



NRO-135-10

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

Douglas W. Domenech
Secretary of Natural Resources

13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Northern Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

CITGO Petroleum – Fairfax Terminal
Fairfax, Virginia

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, CITGO Petroleum has applied for a Title V Operating Permit for its Fairfax Terminal located in Fairfax City, Virginia. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: _____ Date: _____
Gary Beeson – (703) 583-3969

Air Permit Manager: _____ Date: _____
Terry H. Darton – (703) 583-3845

Regional Director: _____ Date: _____
Tom A. Faha – (703) 583-3810

FACILITY INFORMATION

Permittee

CITGO Petroleum Corporation
9600 Colonial Ave.
Fairfax City, Virginia 22031

Facility

CITGO Petroleum – Fairfax Terminal
9600 Colonial Ave.
Fairfax City, Virginia 22031

County-Plant Identification Number: 51-059-0063

SOURCE DESCRIPTION

NAICS Code: 424710 - Petroleum Bulk Stations and Terminals

CITGO Petroleum operates a bulk petroleum storage and transfer terminal at its Fairfax City location. The facility stores various grades of gasoline, distillate oil, and ethanol in large above ground storage tanks and dispenses this fuel to tanker trucks through a five lane loading rack. The emissions of volatile organic compounds (VOC) generated by dispensing fuel through the loading rack are controlled by a vapor combustion unit (VCU) equipped with temperature and flame sensing Continuous Parameter Monitoring Systems (CPMS) are operated to monitor the parameters indicative of proper operation of the VCU.

This terminal has 12 above ground storage tanks (6 for fuel and 6 for additives and daily operation), including five (5) vertical tanks with internal floating roofs for storing gasoline, reformulated gasoline, distillate oil, or ethanol. The source also has a five-lane loading rack for gasoline, distillate oil, and other products equipped with a John Zink Vapor Combustion Unit (VCU) to control VOC emissions from the loading rack.

The facility is a Title V major source of VOC's. This source is located in a non-attainment area for Ozone. The facility is permitted under a Minor NSR Permit issued on May 1, 2006.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit was conducted on March 19, 2009. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, were evaluated for compliance. Based on these compliance evaluations, the facility was not found to be in violation of any state or federal applicable requirements at that time.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Storage Equipment							
TK-1	---	Aboveground Gasoline/Distillate Oil/Ethanol Storage Tank	3,093,930 gal	Internal Floating Roof with Vapor Mounted Primary Seal	---	VOC	May 1, 2006 and exemption letter 8/27/09
TK-2	---	Aboveground Gasoline/Distillate Oil/Ethanol Storage Tank	828,828 gal	Internal Floating Roof with Primary and Secondary Seals	---	VOC	May 1, 2006
TK-3	---	Aboveground Gasoline/Distillate Oil/Ethanol Storage Tank	1,290,786 gal	Internal Floating Roof with Primary and Secondary Seals	---	VOC	May 1, 2006 and exemption letter 8/27/09
TK-4	---	Aboveground Distillate Oil Storage Tank – Fixed Roof	4,859,316 gal	---	---	VOC	May 1, 2006
TK-6	---	Aboveground Gasoline/Distillate Oil/Ethanol Storage Tank	2,035,152 gal	Internal Floating Roof with Primary and Secondary Seals	---	VOC	May 1, 2006 and exemption letter 8/27/09
TK-7	---	Aboveground Gasoline/Distillate Oil/Ethanol Storage Tank	3,226,9025 gal	Internal Floating Roof with Primary and Secondary Seals	---	VOC	May 1, 2006 and exemption letter 8/27/09
Fuel Dispensing Equipment							
R-1	VCU-1	Truck Loading Rack	Gasoline: 180,000 gal/hr Distillate Oil: 225,000 gal/hr	John Zink, Model ZCT-3-8-45-X-2/2-2/8	VCU-1	VOC's	May 1, 2006

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

A copy of the 2009 detailed annual emission summary is attached. Emissions are summarized in the following tables.

Table 1 – 2009 Actual Emissions

Emission Unit	VOC	CO	NO _x
Tanks 1, 2, 3, 5, and 6 Breathing Losses	10.8	—	—
Tanks 1, 2, 3, 5, and 6 Working Losses	2.2	—	—
Tanks 4 and 7 Breathing Losses	0.4	—	—
Tanks 4 and 7 Working Losses	0.4	—	—
Tanks 4 and 7 Tank Loading	0.9	—	—
Loading Rack Gasoline (VCU)	11.4	4.8	1.9
Fugitive Emissions	0.4	—	—
TOTAL	26.5	4.8	1.9

Table 2 – 2009 Facility Hazardous Air Pollutant Emissions

Pollutant	2009 Hazardous Air Pollutant Emission in Tons/Yr
Benzene	0.2
Toluene	0.7

EMISSION UNIT APPLICABLE REQUIREMENTS

Applicable requirements affecting these emission units originate from several sources including the following: minor New Source Review Permit dated May 1, 2006, State Rule 4-37 – Emission Standards for Petroleum Storage and Transfer Operations, the New Source Performance Standards 40 CFR 60, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage, 40 CFR 60, Subpart XX – Standards of Performance for Bulk Gasoline Terminals. Permit condition citations reflect the relevant applicable requirement. Compliance Assurance Monitoring (CAM), which is an applicable regulation, is addressed in a separate section below.

1. Limitations

a. Storage and Processing Equipment requirements

- i. Conditions III.A.1 through 3 reflect emissions control requirements contained in the applicable Rule 4-37 for gasoline storage, Subpart Kb for ethanol storage and Subpart XX for gasoline transfer through the loading rack, as incorporated into the minor NSR permit dated May 1, 2006.
- ii. Conditions III.A.4 and 5 incorporate the flame sensing device and temperature monitoring requirements contained with the minor NSR permit, but also serve to address and elaborate on the CAM plan.
- iii. Conditions III.A.6 through 9 establish the vapor collection system and tank truck requirements contained within Subpart XX, as incorporated into the minor NSR permit dated May 1, 2006.

b. Operational and Emissions Limitations

- i. Conditions III.B.1 through 3 incorporate throughput limits on gasoline, distillate and ethanol contained within the minor NSR permit.
- ii. Conditions III.B.4 through 8 incorporate the emission limits contained with the minor NSR permit that reflect the above throughput limits.

2. Monitoring

- a. Conditions III.C.1 through 4 establish monitoring and inspection requirements intended to satisfy CAM and are described in more detail under the section title Compliance Assurance Monitoring. The facility only operates on a Monday through Friday schedule and therefore the check of the temperature monitoring system for proper operation is required on each facility operating day.
- b. Conditions III.C.5 through 8 incorporate tank and vapor processing system inspection requirements contained within Subparts Kb and XX, and the minor NSR permit which adopts inspection requirements from Rule 4-37.
- c. There is no monitoring for the visible emission requirement. Operation of the current facility will not result in visible emissions.

3. Compliance Assurance Monitoring

- a. Compliance assurance monitoring (CAM) applicable conditions are conditions III.A.4, III.A.5, III.C.1, III.C.2, III.C.3, and, III.C.4.
- b. The intent of CAM is to provide tools to ensure proper operation of control equipment used to comply with specific emission limits or standards, and to provide a reasonable assurance of compliance with that emissions limit. The control device for which CAM applies at this facility is the vapor combustion unit (VCU) used to comply with the emission limit of 10 mg/L per the permit limit of the May 1, 2006 NSR permit. A VCU combusts hydrocarbon laden gases generated during the loading of petroleum products (gasoline and distillate fuels).

- c. CITGO's John Zink VCU consists of two "flare" type burners each equipped with a pilot flame. When significant pressure builds up in the vapor pipeline from the loading rack, the pilot flame will ignite the displaced vapors in much the same way as a candle flare, but in an enclosed cylinder. The VCU system is also equipped with a temperature monitoring device located at approximately the 20 ft stack elevation (on a 40 ft stack) and dampers/louvers that control intake air necessary to complete combustion. An electronic control system manages the opening and closing of the dampers/louvers depending on the temperature registered at the monitor. Dampers are closed to increase air flow and aid combustion, particularly during low displaced vapor flow when temperatures are lower, and are opened when temperatures reach 1400°F – 1500°F to prevent over heating. Note that the temperature monitor reacts to the exhaust gas temperature and not the combustion process directly due to its elevated location.
- d. The John Zink Company, LLC guarantees the emission level will be achieved based on five conditions:
 - i. proper operation as per manufacturer's instructions,
 - ii. displacement of hydrocarbons normally found in gasoline vapors,
 - iii. appropriate EPA reference method tests of 6-hour duration are used to determine emissions,
 - iv. there are no vapors processed from improper truck or pipe sealing techniques, and
 - v. when temperatures fall below 500 degrees F, assist gas may be needed to achieve the 10 mg/L standard.

The CAM plan provided by the permittee and augmented during development of this permit, relies on satisfying these five conditions and is described below. The permittee's CAM plan is attached as an Appendix to this document.

- e. CAM requirements are addressed through conditions III.A.4, III.A.5, III.C.1, III.C.2, III.C.3, III.C.4, and III.E.3 and satisfy the above criteria as follows.
 - i. The flame sensing device ensures that the pilot flame is properly operating at the time of vapor displacement. An alarm is triggered when the pilot flame is not detected. When this occurs a loading permissive at the loading rack is removed, denying trucks the opportunity to load fuel. The flame sensing device is equipped to fail in the safe mode.
 - ii. The temperature monitor and temperature control system serve to ensure proper operation and appropriate combustion.
 - iii. A stack test of the VCU will be required once each permit term to confirm direct compliance with the emissions limit of 10 mg/l as defined in Condition III.B.5. Any application shield in effect are considered a part of the permit term and testing will continue on the five year cycle.
 - iv. Vapor processing inspection requirements (established by Subpart XX) ensure that proper truck or pipe sealing techniques are employed.

- v. A minimum temperature of 200° F at the temperature monitor during combustion of displaced vapors ensures that no assist gas is required. This establishes that compliance with this condition take into account the time it takes for temperature of the exhaust gas to be raised to 200 F due to the elevated location of the monitor.
- f. Condition III.B.7 establishes both short term and annual emission limits for carbon dioxide (CO) and oxides of nitrogen (NO_x). Each of these emissions is related to proper operation and maintenance of the facility and in the case of NO_x, the temperature of the exhaust gases.
 - i. CO is a product on incomplete combustion and by using the flame sensor and the temperature monitoring devices, there is a reasonable assurance that the VCU is in proper operation and maintenance and that complete combustion is occurring within the VCU.
 - 1. The flame sensor insures that the flame in the exhaust is operational; otherwise the safety system shuts down the loading rack until the flame is re-established, and insuring that there is ignition of the vapors in the exhaust stream.
 - 2. The temperature sensor indicates that the exhaust gas temperature meets the manufactures requirements to indicate proper combustion of the vapors which minimizes the production of CO.
 - ii. NO_x formation occurs by three fundamentally different mechanisms. The principals are of three types;
 - 1. Thermal NO_x – Most NO_x formed through the thermal NO_x mechanism occurs in the high temperature flame zone near the burners. The formation of thermal NO_x is affected by three factors: (1) oxygen concentration, (2) peak temperature, and (3) time of exposure at peak temperature. Since the temperature in the burner zone of the VCU is much below the temperature in which NO_x is produced, monitoring the temperature in the burner zone provides a reasonable assurance that the generation of thermal NOX is minimal.
 - 2. Prompt NOX – The second mechanism of NO_x formation, called prompt NO_x, occurs through early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals from the fuel. Prompt NOX reactions occur within the flame and are usually negligible when compared to the amount of NO_x formed through the thermal NO_x mechanism. Again, monitoring the flame sensor and the temperature device provides reasonable assurance that there is negligible NO_x.
 - 3. The third mechanism of NO_x formation, called fuel NO_x, stems from the evolution and reaction of fuel-bound nitrogen compounds with oxygen. Due to the characteristically low fuel nitrogen content of vapors, NO_x formation through the fuel NO_x mechanism is insignificant.

4. Recordkeeping

Condition III.D.1 through III.D.3 includes requirements for maintaining records of all monitoring and testing required by the permit. These records include:

- a. Tanker Truck Vapor Tightness Documentation
- b. Vapor Tight Tank Trucks: Tank Truck Identification
- c. Records of all emission data and operating parameters necessary to demonstrate compliance with this permit.

5. Testing

A VOC performance test is required within the term of this permit to demonstrate compliance with the limit of 10 mg/L as defined in Condition III.B.5. Should it be necessary to conduct additional testing, the method and procedures shall be coordinated with the Air Compliance Manager of DEQ's NRO. Testing protocols are required to be submitted and approved by DEQ prior to any testing. The Department and EPA has authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard

6. Reporting

Condition III.F requires a report following the annual visual inspection of the tanks should any of the conditions required in Condition III.C.7 exists.

7. Streamlined Requirements

- a. The conditions of 40 CFR 60.502(b) (Subpart XX) establishes a VOC limit from the vapor collection system of 35 mg/L is streamlined by the more stringent requirement of 10 mg/L established by the minor NSR permit dated 5/1/06.
- b. The May 1, 2006 NSR permit included the construction of the ethanol tank, TK-13. This tank was never built and therefore all conditions of that permit related to the TK-13 are not applicable as defined in Condition 33 of the May 1, 2006 NSR permit. The conditions which are not included in this Title V permit are:
 - i. Condition 2 – this piece of equipment was not built and is therefore not included in the Title V equipment list
 - ii. Condition 4
 - iii. Condition 16
 - iv. Condition 17
 - v. Condition 25
 - vi. Condition 29.e
 - vii. Condition 29.f – only the reference to TK-13 is not in the Title V permit

- viii. Condition 29.k
- ix. Condition 29.l
- x. Condition 30
- xi. Condition 31.a
- xii. Condition 33

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement No. 2-2003".

This general condition cite(s) the Article(s) that follow(s):
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80 – Application

9 VAC 5-80-140 – Permit Shield

9 VAC 5-80-150 – Action on Permit Applications

F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

- 9 VAC 5-40-41 – Emissions Monitoring Procedures for Existing Sources
- 9 VAC 5-40-50 – Notification, Records and Reporting
- 9 VAC 5-50-50 – Notification, Records and Reporting

J. Permit Modification

This general condition cites the sections that follow:

- 9 VAC 5-80-50 – Applicability, Federal Operating Permit for Stationary Sources
- 9 VAC 5-80-190 – Changes to Permits.
- 9 VAC 5-80-260 – Enforcement.
- 9 VAC 5-80-1100 – Applicability, Permits for New and Modified Stationary Sources
- 9 VAC 5-80-1790 – Applicability, Permits for Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000 – Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas]

U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

- 9 VAC 5-20-180 – Facility and Control Equipment Maintenance or Malfunction
- 9 VAC 5-80-110 – Permit Content

FUTURE APPLICABLE REQUIREMENTS

The gasoline distribution bulk terminal is a not subject to 40 CFR 63, Subpart R and is therefore subject to 40 CFR 63, Subpart BBBBBB. The facility is defined as an existing source and as such must comply with the standards in this subpart no later than January 10, 2011. The facility will be subject to those requirements no later than that date.

INAPPLICABLE REQUIREMENTS

The permittee did not identify any inapplicable requirements

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation ¹	Pollutant Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
TK-5	Fixed Coned Roof Slop Tank - 1964	9 VAC 5-80-720 B	VOC	21,000 gal
TK-9	Gasoline Additive Tank, Horizontal Fixed Roof - 1996	9 VAC 5-80-720 B	VOC	9,000 gal
TK-10	Rack Pour Back Tank, Horizontal Fixed Roof - 1997	9 VAC 5-80-720 B	VOC	3,600 gal
TK-11	Distillate Additive Tank, Horizontal Fixed Roof - 1998	9 VAC 5-80-720 B	VOC	3,000 gal
TK-12	Red Dye Tank, Horizontal Fixed Roof - 1980	9 VAC 5-80-720 B	VOC	550 gal
TK-14	Lubricity additive tank	9 VAC 5-80-720 B	VOC	9,700 gal
OWS	Oil Water Separator	9 VAC 5-80-720 B	VOC	8,000 gal

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in The Examiner on February 4, 2010 and remained open for public comment from February 5, 2010 to March 8, 2010.

APPENDIX

**Compliance Assurance Monitoring Plan
For the
Vapor Combustion Unit**

CITGO FAIRFAX TERMINAL
9600 Colonial Ave.
Fairfax City, VA 22031

Compliance Assurance Monitoring(CAM) Plan
for the Vapor Combustion Unit

Developed March 15, 2004

Monitoring Approach Submittal

I. Background

A. Emissions Unit

Description: John Zinc Vapor Combustion Unit

Identification: VCU-1

Location: Fairfax City, VA

B. Applicable Regulation, Emission Limits, and Monitoring Requirements

Regulation Number: Title V Permit

Pollutant: VOC Emission Limit: 10 mg/L

Pollutant: VOC Emission Limit: 90% Control

Monitoring Requirements: Continuous Monitor Chamber Temperature, Visible Emissions,
Quarterly Preventative Maintenance

C. Monitoring Approach

The key elements of the monitoring approach are presented in Table 1.

Table 1

<u>Indicator No. 1</u>	
<u>I. Indicator</u>	Photoelectric eye
Measurement Approach	Unless a pilot flame is detected, vapors cannot be introduced into the VCU
<u>II. Indicator Range</u>	If no pilot flame is detected, the vapor loading permissive is removed
<u>III. Performance Criteria</u>	
A. Data Representativeness	Not Applicable
B. Verification of Operational Status	If a positive signal is not received, the loading permissive is removed
C. QA/QC Practices and Criteria	It is designed to fail in the safe mode, quarterly inspections
D. Monitoring Frequency	Upon startup and continuous during operation
Data Collection Procedures	Not Applicable
Averaging Procedures	None

Table 1 (cont.)

	<u>Indicator No. 2</u>
<u>I. Indicator</u>	Chamber Temperature
Measurement Approach	The temperature is monitored with a thermocouple
<u>II. Indicator Range</u>	200-1500 deg F during normal operations indicates Proper operation as verified by stack tests
<u>III. Performance Criteria</u>	
A. Data Representativeness	The sensor is located in the vapor combustion chamber.
B. Verification of Operational Status	It is checked during daily walkthroughs
C. QA/QC Practices and Criteria	none
D. Monitoring Frequency	Measured continuously
Data Collection Procedures	Verified to be in correct operating range by terminal operator
Averaging Procedures	No average is taken

Table 1 (cont.)

	<u>Indicator No. 3</u>
<u>I. Indicator</u>	Stack Test
Measurement Approach	A state-approved stack test is conducted every 5 years
<u>II. Indicator Range</u>	As dictated by 40 CFR60, Subpart XX requirements
<u>III. Performance Criteria</u>	
A. Data Representativeness	As per EPA Methods
B. Verification of Operational Status	Not Applicable
C. QA/QC Practices and Criteria	As per EPA Methods
D. Monitoring Frequency	Once every 5 years
Data Collection Procedures	As per EPA Methods
Averaging Procedures	Once per minute

Table 1 (cont.)

	<u>Indicator No. 4</u>
<u>I. Indicator</u>	Work Practice
Measurement Approach	Quarterly Inspection and Maintenance of the burner
<u>II. Indicator Range</u>	Not Applicable
<u>III. Performance Criteria</u>	
A. Data Representativeness	Not Applicable
B. Verification of Operational Status	Not Applicable
C. QA/QC Practices and Criteria	Not Applicable
D. Monitoring Frequency	Quarterly Inspections
Data Collection Procedures	Records Maintained
Averaging Procedures	Not Applicable

Monitoring Approach Justification

Background

The facility is a petroleum bulk storage terminal which ships product out through the truck loading rack which utilizes the VCU as a control device. The five-lane truck loading rack is the only source to this control device. The vapor contents from the loading of gasoline and distillates are directed to the VCU during loading.

Rational for Selection of Performance Indicators

The photoelectric eye is the best indicator that the unit will operate properly or loading will be interrupted until the proper pilot flame is detected. The unit is very simple in design and the presence of a pilot light alone has shown that the unit will control vapors to meet the 10 mg/l permit limit and 90% control efficiency requirements.

The stack temperature device and recorder show that the VCU temperature is within the 200-1500 deg F range during normal operations. These temperatures have been correlated to stack test emissions results of 2.77 mg/l during the 10/3/02 stack test. A copy of the stack test results is attached. There is no minimum temperature required for the VCU to meet the 10 mg/l permit limit. A digital temperature display continuous readout is used to monitor temperature. Temperature readings were observed during the stack test.

The state-approved and observed stack test is the best measure of the control devices actual performance relative to the permitted limit of 10 mg/l. A copy of the 10/3/02 (2.77 mg/l) stack test results is included. The control efficiency during the stack tests of the VCU was 99.70%. The level of detail performed during a stack test precludes this level of accuracy on a more frequent basis.

The work practices required by the permit to conduct quarterly inspection and maintenance of the VCU by a third party ensure that the unit is properly maintained. Records of the work conducted on the VCU are kept in the terminals files.

Rational for Selection of Performance Indicators

The manufacturers design specifications do not stipulate a minimum temperature range to achieve the 10 mg/l permit limit. The VCU will meet the permit limit of 10 mg/L if properly maintained and operated.