roses Creek

HYDROLOGIC UNIT: 03010204

SEGMENT ID.: VAP-K07R_RSE01A96

SEGMENT SIZE: 3.02 - Miles

INITIAL LISTING: 1996 **TMDL Schedule** 2001 - 2004

UPSTREAM LIMIT:

DESCRIPTION: Town of Alberta STP discharge

RIVER MILE: 9.83

LATITUDE: 36.84060 **LONGTITUDE:** -77.09110

DOWNSTREAM LIMIT:

DESCRIPTION: Route 646 bridge

RIVER MILE: 6.68

LATITUDE: 38.81167 **LONGTITUDE:** -77.88250

From the Alberta Sewage Treatment Plant (STP) discharge to the Route 646 bridge. Nested in VAP-K07R-02.

CLEAN WATER ACT GOAL AND USE SUPPORT:
Aquatic Life Use - Partially Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

Roses Creek from the Alberta STP discharge downstream to the Route 646 bridge was initially included on the 1996 303(d) list based on a special benthic survey performed below the STP in 1993.

The overall biological assessment for the 1998 305(b) cycle was not impaired, and there has been significant improvement since 1994. However, in 1998 there was a significant decline in the stream resulting from discharges at the Alberta STP.

IMPAIRMENT SOURCE PS - Municipal, NPS - Silviculture, Unknown

The General Standard impairment in Roses Creek was attributed to nonpoint source runoff resulting from logging operations in the watershed upstream of the monitoring station at the Route 646 bridge, and to the Alberta STP discharge. Significant improvement has been noted since 1994, with the notable exception of discharger-caused degradation in 1998. Continued monitoring to gauge the effects of the discharge on water quality in this segment is recommended.

2002 PART 1A IMPAIRED WATERS FACT SHEET

RIVER BASIN: CHOWAN RIVER AND DISMAL SWAMP BASIN

CITY/COUNTY: Brunswick

STREAM NAME: Roses Creek

HYDROLOGIC UNIT: 03010204

SEGMENT ID.: VAP-K07R_RSE02A96

SEGMENT SIZE: 9.85 - Miles

INITIAL LISTING: 1996 **TMDL Schedule** 2001 - 2004

UPSTREAM LIMIT:

DESCRIPTION: Town of Alberta STP discharge

RIVER MILE: 9.83

LATITUDE: 36.84060 **LONGTITUDE:** -77.09110

DOWNSTREAM LIMIT:

DESCRIPTION: Great Creek confluence

RIVER MILE: 0.00

LATITUDE: 36.74360 **LONGTITUDE:** -77.83600

From the Alberta Sewage Treatment Plant discharge to the mouth at Great Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:
Swimmable Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform

Roses Creek from the Alberta STP discharge downstream to its mouth at Great Creek was evaluated partially supporting of the Swimmable use support goal based on a fecal coliform standard violation rate of 11/26 at the Route 678 bridge (5ARSE001.22).

IMPAIRMENT SOURCE Unknown, PS - Municipal

The impairment in this segment is potentially the result of operational problems at the Alberta STP. However, because fecal coliform monitoring performed on the Meherrin River resulted in impaired designations in adjacent watersheds, additional monitoring and source identification is necessary to identify the true source of the violations.

Attachment 9 –

January 1999 Permit Ammonia Evaluation
&
December 21, 1993 Flow Frequency Determination Memo

JANUARY 1999 TERMINAL AMMONIA EVALUATION

Summer

Analysis of the Alberta P effluent data
Averaging period for standard = 4 days

The statistics for ammonia are:

Number of values	=	1
Quantification level	=	.2
Number < quantification	=	0
Expected value	=	9
Variance	=	29.16001
C.V.	=	.6
97th percentile	=	21.90076
Statistics used	=	Reasonable potential assumptions - Type 2 data

The WLAs for ammonia are:

Acute WLA	=	11.95
Chronic WLA	=	1.32
Human Health WLA	=	----

Limits are based on chronic toxicity and 1 samples/month, 1 samples/week

Maximum daily limit	=	1.930599
Average weekly limit	=	1.930599
Average monthly limit	=	1.930599

Note: The maximum daily limit applies to industrial dischargers
The average weekly limit applies to POTWs
The average monthly limit applies to both.

The Data are
9

January 1999 Permit Ammonia Evaluation

Winter

Analysis of the Alberta P effluent data for ammon. winter
Averaging period for standard = 4 days

The statistics for ammonia winter are:

Number of values	=	1
Quantification level	=	.2
Number < quantification	=	0
Expected value	=	9
Variance	=	29.16001
C.V.	=	.6
97th percentile	=	21.90076
Statistics used	=	Reasonable potential assumptions - Type 2 data

The WLAs for ammonia winter are:

Acute WLA	=	27.54
Chronic WLA	=	6.17
Human Health WLA	=	----

Limits are based on chronic toxicity and 1 samples/month, 1 samples/week

Maximum daily limit	=	9.024087
Average weekly limit	=	9.024087
Average monthly limit	=	9.024087

Note: The maximum daily limit applies to industrial dischargers
The average weekly limit applies to POTWs
The average monthly limit applies to both.

The Data are
9

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination - Amendment
Town of Alberta STP - VA#0026816

TO: Diane Osborne, PRO

FROM: Paul Herman, OWRM-WQAP Paul

DATE: December 21, 1993

COPIES: Ron Gregory, Charles Martin, Dale Phillips, Curt Wells, D.X. Ren, File

Per your request, I am providing the 1Q10 and 7Q10 flow frequencies for the low temperature months November through April and also the 1Q10 for the high flow months of January through April. The flow frequencies for the reference gage and the discharge point are listed below.

Great Creek near Cochran, VA (#02051600):

Drainage Area	= 30.7 mi^2	
1Q10	= 3.22 cfs	(November - April)
7Q10	= 3.67 cfs	(November - April)
High Flow 1Q10	= 6.8 cfs	(January - April)

Roses Creek at discharge point:

Drainage Area	= 2.43 mi^2	
1Q10	= 0.25 cfs	(November - April)
7Q10	= 0.29 cfs	(November - April)
High Flow 1Q10	= 0.54 cfs	(January - April)

If you have any questions concerning the amended flow frequencies listed above please let me know.