



STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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Ref. No. Docket PG-110020

**CERTIFIED MAIL**

June 14, 2011

Tim Clark  
Vice President, Operations  
Cascade Natural Gas Corporation  
555 South Cole Road  
PO Box 7608  
Boise, ID 83707

Dear Mr. Clark:

**RE: 2011 Natural Gas Standard Inspection – Whatcom County**

We conducted a natural gas inspection from April 4-6, 12-14, 18-21, and 26, 2011 of Whatcom County. The inspection included a records review and inspection of the pipeline facilities.

Our inspection indicates 26 probable violations as noted in the enclosed report. We also noted 13 areas of concern, which unless corrected, could potentially lead to future violation of state and/or federal pipeline safety rules.

**Your response needed**

Please review the attached report and respond in writing by July 15, 2011. The response should include how and when you plan to bring the probable violations into full compliance.

**What happens after you respond to this letter?**

The attached report presents staff's decision on probable violations and does not constitute a finding of violation by the commission at this time.

After you respond in writing to this letter, there are several possible actions the commission, in its discretion, may take with respect to this matter. For example, the commission may:

- Issue an administrative penalty under RCW 81.88.040, or



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- Institute a complaint, seeking monetary penalties, changes in the company's, practices, or other relief authorized by law, and justified by the circumstances, or
- Consider the matter resolved without further commission action.

We have not yet decided whether to pursue a complaint or penalty in this matter. Should an administrative law judge decide to pursue a complaint or penalty; your company will have an opportunity to present its position directly to the commissioners.

If you have any questions, or if we may be of any assistance, please contact Stephanie Zuehlke at (360) 664-1318. Please refer to Docket PG-110020 in any future correspondence regarding this inspection.

Sincerely,



David D. Lykken  
Pipeline Safety Director

cc. Steve Kessie, Cascade Natural Gas Corp.

Enclosure

**WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**  
**2011 Natural Gas Pipeline Safety Inspection**  
**Cascade Natural Gas – Whatcom County**  
**Docket PG-110020**

The following probable violations(s) and areas of concern of Title 49, CFR Part 192 and WAC 480-93 were noted as a result of the inspection of Cascade Natural Gas (CNG) – Whatcom County. The inspection included a random selection of records, operation and maintenance, emergency response, inventory and field inspection of the pipeline facilities.

**PROBABLE VIOLATIONS**

1. **WAC 480-93-018 Records.**

- (2) *Each gas pipeline company must give the commission access to records for review during an inspection and must provide the commission copies of records upon request.*

**Finding(s):**

CNG did not have or did not provide staff with April 2011 actual operating pressure records for:

a. Distribution Lines:

- i. Acme
- ii. Bellingham – 4 distr. systems pressures
- iii. Blaine
- iv. Deming
- v. Everson – 2 distr. systems pressures
- vi. Ferndale
- vii. Lawrence
- viii. Lynden
- ix. Nooksack
- x. Sumas

b. Transmission Lines:

- |      |                      |                      |
|------|----------------------|----------------------|
| i.   | 8" Kickerville       | Transmission Line 11 |
| ii.  | 12" Grandview Road   | Transmission Line 13 |
| iii. | 4" West Lynden       | Transmission Line 16 |
| iv.  | 20" Ferndale         | Transmission Line 18 |
| v.   | 20" Sumas            | Transmission Line 19 |
| vi.  | 8" South Kickerville | Transmission Line 20 |

2. **WAC 480-93-018 Records.**

- (4) *Each gas pipeline company must record and maintain records of the actual value of any required reads, tests, surveys or inspections performed. The records must*

*include the name of the person who performed the work and the date the work was performed. The records must also contain information sufficient to determine the location and facilities involved. Examples of the values to be recorded include, but are not limited to, pipe-to-soil potential reads, rectifier reads, pressure test levels, and combustible gas indicator reads. A gas pipeline company may not record a range of values unless the measuring device being used provides only a range of values.*

**Finding(s):**

CNG did not have or did not provide pressure test records or construction records for their HP steel construction project of 105' - 14" casing turned carrier pipe located at Franklin St. and State St., Bellingham. CNG welded flat stock (plate steel) onto both butt ends of the 14" casing and to the 10" HP steel carrier pipe and in doing so made the casing pipe, a carrier pipe.

3. **WAC 480-93-018 Records.**

(5) *Each gas pipeline company must update its records within six months of when it completes any construction activity and make such records available to appropriate company operations personnel.*

**Finding(s):**

CNG did not update their records within 6 months of completion of construction activity.

- a. 1000 "C" St., Bellingham - service
- b. 901 "C" St., Bellingham - service
- c. 1525 Boblett, Blaine - 4" main (Maps incorrectly identified main as looped. Due to 3<sup>rd</sup> party damage on 05.25.11, this main was squeezed-off for repair resulting in loss of 56 customers.)

4. **WAC 480-93-110 Corrosion control.**

(2) *Each gas pipeline company must complete remedial action within ninety days to correct any cathodic protection deficiencies known and indicated by any test, survey, or inspection. An additional thirty days may be allowed for remedial action if due to circumstances beyond the gas pipeline company's control the company cannot complete remedial action within ninety days. Each gas pipeline company must be able to provide documentation to the commission indicating that remedial action was started in a timely manner and that all efforts were made to complete remedial action within ninety days. (Examples of circumstances allowing each gas pipeline company to exceed the ninety-day time frame include right of way permitting issues, availability of repair materials, or unusually long investigation or repair requirements.)*

**Finding(s):**

CNG failed to take remedial action within ninety days to correct cathodic protection deficiencies at N. State St. and Franklin St., Bellingham.

Date of Test/Read	(T/R=Tinker-razor) Pass/Fail T/R test	casing - mV Read	% Gas/ Air Read	C/P 90 day follow-up	Comply w/Rule reqmts
a. 03.16.07	FAILED	-0.935	0% Gas	No	No
b. 10.04.07	2 <sup>nd</sup> FAILED	-0.958	0% Gas	No	No
c. 03.17.08	3 <sup>rd</sup> FAILED	-0.852	0% Gas	No	No
d. 09.25.08	4 <sup>th</sup> FAILED	-1.020	Unknown*	No	No
e. 03.20.09	5 <sup>th</sup> PASSED*	-1.059	0% Gas	N/A	No
f. 09.17.09	6 <sup>th</sup> (Not recorded)*	-0.960	0% Gas	No	No
g. 03.11.10	7 <sup>th</sup> PASSED*	No read*	0% Gas	N/A	No
h. 03.22.10	8 <sup>th</sup> (Not recorded)*	Unknown*	Unknown*	Unknown*	No
i. 09.20.10	9 <sup>th</sup> (Not recorded)*	No read*	Unknown*	Unknown*	No

\*CNG procedures and Annual Casing Survey Report Summary instructions identify that if the casing pipe to soil potential is more negative than -0.73 mV is an indication of a shorted condition and require specific action to be taken by CNG – which they did not take and/or did not record.

5. **WAC 480-93-110 Corrosion control.**

(5) *Each gas pipeline company must conduct inspections or tests for electrical isolation between metallic pipeline casings and metallic pipelines at least once annually, but not to exceed fifteen months between inspections or tests. The test or inspection must also determine whether the pipeline has adequate levels of cathodic protection at the casing to pipeline interface. These requirements do not apply to unprotected copper inserted in ferrous pipe.*

(a) *For each casing installed prior to September 5, 1992, that does not have test leads, the gas pipeline company must be able to demonstrate that other test or inspection methods are acceptable and that test lead wires are not necessary to monitor for electrical isolation and adequate cathodic protection levels.*

(b) *Whenever electrical isolation tests or inspections indicate that a possible shorted condition exists between a casing and a pipeline, the gas pipeline company must conduct a follow-up test within ninety days to determine whether an actual short exists. The gas pipeline company's procedures manual must have a level or threshold that would indicate a potential shorted condition and must also detail the method of determining whether the casing is actually shorted to the pipeline.*

(c) *The gas pipeline company must clear the shorted condition where practical.*

- (d) *Whenever a short exists between a line pipe and casing, the gas pipeline company must perform a leak survey within ninety days of discovery and at least twice annually thereafter, but not to exceed seven and one-half months between leak surveys until the shorted condition is eliminated.*

1. **Finding(s):**

CNG failed to inspect or test electrical isolation tests between metallic pipeline casings and metallic pipelines. All casings have not been inspected annually - the following are examples of casings that are not included in CNG's casing survey:

- a. 601 W. Chestnut, Bellingham (Grid map #17-N)
- b. 213 E. Champion, Bellingham (Grid map #18-N)
- c. Meador Ave. and Humbolt St., Bellingham (Grid map #18-N)
- d. 1601 Main St., Lynden
- e. 1647 Main St., Lynden

2. **Finding(s):**

CNG failed to conduct follow-up tests within ninety days of discovery to determine whether an actual shorted condition existed at N. State St. and Franklin St., Bellingham.

- a. 03.16.07
- b. 10.04.07
- c. 03.17.08
- d. 09.25.08
- e. 09.17.09
- f. 03.22.10
- g. 09.20.10

6. **WAC 480-93-124 Pipeline markers.**

- (1) *Each gas pipeline company must place pipeline markers at the following locations:*
- (a) *Where practical, over pipelines operating above two hundred fifty psig;*
  - (b) *Over mains and transmission lines crossing navigable waterways (custom signage may be required to ensure visibility);*
  - (c) *Over mains and transmission lines at river, creek, drainage ditch, or irrigation canal crossings where hydraulic scouring, dredging, or other activity could pose a risk to the pipeline (custom signage may be required to ensure visibility);*
  - (d) *Over gas pipelines at railroad crossings;*
  - (e) *At above ground gas pipelines except service risers, meter set assemblies, and gas pipeline company owned piping downstream of the meter set assembly. The minimum lettering size requirements located in 49 CFR § 192.707 (d)(1) do not apply to services;*
  - (f) *Over mains located in Class 1 and 2 locations;*

- (g) *Over transmission lines in Class 1 and 2 locations, and where practical, over transmission lines in Class 3 and 4 locations; and*
- (h) *Over mains and transmission lines at interstate, U.S. and state route crossings where practical.*
- (2) *If practical, the gas pipeline company must place markers on both sides of any crossing listed in subsection (1) of this section.*
- (3) *Where markers are required on buried gas pipelines, they must be placed approximately five hundred yards apart and at points of horizontal deflection if practical.*
- (4) *Where gas pipelines are attached to bridges or otherwise span an area, each gas pipeline company must place pipeline markers at both ends of the suspended pipeline. Each gas pipeline company must conduct surveys of pipeline markers required by this subsection at least annually, not to exceed fifteen months.*

**Finding(s):**

CNG did not place markers at required span locations.

- a. 1601 Main St., Lynden – service
- b. 1647 Main St., Lynden – service
- c. 1662 Main St., Lynden – service
- d. 1650 Main St., Lynden – service
- e. 1659 Main St., Lynden - service
- f. 1662 Main St., Lynden - service
- g. 1674 Main St., Lynden – service
- h. 1700 Main St., Lynden – service
- i. 1714, 1718, and 1718A Main St., Lynden – main w/3 services
- j. 1770 Main St., Lynden – service
- k. 1726 Double Ditch Rd., Lynden - service

7. **49 CFR §192.161 Supports and anchors.**

- (a) *Each pipeline and its associated equipment must have enough anchors or supports to:*
  - (1) *Prevent undue strain on connected equipment;*
  - (2) *Resist longitudinal forces caused by a bend or offset in the pipe; and,*
  - (3) *Prevent or damp out excessive vibration.*
- (b) *Each exposed pipeline must have enough supports or anchors to protect the exposed pipe joints from the maximum end force caused by internal pressure and any additional forces caused by temperature expansion or contraction or by the weight of the pipe and its contents.*

**Finding(s):**

CNG failed to prevent undue strain on their connected equipment located at Bellingham Fitness Center, Bellingham – Meter# 289198.

8. **WAC 480-93-175 Moving and lowering metallic gas pipelines.**

- (2) *Except for the pipe referenced in subsection (1) of this section, a gas pipeline company may move or lower metallic line pipe with an MAOP of sixty psig or*

*less, which has a nominal diameter of two inches or less, if the gas pipeline company can certify that no undue stresses will be placed on the pipeline and that it can be moved or lowered in a safe manner. The gas pipeline company must consider factors such as the type of materials, proximity to fittings, joints, and welds, and any other factors that could place undue stress on the gas pipeline or create an unsafe condition.*

**Finding(s):**

CNG failed to complete construction in accordance with engineering requirements for the lowering of a 4" steel main at Cordata Pkwy. (WTA Bus Station Project) dated 03.19.08. Engineering records required a 250' trench with 125' in each direction to obtain a vertical deflection of 3.5'. As-built construction records identify that the entire trench totaled 214' with 126' on the north side and 88' on the south side of the identified deflection point.

9. **WAC 480-93-180 Plans and procedures.**

- (1) *Each gas pipeline company must have and follow a gas pipeline plan and procedure manual (manual) for operation, maintenance, inspection, and emergency response activities that is specific to the gas pipeline company's system. The manual must include plans and procedures for meeting all applicable requirements of 49 CFR §§ 191, 192 and chapter 480-93 WAC, and any plans or procedures used by a gas pipeline company's associated contractors.*
- (2) *The manual must be filed with the commission forty-five days prior to the operation of any gas pipeline. Each gas pipeline company must file revisions to the manual with the commission annually. The commission may, after notice and opportunity for hearing, require that a manual be revised or amended. Applicable portions of the manual related to a procedure being performed on the pipeline must be retained on-site where the activity is being performed.*
- (3) *The manual must be written in detail sufficient for a person with adequate training to perform the tasks described. For example, a manual should contain specific, detailed, step-by-step instructions on how to maintain a regulator or rectifier, conduct a leak survey or conduct a pressure test.*

1. **Finding(s):**

CNG does not have a procedure for the welding of test lead coupons on steel pipe.

2. **Finding(s):**

CNG did not follow procedure CP 760, which requires the use and completion of Form 525 Titled "High Pressure Line Weld – Filler Metal Record" prior to welding high pressure lines at the following locations:

- a. Two test lead coupons (2" Disk. Material: .187 HRS A570/36) Line #9 – 8" Lake Terrell Rd. HP, Ferndale (Unick Rd. crossing W. of Lake Terrell Rd.) installed 08.12.10.
- b. One test lead coupon (2" Disk. Material: .187 HRS A570/36) Line #3 8" Central Whatcom, Ferndale (Lake Terrell Rd. crossing) installed 08.04.10.



- c. One test lead coupon (2" Disk. Material: .187 HRS A570/36) Franklin St., Bellingham – 10" HP installed approx. 11.20.10.

3. **Finding(s):**

CNG does not have a procedure for the installation of non-welded "Plidco" fittings. Example: CNG has installed "Plidco" fittings on their 16" NPS North Whatcom Transmission-Line #10 at Trapline Rd., Lynden.

4. **Finding(s):**

CNG did not follow procedure CP 766.036 for the repair of transmission pipeline manufacturer's long-seam weld defects and/or leaks which states, "The engineering department will determine whether each repair method is consistent with the guidelines above and approve prior to use on any CNG transmission line."

Records indicate that engineering department approval for the use of "Plidco" fitting for repair of the 16" NPS North Whatcom Transmission-Line #10 (Trapline Rd., Lynden) was not obtained prior to the leak repair. The repair was recorded as completed on September 8, 2010 on Forms CNG 293A Leak Investigation & CNG B Leak Record – Work Order #172889 and CNG 625 Integrity Management Dig Report. Engineering Review was recorded as completed on October 6, 2010, on Form CNG 625 Integrity Management Dig Report.

5. **Finding(s):**

CNG does not have a surveillance procedure that adequately identifies hazardous and unusual operating conditions and action to correct. Above grade or aerial services spanning creeks and irrigation ditches in multiple locations along Main Street in Lynden were not identified as hazardous, unusual, or potentially hazardous and not scheduled for remediation/correction.

6. **Finding(s):**

CNG's CP 710 Coating and Painting Standard fail to include the paint coating products and associated application procedures they presently use. Paint materials specified under 710.01 and the associated paint application procedures have been replaced but procedures have not been updated. CNG identified that they no longer use the paint materials specified in the procedure due to ineffective adherence and/or peeling issues.

7. **Finding(s):**

CNG's CP 710 Coating and Painting Standard fails to address their practice of using manufacturer's mill coated steel pipe for above grade piping exposed to ultraviolet radiation and weathering conditions and which mill coatings are deemed acceptable for use in environments and in the prevention of atmospheric corrosion.

8. **Finding(s):**  
CNG procedure CP 760.091 fails to state that visual inspection of welding must be conducted by an individual qualified by appropriate training and experience. CNG's manual presently states that each weld that is made will be visually inspected by the person making the weld.
9. **Finding(s):**  
CNG failed to follow procedure CP 605.0441 by installing miter joints in their 10" HP steel system located at N. State St. & Franklin St., Bellingham in November 2010. This CNG procedure strictly prohibits installation of miter joints in the construction of CNG operated systems. A 22° miter joint (Project #178608 – Detail "B"/also identified as 21° and a 25° miter joint in CNG as-built records) and a 16° miter joint (Project #178608 – Detail "D"). Although Magnetic Particle testing (radiographic NDT examination) was completed on this project, this testing was limited to fillet welds for sav-a-valv and bottom-outs/saddles. No miter joints were NDT tested.
10. **Finding(s):**  
CNG failed to follow procedure CP 605.051 by not providing adequate oversight and inspection for gas main construction to ensure that CNG standards and procedures were met. OQ'd inspectors failed to follow procedures by allowing the installation of miter joints in the HP main replacement at N. State St. & Franklin St., Bellingham.
11. **Finding(s):**  
CNG failed to follow procedure CP 740.071. The operational valve for regulator station R-20 was not numbered, inspected, and mapped.
12. **Finding(s):**  
CNG procedures CP 745 do not contain complete detailed instructions for response to a blowing relief at a regulator station. On January 24, 2011, CNG responded to a blowing relief emergency at R-19 Telegraph Rd. & James St. Rd., Bellingham. CNG failed to check their chart box and/or downstream lines for over-pressurization prior to leaving site.
13. **Finding(s):**  
CNG procedures fail to include detailed written procedures for the storage and handling of plastic pipelines.
14. **Finding(s):**  
CNG fails to identify the maximum cumulative ultraviolet light exposure time limit for each type, grade, model of plastic pipe in its procedures manual.
15. **Finding(s):**  
CNG failed to follow procedure CP 685 by installing 3 vents in a horizontal orientation at regulator station R-20 in Bellingham.

16. **Finding(s):**  
CNG failed to follow procedure CP 685 by installing the regulator vent in a horizontal orientation at Meter# 186087 in Bellingham.
17. **Finding(s):**  
CNG's procedure CP 760.102 Non-Destructive Inspection of Welds requires that the project engineer shall designate the non-destructive test requirements for a project. CNG identified that Division Construction Services (Division Welding) designated non-destructive testing (NDT) prior to welding. Although NDT inspection records were provided for at least one of the following locations, staff found no records indicating that engineering or a project engineer was consulted regarding the NDT for high pressure projects located at:
- a. Line #9 – 8” Lake Terrell Rd. HP, Ferndale (Unick Rd. crossing W. of Lake Terrell Rd.) installed 08.12.10.
  - b. Line #3 8” Central Whatcom, Ferndale (Lake Terrell Rd. crossing) installed 08.04.10.
  - c. Franklin St., Bellingham – 10” HP installed 11.20.10.
18. **Finding (s):**  
CNG failed to follow their Public Awareness procedure CP 500.072 in 2010. They did not complete the required annual self-audit for implementation and resource evaluation.
19. **Finding (s):**  
CNG failed to follow procedure CP 665 for testing of State St. and Franklin St., Bellingham - 10” HP steel main piping.
- a. CNG failed to obtain Engineering approval and designation for the high pressure main tests at this location.
  - b. CNG tested this segment of pipe above 33% SMYS (808psig) and did not contact Engineering for required evaluation of soundness of the proposed test and various other factors.
    - i. No leak test was made.
    - ii. No line walk checking for leaks was completed.
  - c. Pressure test shows increase in temperature with a 2psig loss in pressure. No analysis of pressure test data approving or rejecting pressure test.
10. **WAC 480-93-186 Leak evaluation.**  
*(1) Based on an evaluation of the location and/or magnitude of a leak, the gas pipeline company must assign one of the leak grades defined in WAC 480-93-18601 to establish the leak repair priority. A gas pipeline company may use an alphabetical grade classification, i.e., Grade A for Grade 1, Grade B for Grade 2, and Grade C for Grade 3 if it has historically used such a grading designation. Each gas pipeline company must apply the same criteria used for initial leak grading when reevaluating leaks.*

**Finding(s):**

CNG failed to provide records that identify that CNG applied leak evaluation criteria for N. State St. & Franklin St. in accordance with this rule. With a flammability range of 5% Gas (100% LEL) -15% Gas (300% LEL) for natural gas, CNG graded, re-graded, and deferred leaks at this location as all non-hazardous Grade 3 leaks.

- a. Leak detail:
  - i. Records identify leaks in multiple locations
  - ii. Records do not identify the size of paved area as a consideration in grading and potential migration
  - iii. Records identify migration of gas 05.14.08
  - iv. Records identify reads of
    - 1. 05.08.08 80% gas/air
    - 2. 05.09.08 8% - 80% aspirated to 61% gas/air
    - 3. 05.14.08 6%-15% gas/air
    - 4. 09.08 & 09.09 and 10.09.09 – leaks identified - no reads taken
    - 5. 11.10.08 15% gas/air
- b. Deferred:
  - i. 05.08.08 - Records identify this leak graded as a 3 and deferred with a maximum sustained read of 80% gas/air in a high traffic paved downtown area
  - ii. 05.12.08 Records identify this leak dug on 05.12.08 and deferred
  - iii. 09.08.09 Records identify this leak dug on 09.08.09, 09.09.09, and 10.09.09 and deferred

11. **WAC 480-93-186 Leak evaluation.**

- (3) *The gas pipeline company must check the perimeter of the leak area with a combustible gas indicator. The gas pipeline company must perform a follow-up inspection on all leak repairs with residual gas remaining in the ground as soon as practical, but not later than thirty days following the repair.*

**Finding(s):**

CNG failed to complete follow-up leak surveys.

- a. Yew St. and Douglas Ave., Bellingham
- b. 704 40<sup>th</sup> St., Bellingham
- c. WO# 169958
- d. WO# 169774
- e. WO# 169958

12. **WAC 480-93-188 Gas leak surveys.**

- (1) *Each gas pipeline company must perform gas leak surveys using a gas detection instrument covering the following areas and circumstances:*
  - (a) *Over all mains, services, and transmission lines including the testing of the atmosphere near other utility (gas, electric, telephone, sewer, or water) boxes or manholes, and other underground structures;*

- (b) *Through cracks in paving and sidewalks;*
- (c) *On all above ground piping (may be checked with either a gas detection instrument or with a soap solution);*
- (d) *Where a gas service line exists, the gas pipeline company must conduct a leak survey at the building wall at the point of entrance, using a bar hole if necessary; and*
- (e) *Within all buildings where gas leakage has been detected at the outside wall, at locations where escaping gas could potentially migrate into and accumulate inside the building.*

1. **Finding(s):**

CNG did not perform gas leak surveys over aerial pipeline spans.

- a. 1601 Main St., Lynden
  - i. North creek span
  - ii. South creek span
- b. 1647 Main St., Lynden
  - i. North creek span
  - ii. Portion of service was re-routed 09.16.05 – leak survey maps were not updated

2. **Finding(s):**

CNG did not perform gas leak surveys over the main (10" HP Squalicum Distribution Line #17 (+/- 340psig) at Mt. Baker Hwy., Bellingham). CNG identified the line is located within and under a large vehicle junk yard, junk vehicles are regularly relocated within the junk yard, and the leak survey is completed between vehicles.

13. **WAC 480-93-188 Gas leak surveys.**

- (5) *Each gas pipeline company must keep leak survey records for a minimum of five years. At a minimum, survey records must contain the following information:*
- (a) *Description of the system and area surveyed (including maps and leak survey logs);*
  - (b) *Survey results;*
  - (c) *Survey method;*
  - (d) *Name of the person who performed the survey;*
  - (e) *Survey dates; and*
  - (f) *Instrument tracking or identification number.*

**Finding(s):**

CNG leak survey maps were not updated to reflect a 41-42' deflection/offset completed after re-routing a 159' portion of the service to 1647 Main St., Lynden, which was completed 09.06.05.

14. **WAC 480-93-200 Reporting requirements.**

- (7) *Each gas pipeline company must file with the commission the following annual reports no later than March 15 for the preceding calendar year:*
- (a) *A copy of every Pipeline and Hazardous Materials Safety Administration (PHMSA) F-7100.1-1 and F-7100.2-1 annual report required by U.S. Department of Transportation, Office of Pipeline Safety.*
  - (b) *A report titled, "Damage Prevention Statistics." The Damage Prevention Statistics report must include in detail the following information:*
    - (i) *Number of gas-related one-call locate requests completed in the field;*
    - (ii) *Number of third-party damages incurred; and*
    - (iii) *Cause of damage, where cause of damage is classified as one of the following:*
      - (A) *Inaccurate locate;*
      - (B) *Failure to use reasonable care;*
      - (C) *Excavated prior to a locate being conducted; or*
      - (D) *Excavator failed to call for a locate.*
  - (c) *A report detailing all construction defects and material failures resulting in leakage. Each gas pipeline company must categorize the different types of construction defects and material failures anticipated for their system. The report must include the following:*
    - (i) *Types and numbers of construction defects; and*
    - (ii) *Types and numbers of material failures.*

1. **Finding (s):**

The Damage Prevention Statistics Report was not provided to the commission by March 15, 2011. The commission received the report on April 1, 2011.

2. **Finding (s):**

The Construction Defects and Material Failures report was not provided to the commission by March 15, 2011. The commission received the report on April 20, 2011.

15. **49 CFR §192.143 General requirements.**

- (a) *Each component of a pipeline must be able to withstand operating pressures and other anticipated loadings without impairment of its serviceability with unit stresses equivalent to those allowed for comparable material in pipe in the same location and kind of service. However, if design based upon unit stresses is impractical for a particular component, design may be based upon a pressure rating established by the manufacturer by pressure testing that component or a prototype of the component.*

**Finding(s):**

CNG did not have or did not provide design records or component information for their HP steel construction project of 105' - 14" casing turned carrier pipe located at Franklin St. and State St., Bellingham as a corrective measure to cure leaks on their 10" HP steel

main. CNG welded flat stock (plate steel) onto both butt ends of the 14" casing and to the 10" HP steel carrier pipe and in doing so made the casing pipe, a carrier pipe.

16. **49 CFR §192.183 Vaults: Structural design requirements.**

- (a) *Each underground vault or pit for valves, pressure relieving, pressure limiting, or pressure regulating stations, must be able to meet the loads which may be imposed upon it, and to protect installed equipment.*

**Finding(s):**

CNG's poured concrete underground vault walls (for V-12) have failed and no longer protect the installed equipment. V-12 is on the 16" North Whatcom County Transmission Line.

17. **49 CFR §192.321 Installation of plastic pipe.**

- (g) *Uncased Plastic pipe may be temporarily installed above ground level under the following conditions:*
- (1) *The operator must be able to demonstrate that the cumulative aboveground exposure of the pipe does not exceed the manufacturer's recommended maximum period of exposure or 2 years, whichever is less.*

**Finding(s):**

CNG failed to identify the maximum cumulative ultraviolet light exposure time limit for each manufacturer, type, grade, model of plastic pipe in its procedures manual. The following plastic pipe exceeds the minimum two year exposure to ultraviolet light.

- a. 6" Stick IPS Driscoplex 6800 stamped: 07.08.05
- b. 6" Stick HD Yellowstripe Polyethylene pipe stamped:
- i. 12.19.06
- ii. 07.08.05
- iii. 09.14.00

18. **49 CFR §192.455 External corrosion control: Buried or submerged pipelines installed after July 31, 1971.**

- (a) *Except as provided in paragraphs (b), (c), and (f) of this section, each buried or submerged pipeline installed after July 31, 1971, must be protected against external corrosion, including the following:*
- (1) *It must have an external protective coating meeting the requirements of §192.461.*
- (2) *It must have a cathodic protection system designed to protect the pipeline in accordance with this subpart, installed and placed in operation within 1 year after completion of construction.*
- (b) *An operator need not comply with paragraph (a) of this section, if the operator can demonstrate by tests, investigation, or experience in the area of application, including, as a minimum, soil resistivity measurements and tests for corrosion accelerating bacteria, that a corrosive environment does not exist. However, within 6 months after an installation made pursuant to the preceding sentence, the*

*operator shall conduct tests, including pipe-to-soil potential measurements with respect to either a continuous reference electrode or an electrode using close spacing, not to exceed 20 feet (6 meters), and soil resistivity measurements at potential profile peak locations, to adequately evaluate the potential profile along the entire pipeline. If the tests made indicate that a corrosive condition exists, the pipeline must be cathodically protected in accordance with paragraph (a)(2) of this section.*

- (c) *An operator need not comply with paragraph (a) of this section, if the operator can demonstrate by tests, investigation, or experience that-*
  - (1) *For a copper pipeline, a corrosive environment does not exist; or*
  - (2) *For a temporary pipeline with an operating period of service not to exceed 5 years beyond installation, corrosion during the 5-year period of service of the pipeline will not be detrimental to public safety.*
- (d) *Notwithstanding the provisions of paragraph (b) or (c) of this section, if a pipeline is externally coated, it must be cathodically protected in accordance with paragraph (a)(2) of this section.*

**Finding(s):**

A 14" - 105' segment of carrier pipe (previously installed as a casing over 10" HP steel carrier pipe) located at Franklin St. and State St. was left uncoated (bare steel).

19. **49 CFR §192.481 Atmospheric corrosion control: Monitoring.**

- (a) *Each operator must inspect each pipeline or portion of pipeline that is exposed to the atmosphere for evidence of atmospheric corrosion, as follows:*

<i><b>If the pipeline is located:</b></i>	<i><b>Then the frequency of inspection is:</b></i>
<i>Onshore .....</i>	<i>At least once every 3 calendar years, but with intervals not exceeding 39 months</i>

- (b) *During inspections the operator must give particular attention to pipe at soil-to-air interfaces, under thermal insulation, under disbanded coatings, at pipe supports, in splash zones, at deck penetrations, and in spans over water.*
- (c) *If atmospheric corrosion is found during an inspection, the operator must provide protection against the corrosion as required by §192.479.*

**Finding(s):**

CNG has not monitored their 10" HP steel main spanning Whatcom Creek at N. State St., Bellingham, for atmospheric corrosion with intervals not exceeding 39 months. The 10" HP steel carrier main is installed inside a 14" bare steel casing spanning 51 feet. The north end of the casing is below grade. The south end of the casing is above grade and unsealed exposing the 10" carrier pipe to potential atmospheric corrosion.

20. **49 CFR §192.609 Change in class location: Required study.**

*Whenever an increase in population density indicates a change in class location for a segment of an existing steel pipeline operating at a hoop stress that is more than 40 percent of SMYS, or indicates that the hoop stress corresponding to the established*



*maximum allowable operating pressure for a segment of existing pipeline is not commensurate with the present class location, the operator shall immediately make a study to determine;*

- (a) The present class location for the segment involved.*
- (b) The design, construction, and testing procedures followed in the original construction, and a comparison of these procedures with those required for the present class location by the applicable provisions of this part.*
- (c) The physical condition of the segment to the extent it can be ascertained from available records;*
- (d) The operating and maintenance history of the segment;*
- (e) The maximum actual operating pressure and the corresponding operating hoop stress, taking pressure gradient into account, for the segment of pipeline involved; and,*
- (f) The actual area affected by the population density increase, and physical barriers or other factors which may limit further expansion of the more densely populated area.*

**Finding(s):**

CNG did not have or did not provide present class location study records for 2009, 2010, and 2011.

21. **49 CFR §192.613 Continuing surveillance.**

- (a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions.*
- (b) If a segment of pipeline is determined to be in unsatisfactory condition but no immediate hazard exists, the operator shall initiate a program to recondition or phase out the segment involved, or, if the segment cannot be reconditioned or phased out, reduce the maximum allowable operating pressure in accordance with §192.619 (a) and (b).*

1. **Finding(s):**

CNG failed to identify hazardous and unusual conditions and/or failed to take action to correct hazardous conditions for exposed above grade service piping at aerial spans.

- a. 1601 Main St., Lynden
- b. 1647 Main St., Lynden
- c. 1662 Main St., Lynden
- d. 1674 Main St., Lynden
- e. 1700 Main St., Lynden
- f. 1770 Main St., Lynden

2. **Finding(s):**  
CNG failed to identify unusual operating and maintenance conditions affecting the integrity of their facilities. During a field inspection staff found isolation valves in vaults on the North Whatcom County 16" Transmission Line were completely under water. The V-12 vault was half-full of water, the poured concrete walls were collapsing, unsafe to access, and had a permanently attached trench shoring brace installed. The V-11 vault was completely full of water and inaccessible.
  3. **Finding(s):**  
CNG failed to monitor, identify, and failed to take action regarding unusual operating and maintenance conditions affecting the integrity of their facilities. A landfill of up to 40' of concrete, rebar, and other potentially deleterious construction debris was placed over the top of their 10" HP Squalicum Distribution Line #17 (+/- 340psig) at Mt. Baker Hwy., Bellingham.
  4. **Finding(s):**  
CNG failed to identify and failed to take action regarding unusual operating and maintenance conditions affecting the integrity of their facilities. CNG's 10" HP Squalicum Distribution Line #17 (+/- 340psig) at Mt. Baker Hwy., Bellingham, is located under a large vehicle junk yard (right-of-way encroachment).
  5. **Finding(s):**  
CNG failed to monitor the loss of cover due to erosion for both their 4" and 8" mains at Squalicum Creek in Bellingham. Depth of main was measured as approximately 1'-3" at one location.
  6. **Finding(s):**  
CNG failed to identify and/or monitor right-of-way encroachment activities of their pipeline for 4200 Bakerview Rd., Bellingham - Ankar Retirement residences. CNG's 8" HP Central Whatcom Distribution main operating at 340psig is located within approx. 6'-7' of the unit.
22. **49 CFR §192.616 Public awareness.**
- (c) *The operator must follow the general program recommendations, including baseline and supplemental requirements of API RP 1162, unless the operator provides justification in its program or procedural manual as to why compliance with all or certain provisions of the recommended practice is not practicable and not necessary for safety.*

**Finding(s):**

CNG failed to complete a self-audit for implementation and resource evaluation.

23. **49 CFR §192.703 General.**

- (a) *No person may operate a segment of pipeline, unless it is maintained in accordance with this subpart.*
- (b) *Each segment of pipeline that becomes unsafe must be replaced, repaired, or removed from service.*
- (c) *Hazardous leaks must be repaired promptly.*

1. **Finding(s):**

CNG failed to take action regarding identified unsafe condition on two separate occasions. On 03.04.08 CNG employees reported abnormal operating conditions (AOC's) existed identifying "no supports, sagging, exposed" for two services spanning a creek at three separate locations. On 03.06.08 CNG employees again reported "lots of sagging on 2". Each service is ¾" steel installed in 2" coated steel casing.

- a. 1601 Main St., Lynden (two locations)
- b. 1647 Main St., Lynden (one location)

2. **Finding(s):**

CNG did not provide anchors or supports for exposed above grade pipeline spans.

- a. 1601 Main St., Lynden
- b. 1647 Main St., Lynden
- c. 1662 Main St., Lynden
- d. 1674 Main St., Lynden
- e. 1700 Main St., Lynden
- f. 1770 Main St., Lynden

3. **Finding(s):**

CNG failed to identify and take action within a reasonable time to correct hazardous and unsafe conditions at N. State St. and Franklin St., Bellingham.

- a. Leak detail:
  - i. Records do not identify hazardous conditions where gas could potentially migrate to the outside wall of a building
  - ii. Records do not identify the size of paved area as a consideration in grading and potential migration
  - iii. Records do not indicate that CNG considered the location of the leak and the magnitude of the leak into consideration when grading the leak
  - iv. Records identify migration of gas 05.14.08 with no action taken
  - v. Records identify reads in multiple locations with no action taken
    - 1. 05.08.08 80% gas/air
    - 2. 05.09.08 8% - 80% aspirated to 61% gas/air
    - 3. 05.14.08 6%-15% gas/air

4. 09.08 & 09.09 and 10.09.09 – leaks identified - no reads taken
  5. 11.10.08 15% gas/air
- b. Records show leaks over 100% LEL (as identified above) were deferred
- i. 05.08.08 - Records identify this leak graded as a 3 and deferred with a maximum sustained read of 80% gas/air in a high traffic paved downtown area
  - ii. 05.12.08 Records identify this leak dug on 05.12.08 and deferred
  - iii. 09.08.09 Records identify this leak dug on 09.08.09, 09.09.09, and 10.09.09 and deferred

24. **49 CFR §192.717 Transmission lines: Permanent field repair of leaks.**

*Each permanent field repair of a leak on a transmission line must be made by-*

- (a) *Removing the leak by cutting out and replacing a cylindrical piece of pipe; or*
- (b) *Repairing the leak by one of the following methods:*
  - (1) *Install a full encirclement welded split sleeve of appropriate design, unless the transmission line is joined by mechanical couplings and operates at less than 40 percent of SMYS.*
  - (2) *If the leak is due to a corrosion pit, install a properly designed bolt-on-leak clamp.*
  - (3) *If the leak is due to a corrosion pit and on pipe of not more than 40,000 psi (267 Mpa) SMYS, fillet weld over the pitted area a steel plate patch with rounded corners, of the same or greater thickness than the pipe, and not more than one-half of the diameter of the pipe in size.*
  - (4) *If the leak is on a submerged offshore pipeline or submerged pipeline in inland navigable waters, mechanically apply a full encirclement split sleeve of appropriate design.*
  - (5) *Apply a method that reliable engineering tests and analyses show can permanently restore the serviceability of the pipe.*

**Finding(s):**

CNG failed to identify cause of leak and did not complete engineering tests and analyses showing that the installation of a Plidco fitting and the installation method utilized permanently restored the serviceability of the pipe.

25. **49 CFR §192.747 Valve maintenance: Distribution systems.**

- (a) *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.*

**Finding(s):**

CNG failed to maintain the shut-off valve for regulator station R-20 since its date of installation. This valve is not numbered.

26. **49 CFR §192.917 How does an operator identify potential threats to pipeline integrity and use the threat identification in its integrity program?**

(b) *Data gathering and integration. To identify and evaluate the potential threats to a covered pipeline segment, an operator must gather and integrate existing data and information on the entire pipeline that could be relevant to the covered segment. In performing this data gathering and integration, an operator must follow the requirements in ASME/ANSI B31.8S, section 4. At a minimum, an operator must gather and evaluate the set of data specified in Appendix A to ASME/ANSI B31.8S, and consider both on the covered segment and similar non-covered segments, past incident history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, internal inspection records and all other conditions specific to each pipeline.*

**Finding(s):**

CNG failed to evaluate and integrate all relevant data and information in their threat identification process. CNG Engineering is responsible for the IMP program. CNG engineering identified they were not notified of leaks and repair along the long seam in at least two locations on their Sumas and Ferndale transmission lines.

**AREAS OF CONCERN OR FIELD OBSERVATIONS**

1. **WAC 480-93-018 Records.**

CNG identified that odorant check/test did not apply and they did not complete Service Request Form 305 stating that odorant was detectable during regulator set/lock-up. Forms were reviewed for September 2010. The GM identified there is no reason that in testing for lock-up that the servicemen should not smell gas.

2. **WAC 480-93-175(2) Moving and lowering metallic gas pipelines.**

The calculations used for the lowering of 4" steel main at Cordata Pkwy. (WTA Bus Station Project) dated 03.19.08 identify

- a. The pipe design factor (F) used was 0.60 for a Class 2 Location rather than 0.50 for Class 3 Location per 49 CFR §192.5(c)(ii).
- b. The yield strength factor used was 35,000psi for Grade B pipe rather than 24,000psi per 49 CFR §192.107.

3. **WAC 480-93-180 Plans and procedures.**

CNG procedures CP 760.102 require a project engineer designate the non-destructive test requirements for a project.

4. **WAC 480-93-180 Plans and procedures.**

- a. Procedures correction needed: CP 760.071 – Under welding procedures refers to “Figure 11” but “Figure 11” is for a Guided Bend Test Specimen not welding procedures.
- b. Procedure clarification: Welding Cycle test requirements on page 42 Figure B: There is an asterisk in Table but no note associated with the asterisk identifying

the meaning. CNG compliance identified the meaning is referenced within the language of Note 2 and identified that they will clarify this reference.

5. **WAC 480-93-180 Plans and procedures.**  
CNG failed to determine and to provide records indicating that isolation valves V-11 and V-12 (in vaults) are approved for use in submerged locations.
6. **WAC 480-93-180 Plans and procedures.**  
CNG procedure CP 766.024 "Transmission Line - Temporary Repair" references CP 765 for the repair of defective welds. The CNG manual does not contain a CP 765.
7. **49 CFR §192.7 What documents are incorporated by reference partly or wholly in this part?**  
Staff found that CNG was using the November 2005 version of the API Standard 1104, "Welding of Pipelines and Related Facilities" rather than the 20th edition October 2005, errata/addendum, (July 2007) and errata 2 (2008) adopted version.
8. **49 CFR §192.16 Customer notification.**  
CNG was unable to provide evidence that notices have been sent to customers within 90 days. CNG identified that beginning April of 2011 they have notified all customers of their responsibility for those service lines not maintained by them and are presently considering sending out notification in all future bills as either a stuffer or on the bill itself.
9. **49 CFR 192.325 Underground clearance.**  
CNG's procedure CP 605.022 language correction required. "Should" is to be changed to read "Shall" to meet requirements. CNG agreed with language change and stated they will address promptly.
10. **49 CFR §192.615(c) Emergency Plans.**  
CNG does not have a meeting/training interval for liaisioning with public officials. CNG identified they would set meetings with those officials that do not hold meeting of their own.
11. **49 CFR §192.616(a) Public awareness.**  
CNG's program contains a management commitment in a statement of support. However, the statement of support signatory is no longer with the company.
12. **49 CFR §192.616(c) Public awareness.**  
CNG's procedures CP 500 require updating to address there is no longer a Senior Director of Safety & Engineering for review purposes.
13. **49 CFR §192.707(d) Line markers for mains and transmission lines.**  
CNG's gate station warning sign for R-116/O-2 did not contain all of the required information.