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June 18, 2004

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Dear Mr. Rathbun:

**Subject: 2003 Natural Gas Safety Inspection for Bellingham/Mount Vernon and Wenatchee/Moses Lake Districts (PG-030438 and PG-030435 respectively)**

Thank you for your report concerning the December 2003 to March 2004 inspection of our Bellingham, Mount Vernon, and Wenatchee Districts. Cascade's responses to the findings of the report are as follows.

**WUTC - VIOLATIONS**

1. **49 CFR 192.285, Plastic pipe: qualifying persons to make joints.**
  - (a) No person may make a plastic pipe joint unless that person has been qualified under the applicable joining procedure by:
    - (1) Appropriate training or experience in the use of the procedure; and
    - (2) Making a specimen joint from pipe sections joined according to the procedure that passes the inspection and test set forth in paragraph (b) of this section.
  - (b) The specimen joint must be:
    - (1) Visually examined during and after assembly or joining and found to have the same appearance as a joint or photographs of a joint that is acceptable under the procedure; and
    - (2) In the case of a heat fusion, solvent cement, or adhesive joint;
      - (i) Tested under any one of the test methods listed under §192.283(a) applicable to the type of joint and material being tested;
      - (ii) Examined by ultrasonic inspection and found not to contain flaws that would cause failure; or
      - (iii) Cut into at least three longitudinal straps, each of which is:
        - (A) Visually examined and found not to contain voids or discontinuities on the cut surfaces of the joint area; and
        - (B) Deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area.

**WUTC Finding:**

Cascade Natural Gas (CNG) is testing, qualifying and using plastic pipe joiners to make heat fusion butt joints without conducting either the ultrasonic inspection detailed in 192.285(b)(2)(ii) or by the bending, torque, or impact test 192.285(b)(2)(iii)(B).

**Cascade Response:**

During the inspection Mr. Rukke found that Cascade's Company Procedure 607 – PE Main and Service Construction heater plate butt fusion joiner qualification procedures required the Part 192.285(b)(2)(iii)(A) visual examination, but did not require the deformation tests of Part 192.285(b)(2)(iii)(B). An immediate bulletin was sent to both of Cascade's testing labs so that the deformation test would be performed from that point forward. A copy of the bulletin is attached.

Cascade's Company Procedure 607 will be updated to fully incorporate Part 192.285. We will continue to perform the tests prescribed by the bulletin in the interim.

2. **49 CFR 192.13, General**

*(c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.*

**WUTC Finding:**

Parts 192.285(b)(2)(ii) and 192.285(b)(2)(iii)(B) require that when qualifying persons to make plastic pipe joints that the joints be examined by either an ultrasonic inspection or that they be subjected to a bending, torque, or impact test. CNG procedure CP 607.215 does not require that specimen joints be tested by either method.

**Cascade Response:**

Cascade's CP 607.215 does require a bending, torque, or impact test for heater plate sidewall fitting tests, electro-fusion coupler joint tests, and electro-fusion sidewall fitting tests.

CP 607.215 does not require a bending, torque, or impact test for heater plate butt fusion tests. We are currently performing the required tests per the attached bulletin. Cascade's Company Procedure 607 is being updated to incorporate the requirements of Part 192.285(b)(2)(iii)(B) for heater plate butt fusion tests.

3. **49 CFR 192.721, Distribution systems: Patrolling.**

- (a) The frequency of patrolling mains must be determined by the severity of the conditions which could cause failure or leakage, and the consequent hazards to public safety.*
- (b) Mains in places or on structures where anticipated physical movement or external loading could cause failure or leakage must be patrolled -*
  - (1) In business districts, at intervals not exceeding 4 1/2 months, but at least four times each calendar year; and*
  - (2) Outside business districts, at intervals not exceeding 7 1/2 months, but at least twice each calendar year.*

**WUTC Finding:**

The Mt Vernon quarterly Patrols were conducted on April 25, 2002 and again on September 19, 2002. This exceeds the maximum quarterly patrol timeframe of 4 ½ months by approximately 10 days.

**Cascade Response:**

We are examining our management practices for scheduling all maintenance and calibration tasks and will make changes as necessary. We will increase our efforts Company-wide to prevent this scheduling problem in the future.

4. **49 CFR 192.739, Pressure limiting and regulating stations: Inspection and testing.**

*Each pressure limiting station, relief device (except rupture discs), and pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year, to inspections and tests to determine that it is-*

- (a) In good mechanical condition;*
- (b) Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed;*
- (c) Set to control or relieve at the correct pressures consistent with the pressure limits of §192.201(a); and*
  - (d) Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.*

**WUTC Findings:**

- (a) **Mount Vernon District, City of Burlington, Regulator Station R-28.**  
Maintenance was not performed on regulator station R-28 during the calendar year 2003. Documentation indicates that on June 6, 2003 personnel attempted to perform annual maintenance but couldn't due to an inoperable valve. CNG was unable to provide any further documentation indicating that maintenance was performed on this regulator station after December 9, 2002.

(b) **Bellingham District, City of Ferndale, Regulator Station R-137.**

Maintenance was performed on June 15, 2002 and then again on September 20, 2003. This exceeded the maximum 15-month timeframe by approximately 5 days.

**Cascade Response:**

- (a) **Burlington, Regulator Station R-28** – On June 6, 2003, personnel were sent out to inspect the station, but performing the standard maintenance was prevented due to an inoperable valve. They reported this on the form and submitted it to their General Manager. This report was not processed correctly, and the task was recorded as completed.

Subsequent to Mr. Rukke's inspections, the inoperable valve was replaced on March 17, 2004 and the regulator station maintenance was performed on June 10, 2004.

If this task had been processed correctly, the appropriate maintenance would have been performed on time. We will issue additional training to appropriate personnel regarding the requirements to "complete" regulator station maintenance and for the reporting of items requiring further action.

- (b) **Ferndale Regulator Station R-137** – This regulator station was not placed into our maintenance scheduling system correctly. The error was discovered near the 15 month deadline for the maintenance. The work was scheduled, but not completed by the deadline.

We will review our process for adding regulator stations to our scheduling system and make appropriate improvements to our management practices.

5. **49 CFR 192.741(c), Pressure limiting and regulating stations: Telemetering or recording gauges.**

*If there are indications of abnormally high- or low-pressure, the regulator and the auxiliary equipment must be inspected and the necessary measures employed to correct any unsatisfactory operating conditions.*

**WUTC Findings:**

Documentation indicated that the following regulator stations exceeded their established Maximum Allowable Operating Pressure (MAOP):

- (a) **Arlington R-86.** The MAOP of this system is 249 psig. Records indicate that from March 2002 until October 2003 the pressure exceeded 249 psig approximately 70 times. (pressure charts checked and changed once each week)

- (b) **Anacortes – Commercial (no regulator # on documentation).** The MAOP is of this system is 10 psig. Records indicate that from June 2002 through January 2003 the pressure exceeded 10 psig 5 times. (pressure charts checked and changed once each week)
- (c) **Burlington 1955 S. Burlington Blvd. (no regulator # on documentation).** The MAOP of this system is 42 psig. Records indicate that from March 2003 until May 2003 the pressure exceeded 42 psig 7 times. (pressure charts checked and changed once each week)
- (d) **Burlington R-19.** The MAOP of this system is 42 psig. Records indicate that from December 2002 until March 2003 the pressure exceeded 42 psig 17 times. (pressure charts checked and changed once each week)

In the majority of these indications of abnormally high pressures CNG failed to conduct the necessary inspections of the regulator and or auxiliary equipment such as the pressure recording charts. Due to records indicating 2 different pressures on 1 system fed by multiple regulators Staff requested that CNG conduct an inspection of the pressure recording chart at R-86. This recording chart was found to be reading approximately 20 psig above the actual operating pressure. CNG does not conduct scheduled calibration of recording charts and according to records many of the devices in the Mt. Vernon district are undependable and frequently inoperable.

**Cascade Response:**

We have examined our management of pressure chart review process, and are currently working to improve our performance.

The following changes to our pressure monitoring practices are in place, or will soon be enacted.

1. On June 4, 2004, we revised our Company Procedure 735 – System MAOP and Review that covers pressure chart monitoring activities. We included detailed guidelines for pressure chart review, specifically stating indications that must be reported to Managers, Gas Control, and/or Engineering. The update also includes new standardized records requirements for pressure chart processes.
2. We performed additional training for District General Managers regarding their review of the pressure charts. The training included the requirements of the new CP 735, and the actions to take when a problem is discovered.
3. We provided additional training for personnel that remove and log pressure charts so that they know the appropriate indications to report to their General Managers and are familiar with the Company Procedure 735 instructions.
4. We are reviewing manufacturer's recommended practices for the calibration of pressure charts operated by Cascade. We will begin an appropriate pressure chart maintenance program by September 1, 2004.

6. **49 CFR 192.747, Valve maintenance: Distribution systems.**

Each valve, the use of which may be necessary for the safe operation of a distribution system, must be checked and serviced at intervals not exceeding 15 months, but at least once each calendar year.

**WUTC Findings:**

The following valves exceeded the maximum 15 month timeframe for maintenance:

- (a) **Bellingham District, City of Ferndale, valve V-123.** Maintenance was performed on May 21, 2002 and then again on September 2, 2003. This exceeded the maximum 15-month timeframe by approximately 12 days.
- (b) **Bellingham District, City of Bellingham, valve V-168.** Maintenance was performed on March 28, 2002 and then again on September 2, 2003. This exceeded the maximum 15-month timeframe by approximately two months and 4 days.
- (c) **Bellingham District, City of Sumas, valve V-82.** Maintenance was performed on May 17, 2002 and then again on September 2, 2003. This exceeded the maximum 15-month timeframe by approximately 16 days.

**Cascade Response:**

We are examining our management practices for scheduling all maintenance and calibration tasks, and will make changes as necessary. We will increase our efforts Company-wide to prevent this scheduling problem in the future.

7. **WAC 480-93-188 (2), Gas Leak Surveys (maintenance and calibration of instruments)**  
**Repeat violation**

*Maintenance and calibration of instruments. All instruments used in leak detection and evaluation shall be maintained, calibrated, and operated in accordance with the latest applicable manufacturers' specifications, methods, and procedures unless alternative specifications, methods, and procedures have been approved by an appropriate governmental agency.*

**WUTC Findings:**

CNG requires calibration of combustible gas indicators (CGI's) semi-annually and flame ionization (FI) units prior to each use. This frequency is based on the manufacturer's recommended calibration frequency. Staff reviewed calibration records indicating that CNG has not met the required frequency. Records indicate that calibration frequencies for the following instruments did not meet the minimum requirements:

**Note:** Staff is only listing instruments from the second half of 2001 to the present. Missed calibration dates prior to this date were previously addressed.

- a. **Det Pk III, serial #9040.** According to system surveillance records, this instrument was used to conduct leak surveys on 10/10/2003, 10/3/2003, 9/30/2003, 12/10/2002, 7/9/2002, 6/28/2002, 6/21/2002, 4/25/2002, 4/23/2002, and 4/2/2002. CNG was unable to provide calibration records for these dates.
- b. **Det Pk III, serial #9308.** According to system surveillance records, this instrument was used to conduct leak surveys on 10/10/2003, 10/3/2003, 9/30/2003, 6/21/2002, 4/25/2002, 4/23/2002 and 4/2/2002. CNG was unable to provide calibration records for these dates.
- c. **Det Pk II, serial #3397.** According to system surveillance records, this instrument was used to conduct leak surveys on 7/9/2002 and 6/28/2002. CNG was unable to provide calibration records for these dates.
- d. **Gascope 53, serial #7078.** According to calibration records this instrument was not calibrated semi-annually in 2001.
- e. **Gastrac II, serial #7078.** According to calibration records this instrument was not calibrated semi-annually in 2001.
- f. **Gastrac II, serial #17521.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- g. **Gastrac II, serial #17570.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- h. **Gastrac II, serial #18762.** According to calibration records this instrument was not calibrated semi-annually in 2002.

- i. **Gastrac II, serial #18763.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- j. **Gastrac II, serial #28392.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- k. **Gastrac II, serial #E31047.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- l. **Gastrac II, serial #M12286.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- m. **Gascope 60, serial #4531.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- n. **Gascope 60, serial #4555.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- o. **Gascope 60, serial #6003.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- p. **Gascope 60, serial #4531.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- q. **Gascope 53, serial #11043.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- r. **Gastrac II, serial #16523.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- s. **Gastrac II, serial #17564.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- t. **Gastrac II, serial #19926.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- u. **Gastrac II, serial #19927.** According to calibration records this instrument was not calibrated semi-annually in 2003.
- v. **Gastrac II, serial #M7065.** According to calibration records this instrument was not calibrated semi-annually in 2002.
- w. **Gascope 60, serial #5498.** According to calibration records this instrument was not calibrated semi-annually in 2002.

**Cascade Response:**

Regarding items (a), (b), and (c); the technicians performed the calibrations, but did not record the calibrations. We will issue training to all personnel regarding calibration frequency, and record-keeping for these types of instruments.

We are examining our management practices for scheduling all maintenance and calibration tasks, and will make changes as necessary. We will increase our efforts Company-wide to prevent this scheduling problem in the future.

## **AREAS OF CONCERN**

### **WUTC Area of Concern 1**

Staff reviewed leak records which indicated that CNG personnel were using a Hydrogen Flame Ionization (HFI) unit to grade leaks found during leak surveys in the Bellingham area. WAC 480-93-187(2)(s) requires that the magnitude of CGI reads be recorded at appropriate locations which are part of the classification procedure contained in Table 1 of WAC 480-93-186 (codified as WAC 480-93-18601). CNG can not comply with this requirement using only an HFI unit.

### **Cascade Response:**

CNG Bellingham District General Manager was instructed that using a combustible gas indicator, or equivalent, to detect underground migration was the best practice. Bellingham personnel were instructed that an underground probe and survey must be conducted to adequately determine the extents of a leak. Bellingham District has changed its practices, and this leak investigation issue is resolved.

A review of our records shows that all leaks reviewed by Mr. Rukke were investigated and repaired. The majority of the leaks were repaired within 14 days of detection, many on the day they were detected.

### **WUTC Area of Concern 2**

Records indicate that Bellingham district pressure recorders, which are used to comply with the CFR Part 192.741 pressure monitoring requirements, are excessively non-functional. The condition and non-functionality of the recorders could potentially lead to non-compliance with the pressure monitoring requirements of CFR Part 192.741.

### **Cascade Response**

The problems are with an obsolete model pressure recorder that Cascade uses. We will replace or retire these recorders.

### **WUTC Area of Concern 3**

Staff reviewed leak records that were missing information such as pressure test records, leak grade and locations of CGI reads. This information is required to be documented by WAC 480-93-187 and WAC 480-93-188 (pressure tests).

**Cascade Response**

We will improve our record keeping of these documents. Our technicians perform the required checks, but sometimes fail to write them onto the leak report form.

**WUTC Area of Concern 4**

CNG does not have a calibration schedule for pyrometers. Pyrometers are used to verify fusion iron temperatures. Fusion irons that are out of the specified temperature ranges could affect the integrity of the pipeline joints that are produced.

**Cascade Response**

We will implement a pyrometer calibration program in accordance with the pyrometer manufacturer's recommendations.

**WUTC Area of Concern 5**

CNG does not have a calibration or accuracy check schedule for pressure recording devices or gauges. Pressure recording devices and gauges are an integral part of monitoring pipeline systems.

**Cascade Response**

We will implement a pressure recording device calibration as noted in our response to WUTC Violation 5 (see above).

Cascade has a calibration schedule for key pressure gauges used for regulator maintenance. These gauges are calibrated at least once every year. A tag that is placed on the face or back of the individual gauge documents the calibration. We will review our gauge calibration schedule and update the schedule if necessary to meet our needs for accuracy and reliability.

**WUTC Area of Concern 6**

CNG does not maintain the required atmospheric corrosion survey records. CNG records atmospheric corrosion surveys by exception, which only indicates areas requiring remedial action. Staff was not able to determine whether CNG is in compliance with the requirements of CFR Part 192.481.

**Cascade Response**

This topic has been brought up in previous inspections. We are currently performing formal atmospheric corrosion surveys as detailed in Cascade's responses to Docket #UG-02706. A UG-02706 finding stated that Cascade's atmospheric corrosion survey documentation was insufficient.

After that finding, we implemented new procedures to document the surveys. Documents of atmospheric corrosion checks for regulator stations, above ground valves, and odorizer stations

