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July 15, 2011

David Lykken - Director of Pipeline Safety Program
State of Washington Utilities and Transportation Commission
1300 S. Evergreen Park Dr. SW
P.O. Box 47250
Olympia, WA 98504-7250

Subject: Response to Docket PG-110020

Dear Mr. Lykken,

This letter is intended to address all probable state and federal safety code violations and noted areas of concern. We specifically are addressing how and when we plan to bring the probable violations into full compliance. We also are covering our plan to address the areas of concern noted by your inspector, Ms. Zuehlke and expressed in Docket PG-110020. The inspection was conducted on April 4-6, 12-14, 18-21, and 26th at our facilities in Bellingham, WA and Kennewick, WA.

The following is in response to the twenty-six citations noted as 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 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

Cascade Response

Inspector only requested pressure information for Bellingham Transmission Lines, and current charts and facilities maintenance forms were photocopied that were pertinent to those locations. These items were left on the table when the Inspector left (see Exhibit A). Inspector was provided full access to Regulator folders which set the MAOPs. Furthermore, HP, IP and Distribution MAOP tables were provided (see Exhibits B and C). Lastly there was no indication during the exit interview that these items were deficient.

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.

Cascade Response

According to the documents that we do have, this was not a casing, but appears to have been a barrel repair in-between two casings of record. The measurement of 105 ft. is not correct as noted by WUTC staff, as that is the measurement of the known casing located south of crossing State St. During our excavation in September 8-9, 2009 to determine the source of our leak at this location, the pipe was exposed and identified as a barrel repair, estimated to be approximately 36 ft. long. Engineering was notified on September 11, 2009 about the findings of the dig, and continued monitoring until a decision was made to replace entire distance involving two casings, and a barrel repair. Therefore the pipeline this inspector is concerned about is no longer in service as CNG as a prudent operator replaced this section of pipe when the Franklin and State Street project was being completed in 2010 (see Exhibit D).

*Note - CNG does appear to be deficient in providing records of the barrel repair in question, as much effort was spent trying to locate those documents. However CNG would also like to note that this was a repair obviously made over 10 years ago, as the present Bellingham manager has been in place since 2000 and was not aware of the existence until the September 2009 dig. Furthermore, CNG provided all documentation requested by the WUTC in an effort to show our prudency not only in our leak investigations, but in our efforts with pipeline safety.

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 3rd party damage on 05.25.11, this main was squeezed-off for repair resulting in loss of 56 customers.)

Cascade Response

a. 1000 C St. – Steel Service replaced w/ PE 9-1-09 (Service Card, and updated Service Record exist in Service Drawing Files
901 C St. – Service Card showing Retirement of previously unrecorded service dated 4-14-94 exists in Service Card File. These two infractions will be covered under Item #5 in the Settlement Agreement with the implementation of GIS

b. 1525 Boblett, Blaine - This specific incident occurred on May 25, 2011 at **1635** Boblett after the Audit and was reported through the process of Cascade Natural Gas providing a direct report according to WAC

480.93.200 eighteen days earlier than required. This was not discovered during the inspection. Mapping error was corrected on June 8, 2011. This incident included a post analysis evaluation by CNG managers and documented efforts to eliminate this type of mapping error in the future. Furthermore, this issue is presently being addressed in the Settlement Agreement with the implementation of GIS item number five.

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 nintey 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	2nd FAILED	-0.958	0% Gas	No	No
c. 03.17.08	3rd FAILED	-0.852	0% Gas	No	No
d. 09.25.08	4th FAILED	-1.020	Unknown*	No	No
e. 03.20.09	5th PASSED*	-1.059	0% Gas	N/A	No
f. 09.17.09	6th (Not recorded)*	-0.960	0% Gas	No	No
g. 03.11.10	7th PASSED*	No read*	0% Gas	N/A	No
h. 03.22.10	8th (Not recorded)*	Unknown*	Unknown*	Unknown*	No
i. 09.20.10	9th (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.

Cascade Response

In review of what the Inspector has listed in the report, CNG would like to clarify that the surveys referenced in docket 110020 were performed in accordance with Cascade CP 755 "Casing Survey" section. The following describes our compliance with that section for each potential violation listed:

a. 03.16.07 The carrier pipe to soil potential indicates adequate cathodic protection was applied to the pipe. The paperwork does indeed show that the Casing failed. Per Cascade company procedure 755 section .063 (b) with a 0% Gas Reading at the vent, requirements are to monitor the situation with a 180 day Shorted Casing Survey. That is what the (b.) 10.04.07 follow-up check was for, which still showed 0% Gas at the vent.

b. 10.04.07 See above comment.

c. 03.17.08 Next Year's Annual Survey check, is within the 180 day compliance date. The notation for (d) 09.25.08 in the PV, shows that CNG had unknown reads, which is incorrect. This specific location had again failed the Tinker-Rasor Test, but was marked N for % Gas Reading. Our form states that only a detected measure of % Gas needs noting, so no amount was listed. Hence, again this casing was put on the180 day follow-up. (d) 09.08.08 was required to address the shorted condition, which still showed having a 0% Gas Read at the vent.

d. 09.08.08 See above comment.

e. 03.20.09 Is the Annual Survey for 2009. This time although the casing read suggests that a short existed, it passed the Tinker-Rasor Test, and showed 0% Gas Read as well. CNG still kept it on the 180 Day Follow-up (f) 09.17.09, and shows that it was still checked with a casing mV Read of -.960, but 0% Read at the vent. (NOTE: There are two sheets of the same survey, one was filled out by the Service Mechanic doing the Bellingham locations, and the other Service Mechanic was doing the County Short locations).

f. 09.17.09 See above comment.

g. 03.11.10 is the Annual Survey for 2010. Inspector shows no read, however CNG copy shows a read of -1.062 casing mV reading, which suggests a shorted condition. However, our Corrosion Tech has added a notation that on 03.22.11 (11 days later) it was checked with a Tinker Rasor Unit, and it is given a Pass condition, still showing 0% Gas reading. CNG believes due to water table issues that this particular short self corrected and we continue to monitor as required.

h. 03.22.11 (not recorded) notation is actually the 11 day follow-up described in (g).
This was not another survey, but rather a Tinker-Rasor follow-up conducted in conjunction with the Annual Survey done 11 days earlier.

i. 09.20.10 (not recorded) notation on 180 Day Follow-up Form clearly states – NO SHORTED CASINGS TO SURVEY – SEE ANNUAL 2010 REPORT – ALL CASINGS PASSED.

(See Exhibit E)

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

Cascade Response

PV5-1

a. 601 Chestnut, Bellingham*
b. 213 E. Champion, Bellingham*
c. Meador Ave. and Humboldt, Bellingham*
d. 1601 Main St., Lynden-Same issue as (e) listed below.
e. 1647 Main St., Lynden – Same issue as (d) above. Both issues are currently being addressed and contractors have reviewed these locations to assist CNG to remedy the situations.

*Note – above casings are shown on paper grid maps, but were deleted from the survey years ago due to interpretation of former Corrosion Department Manager, Joe Maxwell. Although identification of such locations has been performed in some districts, this will require ongoing efforts companywide through manual scanning of our Paper Grid Maps and present GIS Records. Again CNG will be addressing this in the mapping updates as required by Settlement Agreement item number five.

PV5-2

(a) 3.16.07 – CNG performed a follow up test to determine if a shorted casing existed on 3.16.07 and found that the casing was in fact shorted. CNG performed follow up leak surveys on 3.16.07 and on 10.4.07 and detected no gas during each survey.
(b) 10.16.07 – This date is the second follow up leak survey of the shorted casing identified on 3.16.07
(c) 3.17.08 – CNG performed a follow up test to determine if a shorted casing existed on 3.17.08 and found that the casing was in fact shorted. CNG performed follow up leak surveys on 3.17.08 and on 9.25.08 and detected no gas during each survey.
(d) 9.25.08 – This date is the second follow up leak survey of the shorted casing identified on 3.17.08
(e) 9.17.09 – This date is a follow up leak survey performed, however the annual casing survey and verification performed on 3.20.09 indicated that the casing was not shorted at this location. This leak survey was performed because had identified an issue with this casing in two previous years and felt it was a safe practice to perform this additional survey not required by code.
(f) 3.22.10 – CNG performed a follow up test to determine if a shorted casing existed on 3.22.10 and found that the casing was not shorted. A follow up leak survey was performed anyway on 3.22.10 and no gas was detected.
(g) 9.20.10 – No follow up leak survey was performed because the casing was identified as not being shorted during the annual casing survey performed on 3.22.10.

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

Cascade Response

a. 1601 Main, Lynden – ¾" inside 2" Steel - span in question earlier PV5.1. At a minimum this crossing should have had markers identifying its location spanning creek. Pipeline markers have been placed and will be maintained until this service line can be relocated.
b. 1647 Main, Lynden – ¾" inside 2" Steel – other span situation in question earlier PV5.1. This should have had markers as well. Pipeline markers have been placed and will be maintained until this service line can be relocated.
c. 1662 Main St., Lynden – There is no ditch crossing at this address (see Exhibit F)
d. 1650 Main St., Lynden – There is no ditch crossing at this address (see Exhibit F)
e. 1659 Main St., Lynden – There is no ditch crossing at this address (see Exhibit F)
f. 1662 Main St., Lynden – This is a duplication of note (c).
g. 1674 Main St., Lynden – (¾" x-tru up and over crossing driveway bridge)*
h. 1700 Main St., Lynden – (¾" x-tru crossing –side of driveway bridge)*

i. 1718 Main St., Lynden – (1-1/4" x-tru coat in pvc sleeve crossing side of driveway bridge. Split service to serve 1714 Main St.)*

j. 1770 Main St., Lynden – (¾" x-tru coat crossing bridge)*

k. 1726 Double Ditch Rd is not a valid address. 1726 Main St – split service from 1738 Main St where service line was installed under ditch

*Note – Pipeline markers have been placed at these locations and will be maintained until the service lines can be relocated. (see Exhibit F)

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.

Cascade Response

CNG has installed additional support at this location. (see Exhibit G) Furthermore, CNG believes that these types of situations will decrease as we implement the Management of Change and Quality Assurance Program as agreed to in the Settlement Agreement numbers one and two respectively.

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.

Cascade Response

The area excavated for lowering was much larger than indicated on our drawings and special care was taken to lower the pipeline as engineering designated. The area noted as a shortfall to the north could not be done to the 125 ft distance due to the Line stop located on that end of the project. Phone calls were made to engineering, and discussions took place to adequately take care by lowering more gradually on the south end of the project. CNG acknowledges that this lowering was not performed to the engineer's original design. The as-built drawings will be resubmitted to engineering to evaluate if the stress on the pipe is within acceptable limits.

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 nt have a serveillance procedrue 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 filet 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 instruction for response to a blowing relief at a regulator station. On January 24, 2011, CNG responded to a blowing rlief 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 Inspections 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.

Cascade Response

PV9-1

CNG is in the process of developing a standard for attaching test coupons to steel pipe. This issue has been added to CNG's company procedure discrepancy list and will be corrected in the near future. Furthermore these types of issues will be addressed in the Settlement Agreement item numbers, one, two and six, therefore addressed in the Management of Change, Quality Assurance and review of the O & M manual program implementation.

PV9-2

CNG's welding procedures meet or exceed all requirements of API 1104 welding standards. An API 1104 standard has been adopted in place of form CNG 525 and CNG's procedure will be updated to reflect this change. This issue has been added to CNG's company procedure discrepancy list and will be corrected in the near future. Again these types of issues will be addressed in the Settlement Agreement item numbers, one, two and six, therefore addressed in the Management of Change, Quality Assurance and review of the O & M manual program implementation.

PV9-3

CNG uses a number of manufactured components and complies with manufacturer's recommended practices for handling and installation. The certificate of compliance from Plidco is attached to the leak report and repair work order identified here (see Exhibit H).

PV9-4

CNG acknowledges that we did not follow CP 766 in regards to this repair. CNG believes that these types of situations will decrease as we implement the Management of Change and Quality Assurance Program as agreed to in the Settlement Agreement numbers one and two respectively.

PV9-5

CNG does have surveillance procedures in place that will identify hazardous conditions (CP 716, CP 720 and CP 750). These CPs also provide actions to correct, however additional training regarding these conditions needs to take place. Conditions that have been installed in the past are not acceptable, and staff needs to recognize those conditions and take steps to resolve upon discovery. Instances noted were also brought to light in PV5.1 and PV6.

PV9-6

This is an accurate statement. The Bellingham District uses a Sherwin-Williams Product that was requested to try as a replacement to the Wasser Paint coating used previously. It is the same product that BP Refinery, and Williams Pipeline use, and has proven itself to be more durable than anything previously used in the Bellingham district. This issue has been identified on CNG's company procedure discrepancy list and will be corrected in the near future.

PV9-7

This is not a company practice. The locations where above ground pipe with manufacturer's mill coating identified will be classified as AOCs and are in the process of being corrected.

PV9-8

CNG takes pride in employing a robust and thorough welder training program that insures each welder currently meets qualifications by training and experience to visually inspect welds.

From CNG CP 760:
.09 VISUAL INSPECTION OF WELDS

.091 Each weld that is made will be visually inspected by the person making the weld to ensure that it has been made in accordance with the appropriate welding procedure and is acceptable according to these visual standards. API 1104 is an alternate reference for the acceptability of defects.

.092 During welding the welder will visually inspect each pass to see that it contains no defects and conforms to the appropriate weld procedure. All passes shall be power ground before making another pass to remove surface slag, imbedded slag (wagon tracks), and surface cracks. Pinholes and porosity must be ground out and rewelded. Undercutting exceeding the smaller of 1/64", or 6% of wall thickness, shall be repaired by welding. (CP 760)

Requirements of API 1104 include testing and recertification every six months. CNG procedures require recertification of our welders every 4 months.

PV9-9
It is not CNG's practice to install mitered joints and all appropriate personnel have been trained o how to pipe angle deflections without the use of mitered joints. CNG personnel have provided documentations on the method that was utilized during this installation to the inspector. The as-built drawings for project #178608 do not identify the changes in angle of the installed pipe as miter joints. CNG disagrees with the inspector's claim that a miter joint was installed (see Exhibit I).

PV9-10
CNG disagrees with the WUTC staff claim that a miter joint was installed as stated above and knows CNG had adequate oversight and inspection of the gas main construction to ensure CNG Standards and Procedures were met.

PV9-11
CNG acknowledges that they failed to identify this facility with a number and maintain it as required. This situation has been rectified. We have taken steps through map reviews and field verifications to insure that similar situations are identified and corrected. Furthermore this exact type of situation will be addressed through the Settlement Agreement item numbers one, two and five respectively management of change, quality assurance, and mapping implementation.

PV9-12
Situation described above was identified during the normal weekly chart reviews by CNG. When noted, WUTC was notified within the allowable time frame from the discovery of an overpressure (MAOP 60# / Chart registered 62# bump prior to relieving). As an additional safety measure, CNG performed a leak survey of the entire section involved and recorded no leaks. CNG disagrees that their procedure for responding to a blowing relief is incomplete.

PV9-13
CNG acknowledges that our company procedures do not currently address the storage and handling of plastic pipe and are in the process of updating our CPs to include instructions on this issue. This issue has been added to CNG's company procedure discrepancy list and will be addressed in the near future. Furthermore these types of issues will be addressed in the Settlement Agreement item numbers, one, two and six, therefore addressed in the Management of Change, Quality Assurance and review of the O & M manual program implementation.

PV9-14
CNG CP 607 .044 identifies the maximum cumulative ultra-violet light exposure time for each type of plastic pipe in its procedure manual (see Exhibit J).

PV9-15
Corrective action has been taken and training has been performed to have these identified as AOCs. CNG believes this will be addressed in the Settlement Agreement through item number one, two and six, management of change, quality assurance and O & M manual review.

PV9-16

Corrective actions have been taken and training has been performed to have these identified as AOCs. CNG believes this will be addressed in the Settlement Agreement through item number one, two and six, management of change, quality assurance and O & M manual review.

PV9-17

CNG has performed NDT at all locations required by 192.243. CNG's High Pressure Line Project Record does have a field to indicate if NDT is required. This form will be revised to state if NDT is not required and include an approval line for the project engineer to sign off.

PV9-18

CNG acknowledges that an internal audit as described by the inspector was not held, however studies and assessments where completed on all portions of our public awareness program. Overall effectiveness survey was completed on June 4, 2010 by Central Surveys. Furthermore assessments and evaluations were made on each stakeholder group in the public awareness plan, and can be viewed on line at the following url's:

http://www.pipelineawareness.org/wp-content/uploads/2010/07/Emergency-Responders-Study-2010.pdf
http://www.pipelineawareness.org/wp-content/uploads/2010/07/Excavator-Study-2010.pdf
http://www.pipelineawareness.org/wp-content/uploads/2010/07/Public-Officials-Study-2010.pdf
http://www.pipelineawareness.org/wp-content/uploads/2010/07/PAPA-survey-review-letter-062010.pdf

PV9-19

(a) A test pressure was specified from engineering in the contract signed with the contractor performing the pressure test (see Exhibit K). Engineering has reviewed the pressure test data and approved the test as valid -see note (c). CNG acknowledges deviation from the specified test pressures and believes that a tighter span of control will be achieved through quality assurance and O & M manual reviews.

(b) The pressure test record indicates that a leak test was performed on the new pipe. A line walk checking for leaks is not required because the leak test was performed.

(c) The pressure test data has been reviewed by engineering and approved as a valid test. (see Exhibit K) The temperature information from this test is discounted due to the project field manager's input that only a measure of ambient air temperature was recorded and not actual pipe temperature.

10. WAC 480-93-186 Leak evaluations.

(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

Cascade Response

On 5-8-08, a read of 80% gas not LEL was taken by employee using CGI #1875. Upon notification, recheck was done on 5-9-08 with a before aspirate read of 75% (9:00), that upon aspiration settled down at 8% (10:45) sustained. It then appears another read taken later (15:35) which resulted in reads of 38% & 61%. Next action noted was a dig conducted by CNG Crew under the direction of Ed White –Division on 5-12-08, which encountered excessive water conditions at 4.5 to 7.5 feet of depth. Notes show that depth of pipe appeared to be approximately 10 ft, and water prevented them from getting pipe exposed. It was noted that there were no bubbles coming up in the water above the pipe, which would indicate that a leak was present if they were coming up through the water. Drawings do not indicate that outer perimeter of reads was taken to find out if leak was 0% at its extremities. The Leak was graded a 3 due to investigation findings, and the excavation was closed up, to be monitored for dryer conditions to pursue further investigation. Another check was made on 11-10-08 with a notation indicating that there were reads north of old asphalt patch ranging between 6-12%. Section #1 Leak survey conducted on 06-17-09 and no new problems was noted. Next attempt was made to excavate 9-8, 9, 10-2009, and was able to uncover source of leak, at which time pictures were taken showing barrel repair built around pipe. On 9-11-2009, GM notified Operations, Engineering & Division of what we had found, and attached copies of Integrity Dig Report showing what we had found. A HP#2 Survey was conducted over the area on 11-3-09 w/o any notation, as well as a Section #1 Survey in that area 8-26-10. Plans were made to not only eliminate the leak, but also to eliminate two casings located on either side of it by replacing 450 ft. of pipe, which was completed 11-24-10. (see Exhibit L)

11. WAC 480-93-186 Leak evaluations.

(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 40th St., Bellingham
c. WO# 169958
d. WO# 169774
e. WO# 169958

Cascade Response

a. Yew St & Douglas Ave (WO# 169958) – CNG was unable to find any paperwork indicating follow-up survey was done after repair.
b. 704 40th St (WO# 169774) –CNG was unable to find any paperwork indicating follow-up survey was done after repair.
c. WO# 169958 (This PV is a duplication of (a) notation)
d. WO# 169774 (This PV is a duplication of (b) notation)
e. WO# 169958 (This PV is a duplication of (a) and (c) notations)

12. WAC 480-93-188 GasLeak evaluations.

(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.

Cascade Response

PV12-1

a. CNG is unable with current tools to walk over and leak survey this span. The service line spans over flowing water. This issue is currently being addressed and remediation is being planned. See responses for PV5.1d and PV6a for additional comments. CNG has also recently purchased Remote Methane Leak Detector units to assist with leak surveying difficult areas.
b. CNG is unable with current tools to walk over and leak survey this span. The service line spans over flowing water. This issue is currently being addressed and remediation is being planned. See responses for PV5.1e and PV6b for additional comments. The service line was updated on CNG's leak survey maps on 7/11/11.

PV12-2

Immediately following the Audit, Bellingham District Operations Manger was in contact with the property's Business Manager regarding the obstruction placed in the CNG easement. We are currently working with the property owner to clear the easement prior to September 1, 2011, so we are able to perform our annual leak survey in the fall of 2011.

13. WAC 480-93-188 GasLeak evaluations.

(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.

Cascade Response

The leak survey maps used for this survey do not indicate modification reroute had taken place, as indicated on service modification records in office. This location has been referenced before in PV5.1e, PV6b, &PV12.1b, referring to free spanning pipe issues. This service line was updated on CNG's leak survey maps on 7-11-11.

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.

Cascade Response

Compliance Department at CNG admits these reports were not submitted by March 15th, 2010. However specific emails were received and sent to Marina Woodard of the WUTC notifying her of the issues that CNG was having with the online submission of data with the federal government (PHMSA website) and new electronic forms. These emails are available for WUTC review and this information was provided to WUTC staff on several occasions.

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.

Cascade Response

Please see response to PV2 as this is the same applicable issue and response.

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

(a) Each underground vault or pit for valves, pressure relieving, pressure limiting, or pressure regulating station, 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.

Cascade Response

This vault appears to be a pre-fabricated vault that shows damage in the lower area of one wall that probably occurred during installation. It has a 2" pipe cross brace set in place which suggests that a situation was recognized and an attempt to repair was made. It also has to be pumped out of water prior to maintenance, which was a concern to the WUTC Inspector due to the valve being submerged, and the time it would take to pump out to gain access in an emergency situation. CNG has identified this particular location as a confined space entry situation, and will need to make future arrangements for safe access for maintenance. There are 3 other vaults that are on this Transmission Line that are of concern as well, and will be identified in the same manner as this one regarding entry restrictions due to water & size. Furthermore, the staff in Engineering responsible for the Bellingham emergency plan has been notified of the concern regarding these vaults during emergency situations with expectations that alternative plans will be made in the next month to address if such a situation should arise where the vaults are inaccessible in a timely manner alternative actions plans/steps to be taken. These plans will also be included permanently in the next annual emergency plans.

17. 49 CFR §192.321 Installation of plastic pipe.

(a) 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

Cascade Response

The segments of pipe identified by the inspector were located in CNG's stock yard and not installed above ground level. Additionally all pipe segments cited are manufactured with PE 3408 grade polyethylene. CNG company procedure 607 section .044 (see Exhibit K) specifies the maximum cumulative ultraviolet light exposure limits for each type of plastic pipe it has purchased.

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).

Cascade Response

CNG acknowledges that the segment referenced was not coated appropriately as carrier pipe, however the segment was not 105' in length as previously indicated in CNG's responses to PV2 and PV15a. Upon discovering that this segment had been installed, CNG took steps to retire the segment from the system.

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:

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

(b) During inspections the operator must give particular attention to pipe at soil-to-air interfaces, under thermal insulation, under disbonded 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.

Cascade Response

CNG has identified this location as a casing and surveys the span in accordance with our casing survey procedures. This span appears as item number 30 on the annual casing survey list (see Exhibit E). CNG recognizes this as an unusual installation and will reevaluate to determine if we feel it is appropriate to consider this span as a casing, above ground exposed pipe, or both.

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.

Cascade Response

CNG's practice is to design and operate all of its pipeline systems to class location 4 standards which are the most restrictive design and operating standards. CNG acknowledges that we have not been meeting the requirements for leak surveying transmission pipelines in class 4 locations. A class location study for all of CNG's transmission pipelines is planned to be completed by December 31st, 2012. Until the class location study is completed CNG will adjust leak survey schedules to insure that each transmission line is being leak surveyed four times per year meeting class 4 requirements.

21. 49 CFR §192.613 Continuous 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.

Cascade Response

PV21-1
CNG is taking steps to replace or make safe each of the spanning segments. CNG has placed pipeline markers at each of these locations to clearly mark the pipelines until they can be addressed (see Exhibit F). The spanning segments at 1601 Main St. and 1647 Main St. will be given the highest priority for replacement due to the length and location of the spans.

This issue is already addressed in PV5.1, PV6, and PV12.1. Please see those responses for additional comments.

PV21-2
CNG has in place a procedure for entry of confined spaces and performs training on this procedure. CNG does not identify vaults with water in them as AOCs and believes that using pumps to clear vaults is the best available practice. CNG will evaluate vaults that are prone to filling with water and identify alternative emergency valves if vaults cannot be cleared in a swiftly enough in an emergency situation. Please see our response to PV16 for additional information.

PV21-3
Documentation shows that this pipeline had 16 ft. of protective coverage prior to the landfill being placed over pipeline when installed in 1992. CNG has continued to monitor this facility through the leak survey's and pressure charts and flow over the last 19 years (years since original installation) none of the present tools we have indicate integrity issues in this particular area. Because of the WUTC staff concern regarding the additional coverage on top of the pipeline, the original as-built drawings have been sent to Engineering for further analysis and review.

PV21-4
CNG is currently taking steps to resolve this issue. Please see our response to PV12.2

PV21-5
CNG makes all reasonable efforts to try to identify and rectify all unsafe conditions on our pipeline system. The location identified did not exhibit the signs that CNG personnel typically associate with soil erosion, such as running stream water. This issue is scheduled to be corrected as part of a bridge/culvert installation project that will take place later in 2011. CNG recognizes the increasing importance of monitoring pipeline depth of cover as encroachment around our distribution systems becomes more prevalent.

PV21-6

CNG recognizes the structure was permitted and constructed within the pipeline ROW. CNG is actively involved in our public awareness program specifically engaging all venues to engage our local permitting and land developers. We presently have taken additional action to be a part of a "pipelines nearby progam" through the PAPA-Pipeline Association for Public Awareness. The purpose of the program is to provide approximate pipeline location information along with general hazard recognition and response information for pipelines near a specific location. The program will allow stakeholders, who include: municipalities, businesses, schools, residents, 911 centers, and emergency officials to enter specific location information into a web based application, or use a mobile device, to return information for pipelines within a five mile radius of that specific location. For further details regarding this program please visit the following url:

http://208.109.252.161/wp-content/uploads/2011/02/Pipelines-Nearby-2011-2-15-11.pdf

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.

Cascade Response

Compliance Department Issue (please see response to PV9.18)

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. 09.08.09Records identify this leak dug on 09.08.09, 09.09.09, and 10.09.09 and deferred

Cascade Response

PV23-1

In review of work order referenced 03.04.08, it was noted as a Corrosion Control Issue regarding a 2" Steel Casing – no supports, sagging, exposed. All field employees have been issued cameras so that similar conditions can be evaluated in greater detail with a better understanding of the AOC. This issue has also been noted previously in PV5.1, PV6, PV12.1, and PV21.1.

PV23-2

These are all being dealt with, priority being the free spanning pipe at 1601 Main St. and 1647 Main St. Others are anchored at ends to driveway bridge crossings, and are secure until arrangements can be made to deal with eliminating those lines from hanging on those structures. Pipeline markers have been placed at these locations. This issue has also been noted previously in PV5.1, PV6, PV12.1, and PV21.see additional comments as noted in each.

PV23-3

This situation was dealt with within our abilities to manage it in a responsible and prudent manner. An investigation was initiated upon discovery, and in light of information provided by the Manager of Field Operations, the situation was deemed safe to monitor. When the ground water situation improved an investigative dig was initiated and the results were provided to Engineering for a decision on a course of action. A project was then initiated to replace the section of pipe to remedy several issues that we had with the existing pipeline segment. This issue has also been identified in PV2, PV4, PV5.2, PV9.9, PV9.10, PV10, PV15, and PV18. Please see our responses to these items for addition information.

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.

Cascade Response
The leaks were identified on the leak report forms as being caused by material or weld failures. The Plidco fittings installed are fittings rated and certified by the manufacturer as a permanent repair method for these applications.

Additional information on the Plidco fittings installed can be found at the following url:
http://www.plidco.com/public/products/split_sleeve.php

25. 49 CFR §192.717 Transmission lines: Permanent field repair of leaks.

(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.

Cascade Response
CNG acknowledges that it neglected to assign this valve a number at the time of installation and perform maintenance as required. This valve is a 2" Curb Valve Tee that does not require valve grease. Current Maintenance Procedures require that the valve be exercised only. This valve was installed after a modification of the station and it appears that it was overlooked at that time in getting a Valve # assigned. The valve was assigned a number on 04.27.11 and was placed on the maintenance schedule on that date. It was exercised during the audit with no problems noted. This is again an issue that CNG will address through the implementation of items one, two and six as agreed to in the Settlement Agreement.

26. 49 CFR §192.917 How does an operator identify 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.

Cascade Response
The first part of this state is correct. Cascade has not integrated information regarding the leaks identified on the 16" North Whatcom transmission line into our Threat Identification process. A risk reevaluation for CNG's IMP to incorporate all new information is scheduled for the week of 7-18-2011. The last statement is inaccurate. When speaking with Ryan Lindblom, he stated he was not personally notified of those leaks, however he was not speaking on behalf of the entire Engineering department. The IM Dig Report for the investigation and repair at Trapline Rd indicates that the repair method was reviewed and approved by an engineer on 10-06-10 (see Exhibit H).

The following is in response to the thirteen areas of concern or field observations noted by the inspector:

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.

Cascade Response

CNGC manager brought this issue to the attention of the inspector noting that the paperwork did not reflect accurately what the manager would have expected to see on the odorant check/test. Training has been performed with the individual whom filled out this paperwork to insure that this field is marked in the future if applicable. CNGC has qualified employees and believes that clarification regarding the procedures will be addressed as we implement new programs related to Quality Assurance, Management of Change and O & M manual review as identified in our Settlement Agreement.

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.

Cascade Response

The area open for lowering was much larger than indicated on our drawings and special care was taken to lower this keeping all CP's and regulations in mind. The area noted as a shortfall to the north could not be done to the 125 ft distance due to the Line stop located on that end of the project. Phone calls were made, and discussions took place with Engineering to adequately take care by lowering more gradually on the south end of the project. CNG acknowledges that this lowering was not performed strictly to the original engineer's design. The as-built drawings will be resubmitted to engineering to evaluate if the stress on the pipe is within acceptable limits.

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.

Cascade Response

During the audit, the inspector was provided several copies of the requirements for various projects. On this documentation the form specifies non-destructive testing requirements with a check box as Yes, and for the engineer to specify specifics. CNGC agrees that the form should have changes to accurately reflect Yes or No; as not having a yes check could mean they didn't consider it. CNG will add a field to the High Pressure Line Project Record to indicate that an engineer has reviewed the need for NDT.

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.

Cascade Response

CNG's welding procedures meet or exceed all requirements of API 1104 welding standards. This issue has been noted in CNG's company procedure discrepancy list and will be addressed in the near future.

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.

Cascade Response

CNG recognizes that having valves in submerged locations is not ideal and will evaluate these valves and other vaults for safety, and ease of access and prioritize remediation.

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

Cascade Response

This issue has been noted in CNG's company procedure discrepancy list and will be addressed in the near future.

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

Cascade Response

The latest approved API 1104 standard is the 20th edition and was approved on 11-07-2005. CNG uses the latest API 1104 standard for welding practices and will adjust procedures as needed to meet the requirements of all future editions of the API 1104 standard when approved.

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.

Cascade Response

As always our company procedure (indicates) an initial customer responsibilities brochure will be received with their initial first billing. Besides documenting the first bill, it appears that this documentation is not sufficient, so in April of this year CNG sent the attached bill stuffer to all CNGC customers and are in the present process of trying to get this information or a url affixed permanently printed on every bill. See attached brochure (Exhibit M) sent out with initial bill and again sent to all customers during the April billing cycle.

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.

Cascade Response

This language correction has been listed on our CP Discrepancy list to be changed and specifically is listed as CP discrepancy number #11. We anticipate a time of review of all the CP's and submittal of the changes on an annual basis. Believe this will be covered also in our O & M manual review as agreed upon in the Settlement Agreement.

10. 49 CFR §192.615(c) Emergency Plans.

CNG does not have a meeting/training interval for liaisoning with public officials. CNG identified they would set meetings with those officials that do not hold meeting of their own.

Cascade Response

Information is sent out via direct mail to the local public officials at least once every three years. We have been sending them required messaging every year for the last three years. Visit the following url for the full scope of the program.

http://208.109.252.161/wp-content/uploads/2011/01/Public-Officials-Newsletter-Program-2011.pdf

In addition individual district managers have held face to face meets based on availability of staff. Lastly, in 2011 CNG, Avista, and Transcanda collaboratively liasoned between public officials, emergency responders and excavators. It is CNG's intention to expand on this effort statewide with all other underground utilities in 2012.

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.

Cascade Response

This issue has been noted on CNG's company procedure discrepancy list and will be addressed in the near future

12. 49 CFR §192.616(a) Public awareness.

CNG's procedures CP 500 require updating to address there is no longer a Senior Director of Safety & Engineering for review purposes.

Cascade Response

This is the same issue as noted above, see response for above stated CP discrepancy list.

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.

Cascade Response

Signs will need additional information, or additional signage will be needed. Signs at this location posted by Williams Pipeline meet information requirements and are clearly visible to the public.

Please contact Tina Beach at 206-445-4121 or Ryan Lindblom at 360-788-2381 with questions or comments. Thank you.

Sincerely,
Cascade Natural Gas Corporation

Tim Clark
Vice President, Operations

CASCADE NATURAL GAS CORPORATION
A Subsidiary of MDU Resources Group, Inc.

8113 W. Grandridge Blvd, KENNEWICK, WASHINGTON 99336-7166 (509)-734-4576
FACSIMILE (509)-737-9803

Exhibit A

Transmission Line operating pressure records

#9 CAKE TERRELL RD
TRANS LINE

CNG 287A
REV 07/08

CASCADE NATURAL GAS

FACILITY NO R75

FACILITY MAINTENANCE & INSPECTION RECORD
REGULATOR STATION

FACILITY LOCATION Lake Terrel Road (South of Unick Rd.) SUR-ConocoPhillips
TOWN Ferndale DISTRICT Bellingham STATE WA

☒ ANNUAL ☐ REBUILD ☐ NEW ☐ RETIRE ☐ SPECIAL

TEST/SET

M.A.O.P. INLET 380 M.A.O.P. OUTLET 90

OPERATING REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 85
STANDBY REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 80
RELIEF VALVE: OPENS FULL FLOW ☒ YES ☐ NO SET PRESSURE 94
STATION PRESSURE: INLET 278 OUTLET 80
OPERATING & STANDBY REGULATORS SWITCHED: ☐ YES ☐ NO ☐ N/A

EQUIPMENT CHECK

OPERATING/WORKING RUN:
SIZE 3" MAKE Grove MODEL NUMBER 80
ORIFICE SIZE 100% PILOT MAKE/MODEL 8295 SPRING RANGE 60-150

STANDBY RUN:
SIZE 3" MAKE Grove MODEL NUMBER 80
ORIFICE SIZE 100% PILOT MAKE/MODEL 8295 SPRING RANGE 60-150

RELIEF VALVE:
SIZE 6" MAKE Grove MODEL NUMBER 80
ORIFICE SIZE 100% PILOT MAKE/MODEL 8295 SPRING RANGE 60-150

INSPECTIONS

RELIEF VALVE FLAG FOUND:	☒ SET ☐ TRIPPED ☐ N/A	SIGNS:	☒ GOOD	☒ BAD	☐ N/A
VENT STACK CLEAR:	☒ YES ☐ NO ☐ N/A	GROUNDS:	☒ GOOD	☐ BAD	☐ N/A
REG VENTS DOWNWARD:	☒ YES ☐ NO	FENCE:	☒ GOOD	☐ BAD	☐ N/A
WEATHER CAPS OPERABLE:	☒ YES ☐ NO ☐ N/A	WRAP:	☒ GOOD	☐ BAD	☐ N/A
PILOT FILTER:	☐ CHECKED ☒ N/A	PAINT:	☒ GOOD	☐ NP	☐ NR
VALVES OPERATE:	☒ YES ☐ NO ☐ N/A	VAULT LID:	☐ GOOD	☐ BAD	☒ N/A
VALVE POSITION CHECKED:	☒ OPEN ☒ CLOSED ☐ N/A	VAULT:	☐ GOOD	☐ BAD	☒ N/A
VALVES LUBE:	☒ YES ☐ NO ☐ N/A				
VALVE BOX:	☐ GOOD ☐ BAD ☒ N/A				

CHECKED VALVE LOCKS
☒ RELIEF ISOLATION ☒ BY-PASS ☐ OPERATIONAL ☐ N/A
GAUGE(S) SERIAL # E1 GAUGE(S) CALIBRATION DATE 01/2010

REMARKS: WHEN BAD IS MARKED AN EXPLANATION IS REQUIRED. (WHEN REPLACEMENT IS MADE OF REGULATOR, RELIEF VALVE, OR VALVES – LIST MAKE, MODEL, PILOTS, MARKERS OR SIGNS. INCLUDE OPERATION AND MAINTENANCE WORK REQUEST (CNG-330) NUMBERS FOR NECESSARY REPAIRS).

PARTS REQUIRED: ☐ YES ☒ NO

Sign Blew Away. Will replace with new sign.

5/07/10 Replaced sign TLH / JMC RV

FOLLOW-UP REQUIRED: ☐ YES ☒ NO

WORK ORDER NUMBER

INSPECTED BY Tony Hance DATE 5/06/10 GENERAL MANAGER [signature] DATE 5-7-10

ORIGINAL – SAFETY

COPY - DISTRICT

HP#10
N. WHATCOM

LOCATION
TO
FROM
SER. NO.
REMARKS

District: Bellingham
Task: C959
Inlet MAOP: 600
Outlet MAOP: 250
Location: Portal Way / Arco Lateral @ R79
Position: P49

Town: Blaine
Inlet GAUGE: 1000
Outlet GAUGE: 300

H = 500
L = 490

156
150

Form ARC 599

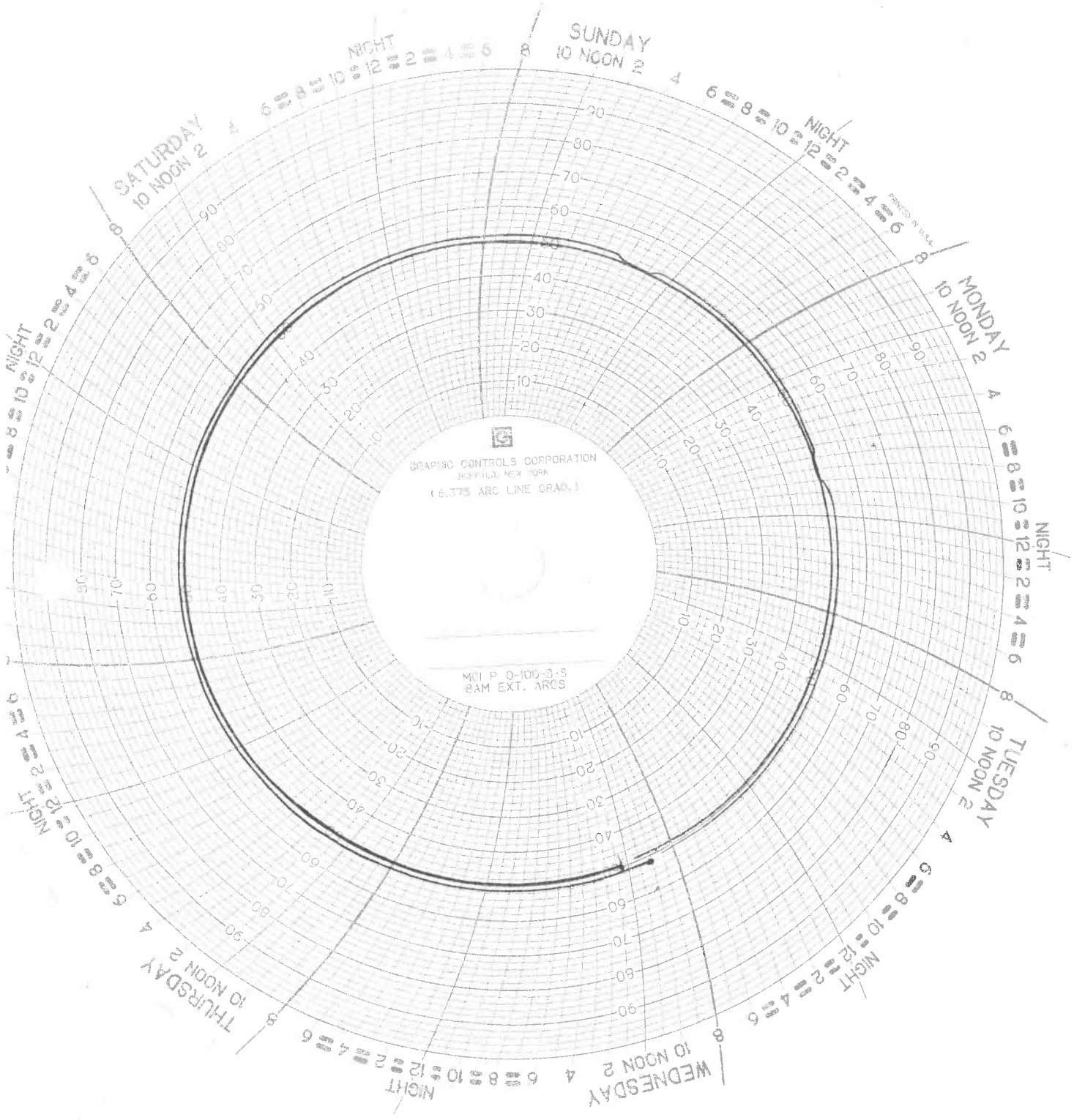
	A.M.-P.M.	DATE MONTH	DAY	YEAR	CHANGED BY
ON	1000	3	30	11	Glen F.
OFF	0925	4	6	11	GV

CASCADE NATURAL GAS CORPORATION SERVICE

HP#10 N. WHATCOM

OTHER TRANS LINES ON LIST WITH NO CUT IN PASS OFF OF ABOVE LINE ARE:

#11 - 8" KICKERVILLE TRANS
#13. 12" GRANDVIEW TRANS
#18. 20" FERNDALE TRANS
#16. 4" W. CYNDEN TRANS


SUNDAY
10 NOON 2
MONDAY
10 NOON 2
TUESDAY
10 NOON 2
WEDNESDAY
10 NOON 2
THURSDAY
10 NOON 2
SATURDAY
10 NOON 2
NIGHT
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
MCI P 0-100-3-3
8AM EXT. ARCS

HP # 10
N. WHATCOM

District: Bellingham Town: Lynden
Task: C966
Inlet MAOP: 600 Inlet GAUGE: 1000
Outlet MAOP: 400 Outlet GAUGE: 1000
Location: Depot Rd Check Meter @ R65
Position: P39

LOCATION
TO
FROM
SER. NO
REMARKS
MA

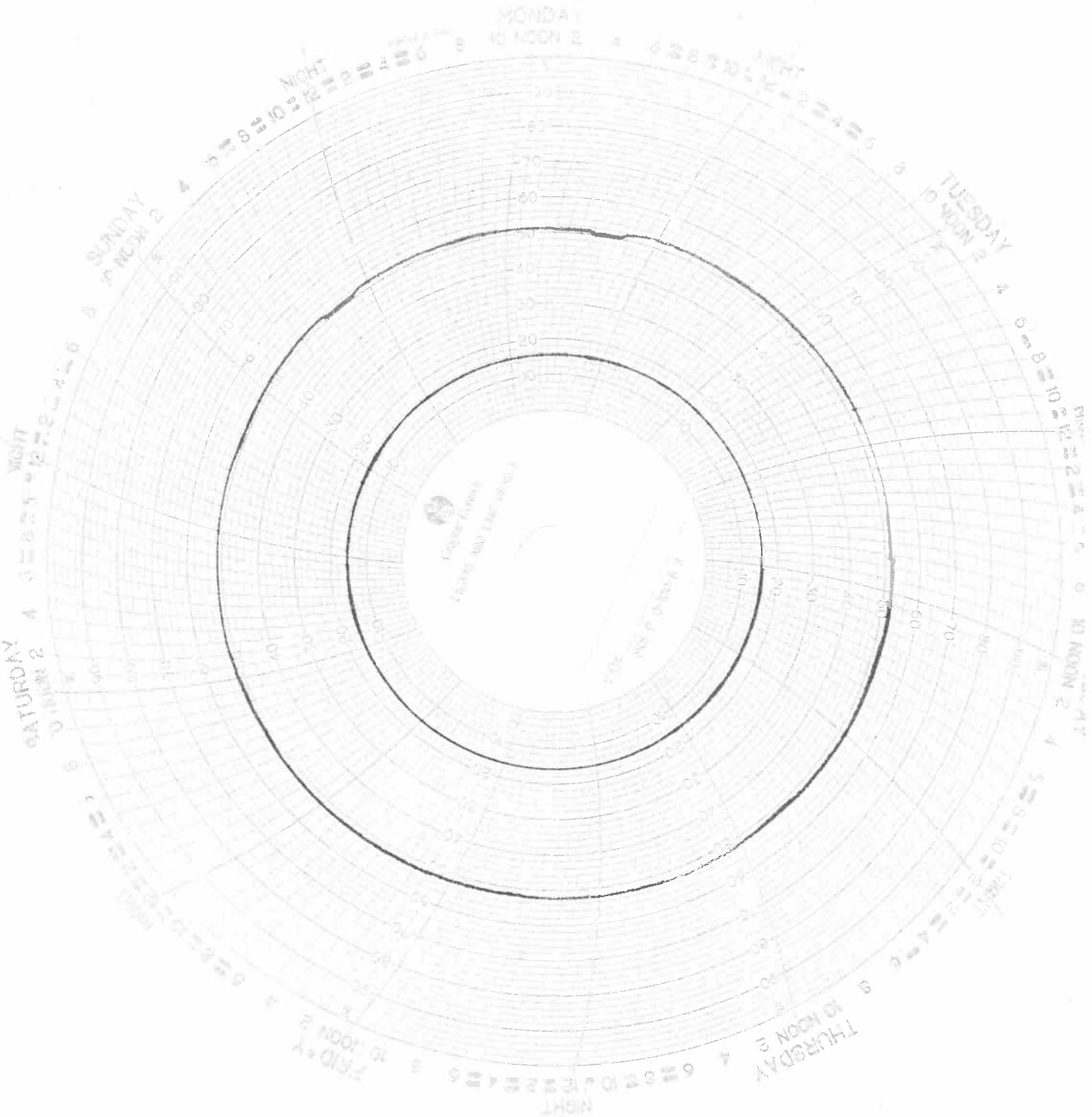
H = 520 160
L = 500 150 JW

Form ABC 599

DATE	A.M. P.M.	MONTH	DAY	YEAR	CHANGED BY
ON	735	3	30	11	
OFF	1415	4	6	11	

CASCADE NATURAL GAS CORPORATION SERVICE

C.N.G. F

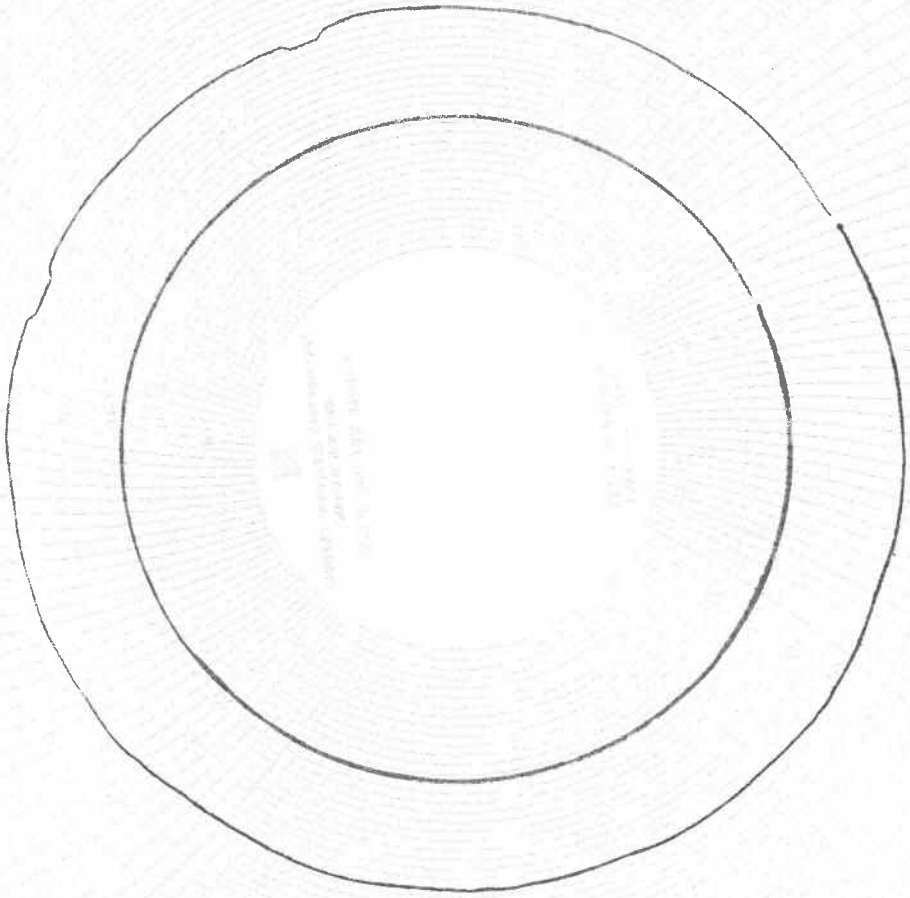


HP #11
8" Kickerville

District: Bellingham   Town: Ferndale
Task: C971   Inlet GAUGE: 1000
Inlet MAOP: 600   Outlet MAOP: 1000
Outlet MAOP: 380
Location: Kickerville @ R26
Position: P34

0905	3	30	11	GV
0905	4	6	11	GV

#1 380 280 JW
2 370 370



#16 - 4" GS LYNDEN TRANS
(TAP OF OF #10 @ U-59)

CNG 287A
REV 9/06

CASCADE NATURAL GAS

FACILITY NO. R-82

FACILITY MAINTENANCE & INSPECTION RECORD
REGULATOR STATION

FACILITY LOCATION Jasmine Ln.
TOWN Lynden DISTRICT Bellingham STATE WA

☒ ANNUAL ☐ REBUILD ☐ NEW ☐ RETIRE ☐ SPECIAL

TEST/SET
M.A.O.P. INLET 600 M.A.O.P. OUTLET 60
OPERATING REG. ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 60
STANDBY REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 50
RELIEF VALVE: OPENS FULL FLOW ☒ YES ☐ NO SET PRESSURE 65
STATION PRESSURE: INLET 530 OUTLET 58
OPERATING & STANDBY REGULATORS SWITCHED: ☒ YES ☐ NO ☐ N/A

EQUIPMENT CHECK
OPERATING/WORKING RUN:
SIZE 2" MAKE Fisher MODEL NUMBER 630
ORIFICE SIZE 3/8" PILOT MAKE/MODEL — SPRING RANGE 20-75
STANDBY RUN:
SIZE 2" MAKE Fisher MODEL NUMBER 630
ORIFICE SIZE 3/8" PILOT MAKE/MODEL — SPRING RANGE 20-75
RELIEF VALVE:
SIZE 2" LP MAKE Mooney MODEL NUMBER FG-52
ORIFICE SIZE 100% PILOT MAKE/MODEL 20 SPRING RANGE 20-75

INSPECTIONS
RELIEF VALVE FLAG FOUND: ☐ UP ☒ DOWN ☐ N/A WEATHER CAPS OPERABLE ☒ YES ☐ NO
RELIEF VALVE FLAG LEFT: ☐ UP ☒ DOWN ☐ N/A VENT STACK CLEAR ☒ YES ☐ NO
PILOT FILTER: ☐ CHECKED ☒ N/A REG VENTS DOWNWARD ☒ YES ☐ NO
VALVES OPERATE FREELY ☒ YES ☐ NO ☐ N/A SIGNS ☒ GOOD ☐ BAD ☐ N/A
VALVE POSITION CHECKED ☒ OPEN ☐ CLOSED ☐ N/A GROUNDS ☒ GOOD ☐ BAD ☐ N/A
VALVES LUBE ☒ YES ☐ NO ☐ N/A FENCE ☒ GOOD ☐ BAD ☐ N/A
VALVE BOX ☐ GOOD ☐ BAD ☒ N/A WRAP ☒ GOOD ☐ BAD ☐ N/A
VAULT LID ☐ GOOD ☐ BAD ☒ N/A PAINT ☐ GOOD ☒ NEEDS PAINT ☐ NEEDS REPAIR
VAULT ☐ GOOD ☐ BAD ☒ N/A

CHECKED VALVE LOCKS
☒ RELIEF ISOLATION ☒ BY-PASS ☐ OPERATIONAL ☐ N/A
GAUGE(S) SERIAL # G001 & G003 GAUGE(S) CALIBRATION DATE Exp 11-30-10

REMARKS: WHEN BAD IS MARKED AN EXPLANATION IS REQUIRED. (WHEN REPLACEMENT IS MADE OF REGULATOR, RELIEF VALVE, OR VALVES – LIST MAKE, MODEL, PILOTS, MARKERS OR SIGNS. INCLUDE OPERATION AND MAINTENANCE WORK REQUEST (CNG-330) NUMBERS FOR NECESSARY REPAIRS).

PARTS REQUIRED: ☐ YES ☒ NO

Needs power brush and paint

FOLLOW-UP REQUIRED: ☒ YES ☐ NO
WORK ORDER NUMBER 0113862 PENDING RX

INSPECTED BY [signature] DATE 5-24-10 GENERAL MANAGER [signature] DATE 5-26-10

ORIGINAL – ENGINEERING

COPY - DISTRICT

HP #19 SUMAS 20" TRANS

CNG 287A
REV 9/06

CASCADE NATURAL GAS

FACILITY NO. R-116 North Run

FACILITY MAINTENANCE & INSPECTION RECORD
REGULATOR STATION

FACILITY LOCATION Minaker Rd. at Bellingham 2 Gate
TOWN Sumas DISTRICT Bellingham STATE WA

☒ ANNUAL ☐ REBUILD ☐ NEW ☐ RETIRE ☐ SPECIAL

TEST/SET
M.A.O.P. INLET 780 M.A.O.P. OUTLET 600
OPERATING REG. ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 513
STANDBY REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 530
RELIEF VALVE: OPENS FULL FLOW ☐ YES ☐ NO SET PRESSURE
STATION PRESSURE: INLET 628 OUTLET 519
OPERATING & STANDBY REGULATORS SWITCHED: ☐ YES ☐ NO ☒ N/A

EQUIPMENT CHECK
OPERATING/WORKING RUN:
SIZE 10" MAKE Mooney MODEL NUMBER FG-59
ORIFICE SIZE 100% PILOT MAKE/MODEL S 20-H SPRING RANGE 500-900
STANDBY RUN:
SIZE 10" MAKE Grove MODEL NUMBER Ball Valve
ORIFICE SIZE 100% PILOT MAKE/MODEL BOE Actuator SPRING RANGE
RELIEF VALVE:
SIZE MAKE MODEL NUMBER
ORIFICE SIZE PILOT MAKE/MODEL SPRING RANGE

INSPECTIONS
RELIEF VALVE FLAG FOUND: ☐ UP ☐ DOWN ☒ N/A WEATHER CAPS OPERABLE ☐ YES ☐ NO ☒ N/A
RELIEF VALVE FLAG LEFT: ☐ UP ☐ DOWN ☒ N/A VENT STACK CLEAR ☒ YES ☐ NO ☒ N/A
PILOT FILTER: ☒ CHECKED ☐ N/A REG VENTS DOWNWARD ☒ YES ☐ NO
VALVES OPERATE FREELY ☒ YES ☐ NO ☐ N/A SIGNS ☒ GOOD ☐ BAD ☐ N/A
VALVE POSITION CHECKED ☒ OPEN ☐ CLOSED ☐ N/A GROUNDS ☒ GOOD ☐ BAD ☐ N/A
VALVES LUBE ☒ YES ☐ NO ☐ N/A FENCE ☒ GOOD ☐ BAD ☐ N/A
VALVE BOX ☐ GOOD ☐ BAD ☒ N/A WRAP ☒ GOOD ☐ BAD ☐ N/A
VAULT LID ☐ GOOD ☐ BAD ☒ N/A PAINT ☒ GOOD ☐ NEEDS PAINT ☐ NEEDS REPAIR
VAULT ☐ GOOD ☐ BAD ☒ N/A

CHECKED VALVE LOCKS
☐ RELIEF ISOLATION ☒ BY-PASS ☒ OPERATIONAL ☐ N/A
GAUGE(S) SERIAL # 6003 GAUGE(S) CALIBRATION DATE Exp. 11-30-10

REMARKS: WHEN BAD IS MARKED AN EXPLANATION IS REQUIRED. (WHEN REPLACEMENT IS MADE OF REGULATOR, RELIEF VALVE, OR VALVES – LIST MAKE, MODEL, PILOTS, MARKERS OR SIGNS. INCLUDE OPERATION AND MAINTENANCE WORK REQUEST (CNG-330) NUMBERS FOR NECESSARY REPAIRS).

PARTS REQUIRED: ☐ YES ☒ NO

FOLLOW-UP REQUIRED: ☐ YES ☒ NO

WORK ORDER NUMBER

INSPECTED BY [signature] DATE 7-28-10 GENERAL MANAGER [signature] DATE 7-29-10

ORIGINAL – ENGINEERING

COPY - DISTRICT

CNG 287A
REV 9/06

CASCADE NATURAL GAS

FACILITY NO. R-116
Middle Run

FACILITY MAINTENANCE & INSPECTION RECORD
REGULATOR STATION

FACILITY LOCATION Minaker Rd. at Bellingham 2 Gate
TOWN Sumas DISTRICT Bellingham STATE N/A

☒ ANNUAL ☐ REBUILD ☐ NEW ☐ RETIRE ☐ SPECIAL

TEST/SET
M.A.O.P. INLET 780 M.A.O.P. OUTLET 600
OPERATING REG. ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 533
STANDBY REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 550
RELIEF VALVE: OPENS FULL FLOW ☐ YES ☐ NO SET PRESSURE
STATION PRESSURE: INLET 628 OUTLET 519
OPERATING & STANDBY REGULATORS SWITCHED: ☐ YES ☐ NO ☒ N/A

EQUIPMENT CHECK
OPERATING/WORKING RUN:
SIZE 10" MAKE Mooney MODEL NUMBER FG-59
ORIFICE SIZE 100% PILOT MAKE/MODEL S 20H SPRING RANGE 500-900
STANDBY RUN:
SIZE 10" MAKE Grove MODEL NUMBER Ball Valve
ORIFICE SIZE 100% PILOT MAKE/MODEL BPE Actuator SPRING RANGE
RELIEF VALVE:
SIZE MAKE MODEL NUMBER
ORIFICE SIZE PILOT MAKE/MODEL SPRING RANGE

INSPECTIONS
RELIEF VALVE FLAG FOUND: ☐ UP ☐ DOWN ☒ N/A WEATHER CAPS OPERABLE ☐ YES ☐ NO N/A
RELIEF VALVE FLAG LEFT: ☐ UP ☐ DOWN ☒ N/A VENT STACK CLEAR ☐ YES ☐ NO N/A
PILOT FILTER: ☒ CHECKED ☐ N/A REG VENTS DOWNWARD ☒ YES ☐ NO
VALVES OPERATE FREELY ☒ YES ☐ NO ☐ N/A SIGNS ☒ GOOD ☐ BAD ☐ N/A
VALVE POSITION CHECKED ☒ OPEN ☐ CLOSED ☐ N/A GROUNDS ☒ GOOD ☐ BAD ☐ N/A
VALVES LUBE ☒ YES ☐ NO ☐ N/A FENCE ☒ GOOD ☐ BAD ☐ N/A
VALVE BOX ☐ GOOD ☐ BAD ☒ N/A WRAP ☒ GOOD ☐ BAD ☐ N/A
VAULT LID ☐ GOOD ☐ BAD ☒ N/A PAINT ☒ GOOD ☐ NEEDS PAINT ☐ NEEDS REPAIR
VAULT ☐ GOOD ☐ BAD ☒ N/A

CHECKED VALVE LOCKS
☐ RELIEF ISOLATION ☐ BY-PASS ☒ OPERATIONAL ☐ N/A
GAUGE(S) SERIAL # G003 GAUGE(S) CALIBRATION DATE Exp 11-30-10

REMARKS: WHEN BAD IS MARKED AN EXPLANATION IS REQUIRED. (WHEN REPLACEMENT IS MADE OF REGULATOR, RELIEF VALVE, OR VALVES – LIST MAKE, MODEL, PILOTS, MARKERS OR SIGNS. INCLUDE OPERATION AND MAINTENANCE WORK REQUEST (CNG-330) NUMBERS FOR NECESSARY REPAIRS).

PARTS REQUIRED: ☐ YES ☒ NO

FOLLOW-UP REQUIRED: ☐ YES ☒ NO

WORK ORDER NUMBER

INSPECTED BY DATE 7-28-10 GENERAL MANAGER DATE 7-29-10

ORIGINAL – ENGINEERING

COPY - DISTRICT

CNG 287A
REV 9/06

CASCADE NATURAL GAS

FACILITY NO. R-116
South Run

FACILITY MAINTENANCE & INSPECTION RECORD
REGULATOR STATION

FACILITY LOCATION Minaker Rd. at Bellingham 2 Gate
TOWN Sumas DISTRICT Bellingham STATE WA

☒ ANNUAL ☐ REBUILD ☐ NEW ☐ RETIRE ☐ SPECIAL

TEST/SET
M.A.O.P. INLET 780 M.A.O.P. OUTLET 600
OPERATING REG. ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 523
STANDBY REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 550
RELIEF VALVE: OPENS FULL FLOW ☐ YES ☐ NO SET PRESSURE
STATION PRESSURE: INLET 628 OUTLET 519
OPERATING & STANDBY REGULATORS SWITCHED: ☐ YES ☐ NO ☒ N/A

EQUIPMENT CHECK
OPERATING/WORKING RUN:
SIZE 10" MAKE Mooney MODEL NUMBER FB-59
ORIFICE SIZE 100% PILOT MAKE/MODEL S 20-H SPRING RANGE 500-600
STANDBY RUN:
SIZE 10" MAKE Grove MODEL NUMBER Ball Valve
ORIFICE SIZE 100% PILOT MAKE/MODEL BPE Actuator SPRING RANGE
RELIEF VALVE:
SIZE MAKE MODEL NUMBER
ORIFICE SIZE PILOT MAKE/MODEL SPRING RANGE

INSPECTIONS
RELIEF VALVE FLAG FOUND: ☐ UP ☐ DOWN ☒ N/A WEATHER CAPS OPERABLE ☐ YES ☐ NO ☒ N/A
RELIEF VALVE FLAG LEFT: ☐ UP ☐ DOWN ☒ N/A VENT STACK CLEAR ☐ YES ☐ NO ☒ N/A
PILOT FILTER: ☒ CHECKED ☐ N/A REG VENTS DOWNWARD ☒ YES ☐ NO ☒ N/A
VALVES OPERATE FREELY ☒ YES ☐ NO ☐ N/A SIGNS ☒ GOOD ☐ BAD ☐ N/A
VALVE POSITION CHECKED ☒ OPEN ☐ CLOSED ☐ N/A GROUNDS ☒ GOOD ☐ BAD ☐ N/A
VALVES LUBE ☒ YES ☐ NO ☐ N/A FENCE ☒ GOOD ☐ BAD ☐ N/A
VALVE BOX ☐ GOOD ☐ BAD ☒ N/A WRAP ☒ GOOD ☐ BAD ☐ N/A
VAULT LID ☐ GOOD ☐ BAD ☒ N/A PAINT ☒ GOOD ☐ NEEDS PAINT ☐ NEEDS REPAIR
VAULT ☐ GOOD ☐ BAD ☒ N/A

CHECKED VALVE LOCKS
☐ RELIEF ISOLATION ☒ BY-PASS ☒ OPERATIONAL ☐ N/A
GAUGE(S) SERIAL # 6003 GAUGE(S) CALIBRATION DATE Exp 11-30-10

REMARKS: WHEN BAD IS MARKED AN EXPLANATION IS REQUIRED. (WHEN REPLACEMENT IS MADE OF REGULATOR, RELIEF VALVE, OR VALVES – LIST MAKE, MODEL, PILOTS, MARKERS OR SIGNS. INCLUDE OPERATION AND MAINTENANCE WORK REQUEST (CNG-330) NUMBERS FOR NECESSARY REPAIRS).

PARTS REQUIRED: ☐ YES ☒ NO

FOLLOW-UP REQUIRED: ☐ YES ☒ NO

WORK ORDER NUMBER

INSPECTED BY DATE 7-27-10 GENERAL MANAGER DATE 7-29-10

ORIGINAL – ENGINEERING

COPY - DISTRICT

#HP #20 S. Kickerville Mains

CNG 287A
REV 9/06

CASCADE NATURAL GAS

FACILITY NO. R-26

FACILITY MAINTENANCE & INSPECTION RECORD
REGULATOR STATION

FACILITY LOCATION Kickerville Rd.
TOWN Ferndale DISTRICT Bellingham STATE WA

~~ANNUAL~~ 10yr ☒ REBUILD ☐ NEW ☐ RETIRE ☐ SPECIAL

TEST/SET
M.A.O.P. INLET 600 M.A.O.P. OUTLET 380
OPERATING REG. ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 305
STANDBY REG.: ESTABLISH FLOW ☒ YES ☐ NO LOCK UP PRESSURE 300
RELIEF VALVE: OPENS FULL FLOW ☒ YES ☐ NO SET PRESSURE 400
STATION PRESSURE: INLET 458 OUTLET 285
OPERATING & STANDBY REGULATORS SWITCHED: ☒ YES ☐ NO ☐ N/A

EQUIPMENT CHECK
OPERATING/WORKING RUN:
SIZE 2" MAKE Grove MODEL NUMBER 80
ORIFICE SIZE 100½ PILOT MAKE/MODEL 829-51 SPRING RANGE 300-600
STANDBY RUN:
SIZE 2" MAKE Grove MODEL NUMBER 80
ORIFICE SIZE 100½ PILOT MAKE/MODEL 829-51 SPRING RANGE 300-600
RELIEF VALVE:
SIZE 4" MAKE Grove MODEL NUMBER 80
ORIFICE SIZE 100½ PILOT MAKE/MODEL 829-51 SPRING RANGE 300-600

INSPECTIONS
RELIEF VALVE FLAG FOUND: ☐ UP ☒ DOWN ☐ N/A WEATHER CAPS OPERABLE ☒ YES ☐ NO
RELIEF VALVE FLAG LEFT: ☐ UP ☒ DOWN ☐ N/A VENT STACK CLEAR ☒ YES ☐ NO
PILOT FILTER: ☐ CHECKED ☒ N/A REG VENTS DOWNWARD ☒ YES ☐ NO
VALVES OPERATE FREELY ☒ YES ☐ NO ☐ N/A SIGNS ☒ GOOD ☐ BAD ☐ N/A
VALVE POSITION CHECKED ☒ OPEN ☐ CLOSED ☐ N/A GROUNDS ☒ GOOD ☐ BAD ☐ N/A
VALVES LUBE ☒ YES ☐ NO ☐ N/A FENCE ☒ GOOD ☐ BAD ☐ N/A
VALVE BOX ☐ GOOD ☐ BAD ☒ N/A WRAP ☒ GOOD ☐ BAD ☐ N/A
VAULT LID ☐ GOOD ☐ BAD ☒ N/A PAINT ☒ GOOD ☐ NEEDS PAINT ☐ NEEDS REPAIR
VAULT ☐ GOOD ☐ BAD ☒ N/A

CHECKED VALVE LOCKS
☒ RELIEF ISOLATION ☒ BY-PASS ☐ OPERATIONAL ☐ N/A
GAUGE(S) SERIAL # 6002 & 6003 GAUGE(S) CALIBRATION DATE Exp. 11-30-10

REMARKS: WHEN BAD IS MARKED AN EXPLANATION IS REQUIRED. (WHEN REPLACEMENT IS MADE OF REGULATOR, RELIEF VALVE, OR VALVES – LIST MAKE, MODEL, PILOTS, MARKERS OR SIGNS. INCLUDE OPERATION AND MAINTENANCE WORK REQUEST (CNG-330) NUMBERS FOR NECESSARY REPAIRS).

PARTS REQUIRED: ☒ YES ☐ NO

- 2 - 2" boots
1 - 4" boot
3 - repair kits for 829 pilot

10yr complete JOE ✓

FOLLOW-UP REQUIRED: ☐ YES ☒ NO

WORK ORDER NUMBER

INSPECTED BY CH DATE 4-15-10 GENERAL MANAGER DATE 4-17-10

ORIGINAL – ENGINEERING

COPY - DISTRICT

Bellingham District

Line No.	Description	MAOP	Design Pressure	Diameters & Lengths		Beginning Facility	Ending Facility
1	8" Bellingham H.P. Line	380	400	2" 4" 8"	34' 26' 15,297'	O-08	R-18
2	Bellingham H.P. Distribution System	155	175	2" 4" 6" 8" 10"	10,475' 2,142' 5,788' 16,871' 19,884'	R-18	R-5, R-7, R-59, Meter
3	8" Central Whatcom H.P. Line	380	400	2" 8"	308' 64,147'	V-152, V-153	R-75
4	4" South Lynden H.P. Line	250	400	4"	51,008'	O-03	R-131
5	4" South Everson H.P. Line	250	450	2" 4"	110' 15,806'	V-44	R-69
6	4" Ferndale H.P. Line		400	4"	8,120'	V-47	R-25
7	2" Sumas H.P. Line	Line down-rated to IP 7/23/10					
8	2" Nooksack H.P. Distribution System	250	400	2"	4,811'	Tap Line 4	R-72
9	8" Lake Terrell Rd Transmission Line	380	400	8"	10,639'	Tap Line 20	Meter
CHART ✓ 10	16" N. Whatcom Transmission Line	600	600	16"	143,907'	O-02	V-43
CHART ✓ 11	8" Kickerville Transmission Line	600	600	8"	17,266'	V-7	R-26
12	4" North Lynden H.P. Line	400	400	4"	8,161'	R-65	R-66
13	12" Grandview Rd Transmission Line	600	600	12"	7,636'	V-41	Meter
14	4" Blaine H.P. Line	250	375	2" 4"	450' 23,864'	R-79	R-78
15	4" South Sumas H.P. Line	170	375	4"	8,548'	R-87	R-88
16	4" West Lynden Transmission Line	600	600	4"	1,315'	V-59	R-82
17	10" Squalicum H.P. Line	380	400	10"	17,088'	O-08	R-113
18	20" Ferndale Transmission Line	600	600	20"	27,904'	Tap Line 10	Meter
19	20" Sumas Transmission Line	780	800	20"	17,121'	O-09	R-116
CHART ✓ 20	8" South Kickerville Transmission Line	380	600	8"	7,108'	R-26	Meter
21	12",16" & 4" Squalicum H.P. Line	250	400	4" 12" 16"	11,695' 21,073' 2,600'	R-113	Meter
22	4" & 6" Bay Road H.P. Line	150	250	4" 6"	9,325' 5,982'	R-41	R-141 R-142

HP #20 8" S. KICKERVILLE TRANS

AP #11 & HP #20
8" KICKERVILLE

District: Bellingham
Task: C971
Inlet MAOP: 600
Outlet MAOP: 380
Location: Kickerville @ R26
Position: P34

Town: Ferndale
Inlet GAUGE: 1000
Outlet MAOP: 1000

LOCATIC
TO
FROM
SER. NC
REMARKS

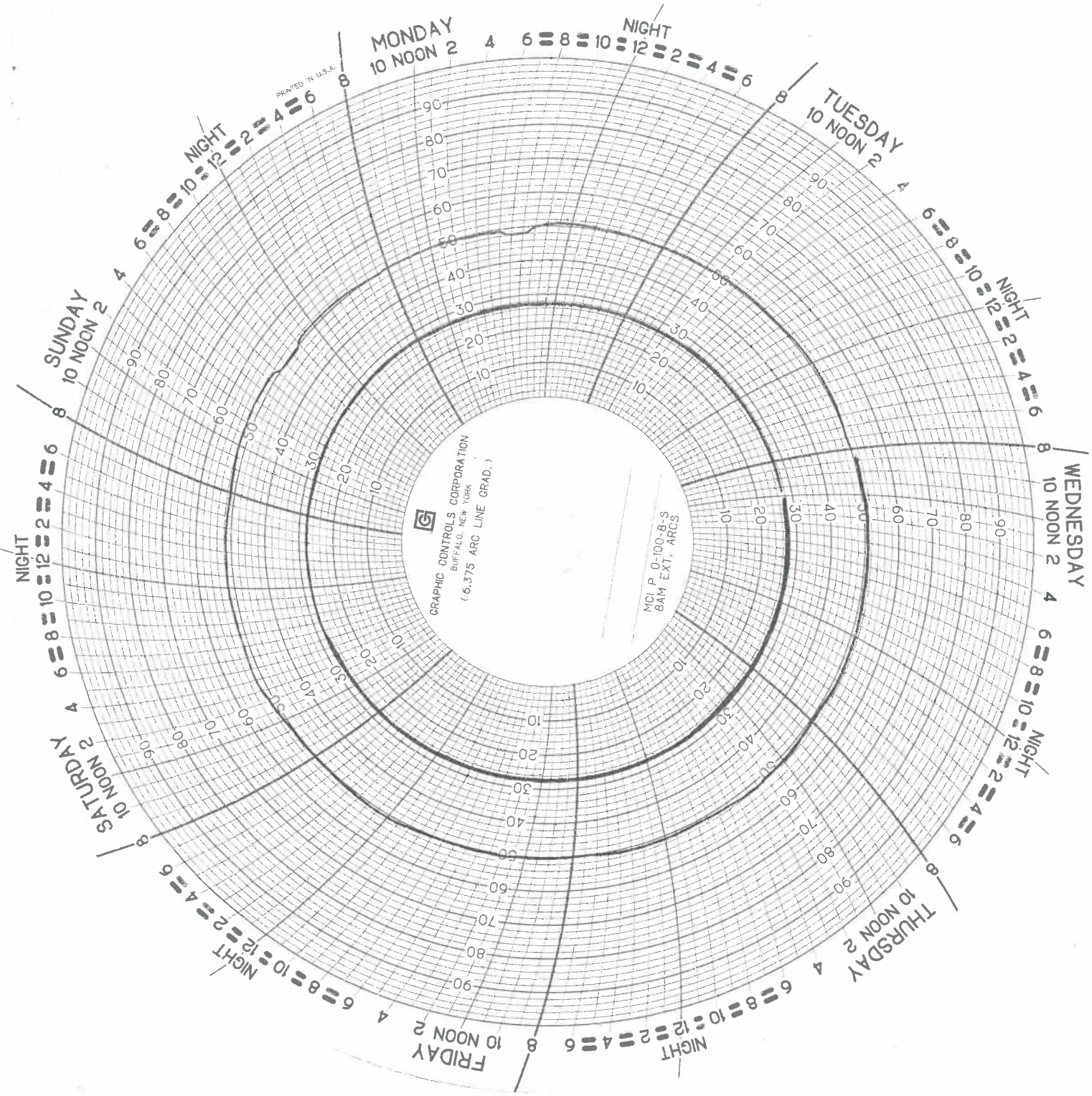
H = 520 280
L = 480 270 JW

Form ARC 599

	A.M.-P.M.	DATE MONTH	DAY	YEAR	CHANGED BY
ON	0905	3	30	11	GV
OFF	0905	4	6	11	GV

CASCADE NATURAL GAS CORPORATION SERVICE

C.N.G. Form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8113 W. Grandridge Blvd, KENNEWICK, WASHINGTON 99336-7166 (509)-734-4576
FACSIMILE (509)-737-9803

Exhibit B

Regulator Set Points List

12.31.10 Relief Capacity Review

Shaded items are updated from previous revision

Reg. ID	Cross Street Description	Town	JDE Unit Number	MAOP INLET	MAOP OUT	Maximum Allowable Relief Set Point	Maximum Allowable Regulator Lockup	Change Dates	Notes
R01	MAGNOLIA ST. & FOREST ST.	Bellingham, BL	T088REGLR01	155	34	36	32		
R04	ALLEY S OF ALABAMA ST., E OF FRANKLIN AV	Bellingham, BL	T088REGLR04	155	34	37	33		
R05	MEADOR AVE. E OF LINCOLN ST.	Bellingham, BL	T088REGLR05	155	60	65	60	2/15/2005	
R06	W. CONNECTICUT ST. & BROADWAY	Bellingham, BL	T088REGLR06	155	34	37	33		
R07	OTIS ST. & ABBOTT ST.	Bellingham, BL	T088REGLR07	155	60	63	59		
R08	GARDEN ST. N OF CEDAR ST.	Bellingham, BL	T088REGLR08	155	34	37	33		
R09	CEDAR ST. & W. HIGH ST.	Bellingham, BL	T088REGLR09	155	60	n/a	50		
R13	NEQUALICUM AVE. & NOME ST.	Bellingham, BL	T088REGLR13	155	58	60	56		
R14	MARINE DR. & SEAVIEW CIRCLE	Bellingham, BL	T088REGLR14	155	60	n/a	35	3/15/2005	
R15	ELDRIDGE AVE. & SEAVIEW AVE.	Bellingham, BL	T088REGLR15	155	27	n/a	14	3/30/2007	JM - break disk changed to break before going o
R18	JAMES ST. N OF MCLEOD RD.	Bellingham, BL	T088REGLR18	380	155	160	155		
R19	TELEGRAPH RD. & JAMES ST.	Bellingham, BL	T088REGLR19	380	60	65	60		
R20	HANNEGAN RD. S OF BAKERVIEW RD.	Bellingham, BL	T088REGLR20	380	60	63	59		
R21	NOOKSACK RD. AT 16" ARCO HP LINE, PHASE	Sumas, BL	T822REGLR21	600	60	63	59		
R22	NORTHWEST RD. AT 8" BP HP LINE	Ferndale, BL	T279REGLR22	380	58	61	57		
R23	RURAL RD. AT 8" BP HP LINE	Ferndale, BL	T279REGLR23	380	58	63	57	11/25/2008	MH - Town changed from Bellingham
R24	SR 540 AT 8" BP HP LINE	Ferndale, BL	T279REGLR24	380	60	50	46		
R25	IMHOFF RD. S OF DOUGLAS RD.	Ferndale, BL	T279REGLR25	380	58	61	57		
R26	KICKERVILLE RD. AT 8" ARCO HP LINE, PHAS	Ferndale, BL	T279REGLR26	600	380	400	380		
R28	N. WASHINGTON ST. & E. 3RD ST.	Everson, BL	T260REGLR28	250	44	47	43		
R29	W. FIRST ST. & COLUMBIA ST. (SR 554)	Nooksack, BL	T611REGLR29	250	50	50	46	11/18/2008	RL - Tied to R-30 system, Reduced set point anc
R30	HERTEL WAY & S. PASS RD.	Nooksack, BL	T611REGLR30	250	50	50	46	11/18/2008	RL - Tied to R-29 system, Reduced MAOP
R31	SR 540 & WEST OF WYNN RD	Ferndale, BL	T279REGLR31	380	60.	63	59	10/6/2008	MH - Retired 8/11/08
R32	E. HOFF RD. AT PIPELINE	Lawrence, BL	T517REGLR32	155	60.	63	59		
R33	WATEN RD. N OF SR 542	Deming, BL	T170REGLR33	150	60.	50	45		
R34	GODDARD DR. & MARINE DR.	Bellingham, BL	T088REGLR34	155	60.	n/a	50		
R35	JONES RD. E. & HERON LN.	Sumas, BL	T822REGLR35	40	40.	n/a	n/a	4/21/2009	MH - regulator runs and relief stack are off, bypa
R36	EVERSON - GOSHEN RD. (SR 554)	Everson, BL	T260REGLR36	250	60.	n/a	50		
R37	E OF ROTHENBULER RD. AT PIPELINE	Acme, BL	T032REGLR37	150	60.	50	46		
R38	I-5 AT 8" BP HP LINE	Bellingham, BL	T088REGLR38	380	60.	50	46		
R40	DELTA LINE RD. AT 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR40	600	60.	50	46		
R41	BAY RD. W OF 16' N. WHATCOM LINE	Ferndale, BL	T279REGLR41	600	150	160	150	5/13/2005	
R42	HAMPTON RD. & W. TRAPLINE RD.	Everson, BL	T260REGLR42	250	60.	n/a	50		
R43	CUSTER SCHOOL RD. & BEHME RD.	Ferndale, BL	T279REGLR43	600	60.	50	46		
R44	LYNDEN-BIRCH BAY RD. & PERCIE RD.	Ferndale, BL	T279REGLR44	600	60.	50	46		
R45	NORTHWOOD RD. & HAVEMAN RD.	Lynden, BL	T540REGLR45	600	60.	50	46	9/30/2009	MH - Set retired; replaced with R-163
R46	BENDER RD. AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR46	600	60.	50	46		
R47	HAVEMAN RD. & CLAY RD.	Lynden, BL	T540REGLR47	600	60.	50	46		
R48	ROEDER AVE. AT SQUALICUM CREEK	Bellingham, BL	T088REGLR48	155	60.	50	46		
R49	SHORT ST. W OF GUIDE MERIDIAN RD.	Bellingham, BL	T088REGLR49	380	60.	50	46		
R50	SQUALICUM WAY, SLR-B'HAM FROZEN FOODS &	Bellingham, BL	T088REGLR50	155	60.	50	46		
R51	SQUALICUM WAY, SLR-B'HAM COLD STORAGE	Bellingham, BL	T088REGLR51	155	32.	35	31		
R52	SLR - TRIDENT SEAFOODS	Bellingham, BL	T088REGLR52	155	150	n/a	140		
R54	CEDARWOOD AVE. & LAURELWOOD AVE., SLR-OE	Bellingham, BL	T088REGLR54	155	60.	50	46		
R57	SOUTH PASS RD. & LEBRANT RD.	Nooksack, BL	T611REGLR57	250	60.	n/a	50		
R58	GOODWIN RD. S OF SOUTH PASS RD., SLR-GRE	Nooksack, BL	T611REGLR58	250	60.	50	46		

Shaded items are updated from previous revision

Reg. ID	Cross Street Description	Town	JDE Unit Number	MAOP INLET	MAOP OUT	Maximum Allowable Relief Set Point	Maximum Allowable Regulator Lockup	Change Dates	Notes
R59	MARINE DR., W OF BENNETT AVE.	Bellingham, BL	T088REGLR59	155	58	61	57	10/14/2009	MH - System tied to R-22, R-23, and R-13
R61	UNICK RD. & KICKERVILLE RD., SLR-TEXACO	Ferndale, BL	T279REGLR61	380	60.	63	59		
R62	SHORT ST. W OF GUIDE MERIDIAN RD.	Bellingham, BL	T088REGLR62	380	60.	50	46		
R63	AXLING RD. AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR63	600	60.	n/a	50		
R64	SLOTMAKER RD. & HAMPTON RD.	Lynden, BL	T540REGLR64	250	60.	n/a	50		
R65	DEPOT RD. AT 16" ARCO HP LINE, PHASE II	Lynden, BL	T540REGLR65	600	400	180	160	11/29/2005	
R66	3RD ST. S OF S. PARK ST.	Lynden, BL	T540REGLR66	400	60.	65	60		
R68	OLD BRITTON RD. AT 8" BELLINGHAM HP LINE	Bellingham, BL	T088REGLR68	380	60.	63	59		
R69	EVERSON-GOSHEN RD. (SR 554), SLR-WILDER	Everson, BL	T260REGLR69	250	60.	63	59		
R70	ASPEN DR. & EVERSON - GOSHEN RD. (SR-544	Everson, BL	T260REGLR70	250	60.	50	46		
R72	GOODWIN RD. N OF MASSEY RD., SLR-MT. BAK	Nooksack, BL	T611REGLR72	250	60.	63	59		
R73	GRANDVIEW RD. W OF KICKERVILLE RD.	Ferndale, BL	T279REGLR73	600	60.	63	59		
R75	LAKE TERRELL RD. S OF UNICK RD., SLR-BP	Ferndale, BL	T279REGLR75	380	90.	94	90		
R76	ROEDER AVE & SQUALICUM WAY	Bellingham, BL	T088REGLR76	155	60.	n/a	50		
R77	Y RD. E OF SR 542 AT PIPELINE	Bellingham, BL	T088REGLR77	145	60.	63	59	3/26/2007	
R78	PEACE PORTAL WAY & GARFIELD AVE	Blaine, BL	T099REGLR78	250	60.	63	59		
R79	PORTAL WAY @ 16" N. WHATCOM LINE	Blaine, BL	T099REGLR79	600	250	264	245	10/1/2007	
R81	HUGHES AVE @ PEACE PORTAL DR.	Blaine, BL	T099REGLR81	250	60.	65	59	3/24/2008	RL - changed max lock-up
R82	W OF JACKMAN RD. & 4" LYNDEN HP LOOP LIN	Lynden, BL	T540REGLR82	600	60.	65	60	5/13/2005	
R84	FERNDALE RD. & 8' CENTRAL WHATCOM LINE	Ferndale, BL	T279REGLR84	380	60.	n/a	50		
R85	LAMPMAN RD. & 8" CENTRAL WHATCOM LINE	Ferndale, BL	T279REGLR85	380	60.	50	45		
R87	MORGAN RD. @ HILL RD.	Sumas, BL	T822REGLR87	600	170	176	170		
R88	W. FRONT ST. @ 4" S. SUMAS H.P. LINE	Sumas, BL	T822REGLR88	170	40.	42	38		
R89	HAM RD. N. OF ARNIE RD.	Ferndale, BL	T279REGLR91	600	60.	n/a	50		
R91	ROBINSON ST. AT MISSION RD.	Everson, BL	T260REGLR97	250	60.	65	60		
R92	HARBOR LOOP RD. E OF SQUALICUM WAY	Bellingham, BL	T088REGLR92	155	60.	50	45		
R93	MARKWORTH RD. AT 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR93	600	60.	50	46		
R94	Aldergrove W. of Kickerville Rd	Ferndale, BL	T279REGLR94	600	60	45	n/a	4/21/2009	MH - Station Retired
R96	JAMES ST. AT ORCHARD DR.	Bellingham, BL	T088REGLR96	155	34	37	33		
R97	EVERSON RD., SOUTH OF KALE ST.	Everson, BL	T260REGLR97	250	60.	50	46		
R98	LOOMIS TRAIL RD., SLR: LISTER CHAIN & FO	Blaine, BL	T099REGLR98	250	60.	50	46		
R99	16" ARCO HP LINE, PHASE II & GUIDE MERID	Lynden, BL	T540REGLR99	600	60.	50	46		
R100	JAMES ST. RD. @ 8" BP HP LINE	Bellingham, BL	T088REGLR100	380	60.	50	46	Retired 10/17/2005	
R101	BRITTAIN ROAD @ 8" BELLINGHAM HP LINE	Bellingham, BL	T088REGLR101	380	60.	n/a	50		
R102	SUNRISE ROAD, @ W. BADGER ROAD	Ferndale, BL	T279REGLR102	600	60.	n/a	50	Retired 8/30/2005	
R103	JACKMAN ROAD @ 16" ARCO HP LINE, PHASE I	Lynden, BL	T540REGLR103	600	60.	50	46		
R104	PORTAL WAY & PERCIE RD. - SLR VAN WINGER	Blaine, BL	T099REGLR104	250	60.	50	45		
R105	COUNTY ROAD # 530 & HAMPTON ROAD	Lynden, BL	T540REGLR105	250	60.	n/a	50		
R106	PERCIE RD AT 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR106	600	60.	50	46		
R107	WEIDKAMP RD AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR107	600	60.	50	45		
R108	BOWEN RD & HILL RD	Sumas, BL	T822REGLR108	170	60.	50	46		
R109	REESE RD W OF HILLVIEW RD	Sumas, BL	T822REGLR109	780	60.	50	46		
R110	ROCK RD E OF CONCHMAN	Sumas, BL	T822REGLR110	780	60.	50	45		
R111	PORTAL WAY - LOOMIS TRAILS GOLF COURSE	Blaine, BL	T099REGLR111	250	60.	65	57	8/8/2008	RL - changed max lock-up
R112	MARINE DR. E OF SEAVIEW	Bellingham, BL	T088REGLR112	155	60.	n/a	50		
R113	ORCHARD DR @ I-5, ENCOGEN	Bellingham, BL	T088REGLR113	380	250	270	250		

Shaded items are updated from previous revision

Reg. ID	Cross Street Description	Town	JDE Unit Number	MAOP INLET	MAOP OUT	Maximum Allowable Relief Set Point	Maximum Allowable Regulator Lockup	Change Dates	Notes
R115	ORCHARD DR @ I-5, DISTRIBUTION	Bellingham, BL	T088REGLR115	380	34.	39	34		
R116	MINAKER RD E OF N PASS RD @ BELL. II	Sumas, BL	T822REGLR116	780	600	n/a	600		
R119	S OF DIVISION E OF GUIDE MERIDIAN RD	Bellingham, BL	T088REGLR119	380	60.	63	57	10/1/2007	
R121	CORDATA PARKWAY & DIVISION RD	Bellingham, BL	T088REGLR121	380	58	63	58		
R122	WALDRON RD & ALDRICH RD	Ferndale, BL	T279REGLR122	380	60	50	45	11/25/2008	MH - Town changed from Bellingham
R125	BENSON RD AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR125	600	60	63	45		
R126	DEPOT RD S OF BADGER	Lynden, BL	T540REGLR126	400	60	65	60		
R127	WOODSTOCK WAY & JAMES ST	Bellingham, BL	T088REGLR127	155	60	63	57	10/1/2007	
R128	ROEDER AVE E OF GILLIGAN, SLR - MT BAKER	Bellingham, BL	T088REGLR128	155	60	65	45		
R129	SUNRISE RD @ 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR129	600	60	n/a	50	8/30/2005	Retired
R130	BURK RD (DEL TOP DEVELOPMENT)	Ferndale, BL	T279REGLR130	600	60	50	45		
R131	S. NOOKSACK AVE S OF FRONT ST	Lynden, BL	T540REGLR131	250	60	65	60		
R133	PORTAL WAY	Blaine, BL	T279REGLR133	600	58	63	57	3/24/2008	RL - changed max lock-up
R134	MINAKER RD SOUTH OF O-02	Sumas, BL	T822REGLR134	780	60	n/a	50		
R135	VICTOR ST @ CONNECTICUT	Bellingham, BL	T088REGLR135	155	34	39	34		
R137	GRANDVIEW RD W. OF JACKSON	Ferndale, BL	T279REGLR137	600	60	63	59		
R138	BAKERVIEW VALLEY RD @ 8" BELLINGHAM HP L	Bellingham, BL	T088REGLR138	380	60	63	59		
R139	EASEMENT N. OF SLATER RD	Ferndale, BL	T279REGLR139	380	60	63	59	10/6/2008	MH - Retired 8/11/08, replaced with R-161
R140	ROEDER & G ST	Bellingham, BL	T088REGLR140	250	34	39	34		
R141	SR-548 S OF BIRCH BAY LYNDEN RD	Blaine, BL	T099REGLR141	150	60	63	57	5/13/2005	
R142	ALDERSON RD W OF BLAINE RD	Ferndale, BL	T279REGLR142	150	60	63	57	1/19/2005	
R143	BELLINGHAM COLD STOR. ROEDER AVE	Bellingham, BL	T088REGLR143	155	60	65	60		
R144	9TH & HARRIS	Bellingham, BL	T088REGLR144	250	60	65	60		
R145	HAXTON RD @ 8" C. WHATCOM LINE	Ferndale, BL	T279REGLR145	380	60	n/a	50		
R146	LEIBRANT RD @ O-3	Nooksack, BL	T611REGLR146	250	60	n/a	50		
R147	EVERSON GOSHEN RD @ VAN DYK RD	Everson, BL	T260REGLR147	250	60	n/a	50		
R148	CORNWALL & PINE	Bellingham, BL	T088REGLR148	250	60	n/a	50		
R149	BROWN RD. EAST OF FERNDEL 20" HP	Ferndale, BL	T279REGLR149	600	60	n/a	50		
R151	REGULATOR LOOMIS TRAIL RD W OF VALLEY	Ferndale, BL	T279REGLR151	600	60	n/a	30	10/7/2005	
R152	LOOMIS TRAIL RD, E OF VALLEY VIEW RD	Ferndale, BL	T279REGLR152	600	60	n/a	35	5/14/2005	
R153	E. CEDAR & BOULEVARD ST.	Bellingham, BL	T088REGLR153	250	60	n/a	32	8/10/2005	
R154	REGULATOR JAMES @ 8" BELLINGHAM HP	Bellingham, BL	T088REGLR154	380	60	38	32	New 10/17/2005	
R155	Sunrise Rd. @ N 16" Transmission Line	Ferndale, BL	T088REGLR155	600	60	46	40	9/7/2005	
R156	HWY 544 & THENDARA PARK DR	Everson, BL	T260REGLR156	250	60	n/a	40	4/22/2009	MH - Street Description and Town corrected
R157	4339 Bay Rd	Ferndale, BL	T099REGLR157	150	60	n/a	40	8/17/2009	
R158									
R159	3262 S PASS RD	Nooksack, BL	T611REGLR159	250	60	n/a	40	10/16/2007	
R161	EASEMENT N. OF SLATER RD	Ferndale, BL	T279REGLR161	380	60	63	59	New 6/23/2008	
R163	NORTHWOOD RD AND HAVEMAN RD	Lynden, BL		600	60	63	59	9/30/2009	MH - New Set; R-45 Replacement
R164	3480 WALTINE RD	Ferndale. BL		380	60	n/a	40	1/18/2010	MH - New Set
R165	742 MARINE DRIVE, ERSHIGS INC.	Bellingham, BL		155	60	n/a	40	12/22/2010	RP- HPSS -Converted to Reg. Station

Actual operating pressures.

Shaded items are updated from previous revision

Reg. ID	Cross Street Description	Town	JDE Unit Number	MAOP INLET	MAOP OUT	Maximum Allowable Relief Set Point	Maximum Allowable Regulator Lockup	Change Dates	Notes
R01	MAGNOLIA ST. & FOREST ST.	Bellingham, BL	T088REGLR01	155	34	36	32		
R04	ALLEY S OF ALABAMA ST., E OF FRANKLIN AV	Bellingham, BL	T088REGLR04	155	34	37	33		
R05	MEADOR AVE. E OF LINCOLN ST.	Bellingham, BL	T088REGLR05	155	60	65	60	2/15/2005	
R06	W. CONNECTICUT ST. & BROADWAY	Bellingham, BL	T088REGLR06	155	34	37	33		
R07	OTIS ST. & ABBOTT ST.	Bellingham, BL	T088REGLR07	155	60	63	59		
R08	GARDEN ST. N OF CEDAR ST.	Bellingham, BL	T088REGLR08	155	34	37	33		
R09	CEDAR ST. & W. HIGH ST.	Bellingham, BL	T088REGLR09	155	60	n/a	50		
R13	NEQUALICUM AVE. & NOME ST.	Bellingham, BL	T088REGLR13	155	58	60	56		
R14	MARINE DR. & SEAVIEW CIRCLE	Bellingham, BL	T088REGLR14	155	60	n/a	35	3/15/2005	
R15	ELDRIDGE AVE. & SEAVIEW AVE.	Bellingham, BL	T088REGLR15	155	27	n/a	14	3/30/2007	JM - break disk changed to break before going o
R18	JAMES ST. N OF MCLEOD RD.	Bellingham, BL	T088REGLR18	380	155	160	155		
R19	TELEGRAPH RD. & JAMES ST.	Bellingham, BL	T088REGLR19	380	60	65	60		
R20	HANNEGAN RD. S OF BAKERVIEW RD.	Bellingham, BL	T088REGLR20	380	60	63	59		
R21	NOOKSACK RD. AT 16" ARCO HP LINE, PHASE	Sumas, BL	T822REGLR21	600	60	63	59		
R22	NORTHWEST RD. AT 8" BP HP LINE	Ferndale, BL	T279REGLR22	380	58	61	57		
R23	RURAL RD. AT 8" BP HP LINE	Ferndale, BL	T279REGLR23	380	58	63	57	11/25/2008	MH - Town changed from Bellingham
R24	SR 540 AT 8" BP HP LINE	Ferndale, BL	T279REGLR24	380	60	50	46		
R25	IMHOFF RD. S OF DOUGLAS RD.	Ferndale, BL	T279REGLR25	380	58	61	57		
R26	KICKERVILLE RD. AT 8" ARCO HP LINE, PHAS	Ferndale, BL	T279REGLR26	600	380	400	380		
R28	N. WASHINGTON ST. & E. 3RD ST.	Everson, BL	T260REGLR28	250	44	47	43		
R29	W. FIRST ST. & COLUMBIA ST. (SR 554)	Nooksack, BL	T611REGLR29	250	50	50	46	11/18/2008	RL - Tied to R-30 system, Reduced set point and
R30	HERTEL WAY & S. PASS RD.	Nooksack, BL	T611REGLR30	250	50	50	46	11/18/2008	RL - Tied to R-29 system, Reduced MAOP
R31	SR 540 & WEST OF WYNN RD	Ferndale, BL	T279REGLR31	380	60.	63	59	10/6/2008	MH - Retired 8/11/08
R32	E. HOFF RD. AT PIPELINE	Lawrence, BL	T517REGLR32	155	60.	63	59		
R33	WATEN RD. N OF SR 542	Deming, BL	T170REGLR33	150	60.	50	45		
R34	GODDARD DR. & MARINE DR.	Bellingham, BL	T088REGLR34	155	60.	n/a	50		
R35	JONES RD. E. & HERON LN.	Sumas, BL	T822REGLR35	40	40.	n/a	n/a	4/21/2009	MH - regulator runs and relief stack are off, bypa
R36	EVERSON - GOSHEN RD. (SR 554)	Everson, BL	T260REGLR36	250	60.	n/a	50		
R37	E OF ROTHENBULER RD. AT PIPELINE	Acme, BL	T032REGLR37	150	60.	50	46		
R38	I-5 AT 8" BP HP LINE	Bellingham, BL	T088REGLR38	380	60.	50	46		
R40	DELTA LINE RD. AT 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR40	600	60.	50	46		
R41	BAY RD. W OF 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR41	600	150	160	150	5/13/2005	
R42	HAMPTON RD. & W. TRAPLINE RD.	Everson, BL	T260REGLR42	250	60.	n/a	50		
R43	CUSTER SCHOOL RD. & BEHME RD.	Ferndale, BL	T279REGLR43	600	60.	50	46		
R44	LYNDEN-BIRCH BAY RD. & PERCIE RD.	Ferndale, BL	T279REGLR44	600	60.	50	46		
R45	NORTHWOOD RD. & HAVEMAN RD.	Lynden, BL	T540REGLR45	600	60	50	46	9/30/2009	MH - Set retired; replaced with R-163
R46	BENDER RD. AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR46	600	60.	50	46		Actual
R47	HAVEMAN RD. & CLAY RD.	Lynden, BL	T540REGLR47	600	60.	50	46		
R48	ROEDER AVE. AT SQUALICUM CREEK	Bellingham, BL	T088REGLR48	155	60.	50	46		
R49	SHORT ST. W OF GUIDE MERIDIAN RD.	Bellingham, BL	T088REGLR49	380	60.	50	46		
R50	SQUALICUM WAY, SLR-B'HAM FROZEN FOODS &	Bellingham, BL	T088REGLR50	155	60.	50	46		
R51	SQUALICUM WAY, SLR-B'HAM COLD STORAGE	Bellingham, BL	T088REGLR51	155	32.	35	31		
R52	SLR - TRIDENT SEAFOODS	Bellingham, BL	T088REGLR52	155	150	n/a	140		
R54	CEDARWOOD AVE. & LAURELWOOD AVE., SLR-OE	Bellingham, BL	T088REGLR54	155	60.	50	46		
R57	SOUTH PASS RD. & LEBRANT RD.	Nooksack, BL	T611REGLR57	250	60.	n/a	50		
R58	GOODWIN RD. S OF SOUTH PASS RD., SLR-GRE	Nooksack, BL	T611REGLR58	250	60.	50	46		

Shaded items are updated from previous revision

Reg. ID	Cross Street Description	Town	JDE Unit Number	MAOP INLET	MAOP OUT	Maximum Allowable Relief Set Point	Maximum Allowable Regulator Lockup	Change Dates	Notes
R59	MARINE DR., W OF BENNETT AVE.	Bellingham, BL	T088REGLR59	155	58	61	57	10/14/2009	MH - System tied to R-22, R-23, and R-13
R61	UNICK RD. & KICKERVILLE RD., SLR-TEXACO	Ferndale, BL	T279REGLR61	380	60.	63	59		
R62	SHORT ST. W OF GUIDE MERIDIAN RD.	Bellingham, BL	T088REGLR62	380	60.	50	46		
R63	AXLING RD. AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR63	600	60.	n/a	50		
R64	SLOTMAKER RD. & HAMPTON RD.	Lynden, BL	T540REGLR64	250	60.	n/a	50		
R65	DEPOT RD. AT 16" ARCO HP LINE, PHASE II	Lynden, BL	T540REGLR65	600	400	180	160	11/29/2005	
R66	3RD ST. S OF S. PARK ST.	Lynden, BL	T540REGLR66	400	60.	65	60		
R68	OLD BRITTON RD. AT 8" BELLINGHAM HP LINE	Bellingham, BL	T088REGLR68	380	60.	63	59		
R69	EVERSON-GOSHEN RD. (SR 554), SLR-WILDER	Everson, BL	T260REGLR69	250	60.	63	59		
R70	ASPEN DR. & EVERSON - GOSHEN RD. (SR-544	Everson, BL	T260REGLR70	250	60.	50	46		
R72	GOODWIN RD. N OF MASSEY RD., SLR-MT. BAK	Nooksack, BL	T611REGLR72	250	60.	63	59		
R73	GRANDVIEW RD. W OF KICKERVILLE RD.	Ferndale, BL	T279REGLR73	600	60.	63	59		
R75	LAKE TERRELL RD. S OF UNICK RD., SLR-BP	Ferndale, BL	T279REGLR75	380	90.	94	90		
R76	ROEDER AVE & SQUALICUM WAY	Bellingham, BL	T088REGLR76	155	60.	n/a	50		
R77	Y RD. E OF SR 542 AT PIPELINE	Bellingham, BL	T088REGLR77	145	60.	63	59	3/26/2007	
R78	PEACE PORTAL WAY & GARFIELD AVE	Blaine, BL	T099REGLR78	250	60.	63	59		
R79	PORTAL WAY @ 16" N. WHATCOM LINE	Blaine, BL	T099REGLR79	600	250	264	245	10/1/2007	
R81	HUGHES AVE @ PEACE PORTAL DR.	Blaine, BL	T099REGLR81	250	60.	65	59	3/24/2008	RL - changed max lock-up
R82	W OF JACKMAN RD. & 4" LYNDEN HP LOOP LIN	Lynden, BL	T540REGLR82	600	60.	65	60	5/13/2005	
R84	FERNDALE RD. & 8" CENTRAL WHATCOM LINE	Ferndale, BL	T279REGLR84	380	60.	n/a	50		
R85	LAMPMAN RD. & 8" CENTRAL WHATCOM LINE	Ferndale, BL	T279REGLR85	380	60.	50	45		
R87	MORGAN RD. @ HILL RD.	Sumas, BL	T822REGLR87	600	170	176	170		
R88	W. FRONT ST. @ 4" S. SUMAS H.P. LINE	Sumas, BL	T822REGLR88	170	40.	42	38		
R89	HAM RD. N. OF ARNIE RD.	Ferndale, BL	T279REGLR91	600	60.	n/a	50		
R91	ROBINSON ST. AT MISSION RD.	Everson, BL	T260REGLR97	250	60.	65	60		
R92	HARBOR LOOP RD. E OF SQUALICUM WAY	Bellingham, BL	T088REGLR92	155	60.	50	45		
R93	MARKWORTH RD. AT 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR93	600	60.	50	46		
R94	Aldergrove W. of Kickerville Rd	Ferndale, BL	T279REGLR94	600	60	45	n/a	4/21/2009	MH - Station Retired
R96	JAMES ST. AT ORCHARD DR.	Bellingham, BL	T088REGLR96	155	34	37	33		
R97	EVERSON RD., SOUTH OF KALE ST.	Everson, BL	T260REGLR97	250	60.	50	46		
R98	LOOMIS TRAIL RD., SLR: LISTER CHAIN & FO	Blaine, BL	T099REGLR98	250	60.	50	46		
R99	16" ARCO HP LINE, PHASE II & GUIDE MERID	Lynden, BL	T540REGLR99	600	60.	50	46		
R100	JAMES ST. RD. @ 8" BP HP LINE	Bellingham, BL	T088REGLR100	380	60.	50	46	Retired 10/17/2005	
R101	BRITTAIN ROAD @ 8" BELLINGHAM HP LINE	Bellingham, BL	T088REGLR101	380	60.	n/a	50		
R102	SUNRISE ROAD, @ W. BADGER ROAD	Ferndale, BL	T279REGLR102	600	60.	n/a	50	Retired 8/30/2005	
R103	JACKMAN ROAD @ 16" ARCO HP LINE, PHASE I	Lynden, BL	T540REGLR103	600	60.	50	46		
R104	PORTAL WAY & PERCIE RD. - SLR VAN WINGER	Blaine, BL	T099REGLR104	250	60.	50	45		
R105	COUNTY ROAD # 530 & HAMPTON ROAD	Lynden, BL	T540REGLR105	250	60.	n/a	50		
R106	PERCIE RD AT 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR106	600	60.	50	46		
R107	WEIDKAMP RD AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR107	600	60.	50	45		
R108	BOWEN RD & HILL RD	Sumas, BL	T822REGLR108	170	60.	50	46		
R109	REESE RD W OF HILLVIEW RD	Sumas, BL	T822REGLR109	780	60.	50	46		
R110	ROCK RD E OF CONCHMAN	Sumas, BL	T822REGLR110	780	60.	50	45		
R111	PORTAL WAY - LOOMIS TRAILS GOLF COURSE	Blaine, BL	T099REGLR111	250	60.	65	57	8/8/2008	RL - changed max lock-up
R112	MARINE DR. E OF SEAVIEW	Bellingham, BL	T088REGLR112	155	60.	n/a	50		
R113	ORCHARD DR @ I-5, ENCOGEN	Bellingham, BL	T088REGLR113	380	250	270	250		

Shaded items are updated from previous revision

Reg. ID	Cross Street Description	Town	JDE Unit Number	MAOP INLET	MAOP OUT	Maximum Allowable Relief Set Point	Maximum Allowable Regulator Lockup	Change Dates	Notes
R115	ORCHARD DR @ I-5, DISTRIBUTION	Bellingham, BL	T088REGLR115	380	34	39	34		
R116	MINAKER RD E OF N PASS RD @ BELL. II	Sumas, BL	T822REGLR116	780	600	n/a	600		
R119	S OF DIVISION E OF GUIDE MERIDIAN RD	Bellingham, BL	T088REGLR119	380	60	63	57	10/1/2007	
R121	CORDATA PARKWAY & DIVISION RD	Bellingham, BL	T088REGLR121	380	58	63	58		
R122	WALDRON RD & ALDRICH RD	Ferndale, BL	T279REGLR122	380	60	50	45	11/25/2008	MH - Town changed from Bellingham
R125	BENSON RD AT 16" N. WHATCOM LINE	Lynden, BL	T540REGLR125	600	60	63	45		
R126	DEPOT RD S OF BADGER	Lynden, BL	T540REGLR126	400	60	65	60		
R127	WOODSTOCK WAY & JAMES ST	Bellingham, BL	T088REGLR127	155	60	63	57	10/1/2007	
R128	ROEDER AVE E OF GILLIGAN, SLR - MT BAKER	Bellingham, BL	T088REGLR128	155	60	65	45		
R129	SUNRISE RD @ 16" N. WHATCOM LINE	Ferndale, BL	T279REGLR129	600	60	n/a	50	8/30/2005	Retired
R130	BURK RD (DEL TOP DEVELOPMENT)	Ferndale, BL	T279REGLR130	600	60	50	45		
R131	S. NOOKSACK AVE S OF FRONT ST	Lynden, BL	T540REGLR131	250	60	65	60		
R133	PORTAL WAY	Blaine, BL	T279REGLR133	600	58	63	57	3/24/2008	RL - changed max lock-up
R134	MINAKER RD SOUTH OF O-02	Sumas, BL	T822REGLR134	780	60	n/a	50		
R135	VICTOR ST @ CONNECTICUT	Bellingham, BL	T088REGLR135	155	34	39	34		
R137	GRANDVIEW RD W. OF JACKSON	Ferndale, BL	T279REGLR137	600	60	63	59		
R138	BAKERVIEW VALLEY RD @ 8" BELLINGHAM HP L	Bellingham, BL	T088REGLR138	380	60	63	59		
R139	EASEMENT N. OF SLATER RD	Ferndale, BL	T279REGLR139	380	60	63	59	10/6/2008	MH - Retired 8/11/08, replaced with R-161
R140	ROEDER & G ST	Bellingham, BL	T088REGLR140	250	34	39	34		
R141	SR-548 S OF BIRCH BAY LYNDEN RD	Blaine, BL	T099REGLR141	150	60	63	57	5/13/2005	
R142	ALDERSON RD W OF BLAINE RD	Ferndale, BL	T279REGLR142	150	60	63	57	1/19/2005	
R143	BELLINGHAM COLD STOR. ROEDER AVE	Bellingham, BL	T088REGLR143	155	60	65	60		
R144	9TH & HARRIS	Bellingham, BL	T088REGLR144	250	60	65	60		
R145	HAXTON RD @ 8" C. WHATCOM LINE	Ferndale, BL	T279REGLR145	380	60	n/a	50		
R146	LEIBRANT RD @ O-3	Nooksack, BL	T611REGLR146	250	60	n/a	50		
R147	EVERSON GOSHEN RD @ VAN DYK RD	Everson, BL	T260REGLR147	250	60	n/a	50		
R148	CORNWALL & PINE	Bellingham, BL	T088REGLR148	250	60	n/a	50		
R149	BROWN RD. EAST OF FERNDEL 20" HP	Ferndale, BL	T279REGLR149	600	60	n/a	50		
R151	REGULATOR LOOMIS TRAIL RD W OF VALLEY	Ferndale, BL	T279REGLR151	600	60	n/a	30	10/7/2005	
R152	LOOMIS TRAIL RD, E OF VALLEY VIEW RD	Ferndale, BL	T279REGLR152	600	60	n/a	35	5/14/2005	
R153	E. CEDAR & BOULEVARD ST.	Bellingham, BL	T088REGLR153	250	60	n/a	32	8/10/2005	
R154	REGULATOR JAMES @ 8" BELLINGHAM HP	Bellingham, BL	T088REGLR154	380	60	38	32	New 10/17/2005	
R155	Sunrise Rd. @ N 16" Transmission Line	Ferndale, BL	T088REGLR155	600	60	46	40	9/7/2005	
R156	HWY 544 & THENDARA PARK DR	Everson, BL	T260REGLR156	250	60	n/a	40	4/22/2009	MH - Street Description and Town corrected
R157	4339 Bay Rd	Ferndale, BL	T099REGLR157	150	60	n/a	40	8/17/2009	
R158									
R159	3262 S PASS RD	Nooksack, BL	T611REGLR159	250	60	n/a	40	10/16/2007	
R161	EASEMENT N. OF SLATER RD	Ferndale, BL	T279REGLR161	380	60	63	59	New 6/23/2008	
R163	NORTHWOOD RD AND HAVEMAN RD	Lynden, BL		600	60	63	59	9/30/2009	MH - New Set; R-45 Replacement
R164	3480 WALTINE RD	Ferndale. BL		380	60	n/a	40	1/18/2010	MH - New Set
R165	742 MARINE DRIVE, ERSHIGS INC.	Bellingham, BL		155	60	n/a	40	12/22/2010	RP- HPSS -Converted to Reg. Station

Cascade Natural Gas Corporation
Annual Regulator Station Relief Valve Check

State: Washington

District: Bellingham

Review Completed: 12/31/2010

Engineer: Ryan Privratsky

Items Outstanding at Review Period End:

Reg. #	Solution	Expected Fix Date	Actual Fix Date	Engineer's Initials

Engineer's Signiture (Ryan Privratsky)

12/31/10
Date

Relief Valve Capacity Checks

Printed 1/3/2011

District		Town		Regulator		MAOP (psi)			Specifications			Operating Regulator					Relief Regulator / Shut-Off Valve				Regulator Capacities (cfh)		Reg 1 Check		Line Drop Calculation (if necessary)			
Name	Code	Name	Code	No	Status	Inlet	Outlet	DOT Max Outlet	Location Description	Runs	Worker / Monitor?	Make	Model	Size (in)	Orifice / Cage	Spring Range (psi)	Make	Model	Size (in)	Spring Range (psi)	Regulator at Inlet MAOP	Relief at Outlet DOT Max	Pass	Reason	Line Drop at Relief Capacity Flow (psi)	Inlet Pressure with Line Drop (psi)	Regulator Capacity with Line Drop (cfh)	Pass
Bellingham	011	Bellingham	T088	1	Operating	155	34	40	Magnolia St & Forest St	2	no	American	02H7CS174	2	100%	20-75	American	04H7CS174	4	10-75	331,472	378,723	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	4	Operating	155	34	40	Alley S of Alabama St, E of Franklin Av	2	no	Grove	80-11135NK	2		15-150	Grove	80-872NK	4	20-75	371,745	375,082	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	5	Operating	155	60	66	Meador Ave E of Lincoln St	2	no	Mooney	FG-33	2	100%	25-90	Mooney	FG-21	4	25-90	448,772	687,490	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	6	Operating	155	34	40	W Connecticut St & Broadway	2	no	Mooney	FG-30	2	50%	25-90	Mooney	FG-39	4	25-90	179,509	458,660	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	7	Operating	155	60	66	Otis St & Abbott St	2	no	Grove	80-11135NK	2		20-75	Grove	80-872NK	4	20-75	371,745	554,486	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	8	Operating	155	34	40	Garden St N of Cedar St	2	no	Grove	80-11135NK	2		20-75	Grove	80-872NK	4	20-75	371,745	375,082	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	9	Operating	155	60	66	Cedar St & W High St	1	no	Fisher	627	3/4	1/8	20-35	Fisher	634M	3/4	50-60	2,736	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	13	Operating	155	58	64	Nequalicum Ave & Nome St	2	no	American	02H7CS174	2	100%	20-75	American	04H7CS174	4	10-75	331,472	544,890	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	14	Operating	155	60	66	Marine Dr & Seaview Circle	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	20-28	2,736	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	15	Operating	155	27	33	Eldridge Ave & Seaview Ave	1	no	Fisher	621	3/4	1/4	20-35	Fisher	634M	3/4	20-28	10,727	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	18	Operating	380	155	170.5	James St N of Mcleod Rd	2	no	Grove	80-10386GH	4		35-350	Grove	80-10386GH	6	35-350	2,396,754	2,472,329	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	19	Operating	380	60	66	Telegraph Rd & James St	2	no	Fisher	630	2	1/2	46-95	Mooney	FG-29	2	25-90	109,470	147,826	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	20	Operating	380	60	66	Hannegan Rd S of Bakerview Rd	2	no	Grove	80-10386GH	2		20-75	Grove	82-11507L08	6	20-75	704,348	1,023,242	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	21	Operating	600	60	66	Nooksack Rd at 16" Arco HP Line, Phase	2	no	Fisher	630	2	1/4	46-95	Grove	80-11360NK	2	20-75	42,424	142,058	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	22	Operating	380	58	64	Northwest Rd at 8" BP HP Line	2	no	Mooney	FG-30	2	75%	25-90	Mooney	FG-39	4	25-90	575,354	659,900	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	23	Operating	380	58	64	Rural Rd at 8" BP HP Line	2	no	Mooney	FG-30	2	75%	25-90	Mooney	FG-39	4	25-90	575,354	659,900	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	24	Operating	380	60	66	SR 540 at 8" BP HP Line	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	6,517	59,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	25	Operating	380	58	64	Imhoff Rd S of Douglas Rd	2	no	Mooney	FG-30	2	75%	25-90	Mooney	FG-39	4	25-90	575,354	659,900	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	26	Operating	600	380	418	Kickerville Rd at 8" Arco HP Line, Phas	2	no	Grove	80-11135NK	2		300-600	Grove	80-11135NK	4	300-600	1,396,598	3,294,659	Yes	Relief Capacity OK				
Bellingham	011	Everson	T260	28	Operating	250	44	50	N Washington St & E 3rd St	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-16	3	25-90	170,732	287,947	Yes	Relief Capacity OK				
Bellingham	011	Nooksack	T611	29	Operating	250	50	56	W First St & Columbia St (SR-554)	2	no	Fisher	630	2	3/8	27-50	Grove	82-11507L02	2	20-75	40,976	172,532	Yes	Relief Capacity OK				
Bellingham	011	Nooksack	T611	30	Operating	250	50	56	Hertel Way & S Pass Rd	2	no	Fisher	621	1	1/4	20-35	Fisher	289H	1	15-50	16,732	40,000	Yes	Relief Capacity OK				
Bellingham	011	Lawrence	T512	32	Operating	155	60	66	E Hoff Rd at Pipeline	2	no	Fisher	630	2	3/8	27-40	Grove	80-872NK	2	20-75	26,270	142,058	Yes	Relief Capacity OK				
Bellingham	011	Deming	T170	33	Operating	150	60	66	Water Rd N of SR-542	2	no	Fisher	621	1	3/8	20-35	Fisher	289H	1	15-50	22,734	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	34	Operating	155	60	66	Goddard Dr & Marine Dr	1	no	Fisher	627	3/4	3/8	20-35	Fisher	634M	3/4	50-60	23,643	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Everson	T260	36	Operating	250	60	66	Everson - Goshen Rd (SR-554)	1	no	Fisher	621	3/4	1/8	20-35	Fisher	634M	3/4	50-60	4,371	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Acme	T022	37	Operating	150	60	66	E of Rothenbuler Rd at Pipeline	2	no	Fisher	621	1	1/4	20-35	Fisher	289H	1	15-50	10,411	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	38	Operating	380	60	66	I-5 at 8" BP HP Line	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	6,517	59,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	40	Operating	600	60	66	Delta Line Rd at 16" N Whatcom Line	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	10,150	59,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	41	Operating	600	150	165	Bay Rd W of 16" N Whatcom Line	2	no	Mooney	FG-52	2 x 1	50%	100-265	Mooney	FG-29	2	60-200	194,276	329,174	Yes	Relief Capacity OK				
Bellingham	011	Everson	T260	42	Operating	250	60	66	Hampton Rd & W Trapline Rd	1	no	Fisher	627	3/4	1/8	20-35	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	T279	43	Operating	600	60	66	Custer School Rd & Behme Rd	2	no	Fisher	621	1	1/8	25-60	Fisher	289H	1	15-50	10,150	59,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	44	Operating	600	60	66	Lynden Birch Bay Rd & Percie Rd	2	no	Fisher	621	1	3/16	25-60	Fisher	289H	1	15-50	22,203	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lawrence	T540	46	Operating	600	60	66	Bender Rd at 16" N Whatcom Line	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	10,150	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	47	Operating	600	60	66	Haveman Rd & Clay Rd	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	10,150	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	48	Operating	155	60	66	Roeder Ave at Squalicum Creek	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	2,802	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	49	Operating	380	60	66	Short St W of Guide Meridian Rd	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	6,517	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	50	Operating	155	60	66	Squalicum Way, SLR-B'Ham Frozen Foods	1	no	Fisher	630	2	1/2	17-30	Fisher	289H	1	15-50	47,066	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	51	Operating	155	32	39	Squalicum Way, SLR-B'Ham Cold Storag	1	no	Fisher	630	2	3/8	17-30	Fisher	289H	1	15-50	26,270	35,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	52	Operating	155	150	165	SLR - Trident Seafoods	1	no	Fisher	630	2	1/2	25-60	No Relief				47,066		Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	54	Operating	155	60	66	Cedarwood Ave & Laurelwood Ave, SLR-C	1	no	Fisher	630	2	3/8	17-30	Fisher	289H	1	15-50	26,270	59,000	Yes	Relief Capacity OK				
Bellingham	011	Nooksack	T611	57	Operating	250	60	66	South Pass Rd & Lebrant Rd	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Nooksack	T611	58	Operating	250	60	66	Goodwin Rd S of South Pass Rd, SLR-Gr	1	no	Fisher	630	2	3/8	27-40	Fisher	289H	1	15-50	40,976	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	59	Operating	155	58	64	Marine Dr, W of Bennett Ave	2	no	Fisher	627	1	3/8	30-80	Fisher	289P	1	30-100	23,643	71,200	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	61	Operating	380	60	66	Unick Rd & Kickerville Rd, SLR-Texaco	2	no	Fisher	620	1	3/16	25-60	American	R2H7CS174	2	20-75	14,257	50,442	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	62	Operating	380	60	66	Short St W of Guide Meridian Rd	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	6,517	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	63	Operating	600	60	66	Axling Rd at 16" N Whatcom Line	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	9,912	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Lynden	T540	64	Operating	250	60	66	Slotmaker Rd & Hampton Rd	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Lynden	T540	65	Operating	600	400	440	Depot Rd at 16" Arco HP Line, Phase II	2	no	Grove	80-11135NK	2		125-300	American	04H7CS174	4	100-225	1,396,598	3,148,176	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	66	Operating	400	60	66	3rd St S of S Park St	2	no	American	02H7CS174	2	100%	20-75	Mooney	FG-39	4	25-90	810,026	676,670	Yes	Line Drop OK	296	104	231,855	Yes
Bellingham	011	Bellingham	T088	68	Operating	380	60	66	Old Britton Rd at 8" Bellingham HP Line	2	no	Mooney	FG-30	2	50%	25-90	Mooney	FG-44	6	25-90	417,514	1,301,286	Yes	Relief Capacity OK				
Bellingham	011	Everson	T260	69	Operating	250	60	66	Everson-Goshen Rd (SR-554), SLR-Wilde	1	no	Mooney	FG-4	2	75%	10-90	Grove	80-872NK	4	20-75	280,244	554,486	Yes	Relief Capacity OK				
Bellingham	011	Everson	T260	70	Operating	250	60	66	Aspen Dr & Everson - Goshen Rd (SR-54	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	4,371	59,000	Yes	Relief Capacity OK				
Bellingham	011	Nooksack	T611	72	Operating	250	60	66	Goodwin Rd N of Massey Rd, SLR-Mt Ba	1	no	Fisher	621	1	1/4	25-60	Fisher	289P	1	30-100	16,732	73,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	73	Operating	600	60	66	Grandview Rd W of Kickerville Rd	2	no	Fisher	630	2	1/4	27-50	Fisher	289P	1	30-100	42,424	73,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	75	Operating	380	90	99	Lake Terrell Rd S of Unick Rd, SLR-BP	2	no	Grove	80-10386NH	3		60-150	Grove	80-872NK	6	60-150	1,481,146	1,886,637	Yes	Relief Capacity OK				

Notes:
For stations with multiple runs, matching equipment is used on each run unless noted.
For worker monitor stations, the worker regulator is listed.

District		Town		Regulator		MAOP (psi)			Specifications			Operating Regulator					Relief Regulator / Shut-Off Valve				Regulator Capacities (cfh)		Reg 1 Check		Line Drop Calculation (if necessary)			
Name	Code	Name	Code	No.	Status	Inlet	Outlet	DOT Max Outlet	Location Description	Runs	Worker / Monitor?	Make	Model	Size (in)	Orifice / Cage	Spring Range (psi)	Make	Model	Size (in)	Spring Range (psi)	Regulator at Inlet MAOP	Relief at Outlet DOT Max	Pass	Reason	Line Drop at Relief Capacity Flow (psi)	Inlet Pressure with Line Drop (psi)	Regulator Capacity with Line Drop (cfh)	Pass
Bellingham	011	Bellingham	T088	76	Operating	155	60	66	Roeder Ave & Squalicum Way	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	2,736	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	77	Operating	145	60	66	Y Rd E of SR-542 at Pipeline	2	no	Fisher	621	1	1/4	40-100	Fisher	269P	1	30-100	10,095	73,000	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	78	Operating	250	60	66	Peace Portal Way & Garfield Ave	2	no	Fisher	630	2	1/2	40-95	Mooney	FG-16	3	25-90	73,415	359,155	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	79	Operating	600	250	275	Portal Way @ 16" N Whatcom Line	2	no	Grove	3-11544M2A	2		125-350	Grove	3-11544M4A	4	125-350	1,310,201	2,079,177	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	81	Operating	250	60	66	Hughes Ave @ Peace Portal Dr	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-16	3	25-90	170,732	359,155	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	82	Operating	600	60	66	W of Jackman Rd & 4" Lynden HP Loop Li	2	no	Fisher	630	2	3/8	20-75	Mooney	FG-29	2	20-75	95,156	147,826	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	84	Operating	380	60	66	Ferndale Rd & 8" Central Whatcom Line	1	no	Fisher	621	3/4	1/8	20-35	Fisher	634M	3/4	50-60	6,517	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	T279	85	Operating	380	60	66	Lampman Rd & 8" Central Whatcom Line	2	no	Fisher	621	1	1/8	20-35	Fisher	289H	1	15-50	6,517	59,000	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	87	Operating	600	170	187	Morgan Rd @ Hill Rd	2	no	American	02H7CS174	2	75%	125-300	American	04H7CS174	4	125-350	300,171	1,396,497	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	88	Operating	170	40	46	W Front St @ 4" S Sumas HP Line	2	no	American	02H7CS174	2	100%	20-75	American	04H7CS174	4	10-75	360,771	420,285	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	89	Operating	600	60	66	Ham Rd N of Arnie Rd	1	no	Fisher	621	3/4	1/8	20-35	Fisher	634M	3/4	50-60	10,150	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Everson	T260	91	Operating	250	60	66	Robinson St at Mission Rd	2	no	Mooney	FG-30	2	50%	25-90	Mooney	FG-8	2	25-90	280,000	204,042	Yes	Line Drop OK	99	151	175,277	Yes
Bellingham	011	Bellingham	T088	92	Operating	155	60	66	Harbor Loop Rd E of Squalicum Way	2	no	Fisher	621	1	3/8	20-35	Fisher	289H	1	15-50	23,424	59,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	93	Operating	600	60	66	Markworth Rd at 16" N Whatcom Line	2	no	Fisher	621	1	1/4	25-65	Fisher	289H	1	15-50	38,855	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	95	Operating	155	34	40	James St at Orchard Dr	2	no	Fisher	630	2	1/2	27-50	Mooney	FG-29	2	25-90	47,066	100,199	Yes	Relief Capacity OK				
Bellingham	011	Everson	T260	97	Operating	250	60	66	Everson Rd, South of Kale St	2	no	Fisher	627	1	1/4	20-35	Fisher	289H	1	15-50	17,073	59,000	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	98	Operating	250	60	66	Loomis Trail Rd, SLR Lister Chain & Fo	2	no	Fisher	627	1	1/4	15-40	Fisher	289H	1	15-50	17,073	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	99	Operating	600	60	66	16" Arco HP Line, Phase II & Guide Meri	2	no	Fisher	627	1	3/16	15-40	Fisher	289H	1	15-50	22,996	59,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	101	Operating	380	60	66	Brittain Road @ 8" Beringham HP Line	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	6,365	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Lynden	T540	103	Operating	600	60	66	ackman Road @ 16" Arco HP Line, Phase	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	9,912	59,000	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	104	Operating	250	60	66	Portal Way & Percie Rd - SLR Van Winge	1	no	Fisher	627	1	1/2	15-40	Mooney	FG-29	2	25-90	64,878	147,826	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	105	Operating	250	60	66	County Road # 530 & Hampton Road	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	T279	106	Operating	600	60	66	Percie Rd at 16" N Whatcom Line	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	9,912	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	107	Operating	600	60	66	Weidkamp Rd at 16" N Whatcom Line	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	9,912	59,000	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	108	Operating	170	60	66	Bowen Rd & Hill Rd	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	2,978	59,000	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	109	Operating	780	60	66	Reese Rd W of Hillview Rd	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	12,815	59,000	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	110	Operating	780	60	66	Rock Rd E of Conchman	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	12,815	59,000	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	111	Operating	250	60	66	Portal Way - Loomis Trails Golf Course	2	no	Mooney	FG-52	2 x 1	75%	25-90	Mooney	FG-29	2	25-90	109,268	147,826	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	112	Operating	155	60	66	Marine Dr E of Seaview	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	2,736	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	113	Operating	380	250	275	Orchard Dr @ I-5, Encogen	2	no	Mooney	FG-45	6	50%	100-250	Mooney	FG-45	6	200-500	3,436,850	4,671,413	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	115	Operating	380	34	40	Orchard Dr @ I-5, Distribution	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-39	4	25-90	254,582	458,660	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	116	Operating	780	600	660	Minaker Rd E of N Pass Rd @ Bell II	3	yes	Mooney	FG-59	10	100%	500-900	No Relief				########		Yes	Worker Monitor				
Bellingham	011	Bellingham	T088	119	Operating	380	60	66	S of Division E of Guide Meridian Rd	2	no	Fisher	627	1	1/4	35-80	Fisher	289P	1	30-100	25,458	73,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	121	Operating	380	58	64	Cordata Parkway & Division Rd	2	no	Mooney	FG-52	2 x 1	50%	25-90	Mooney	FG-39	4	25-90	124,745	659,900	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	122	Operating	380	60	66	Waldron Rd & Aldrich Rd	2	no	Fisher	627	1	1/8	15-40	Fisher	289H	1	15-50	6,365	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	125	Operating	600	60	66	Benson Rd at 16" N Whatcom Line	2	no	Fisher	627	1	1/4	15-40	Fisher	289P	1	30-100	39,648	73,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	126	Operating	400	60	66	Depot Rd S of Badger	2	no	Mooney	FG-52	2 x 1	50%	25-90	Mooney	FG-39	4	25-90	131,066	676,670	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	127	Operating	155	60	66	Woodstock Way & James St	2	no	Mooney	FG-52	2 x 1	50%	25-90	Mooney	FG-29	2	25-90	53,634	147,826	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	128	Operating	155	60	66	Roeder Ave E of Gilligan, SLR - Mt Baker	1	no	Mooney	FG-52	2 x 1	50%	25-90	Mooney	FG-29	2	25-90	53,634	147,826	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	130	Operating	600	60	66	Burk Rd (Del Top Development)	2	no	Fisher	627	1	1/4	15-40	Fisher	289H	1	15-50	39,648	59,000	Yes	Relief Capacity OK				
Bellingham	011	Lynden	T540	131	Operating	250	60	66	S Nooksack Ave S of Front St	2	no	Mooney	FG-30	2	35%	25-90	Mooney	FG-16	3	25-90	208,292	359,155	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	133	Operating	600	58	64	Portal Way at 16" HP Line	2	no	Mooney	FG-52	2 x 1	75%	25-90	Mooney	FG-17	3	25-90	253,748	350,254	Yes	Relief Capacity OK				
Bellingham	011	Sumas	T822	134	Operating	780	60	66	Minaker Rd South of O-02	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	12,815	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	135	Operating	155	34	40	Victor St @ Connecticut	2	no	Mooney	FG-30	2	100%	25-90	Mooney	FG-39	4	25-90	310,856	458,660	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	137	Operating	600	60	66	Grandview Rd W of Jackson	2	no	Fisher	627	1	1/4	15-40	Fisher	289P	1	30-100	39,648	73,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	138	Operating	380	60	66	Bakerview Valley Rd @ 8" Bellingham HP	2	no	Fisher	627	1	1/4	15-40	Fisher	289P	1	30-100	25,458	73,000	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	140	Operating	250	34	40	Roeder & G St	2	no	Mooney	FG-52	2 x 1	50%	25-90	Mooney	FG-29	2	25-90	83,658	100,199	Yes	Relief Capacity OK				
Bellingham	011	Blaine	T099	141	Operating	150	60	66	SR-548 S of Birch Bay Lynden Rd	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-29	2	25-90	106,232	147,826	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	142	Operating	150	60	66	Alderson Rd W of Blaine Rd	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-29	2	25-90	106,232	147,826	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	143	Operating	155	60	66	Bellingham Cold Storage Roeder Ave	1	no	Mooney	FG-30	2	100%	25-90	Mooney	FG-39	4	25-90	310,856	676,670	Yes	Relief Capacity OK				
Bellingham	011	Bellingham	T088	144	Operating	250	60	66	9th & Harris	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-39	4	25-90	170,732	676,670	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	T279	145	Operating	380	60	66	Haxton Rd @ 8" C Whatcom Line	1	no	Fisher	621	3/4	3/8	20-35	Fisher	634M	3/4	50-60	54,480	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Nooksack	T611	146	Operating	250	60	66	Leibrant Rd @ O-3	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Everson	T260	147	Operating	250	60	66	Everson Goshen Rd @ Van Dyk Rd	1	no	Fisher	621	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,371	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	T088	148	Operating	250	60	66	Cornwall & Pine	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	T279	149	Operating	600	60	66	Brown Rd East of Ferndel 20" HP	1	no	Fisher	627	3/4	1/4	15-40	Fisher	634M	3/4	50-60	39,648	Shutoff	Yes	Shutoff Relief				

Notes:

All stations with multiple runs, monitoring equipment is used on each run unless noted.

For worker monitor stations, the worker regulator is listed.

District		Town		Regulator		MAOP (psi)			Specifications			Operating Regulator					Relief Regulator / Shut-Off Valve				Regulator Capacities (cfh)		Reg 1 Check		Line Drop Calculation (if necessary)			
Name	Code	Name	Code	No.	Status	Inlet	Outlet	DOT Max Outlet	Location Description	Runs	Worker / Monitor?	Make	Model	Size (in)	Orifice / Cage	Spring Range (psi)	Make	Model	Size (in)	Spring Range (psi)	Regulator at Inlet MAOP	Relief at Outlet DOT Max	Pass	Reason	Line Drop at Relief Capacity Flow (psi)	Inlet Pressure with Line Drop (psi)	Regulator Capacity with Line Drop (cfh)	Pass
Bellingham	011	Ferndale	1279	151	Operating	600	60	66	Regulator Loomis Trail Rd W of Valley	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	9,912	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	1279	152	Operating	600	60	66	Loomis Trail Rd, E of Valley View Rd	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	9,912	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	1088	153	Operating	250	60	66	E Cedar & Boulevard St	1	no	Fisher	627	3/4	1/8	15-40	Fisher	634M	3/4	50-60	4,268	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Bellingham	1088	154	Operating	380	60	66	Regulator James @ 8" Bellingham HP	2	no	Fisher	627	1	3/8	15-40	Fisher	289P	1	30-100	54,990	73,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	1279	155	Operating	600	60	66	Sunrise Rd @ N 16" Transmission Line	2	no	Fisher	627	1	1/4	15-40	Fisher	289P	1	30-100	39,648	73,000	Yes	Relief Capacity OK				
Bellingham	011	Everson	1260	156	Operating	250	60	66	Hwy 544 & THENDARA PARK DR	1	no	Fisher	627	3/4	1/4	15-40	Fisher	634M	3/4	50-60	17,073	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	1279	157	Operating	150	60	66	4339 Bay Rd	1	no	Fisher	627	3/4	3/8	15-40	Fisher	634M	3/4	50-60	22,946	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Maplesack	1611	159	Operating	250	60	66	3262 S Pass Rd	1	no	Fisher	627	3/4	3/8	15-40	Fisher	634M	3/4	50-60	36,878	Shutoff	Yes	Shutoff Relief				
Bellingham	011	Ferndale	1279	161	Operating	380	60	66	Easement N of Slater Rd	2	no	Mooney	FG-52	2 x 1	100%	25-90	Mooney	FG-16	3	25-90	254,582	359,155	Yes	Relief Capacity OK				
Bellingham	011	Lynden	1540	163	Operating	600	60	66	Northwood Rd & Haveman Rd	2	no	Fisher	627	1	1/4	35-80	Fisher	289P	1	30-100	39,648	73,000	Yes	Relief Capacity OK				
Bellingham	011	Ferndale	1279	164	Operating	380	60	66	3480 Wallne Rd	1	no	Fisher	627	1	1/8	15-40	Fisher	634M	1	50-60	6,365	Shutoff	Yes	Shutoff Relief				
Bellingham	11	Bellingham	1088	165	Operating	155	60	66	742 Marine Drive, Ershigs Inc	1	no	Fisher	627	1	3/8	15-40	Fisher	634M	1	50-60	23,643	Shutoff	Yes	Shutoff Relief				

Notes
For stations with multiple runs, matching equipment is used on each run unless noted
For feeder regulator stations, the smaller regulator is listed

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FACSIMILE (509)-737-9803

Exhibit C

Distribution System MAOP Tables

High Pressure System MAOP Tables

BELLINGHAM DISTRICT
DISTRIBUTION SYSTEM
MAXIMUM ALLOWABLE OPERATING PRESSURES

TOWN	SHUTDOWN SECTION	MAOP	SOURCE(S)
Acme	I056	60	R-37
Bellingham	I001	60	~~R-1~~, R-5, ~~R-140~~
Bellingham	I002	60	R-148
Bellingham	I003	34	R-8, ~~I005~~
Bellingham	I005	60	R-7, R-144, ~~I003~~
Bellingham	I006	60	R-20, R-127, ~~I008~~
Bellingham	I007	34	I008, I009
Bellingham	I008	34	R-4
Bellingham	I009	34	R-6, R-96, R-115, R-135
Bellingham	I012	60	R-19, R-119
Bellingham	I014	27	R-15
Bellingham	I015	60	R-34
Bellingham	I016	60	R-14
Bellingham	I017	60	R-68, I006
Bellingham	I018	60	R-59
Bellingham	I019	60	R-9
Bellingham	I021	60	R-49
Bellingham	I022	60	R-62
Bellingham	I023	58	R-121, I010
Bellingham	I024	60	R-77
Bellingham	I025	60	R-100
Bellingham	I077	60	R-112
Bellingham	I086	60	R-122
Bellingham	I090	58	I010
Bellingham	I091	60	R-138
Bellingham	I010	58	R-13, R-22, R-23, I023
Bellingham	I101	60	R-101
Blaine	I042	60	R-78, R-81

BELLINGHAM DISTRICT
DISTRIBUTION SYSTEM
MAXIMUM ALLOWABLE OPERATING PRESSURES

TOWN	SHUTDOWN SECTION	MAOP	SOURCE(S)
Blaine	I045	60	I044
Blaine	I059	60	I044
Blaine	I060	60	I044
Blaine	I070	60	I044
Blaine	I084	60	R-111
Blaine	I088	60	I044
Blaine	I094	60	I044
Blaine	I095	60	I004
Blaine	I044	60	R-41
Deming	I057	60	R-33
Everson	I051	44	R-28
Everson	I052	60	R-70
Everson	I053	60	R-36
Everson	I054	60	R-91
Everson	I055	60	R-97
Everson	I063	60	R-42
Everson	I064	60	R-64
Ferndale	I027	60	R-38
Ferndale	I028	58	R-25
Ferndale	I029	58	I028, I033
Ferndale	I030	58	I028, I026
Ferndale	I031	60	R-84
Ferndale	I032	60	R-85
Ferndale	I034	60	R-89
Ferndale	I036	60	R-94 Not in service
Ferndale	I071	60	R-40
Ferndale	I072	60	R-43
Ferndale	I073	60	R-73

BELLINGHAM DISTRICT
DISTRIBUTION SYSTEM
MAXIMUM ALLOWABLE OPERATING PRESSURES

TOWN	SHUTDOWN SECTION	MAOP	SOURCE(S)
Ferndale	I074	60	R-44
Ferndale	I075	60	R-24
Ferndale	I076	60	R-102
Ferndale	I082	60	R-129
Ferndale	I085	60	R-106
Ferndale	I087	58	I029, I033
Ferndale	I093	60	R-139
Ferndale	I026	58	R-22, I010
Ferndale	I033	58	R-133
Ferndale	I081	60	R-130
Ferndale	I035	60	R-93
Lawrence	I058	60	R-32
Lynden	I037	60	R-66, R-126, R-131, I038
Lynden	I038	60	R-82, I037
Lynden	I039	60	R-99
Lynden	I040	60	R-46
Lynden	I041	60	R-63
Lynden	I065	60	R-103
Lynden	I066	60	R-107
Lynden	I067	60	R-163
Lynden	I068	60	R-47
Lynden	I069	60	R-105
Lynden	I080	60	R-125
Nooksack	I049	50	R-29, R-30
Nooksack	I050	Retired	
Nooksack	I062	60	R-57
Sumas	I046	40	R-88, I048
Sumas	I047	60	R-108

BELLINGHAM DISTRICT
DISTRIBUTION SYSTEM
MAXIMUM ALLOWABLE OPERATING PRESSURES

TOWN	SHUTDOWN SECTION	MAOP	SOURCE(S)
Sumas	I048	40	I046
Sumas	I061	60	R-21
Sumas	I078	60	R-110
Sumas	I079	60	R-109
Sumas	I089	40	I046
Sumas	I092	60	R-134

BELLINGHAM DISTRICT
HP LINE MAOPS

SHUTDOWN SECTION	HP LINE		MAOP	SOURCE
H001	7	Converted to IP (was 2" Sumas HP Line)	-	-
H002	19	20" Sumas Transmission Line	780	O-9
	10	16" North Whatcom Transmission Line	600	O-2
H003	10	16" North Whatcom Transmission Line	600	H002
H004	12	4" North Lynden H.P. Line	400	H006
H005	4	4" South Lynden H.P. Line	250	O-3
	8	2" Nooksack H.P. Distribution System	250	H005/R-58
H006	10	16" North Whatcom Transmission Line	600	H003
H007	10	16" North Whatcom Transmission Line	600	H006
H008	10	16" North Whatcom Transmission Line	600	H007
	18	20" Ferndale Transmission Line	600	H008
H009	13	12" Grandview Transmission Line	600	H008
H010	10	16" N. Whatcom Transmission Line	600	H008
	11	8" Kickerville Transmission Line	600	H010
H011	11	8" Kickerville Transmission Line	600	H010
H012	11	8" Kickerville Transmission Line	600	H011
H013	11	8" Kickerville Transmission Line	600	H012
H014	20	8" South Kickerville Transmission Line	380	H013
	9	8" Lake Terrell Rd. Transmission Line	380	H014
H015	3	8" Central Whatcom H.P. Line	380	H016
H016	3	8" Central Whatcom H.P. Line	380	H017
H017	3	8" Central Whatcom H.P. Line	380	H037
H018	2	Bellingham H.P. Distribution System	155	H037/R18
H019	2	Bellingham H.P. Distribution System	155	H018
H020	1	8" Bellingham H.P. Line	380	O-8
H022	2	Bellingham H.P. Distribution System	155	H019
H023	5	4" South Everson H.P. Line	250	H005

BELLINGHAM DISTRICT
HP LINE MAOPS

SHUTDOWN SECTION	HP LINE		MAOP	SOURCE
H024	5	4" South Everson H.P. Line	250	H023
H025	5	4" South Everson H.P. Line	250	H024
H026	6	4" Ferndale H.P. Line	380	H016/V-47
H027	15	4" South Sumas H.P. Line	170	H002/R-87
H028	14	4" Blaine H.P. Line	250	H008/R-79
H029	16	4" West Lynden H.P. Line	600	H006/V-59
H030	17	10" Squalicum H.P. Line	380	O-8
H031	21	12" & 16" Squalicum H.P. Line	250	H030/R-113
H032	19	20" Sumas Transmission Line	780	O-9
H033	18	20" Ferndale Transmission Line	600	H008/V-100
H034	18	20" Ferndale Transmission Line	600	H033/V-101
H035	14	377' of 2" ER#33810	250	H028/V-51
H036	21	12" & 16" Squalicum H.P. Line	250	H031/V-94
H037	3	8" Central Whatcom H.P. Line	380	H020/V-153
H038	21	750' of 2" ER#43171(Bellingham)	250	H036/V-168
H039	22	4" & 6" Bay Rd HP Line	150	H008/R-41

Bellingham District

Line No.	Description	MAOP	Design Pressure	Diameters & Lengths		Beginning Facility	Ending Facility
1	8" Bellingham H.P. Line	380	400	2" 4" 8"	34' 26' 15,297'	O-08	R-18
2	Bellingham H.P. Distribution System	155	175	2" 4" 6" 8" 10"	10,475' 2,142' 5,788' 16,871' 19,884'	R-18	R-5, R-7, R-59, Meter
3	8" Central Whatcom H.P. Line	380	400	2" 8"	308' 64,147'	V-152, V-153	R-75
4	4" South Lynden H.P. Line	250	400	4"	51,008'	O-03	R-131
5	4" South Everson H.P. Line	250	450	2" 4"	110' 15,806'	V-44	R-69
6	4" Ferndale H.P. Line		400	4"	8,120'	V-47	R-25
7	2" Sumas H.P. Line	Line down-rated to IP 7/23/10					
8	2" Nooksack H.P. Distribution System	250	400	2"	4,811'	Tap Line 4	R-72
9	8" Lake Terrell Rd Transmission Line	380	400	8"	10,639'	Tap Line 20	Meter
10	16" N. Whatcom Transmission Line	600	600	16"	143,907'	O-02	V-43
11	8" Kickerville Transmission Line	600	600	8"	17,266'	V-7	R-26
12	4" North Lynden H.P. Line	400	400	4"	8,161'	R-65	R-66
13	12" Grandview Rd Transmission Line	600	600	12"	7,636'	V-41	Meter
14	4" Blaine H.P. Line	250	375	2" 4"	450' 23,864'	R-79	R-78
15	4" South Sumas H.P. Line	170	375	4"	8,548'	R-87	R-88
16	4" West Lynden Transmission Line	600	600	4"	1,315'	V-59	R-82
17	10" Squalicum H.P. Line	380	400	10"	17,088'	O-08	R-113
18	20" Ferndale Transmission Line	600	600	20"	27,904'	Tap Line 10	Meter
19	20" Sumas Transmission Line	780	800	20"	17,121'	O-09	R-116
20	8" South Kickerville Transmission Line	380	600	8"	7,108'	R-26	Meter
21	12",16" & 4" Squalicum H.P. Line	250	400	4" 12" 16"	11,695' 21,073' 2,600'	R-113	Meter
22	4" & 6" Bay Road H.P. Line	150	250	4" 6"	9,325' 5,982'	R-41	R-141 R-142

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Exhibit D

Franklin St. & State St., Bellingham repair documentation

CNG FOR. 625
Rev. Oct 05

CASCADE NATURAL GAS CORPORATION

INTEGRITY MANAGEMENT DIG REPORT

DATE OF EXCAVATION	9/8,9,+10/09	HP LINE NAME AND NUMBER	Bellingham H.P. Dist. Syst. #2
DISTRICT	Bellingham	TOWN	Bellingham
EXCAVATION LOCATION	ADDRESS / CROSS STREETS: Franklin St. + State St.		
REASON FOR EXCAVATION	☐ OBSERVING THIRD PARTY DIG	☒ CNG CONSTRUCTION PROJECT	☐ INTEGRITY ASSESSMENT-DIRECT EXAMINATION ☒ OTHER -EXPLAIN IN COMMENTS
LOCATE NO.	9217315	ARRIVAL TIME: NA	COMPLETED TIME: NA

PIPE EXAMINATION DETAILS – COLLECT AS MUCH DATA AS POSSIBLE. DESCRIBE REASON IF DATA IS NOT AVAILABLE.

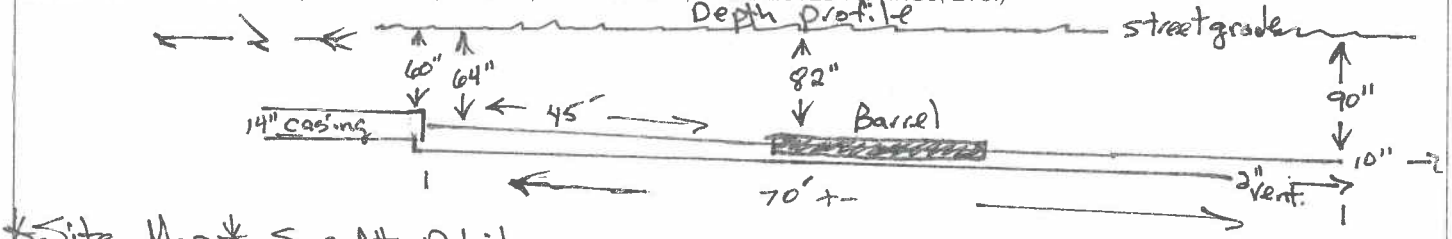
PIPE MATERIAL	☒ STEEL ☐ OTHER _____	PIPE DIAMETER (INCHES)	10
MEASURED DEPTH OF COVER (INCHES)	90" → 64"		
COATING	☒ COAL TAR ☐ X-TRU ☐ BARE ☐ FIBER WRAP ☐ OTHER _____	☒ DITCH APPLIED ☒ FACTORY APPLIED	
COATING CONDITION	DESCRIBE ALL COATING DEFECTS AND POSSIBLE CAUSE. SKETCH LOCATIONS AND DESCRIBE REPAIRS.	FOUND: ☐ GOOD ☒ FAIR ☐ POOR LEFT: ☒ GOOD ☐ FAIR ☐ POOR	

IF PIPE MATERIAL IS EXPOSED (COATING IS DAMAGED, MISSING, OR REMOVED), COMPLETE THE FOLLOWING

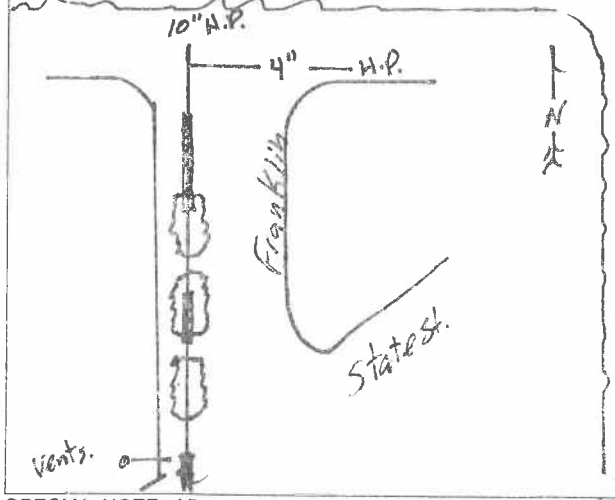
PIPE CONDITION	IF PIPE CONDITION IS OTHER THAN GOOD, REPORT TO CORROSION CONTROL; SKETCH LOCATIONS	FOUND: ☒ GOOD ☐ FAIR ☐ POOR PITTING: ☐ YES ☒ NO SCALING: ☐ YES ☒ NO	LEFT: ☒ GOOD ☐ FAIR ☐ POOR PITTING: ☐ YES ☐ NO SCALING: ☐ YES ☐ NO
WELD APPEARANCE	HOW MANY WELDS EXPOSED?: 0	SKETCH LOCATION OF ALL WELDS; DESCRIBE WELDS THAT DO NOT APPEAR ACCEPTABLE.	
CATHODIC PROTECTION	PIPE TO SOIL POTENTIAL (VOLTS), INDICATE POLARITY: -0.800 → -1.002	IF READING IS MORE POSITIVE THAN –0.90V, CONTACT CORROSION CONTROL	

IF PIPE WALL LOSS, DENTS, OR IMPACT DAMAGE IS FOUND OR SUSPECTED, CONTACT CORROSION CONTROL FOR INSTRUCTIONS.

SKETCH PIPE LOCATION, AND NEARBY AREA. INDICATE SIZE OF EXCAVATION. GIVE DISTANCES TO NEARBY LANDMARKS. IDENTIFY LOCATION OF ANOMOLIES (CORROSION, PITTING, POOR WELDS, UNEXPECTED FITTINGS, ETC.)



Site Map See Att. Detail



SPECIAL NOTE: ADDING FITTINGS OR COMPONENTS, REPAIRS, REPLACEMENTS, REINFORCEMENTS, AND REROUTES OF HP LINE AND TRANSMISSION LINES MUST BE RECORDED AS BUILT AND SUBMITTED TO ENGINEERING FOR INCLUSION INTO THE PERMANENT RECORDS. RECORD AS-BUILTS AS DIRECTED BY GENERAL MANAGER AND DISTRIBUTION CLERK.

COMMENTS/DESCRIPTION OF EXAMINATION INCLUDING ANY INFORMATION THAT MIGHT AID EVALUATION OF SYSTEM QUALITY. EXPLAIN UNUSUAL CONDITIONS AND DESCRIBE THE CONDITION FOUND AS NECESSARY

Dug 3 sections of 10" H.P. line as noted on attached map. Purpose of Dig was to investigate possible leaking barrel and prior work @ casing ends On 9/8 Dug to look for N. end of casing crossing State St. Did not find end. Wrapped pipe where exposed. Did find vent pipe pressed against 10" line. 9/9 Dug S. end of casing from Kansas st. found end shorted to Main w/no seals. 9/10 Dug @ suspected barrel location. Found Plate style ends on barrel + fitting on barrel leaking. Backfilled pending engineering.

REPORTED BY	DATE	GENERAL MANAGER	DATE
Brian McConnell	9/10/09		9/11/09

ANOMOLY EXAMINATION DETAILS – IF WALL LOSS, DENTS, OR IMPACT DAMAGE SUSPECTED – IDENTIFY LOCATION, AREA, REMAINING WALL, AND TYPE OF ALL WALL LOSS OR ANOMOLIES. FOR GENERAL CORROSION, MULTIPLE MEASUREMENTS OF REMAINING WALL ARE NEEDED (TOPOGRAPHY MAP)

SOIL TYPE (IF KNOWN)		SOIL RESISTIVITY (OHM-CM) (IF MEASURED)		BASE PIPE WALL THICKNESS (INCHES)	
HCA NUMBER (IF LOCATED IN HCA)		GPS REFERENCE POINT (IF KNOWN)			

BOTTOM							
3:00							
TOP							
9:00							
BOTTOM							

EXAM PERFORMED BY	CORROSION CONTROL OR DESIGNATED REPRESENTATIVE	DATE

ENGINEERING REVIEW

☐	ANOMOLIES WERE FOUND ACCEPTABLE PER ASME B31G – REMAINING STRENGTH GUIDELINES (ATTACH CALCULATIONS)
☐	ACCEPTABLE REINFORCEMENT FITTINGS INSTALLED – DETAILS SHOWN ON AS-BUILT - WORK ORDER _____
☐	PIPE WAS REMOVED – DETAILS SHOWN ON AS-BUILT - WORK ORDER _____
☐	NO ACTION NECESSARY
☐	OTHER: (WRITE IN OR ATTACH)

ENGINEER	DATE

Kelln, Rick

From: Kelln, Rick
Sent: Wednesday, February 10, 2010 10:24 AM
To: Raschkow, Kevin
Subject: FW: Franklin & State HP Dig Results (WO#169733)
Attachments: Intergrity Dig Report - Franklin & State HP.jpg; Intergrity Dig Report - Franklin & State HP 001.jpg; Intergrity Dig Report - Franklin & State HP 002.jpg; Proposed Solution @ Franklin & State HP.jpg

Kevin –

This is something that we also should take a look at when you're up here to look at the washout. This should be scheduled for this summer due to the water table needing to be low to work on in this area.

Rick Kelln | General Manager, Bellingham District

Cascade Natural Gas Corporation
A Subsidiary of MDU Resources Group, Inc.
1910 Racine St., Bellingham, WA 98229 - 4773
[cell] 360.201-4440

[email] rick.kelln@cngc.com

From: Kelln, Rick
Sent: Friday, September 11, 2009 6:08 PM
To: Raschkow, Kevin; Marek, Chanda; Knowles, Dustin; Gilley, Shanon
Cc: Grunhurd, Dave; Van Corbach, Gordon; Haugness, Brandon; Johnstone, Joel; Danko, Bill
Subject: Franklin & State HP Dig Results (WO#169733)

Everyone –

08 RK

This week we focused our efforts in looking into a deferred leak that had originally investigated 5/8/08 with a follow-up bar hole investigation 11/10/08. As water & depth were issues, we chose to wait until now for our best shot at a more thorough investigation, taking 3 days 9/8-10/09. This investigation required Rental of a large Excavator, and shoring when necessary to enter the excavation.

We found that we have several casings in this 450 ft. stretch of 10" HP pipe that is part of the #2 HP Bellingham Distribution Line. In the 3 areas that we opened up, we found an unsealed end of casing, also an extremely long casing vent pipe that was packed tightly right along the side of the carrier pipe causing a short, and an unrecorded 14" barrel estimated to be approximately 36 ft. long, that had been plated on the ends. The end that we had exposed was leaking, as was the save a valve nipple in the middle. At 20 ft. we opted to button things up, versus excavating out more pavement to expose the other end, but would expect that there are problems there as well.

Attached you will find what I feel is the most important paperwork scans needed to make a decision, but chose not to include the actual Substructure Damage Report at this time. Be assured that there is more detail than what you see here for audit scrutiny. We also have photo's, but wanted to get this out yet today before I left work.

If you need more than what I have here, just ask.

Rick Kelln | General Manager, Bellingham District

Cascade Natural Gas Corporation
A Subsidiary of MDU Resources Group, Inc.

1910 Racine St., Bellingham, WA 98229 - 4773
[cell] 360.201-4440

[email] rick.kelln@cngc.com

CNG 293
REV JAN 08

CASCADE NATURAL GAS CORPORATION
SUBSTRUCTURE DAMAGE/LEAK REPORT

DEFERRED
LEAK 11/10/08

INCIDENT TYPE	3RD PARTY DAMAGE ☐	LEAK ☑		CASCADE CREW DAMAGE ☐	
INCIDENT NO.		WORK ORDER NO.	AA013422	COMPLETED BY	KELLY - CNG
INCIDENT LOCATION	ADDRESS N. STATE & FRANKLIN		CITY /STATE BELLINGHAM, WA		MAP GRID S-F
REPORTED BY	☐ A. FIRE, POLICE	☐ B. PUBLIC	☐ C. CUSTOMER	☒ D. CNG	☐ E. AGENCY CAUSING DAMAGE
	NAME AND ADDRESS (IF B , OR C)				

LOG OF EVENTS

	DATE	TIME	BY WHOM		DATE	TIME	BY WHOM
DETECTED	5-8-08		SAUND - CNG	LEAK STOPPED	11-24-10		ABANDONED SECTION IN PLACE
REPORTED	5-8-08		SAUND - CNG	LEAK GRADED	5-8-08		VANCAMBACH - CNG
DISPATCHED	5-9-08		VANCAMBACH - CNG	DEFERRED	5-8-08 / 11-10-08		VANCAMBACH - CNG
INVESTIGATED	5-9-08		SAUND - CNG	REPAIRED	11-24-10		ABANDONED SECTION IN PLACE

RESPONSIBLE PARTY TO BE BILLED	LOCATE INFORMATION
ELLIPSE ID	LOCATE CENTER TICKET NO.?
NAME/COMPANY	HOW CLOSE WAS FACILITY TO LOCATE LINE?:
STREET	DEPTH OF FACILITY BEFORE DAMAGE?:
CITY STATE/ZIP	MARKING METHOD: ☐ STAKES ☐ FLAGS ☐ SPRAY PAINT ☐ CARSONITE MARKERS ☐ OTHER
TELEPHONE ( )	**DAMAGE REASON (GM)**
EQUIPMENT CAUSING DAMAGE	☐ UTILITY MISLOCATED ☐ FAILED TO CALL FOR LOCATES ☐ FAILED TO HAND EXPOSE ☐ FAILED TO PROTECT ☐ FAILED TO WAIT 48 HOURS ☐ FAILED TO MAINTAIN MARKS ☐ OTHER
EQUIPMENT OPERATOR NAME	
OR (GM) : ☐ BILL ☐ RAA ☐ WARNING ☐ DO NOT BILL	3RD PARTY DAMAGE CAUSED BY: ☐ PRO ☐ HOMEOWNER
WA (GM) : ☐ BILL ☐ TREBLE ☐ WARNING ☐ DO NOT BILL	**GM NOTE: FOR CNG DAMAGE OR MISSED LOCATE**, BE SURE TO EXPLAIN YOUR REVIEW IN COMMENT SECTION OR ATTACH SHEETS

CNG VEHICLES ON SITE						
	TYPE	HRS	TYPE	HRS	TYPE	HRS
	TYPE	HRS	TYPE	HRS	TYPE	HRS
	TYPE	HRS	TYPE	HRS	TYPE	HRS

GAS LOSS INFO

IF SERVICE, DISTANCE FROM MAIN? FT	ELAPSED TIME OF GAS LOSS?	EST. SYSTEM PRESSURE PSIG	HOLE SIZE IN	
SERVICE INTERRUPTION ☐YES ☐NO	CUSTOMERS AFFECTED RES ___	COM ___	IND ___	

IF 25 OR MORE CUSTOMERS ARE INTERRUPTED, IMMEDIATELY REPORT TO GAS CONTROL.

LEAK DETAILS

LEAK GRADING	GRADE (1, 2, 3) 3 VANCAMBACH	BAR HOLE TESTING PERFORMED? ☒YES ☐ NO MAX. SUST. READ 30 %	INSTRUMENT SERIAL NO.: 1875

1	CAUSE OF LEAK	☐ A. CORROSION ☐ B. EXCAVATION ☐ C. NATURAL FORCES ☐ D. OTHER OUTSIDE FORCE ☒ E. MATERIAL OR WELDS ☐ F. EQUIPMENT ☐ G. OPERATIONS ☐ H. OTHER
2.	PART OF SYSTEM WHERE LEAK OCCURRED	☒ A. MAIN ☐ B. SERVICE ☐ C. OTHER
3	PART OF SYSTEM THAT LEAKED:	☐ A. PIPE ☐ B. VALVE ☐ C. REGULATOR ☐ D. FITTING ☐ E. TAP CONNECTION ☒ F. OTHER Encapsulating barrel — DATE INSTALLED: (N/A FOR TPD)
4	MATERIAL THAT LEAKED	☒ A. STEEL ☐ B. PLASTIC ☐ C. OTHER
5	ORIGIN OF LEAK	☐ A. BASE MATERIAL FRACTURE ☐ B. LONGITUDINAL WELD ☐ C. GIRTH WELD ☒ D. OTHER FIELD WELD ☐ E. CORROSION ☐ F. THIRD PARTY DAMAGE ☐ G. OTHER
6	CATHODICALLY PROTECTED	☒ YES ☐ NO ☐ N/A P.E. — PIPE TO SOIL /TRACER WIRE POTENTIAL:
7	PIPE DESCRIPTION	DIAMETER: 10" / 16"? — WALL THICKNESS: — PIPE CONDITION: ☒ GOOD ☐ FAIR ☐ POOR — COATING CONDITION: ☒ GOOD ☐ FAIR ☐ POOR
		PIPE COATING: ☐1. BARE ☒2. COAL TAR ☐3. X-TRU COAT ☐4. N/A P.E. ☐5. OTHER

CNG 293
REV JAN 08

INCIDENT NO.

REPAIR DETAILS				
PRESSURE TEST	PSIG	MIN	☐ AIR ☐ WATER ☐ NITROGEN	IF MORE THAN ONE TEST, DOCUMENT THEM ALL IN COMMENTS
REPAIR IS	☐1. PERMANENT ☐2. TEMPORARY	REPAIR METHOD	☐1. WELD OVER SLEEVE ☐4. REPLACE PIPE ______ FT ☐6. COMPONENT RECONDITIONED	☐2. PATCH WELDED ☐3. CLAMP ☐5. REPLACE COMPONENT ☐7. OTHER ______
REPAIR DESCRIPTION				
FOLLOW-UP LEAK SURVEY IS REQURIED IF RESIDUAL GAS REMAINS IN GROUND AFTER REPAIR. FOLLOW-UP DATE MUST BE SET PER CP 750.		FOLLOW-UP AND DEFERRAL WORK ORDER NUMBERS:		

SKETCH

SKETCH LOCATION INFORMATION, BAR HOLE LOCATIONS, AND CGI READINGS. INCLUDE ALL INFORMATION USED IN THE GRADING OF THE LEAK, I.E., LOCATION OF PAVED AREAS AND BUILDING IF WITHIN THE AREA OF INFLUENCE OF THE GAS. ALSO INCLUDE ALL PERTANENT INFORMATION IN REGARDS TO CONSTRUCTION ACTIVITY: POTHOLE INFO; LOCATE MARK MEASUREMENTS;ETC.

North

178822
CNG PROJECT #~~[illegible]~~ / ABANDONED SECTION IN PLACE + REPLACED W/NEW 10" STEEL AP PIPE.

West

East

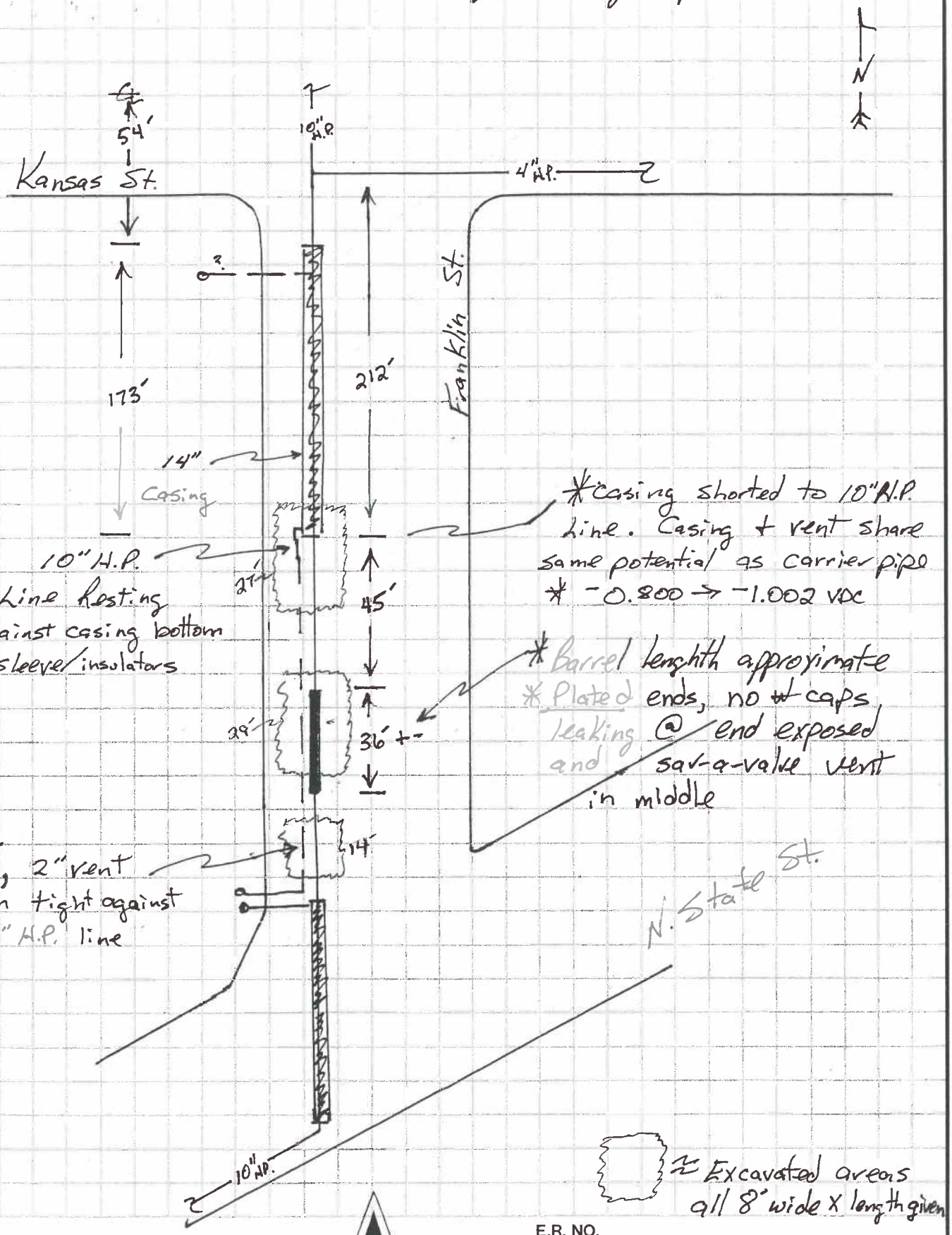
South

COMMENTS/DESCRIPTION OF DAMAGE/LOSS INCLUDING ANY INFORMATION THAT MIGHT AID INVESTIGATION, INCLUDING DEFFERRAL DETAILS AND DATE FOR RE-EVALUATION. EXPLAIN UNUSUAL CONDITIONS AND DESCRIBE THE DRAWING AS NECESSARY

5-8-08 SAVARD / CGI #1875 @ 80% / CLASS III VANCOUVER?
5-9-08 SAVARD / CGI #1875 BEFORE/AFTER ASPHALT REMOVAL @ BARHOLES
5-12-08 / 5-13-08 / DALE SAVARD / ED WHITE - EXCAVATE / MAIN 10' DEEP W/EXCESSIVE WATER - NO BUBBLES NOTED. DETERMINED TO MONITOR + CHECK WHEN DRYER CONDITIONS PERMIT.
11-10/08 / VANCE CGI# 1872 / BARHOLE @ 15% / DETERMINED TO CONTINUE MONITOR + DEFERRED DIGGING UP RK
*9/8, 9 + 10/09 Investigated Possible Leaking barrel. See Attached Dig Report for Details.

CHECKED BY GENERAL MANAGER OR SUPERVISOR:	[signature]	DATE	11-10-08

9/8->10/09 10" H.P. Leak investigation Dig Map Detail



Scale	None	Drawn	McConnell
Date	9/10/09	Check	
Eng.		Meas.	
Grid No.		Dwg. No.	

E.R. NO.

CASCADE NATURAL GAS CORPORATION
222 Fairview Ave. No. Seattle, Wash. 98109

Form 167 Rev. 8/88

CASCADE NATURAL GAS CORPORATION®
A Subsidiary of MDU Resources Group, Inc.

8113 W. Grandridge Blvd, KENNEWICK, WASHINGTON 99336-7166 (509)-734-4576
FACSIMILE (509)-737-9803

Exhibit E

Annual casing survey documents

ANNUAL CASING SURVEY REPORT SUMMARY
Bellingham District

Report Date: 3-11-10

Survey Conducted By: Tim Donnelly

Signature: Tim Donnelly

GM Signature: [signature]

Date: 3-18-10

Total Casings with Vents: 132

Total Casings Shorted: 0

Instructions:

Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative than -0.73, take the following additional action (if there is no casing vent and no casing pipe to soil can be taken, continue with this procedure as if the casing pipe to soil potential was more negative than -0.73) : 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	BNRR E of Nooksack Ave	4" Lynden HP	2	2	8"	-.527	-1.655		N	0
2	RR immed. W of Van Buren Rd	4" Lynden HP	5	2	8"	—	-1.655	P	—	—
3	RR 1000' W of Van Buren Rd	4" Lynden HP	5	2	8"	—	-1.655	P	—	—
1	Turkington Rd/BNRR	Acme	3-C	2	6"	-.439	-1.852		N	0
2	SR 9, N of Galbraith Rd	Acme	3-C	2	6"	-.1758	-1.007	P	N	0
3	BNRR, N of Galbraith Rd	Acme	3-C	2	6"	-.539	-1.004		N	0
1	Northwest Rd/Waldron Rd	Bellingham	2	2	12"	-.368	-1.588		N	0
2	Guide Meridian (SR 539)/Kellogg Rd	Bellingham	14	2	8"	-.464	-1.400		N	0

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Jumper Reason (C/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
3	Old Marine Dr/BNRR	Bellingham	44	1	6"	-.528	-1.107		N	0
4	So. Cliffside Dr.	Bellingham		2	6"	-.326	-1.115		N	0
5	Country Ln/BNRR	Bellingham	46	2	6"	-.525	-1.102		N	0
6	Britton Rd/Bellingham Lat (S of SR 542)	Bellingham	8-AA	1	12"	—	-1.703	P	—	—
7	Northwest Ave/N of McLeod Rd	Bellingham	2-B	2	6"	-.722	-1.511		N	0
8	Northbound off ramp I-5 & Meridian St	Bellingham	3-B		6"	-.497	-1.192		N	0
9	Meridian St S of Birchwood (RR Spur)	Bellingham	3-C	1	6"	-.462	-1.150		N	0
10	Roeder Ave @ Mt Baker Plywood (RR spur)	Bellingham	1-E	1	8"	-.430	-1.187		N	0
11	Roeder Ave @ Squalicum Creek	Bellingham	2-E	2	8"	-.962	-1.187	P, T, [illegible]	N	0
12	Roeder Ave @ Bellingham Cold Storage	Bellingham	2-E	2	6"	-.474	-1.117		N	0
13	Marine Dr @ Seaview Circle (RR spur)	Bellingham	1-D	1	12"	-.479	-1.074		N	0
14	Alabama St @ I-5	Bellingham	5-E	2	8"	-1.035	-1.160	P, T, [illegible]	N	0
15	Roeder Ave @ Squalicum Way	Bellingham	2-F	1	6"	-.375	-1.155		N	0
16	B'ham Frozen Foods @ RR Spur (3 casings)	Bellingham	2-F	2	6"	-.562	-1.115		N	0
17	Roeder Ave @ Hilton St	Bellingham	3-F	2	6"	-.525	-1.375		N	0
18	Meridian St & W Connecticut St	Bellingham	3-E	1	12"	-.616	-1.196		N	0
19	Bayview Dr @ BNRR Blvd. Park So.	Bellingham	2-J	2	6"	-1.017	-1.205	P, T, [illegible]	N	0
20	Consolidation Ave & I-5	Bellingham	5-J	2	10"	-.328	-1.145		N	0
21	McKenzie Ave & BNRR	Bellingham	1-L	1	6"	-.541	-1.145		N	0
22	"F" St @ Roeder Ave (RR tracks)	Bellingham	3-F	2	6"	-.563	-1.375		N	0
23	Kentucky St @ Grant St	Bellingham	4-F	1	8"	-.472	-1.347		N	0

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rapor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
24	Franklin St @ Iowa St	Bellingham	4-F	2	16"	-.401	-1.099		N	0
25	"C" St @ BNRR tracks (W of W Holly St)	Bellingham	3-G	2	6"	-.416	-1.348		N	0
26	Georgia Pacific @ BNRR tracks	Bellingham	3-G	1	14"	VACATED				
27	Kansas St E of Franklin St	Bellingham	4-G	1	8"	-.571	-1.124		N	0
28	Franklin St S of Kansas St	Bellingham	4-G	1	14"	-.611	-1.124		N	0
29	N State St @ Franklin St.	Bellingham	4-G	2	14"	-1.062	-1.076	P	N	0
30	N State St @ Whatcom Creek	Bellingham	4-G	1	14"	-.726	-1.337		N	0
31	Meador Ave @ I-5	Bellingham	5-G	2	8"	-.567	-1.168		N	0
32	Cornwall N of Pine (2 casings, RR spur)	Bellingham	3-H	1	8"	-.341	-1.286		N	0
33	Cornwall N of Ivy St (RR spurs)	Bellingham	3-H	2	8"	VACATED				
34	Cornwall Ave S of Laurel St (RR spur)	Bellingham	3-H	2	8"	VACATED				
35	Viewcrest Rd & Fieldston Rd	Bellingham	2-O	0	6"	—	-1.316	P	—	—
36	SR 542 & Squalicum Lk Rd	Bellingham	Sh 2	0	6"	—	-1.187	P	—	—
37	N State St @ Laurel St	Bellingham	4-H	0	14"	VACATED				
38	Nequalicum Ave & Marine Dr (Eldridge Ave)	Bellingham	2-E	0	12"	-.443	-1.301		—	—
39	Eldridge @ S end of Bridge (Squalicum Ck)	Bellingham	2-E	0	12"	-1.073	-1.307	P	—	—
40	Northwest Ave & W Connecticut St	Bellingham	3-E	0	12"	—	-1.196	P	—	—
41	Orleans St & E Connecticut St	Bellingham	5-E	0	12"	—	-1.153	P	—	—
42	Alabama St. E of Iron St.	Bellingham	5-E	0	6"	—	-1.163	P	—	—
43	I-5/Squalicum Pkwy	Bellingham	5-C	0	14"	—	-1.317	P	—	—
44	Lahti Dr, W of Britton Rd	Bellingham	9-C	0	6"	—	-1.351	P	—	—

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Volts	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
11	Mobil Lateral & Lake Terrell Rd	Mobil Lat	Dwg 6	2	12"	-.344	-1.378		N	0
12	Mobil Lateral & E Bakerview Rd	Mobil Lat	Dwg 1	0	12"	—	-1.534	P	—	—
13	Mobil Lateral & Guide Meridian Rd	Mobil Lat	Dwg 1	0	12"	—	-1.456	P	—	—
14	Mobil Lateral & Waldron Rd	Mobil Lat	Dwg 2	0	12"	—	-1.402	P	—	—
1	Garrison Rd	N Whatcm HP	101-2	2	20"	-.617	-1.671		N	0
2	Van Buren Rd (also, BNRR)	N Whatcm HP	101-5	2	20"	-.564	-1.662		N	0
3	SR 539 (Guide Meridian Rd)	N Whatcm HP	101-12	2	20"	-.596	-1.672		N	0
4	W Badger Rd	N Whatcm HP	101-17	2	20"	-.600	-1.576		N	0
5	Sunrise Rd	N Whatcm HP	101-19	2	20"	-.602	-1.580		N	0
6	I-5	N Whatcm HP	101-24	2	20"	-.492	-1.553		N	0
7	Portal Way	N Whatcm HP	101-24	2	20"	-.396	-1.553		N	0
8	BNRR (W of Portal Way)	N Whatcm HP	101-24	2	20"	-.403	-1.553		N	0
9	Birch Bay - Lynden Rd	N Whatcm HP	101-25	1	20"	-.596	-1.583		N	0
10	Bay Rd	N Whatcm HP	101-28	2	20"	-.376	-1.573		N	0
11	Grandview Rd	N Whatcm HP	101-29	2	20"	-.544	-1.707		N	0
12	N Telegraph Rd	N Whatcm HP	101-1	2	20"	-.665	-1.647		N	0
13	BNRR S of Morgan	N Whatcm HP	101-2	2	20"	-.698	-1.662		N	0
14	Grandview RR @ 20" Main	N Whatcm HP		4	20"	-.630	-1.582		N	0
15	Railroad Spur (BNRR)	N Whatcm HP	100-2	2	12"	-.462	-1.703		N	0

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
10	Main St & Barrett Rd	Ferndale	7-P	2	8"	-.522	-1.454		N	0
11	Labounty Rd & I-5	Ferndale	7-P	2	8"	-.630	-1.445		N	0
12	Aldergrove @ RR W of Kickerville (Tre Oil)	Ferndale	100-5	2	8"	-1366	-1.401		N	0
13	Portal & I-5 in town	Ferndale		2		-.394	-1.432		N	0
1	SR 9/E Hoff Rd	Lawrence	3-D	1	8"	-.373	-1.476		N	0
1	Guide Meridian (SR 539)/Main St	Lynden	4-G	2	6"	-.525	-1.745		N	0
2	E Grover @ RR tracks (W of S Garden Dr)	Lynden	8-G	1	6"	-.455	-1.625		N	0
3	1st St/BNRR	Lynden	6-G	0	6"	—	-1.654	P	—	—
1	Mobil Lateral & Northwest Rd	Mobil Lat	Dwg 2	2	12"	-.472	-1.562		N	0
2	Mobil Lateral & Aldrich Rd	Mobil Lat	Dwg 2	2	12"	-.325	-1.402		N	0
3	Mobil Lateral & I-5	Mobil Lat	Dwg 3	1	12"	-.591	-1.538		N	0
4	Mobil Lateral & Rural Ave	Mobil Lat	Dwg 3	2	12"	-.365	-1.499		N	0
5	Mobil Lateral & Slater Rd (Hwy I-2)	Mobil Lat	Dwg 3	2	12"	-.466	-1.499		N	0
6	Mobil Lateral BNRR	Mobil Lat	Dwg 3	1	12"	-.676	-1.499		N	0
7	Mobil Lateral & Ferndale Rd	Mobil Lat	Dwg 4	2	12"	-.344	-1.571		N	0
8	Mobil Lateral & Imhoff Rd	Mobil Lat	Dwg 4	2	12"	-.421	-1.568		N	0
9	Mobil Lateral & Haxton Way	Mobil Lat	Dwg 5	2	12"	-.382	-1.651		N	0
10	Mobil Lateral & Elder Rd	Mobil Lat	Dwg 6	2	12"	-.455	-1.543		N	0

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Riser (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	SR 542/Water Rd	Deming	4-D	1	6"	-.425	-1.492			
2	BNRR/School Bus Garage	Deming	4-D	2	6"	-.425	-1.372		N	0
1	Everson Rd (SR 544)/Nooksack River	Everson	6-D	2	8"	-.394	-1.595		N	0
2	Everson-Goshen Rd (SR 544)/Van Dyk Rd	Everson	4-F	2	8"	-.595	-1.513		N	0
3	Everson-Goshen Rd (SR 544)/Aspen Dr	Everson	5-F	2	6"	-.415	-1.485		N	0
4	Robinson St/Mead Ave	Everson	5-F	0	8"	—	-1.492	P	—	—
5	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	6"	—	-1.658	P	—	—
6	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	8"	—	-1.612	P	—	—
7	Everson Rd/Overflow Bridge, Nooksack River	Everson	6-E	0	8"	—	-1.711	P	—	—
8	Dahlquiat Ln/ S or SR 544 (Everson-Goshen Rd)	Everson	5-F	0	6"	—	-1.492	P	—	—
1	SR 539 (Guide Meridian) & Bartlett Rd	Ferndale	14-G	1	6"	-.464	-1.384		N	0
2	SR 539 (Guide Meridian) & Pole Rd (SR 544)	Ferndale	14-H	2	10"	-.385	-1.565		N	0
3	810 E Pole Rd (SR 544)	Ferndale	16-H	2	2"	-.417	-1.292		N	0
4	Hannegan Rd & E Pole Rd	Ferndale	17-H	2	8"	-.396	-1.292		N	0
5	Thornton Rd & BNRR	Ferndale	6-M	2	6"	-.366	-1.378		N	0
6	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	1	6"	RETIRED	—		—	—
7	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	2	10"	-.366	-1.625		N	0
8	Washington Ave & BNRR	Ferndale	6-O	2	8"	-.615	-1.263		N	0
9	Main St & BNRR	Ferndale	6-P	2	6"	-.635	-1.268		N	0

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No.	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials: Casing	Pipe to Soil Potentials: Carrier	Tinker Razor (P/F)	Leak Survey: Gas Detected (Y/N)	Leak Survey: % Gas
1	E Madison St/BNRR	Nooksack	4-B	2	6"	-.471	-1.532		N	0
1	Johnson Creek N of Bowen Rd	S Sum. 4" HP	4	0	8"	—	-1.691	P	—	—
1	Encogen Lateral & Mt. Baker Hwy	Squalicum HP		yes		-.436	-1.471		N	0
1	BNRR Spur/Port Rd (N of Front St)	Sumas	1-A	2	8"	-.568	-1.622		N	0
2	W Third St/BNRR (Main Line)	Sumas	2-A	2	6"	-.413	-.968		N	0
3	W Front St/BNRR Spur (W of Johnson Creek)	Sumas	2-B	2	8"	-.666	-1.672		N	0
4	W Front St/BNRR Spur (E of Johnson Creek)	Sumas	2-B	1	8"	-.611	-1.672		N	0
5	Wynn Road	B'HAM ~~Sumas~~		yes		-.318	-1.285		N	0
	Ferry Term. New So.	B'HAM		2		-.359	-1.386		N	0

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Volts	Main Diameter	Pipe to Soil Potentials		Tinker Rason (P/F)	Leak Survey	
						Casing	Carlton		Gas Detected (Y/N)	% Gas
45	Marine Dr, W of Bennett Dr	Bellingham	1-D	1	12"	-.423	-1.256		N	0
46	Marine Dr @ Goddard Dr	Bellingham	1-D	0	12"	-.620	-1.245		—	—
47	Marine Dr @ Lindberg Ave	Bellingham	1-D	0	12"	-.585	-1.245		—	—
48	Railroad Ave @ Magnolia St (RR tracks)	Bellingham	4-G	0	6"	—	-1.233	P	—	—
49	Magnolia @ Alley E of Railroad Ave	Bellingham	4-G	0	6"	—	-1.233	P	—	—
50	Laurel E of Cornwall (RR Spurs)	Bellingham	3-H	0	14"	VACATED				
51	Railroad Ave @ Laurel St	Bellingham	3-H	0	14"	VACATED				
52	Laurel St @ Alley W of N State St	Bellingham	3-H	0	14"	VACATED				
1	Bellingham Lateral & James St Rd	B'ham 8" HP		1	12"	-.620	-1.260		N	0
2	James St Rd & RR Tracks (spur)	B'ham 8" HP		1	14"	-.411	-1.271		N	0
3	Bellingham Lateral & Mt. Baker Hwy	B'ham 8" HP		yes		-.426	-1.260		N	0
1	Bellingham H.P. & I-5	B'ham HP Dist.		yes		-.610	-1.260		N	0
1	Marine Dr/BNRR	Blaine	6-B	0 2	8"	[illegible]	-1.571	Flash	—	—
2	I-5/4th St	Blaine	6-B	2	12"	-.648	-1.579		N	0
3	Boblett St/SR 543 (truck route)	Blaine	7-C	2	8"	-.760	-1.515	Flash		
4	8899 Portal Way	Blaine		Yes		-.502	-1.576		N	0
5	Hughes Ave. & R.R.	Blaine		2	6"	-.775	-1.470	P	N	0

Comments: _____

180 DAY SHORTED CASING LEAK SURVEY
Bellingham District

Report Date: 9-20-10 *GM Signature:* [signature]

Survey Conducted By: R KELLY *Date:* 9-20-10

Signature: R Kelly

Total Casings with Vents: 0 *Total Casings Shorted:* 0

Instructions:

Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative that -0.73, take the following additional action: 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	#N/A	#N/A	#N/A	#N/A	#N/A					
	NO SHORTED CASINGS TO									
	SURVEY - SEE ANNUAL									
	2010 REPORT - ALL CASINGS									
	PASSED.									

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY
Bellingham District

Report Date: 3-20-09 *GM Signature:* [signature]

Survey Conducted By: Tim Donnelly *Date:* 3-20-09

Signature: [signature]

Total Casings with Vents: 132 *Total Casings Shorted:* 0

Instructions:
Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative than -0.73, take the following additional action (if there is no casing vent and no casing pipe to soil can be taken, continue with this procedure as if the casing pipe to soil potential was more negative than -0.73) : 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	BNRR E of ~~Elder~~ Nooksack Ave	4" Lynden HP	2	2	8"	-.596	-1.212			
2	RR immed. W of Van Buren Rd	4" Lynden HP	5	~~2~~ 0	8"	—	-1.533	P		
3	RR 1000' W of Van Buren Rd	4" Lynden HP	5	~~2~~ 0	8"	—	-1.533	P		
	Depot/Badger	Lynden		0		—	-1.119	P		
1	Turkington Rd/BNRR	Acme	3-C	2	6"	-.411	-1.026			
2	SR 9, N of Galbraith Rd	Acme	3-C	2	6"	-.621	-1.004			
3	BNRR, N of Galbraith Rd	Acme	3-C	2	6"	-.394	-1.004			
1	Northwest Rd/Waldron Rd	Bellingham	2	2	12"	-.271	-1.306			
2	Guide Meridian (SR 539)/Kellogg Rd	Bellingham	14	2	8"	-.512	-1.465			

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
3	Old Marine Dr/BNRR	Bellingham	44	1	6"	-.382	-.999			
4	So. Cliffside Dr.	Bellingham		2	6"	-.434	-.942			
5	Country Ln/BNRR	Bellingham	46	2	6"	-.387	-1.034			
6	Britton Rd/Bellingham Lat (S of SR 542)	Bellingham	8-AA	0 1	12"	—	-1.252	P		
7	Northwest Ave/N of McLeod Rd	Bellingham	2-B	2	6"	-.455	-1.326			
8	Northbound off ramp I-5 & Meridian St	Bellingham	3-B	0	6"	—	-1.026	P		
9	Meridian St S of Birchwood (RR Spur)	Bellingham	3-C	1	6"	-.476	-1.021			
10	Roeder Ave @ Mt Baker Plywood (RR spur)	Bellingham	1-E	1	8"	-.492	-1.104			
11	Roeder Ave @ Squalicum Creek	Bellingham	2-E	2	8"	<-.892	-1.104	P	N	0%
12	Roeder Ave @ Bellingham Cold Storage	Bellingham	2-E	2	6"	-.494	-1.121			
13	Marine Dr @ Seaview Circle (RR spur)	Bellingham	1-D	1	12"	-.231	-1.097			
14	Alabama St @ I-5	Bellingham	5-E	2	8"	<-1.015	-1.204	P	N	0%
15	Roeder Ave @ Squalicum Way	Bellingham	2-F	1	6"	-.473	-.971			
16	B'ham Frozen Foods @ RR Spur (3 casings)	Bellingham	2-F	2	6"	-.492	-1.104			
17	Roeder Ave @ Hilton St	Bellingham	3-F	2	6"	-.496	-1.314			
18	Meridian St & W Connecticut St	Bellingham	3-E	1	12"	-.719	-1.220			
19	Bayview Dr @ BNRR Blvd. Park So.	Bellingham	2-J	2	6"	<-1.156	-1.449	P	N	0%
20	Consolidation Ave & I-5	Bellingham	5-J	2	10"	-.602	-1.491			
21	McKenzie Ave & BNRR	Bellingham	1-L	1	6"	-.566	-1.564			
22	"F" St @ Roeder Ave (RR tracks)	Bellingham	3-F	2	6"	-.438	-1.214			
23	Kentucky St @ Grant St	Bellingham	4-F	1	8"	-.827	-1.091			

Comments: _____

RKL

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rason (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
24	Franklin St @ Iowa St	Bellingham	4-F	2	16"	-.645	-1.152			
25	"C" St @ BNRR tracks (W of W Holly St)	Bellingham	3-G	2	6"	-.595	-1.278			
26	Georgia Pacific @ BNRR tracks Delete	Bellingham	3-G	1	14"	Vacated	—			
27	Kansas St E of Franklin St	Bellingham	4-G	1	8"	-.602	-1.065			
28	Franklin St S of Kansas St	Bellingham	4-G	1	14"	-.576	-1.162			
29	N State St @ Franklin St.	Bellingham	4-G	2	14"	<=1.059	-1.162	P	N	0%
30	N State St @ Whatcom Creek	Bellingham	4-G	1	14"	-.502	-1.162			
31	Meador Ave @ I-5	Bellingham	5-G	2	8"	-.487	-1.067			
32	Cornwall N of Pine (2 casings, RR spur)	Bellingham	3-H	1	8"	<=1.286	-1.846	P	N	0%
33	Cornwall N of Ivy St (RR spurs) Delete	Bellingham	3-H	2	8"	vacated	—			
34	Cornwall Ave S of Laurel St (RR spur) Delete	Bellingham	3-H	2	8"	Vacated	—			
35	Viewcrest Rd & Fieldston Rd	Bellingham	2-O	0	6"	—	-1.330	P		
36	SR 542 & Squalicum Lk Rd	Bellingham	Sh 2	0	6"	—	-1.221	P		
37	N State St @ Laurel St Delete	Bellingham	4-H	0	14"	Vacated	—			
38	Nequalicum Ave & Marine Dr (Eldridge Ave)	Bellingham	2-E	0	12"	-.304	-1.269	P	Above Ground	Bridge
39	Eldridge @ S end of Bridge (Squalicum Ck)	Bellingham	2-E	0	12"	<=1.025	-1.269	P	Above Ground	Bridge
40	Northwest Ave & W Connecticut St	Bellingham	3-E	0	12"	—	-1.136	P		
41	Orleans St & E Connecticut St	Bellingham	5-E	0	12"	—	-1.264	P		
42	Alabama St. E of Iron St.	Bellingham	5-E	0	6"	—	-1.143	P		
43	I-5/Squalicum Pkwy	Bellingham	5-C	0	14"	—	-1.237	P		
44	Lahti Dr, W of Britton Rd	Bellingham	9-C	0	6"	—	-1.412	P		

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
45	Marine Dr, W of Bennett Dr	Bellingham	1-D	0	12"	-.195	-.960	P		
46	Marine Dr @ Goddard Dr	Bellingham	1-D	0	12"	-.269	-1.260	P		
47	Marine Dr @ Lindberg Ave	Bellingham	1-D	0	12"	-.257	-1.238	P		
48	Railroad Ave @ Magnolia St (RR tracks)	Bellingham	4-G	0	6"	—	-1.501	P		
49	Magnolia @ Alley E of Railroad Ave	Bellingham	4-G	0	6"	—	-1.501	P		
- 50	Laurel E of Cornwall (RR Spurs) Delete	Bellingham	3-H	0	14"	vacated	—			
- 51	Railroad Ave @ Laurel St Delete	Bellingham	3-H	0	14"	vacated	—			
- 52	Laurel St @ Alley W of N State St Delete	Bellingham	3-H	0	14"	vacated	—			
1	Bellingham Lateral & James St Rd	B'ham 8" HP		1	12"	-.692	-1.233			
2	James St Rd & RR Tracks (spur)	B'ham 8" HP		1	14"	-.686	-1.233			
3	Bellingham Lateral & Mt. Baker Hwy	B'ham 8" HP		yes		-.693	-1.256			
1	Bellingham H.P. & I-5	B'ham HP Dist.		yes		-.652	-1.213			
1	Marine Dr/BNRR	Blaine	6-B	0 ~~2~~	8"	—	-.480	PE	Broken Wire	
2	I-5/4th St	Blaine	6-B	2	12"	-.648	-1.616	PE		
3	Boblett St/SR 543 (truck route)	Blaine	7-C	2	8"	-.587	-1.403	PE		
4	8899 Portal Way	Blaine		Yes		-.518	-1.645			
5	Hughes Ave. & R.R.	Blaine		2	6"	-.577	-1.495			

Comments: _____

RK

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey		
						Casing	Carrier		Gas Detected (Y/N)	% Gas	
1	SR 542/Water Rd	Deming	4-D	1	6"	-.593	-1.235				
2	BNRR/School Bus Garage	Deming	4-D	2	6"	-.494	-1.229				
1	Everson Rd (SR 544)/Nooksack River	Everson	6-D	2	8"	-.369	-1.433				
2	Everson-Goshen Rd (SR 544)/Van Dyk Rd	Everson	4-F	2	8"	-.357	-1.524				
3	Everson-Goshen Rd (SR 544)/Aspen Dr	Everson	5-F	2	6"	-.419	-1.517				
4	Robinson St/Mead Ave	Everson	5-F	~~1~~ 0	8"	No vent	-1.515	P			
5	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	6"	—	-1.398	P			
6	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	8"	—	-1.491	P			
7	Everson Rd/Overflow Bridge, Nooksack River	Everson	6-E	0	8"	—	-1.476	P			
8	Dahlquist Ln/ S or SR 544 (Everson-Goshen Rd)	Everson	5-F	0	6"	—	-1.336	P			
1	SR 539 (Guide Meridian) & Bartlett Rd	Ferndale	14-G	1	6"	-.512	-.930				
2	SR 539 (Guide Meridian) & Pole Rd (SR 544)	Ferndale	14-H	2	10"	-.349	-.957				
3	810 E Pole Rd (SR 544)	Ferndale	16-H	2	2"	-.245	-.893				LCP # 0300
4	Hannegan Rd & E Pole Rd	Ferndale	17-H	2	8"	-.412	-1.277				
5	Thornton Rd & BNRR	Ferndale	6-M	2	6"	-.397	-1.268				
6	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	1	6"	Deleted	unreated	HIWAY CROSSING RETIRED DURING ROAD PROJECT	2"	RK	
7	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	2	10"	-.392	-.867				LCP # 0063
8	Washington Ave & BNRR	Ferndale	6-O	2	8"	-.373	-1.336				
9	Main St & BNRR	Ferndale	6-P	2	6"	-.487	-1.02				

Comments: ______ RK

CNG 650
Rev. 12/05

CASCADE NATURAL GAS CORPORATION
LOW CP READ INVESTIGATION FORM

FORM No.
0063

INVESTIGATION DATE		DATE LOW READ TAKEN	3-17-09
LOCATION DESCRIPTION OF LOW READING	ADDRESS / CROSS STREETS: Laurel Rd @ Guide Meridian		
TOWN	Laurel	DISTRICT	Bellingham
CP READING	-.867	REASON READING WAS TAKEN	☐ BI MONTHLY SURVEY ☑ CASING SURVEY ☐ ANNUAL SURVEY ☐ EXPOSED STEEL ☐ OTHER

INVESTIGATION DETAILS

SELECT FOUR LOCATIONS EACH APPROXIMATELY FOUR BLOCKS NORTH, SOUTH, EAST AND WEST OF THE ORIGINAL LOW CP READING AND RECORD THE INLET AND OUTLET PIPE TO SOIL POTENTIAL AT EACH LOCATION. IF THE LOCATION OF THE ORIGINAL LOW READ IS BELOW GROUND, RECORD THE PIPE TO SOIL READING OF THE NEAREST ABOVE GROUND CNGC FACILITY.

	ADDRESS	INLET CP READ	OUTLET CP READ
NEAREST ABOVE GROUND FACILITY			
NORTH			
SOUTH			
EAST			
WEST			

DESCRIBE OTHER SYSTEM TROUBLESHOOTING THAT WAS PERFORMED AND RESULT.

On 3/19/09, trouble-shot system, short found @ 5343 Belfern Dr. grounded house piping touching meter, separated, -.662 to -1.409 on pier

DOCUMENTATION OF RESOLUTION

DESCRIPTION	LOCATION	DATE	FINAL PIPE TO SOIL READINGS	
			INLET	OUTLET
ORIGINAL LOW READ SITE	Laurel Rd @ Guide Meridian	3/19/09	-1.367	—
NEAREST ABOVE GROUND FACILITY				
LOCATION OF LOWEST READ FROM INVESTIGATION SECTION				
OTHER	Hartgas VFW	3/19/09	-1.381	—

FINAL READINGS TAKEN BY (SIGN):	DATE 3/19/09	GENERAL MANAGER or CORROSION DEPT. REP.:	DATE 3/19/09

CNG 650
Rev. 12/05

CASCADE NATURAL GAS CORPORATION
LOW CP READ INVESTIGATION FORM

FORM No. 0300

INVESTIGATION DATE		DATE LOW READ TAKEN	3-17-09
LOCATION DESCRIPTION OF LOW READING	ADDRESS / CROSS STREETS: 810 E. POLE RD / HANNEGAN		
OWN	FERNDALE	DISTRICT	BELLINGHAM
CP READING	-.893	REASON READING WAS TAKEN	☐ BI MONTHLY SURVEY ☒ CASING SURVEY ☐ ANNUAL SURVEY ☐ EXPOSED STEEL ☐ OTHER

INVESTIGATION DETAILS

SELECT FOUR LOCATIONS EACH APPROXIMATELY FOUR BLOCKS NORTH, SOUTH, EAST AND WEST OF THE ORIGINAL LOW CP READING AND RECORD THE INLET AND OUTLET PIPE TO SOIL POTENTIAL AT EACH LOCATION. IF THE LOCATION OF THE ORIGINAL LOW READ IS BELOW GROUND, RECORD THE PIPE TO SOIL READING OF THE NEAREST ABOVE GROUND CNGC FACILITY.

	ADDRESS	INLET CP READ	OUTLET CP READ
NEAREST ABOVE GROUND FACILITY			
NORTH			
SOUTH			
EAST			
WEST			

DESCRIBE OTHER SYSTEM TROUBLESHOOTING THAT WAS PERFORMED AND RESULT.

On 3/19/09, trouble-shot system, found short @ 5343 Belfern Dr. @ grounded house piping was touching back of meter. New house piping was recently installed on customer's side. Separated, -.662 VDC to -1.409 VDC OK p.s.

DOCUMENTATION OF RESOLUTION

DESCRIPTION	LOCATION	DATE	FINAL PIPE TO SOIL READINGS	
			INLET	OUTLET
ORIGINAL LOW READ SITE	810 E. Pole Rd	3/19/09	-1.371	—
NEAREST ABOVE GROUND FACILITY				
LOCATION OF LOWEST READ FROM INVESTIGATION SECTION				
OTHER	Hannegan VFW	3/19/09	-1.381	—

FINAL READINGS TAKEN BY (SIGN):	DATE	GENERAL MANAGER or CORROSION DEPT. REP.:	DATE
D. Kurtz	3/19/09	D. Kurtz	3/19/09

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
10	Main St & Barrett Rd	Ferndale	7-P	2	8"	-.357	-.985			
11	Labounty Rd & I-5	Ferndale	7-P	2	8"	-.594	-.987			
12	Aldergrove @ RR W of Kickerville (Tre Oil)	Ferndale	100-5	2	8"	-.495	-1.632			
13	Portal & I-5 in town	Ferndale		2		-.398	-1.312			
1	SR 9/E Hoff Rd	Lawrence	3-D	1	8"	-.322	-1.006			
1	Guide Meridian (SR 539)/Main St	Lynden	4-G	2	6"	-.249	-1.596			
2	E Grover @ RR tracks (W of S Garden Dr)	Lynden	8-G	1	6"	-.257	-1.484			
3	1st St/BNRR	Lynden	6-G	0	6"	—	-1.488	P		
	Birch Bay Lynden / Guide Meridian	Lynden				—	-1.592	P		
1	Mobil Lateral & Northwest Rd	Mobil Lat	Dwg 2	2	12"	-.271	-1.306			
2	Mobil Lateral & Aldrich Rd	Mobil Lat	Dwg 2	2	12"	-.302	-1.306			
3	Mobil Lateral & I-5	Mobil Lat	Dwg 3	1	12"	-.530	-1.477			
4	Mobil Lateral & Rural Ave	Mobil Lat	Dwg 3	2	12"	-.396	-1.275			
5	Mobil Lateral & Slater Rd (Hwy I-2)	Mobil Lat	Dwg 3	2	12"	-.474	-1.423			
6	Mobil Lateral BNRR	Mobil Lat	Dwg 3	1	12"	-.669	-1.423			
7	Mobil Lateral & Ferndale Rd	Mobil Lat	Dwg 4	2	12"	-.434	-1.620			
8	Mobil Lateral & Imhoff Rd	Mobil Lat	Dwg 4	2	12"	-.423	-1.592			
9	Mobil Lateral & Haxton Way	Mobil Lat	Dwg 5	2	12"	-.553	-1.586			
10	Mobil Lateral & Elder Rd	Mobil Lat	Dwg 6	2	12"	-.418	-1.590			

Comments: _____

RK

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
11	Mobil Lateral & Lake Terrell Rd	Mobil Lat	Dwg 6	2	12"	-.664	-1.573			
12	Mobil Lateral & E Bakerview Rd	Mobil Lat	Dwg 1	0	12"	—	-1.32	P		
13	Mobil Lateral & Guide Meridian Rd	Mobil Lat	Dwg 1	0	12"	—	-1.246	P		
14	Mobil Lateral & Waldron Rd	Mobil Lat	Dwg 2	0	12"	—	-1.306	P		
1	Garrison Rd	N Whatcm HP	101-2	2	20"	-.782	-1.233	P	N	0%
2	Van Buren Rd (also, BNRR)	N Whatcm HP	101-5	2	20"	-.576	-1.418			
3	SR 539 (Guide Meridian Rd)	N Whatcm HP	101-12	2	20"	-.621	-1.472			
4	W Badger Rd	N Whatcm HP	101-17	2	20"	-.589	-1.392			
5	Sunrise Rd	N Whatcm HP	101-19	2	20"	-.609	-1.406			
6	I-5	N Whatcm HP	101-24	2	20"	-.569	-1.628			
7	Portal Way	N Whatcm HP	101-24	2	20"	-.333	-1.628			
8	BNRR (W of Portal Way)	N Whatcm HP	101-24	2	20"	-.328	-1.628			
9	Birch Bay - Lynden Rd	N Whatcm HP	101-25	1	20"	-.564	-1.678			
10	Bay Rd	N Whatcm HP	101-28	2	20"	-.580	-1.633			
11	Grandview Rd	N Whatcm HP	101-29	2	20"	-.495	-1.545			
12	N Telegraph Rd	N Whatcm HP	101-1	2	20"	-.509	-1.582			
13	BNRR S of Morgan	N Whatcm HP	101-2	2	20"	-.492	-1.582			
14	Grandview RR @ 20" Main	N Whatcm HP		4	20"	-.625	-1.542			
15	Railroad Spur (BNRR)	N Whatcm HP	100-2	2	12"	-.605	-1.632			

Comments: _____

RX

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	E Madison St/BNRR	Nooksack	4-B	2	6"	-.603	-1.173			
	E. Badger / Nooksack Rd	Nooksack		2		-1.173	-1.157	P	N	0%
1	Johnson Creek N of Bowen Rd	S Sum. 4" HP	4	0	8"	—	1.204	P		
1	Encogen Lateral & Mt. Baker Hwy	Squalicum HP		yes		-.581	-1.651			
1	BNRR Spur/Port Rd (N of Front St)	Sumas	1-A	2	8"	-.559	-1.061			
2	W Third St/BNRR (Main Line)	Sumas	2-A	2	6"	-.397	-1.086			
3	W Front St/BNRR Spur (W of Johnson Creek)	Sumas	2-B	2	8"	-.652	-1.071			
4	W Front St/BNRR Spur (E of Johnson Creek)	Sumas	2-B	1	8"	-.467	-1.071			
5	Wynn Road Bellingham	~~Sumas~~		2 yes		-.346	-1.273			
	Ferry Term. New So.	B'HAM		2		-.421	-1.564			

Comments: _____

RK

180 DAY SHORTED CASING LEAK SURVEY
Bellingham District

Report Date: 9-16-09 *GM Signature:* [signature] 9-17-09

Survey Conducted By: Tim Donnelly *Date:*

Signature: [signature]

Total Casings with Vents: 0 *Total Casings Shorted:* 0

COPY

Instructions:
Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative that -0.73, take the following additional action: 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
11	Roeder Avenue @ Squalicum Creek	Bellingham	2-E	2	8"	-.790	-.954		N	0%
14	Alabama St @ I-5	Bellingham	5-E	2	8"	-1.091	-1.135		N	0%
19	Bayview Drive @ BNRR Blvd Park So.	Bellingham	2-J	2	6"	-1.011	-1.196		N	0%
20	N. State St @ Franklin	Bellingham	4-G	2	14"	-.960	-1.023		N	0%
32	Cornwall N of Pine St. (2 casings, RR Spur)	Belliingham	3-H	1	8"	-1.116	-1.586		N	0%
39	Eldridge @ S end of Bridge (Squalicum Creek)	Bellingham	2-E	0	12"	-.931	-1.294		No Vent	Above Ground Casing
1	Garrison Rd N Whatcom HP	N What HP	101-2	2	20"					
	E Badger & Nooksack Rd	Nooksack		2						

Comments: _____

180 DAY SHORTED CASING LEAK SURVEY
Bellingham District

Report Date: 9-16-09 *GM Signature:* [signature] 9-17-09

Survey Conducted By: Kris Wainwright *Date:*

Signature: [signature]

Total Casings with Vents: 0 *Total Casings Shorted:* 0

Instructions:
Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative that -0.73, take the following additional action: 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P,F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y, N)	% Gas
11	Roeder Avenue @ Squalicum Creek	Bellingham	2-E	2	8"					
14	Alabama St @ I-5	Bellingham	5-E	2	8"					
19	Bayview Drive @ BNRR Blvd Park So.	Bellingham	2-J	2	6"					
29	N. State St @ Franklin	Bellingham	4-G	2	14"					
32	Cornwall N of Pine St. (2 casings, RR Spur)	Belliingham	3-H	1	8"					
39	Eldridge @ S end of Bridge (Squalicum Creek)	Bellingham	2-E	0	12"					
	Garrison Rd N Whatcom HP	N What HP	101-2	2	20"	-.806	-1.340	[redacted]	N	0%
	E Badger & Nooksack Rd	Nooksack		2		-1.138	-1.320		N	0%

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY
Bellingham District

Report Date: 3-17-08

Survey Conducted By: Tim Donnelly

Signature: T Donnelly

GM Signature:

Date: 3-31-08

Total Casings with Vents: 132

Total Casings Shorted: 0

Instructions:

Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative than -0.73, take the following additional action (if there is no casing vent and no casing pipe to soil can be taken, continue with this procedure as if the casing pipe to soil potential was more negative than -0.73) : 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	BNRR E of Nooksack Ave	4" Lynden HP	2	2	8"	-.450	-1.339		N	
2	RR immed. W of Van Buren Rd	4" Lynden HP	5	2	8"	Vent Cover	-1.339	P		
3	RR 1000' W of Van Buren Rd	4" Lynden HP	5	2	8"	Vent Cover	-1.339	P		
1	Turkington Rd/BNRR	Acme	3-C	2	6"	-.388	-1.01		N	
2	SR 9, N of Galbraith Rd	Acme	3-C	2	6"	-.346	-1.01		N	
3	BNRR, N of Galbraith Rd	Acme	3-C	2	6"	-.258	-1.01		N	
1	Northwest Rd/Waldron Rd	Bellingham	2	2	12"	-.610	-1.570		N	
2	Guide Meridian (SR 539)/Kellogg Rd	Bellingham	14	2	8"	-.350	-1.210		N	

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
3	Old Marine Dr/BNRR	Bellingham	44	1	6"	-.500	-1.342		N	
4	So. Cliffside Dr.	Bellingham		2	6"	-.500	-1.340		N	
5	Country Ln/BNRR	Bellingham	46	2	6"	-.500	-1.340		N	
6	Britton Rd/Bellingham Lat (S of SR 542)	Bellingham	8-AA	1	12"	-.250	-1.44		N	
7	Northwest Ave/N of McLeod Rd	Bellingham	2-B	2	6"	-.550	-1.77		N	
8	Northbound off ramp I-5 & Meridian St	Bellingham	3-B		6"	-.625	-1.42		N	
9	Meridian St S of Birchwood (RR Spur)	Bellingham	3-C		6"	-.475	-1.42		N	
10	Roeder Ave @ Mt Baker Plywood (RR spur)	Bellingham	1-E	1	8"	-.451	-1.32		N	
11	Roeder Ave @ Squalicum Creek	Bellingham	2-E	2	8"	-.163	-1.32		N	
12	Roeder Ave @ Bellingham Cold Storage	Bellingham	2-E	2	6"	-.550	-1.32		N	
13	Marine Dr @ Seaview Circle (RR spur)	Bellingham	1-D	1	12"	-.450	-1.340		N	
14	Alabama St @ I-5	Bellingham	5-E	2	8"	-1.15	-1.12	F OK	N	
15	Roeder Ave @ Squalicum Way	Bellingham	2-F	1	6"	-.550	-1.32		N	
16	B'ham Frozen Foods @ RR Spur (3 casings)	Bellingham	2-F	2	6"	-.530	-1.32		N	
17	Roeder Ave @ Hilton St	Bellingham	3-F	2	6"	-.490	-1.32		N	
18	Meridian St & W Connecticut St	Bellingham	3-E	1	12"	-.560	-1.40		N	
19	Bayview Dr @ BNRR Blvd. Park So.	Bellingham	2-J	2	6"	-1.17	-1.21	F ok	N	
20	Consolidation Ave & I-5	Bellingham	5-J	2	10"	-.500	-1.23		N	
21	McKenzie Ave & BNRR	Bellingham	1-L	1	6"	-.400	-1.31		N	
22	"F" St @ Roeder Ave (RR tracks)	Bellingham	3-F	2	6"	-.600	-1.32		N	
23	Kentucky St @ Grant St	Bellingham	4-F	1	8"	-.200	-1.09		N	

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor P/R	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
24	Franklin St @ Iowa St	Bellingham	4-F	2	16"	-.054	-1.091		N	
25	"C" St @ BNRR tracks (W of W Holly St)	Bellingham	3-G	2	6"	-.400	-1.54		N	
26	Georgia Pacific @ BNRR tracks	Bellingham	3-G	1	14"	-.560	-1.75		N	
27	Kansas St E of Franklin St	Bellingham	4-G	1	8"	-.362	-1.075		N	
28	Franklin St S of Kansas St	Bellingham	4-G	1	14"	-.411	-1.075		N	
29	N State St @ Franklin St.	Bellingham	4-G	2	14"	-.852	-1.075	F OK	N	
30	N State St @ Whatcom Creek	Bellingham	4-G	1	14"	-.384	-1.075		N	
31	Meador Ave @ I-5	Bellingham	5-G	2	8"	-.352	-1.060		N	
32	Cornwall N of Pine (2 casings, RR spur)	Bellingham	3-H	1	8"	-.500	-1.75		N	
33	Cornwall N of Ivy St (RR spurs)	Bellingham	3-H	2	8"	-.530	-1.75		N	
34	Cornwall Ave S of Laurel St (RR spur)	Bellingham	3-H	2	8"	-.460	-1.75		N	
35	Viewcrest Rd & Fieldston Rd	Bellingham	2-O	0	6"	—	—	P		
36	SR 542 & Squalicum Lk Rd	Bellingham	Sh 2	0	6"	—	—	P		
37	N State St @ Laurel St	Bellingham	4-H	0	14"	—	—	P		
38	Nequalicum Ave & Marine Dr (Eldridge Ave)	Bellingham	2-E	0	12"	—	—	P		
39	Eldridge @ S end of Bridge (Squalicum Ck)	Bellingham	2-E	0	12"	—	—	P		
40	Northwest Ave & W Connecticut St	Bellingham	3-E	0	12"	—	—	P		
41	Orleans St & E Connecticut St	Bellingham	5-E	0	12"	—	—	P		
42	Alabama St. E of Iron St.	Bellingham	5-E	0	6"	—	—	P		
43	I-5/Squalicum Pkwy	Bellingham	5-C	0	14"	—	—	P		
44	Lahti Dr, W of Britton Rd	Bellingham	9-C	0	6"	—	—	P		

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
45	Marine Dr, W of Bennett Dr	Bellingham	1-D	0	12"	—	—	P		
46	Marine Dr @ Goddard Dr	Bellingham	1-D	0	12"	—	—	P		
47	Marine Dr @ Lindberg Ave	Bellingham	1-D	0	12"	—	—	P		
48	Railroad Ave @ Magnolia St (RR tracks)	Bellingham	4-G	0	6"	—	—	P		
49	Magnolia @ Alley E of Railroad Ave	Bellingham	4-G	0	6"	—	—	P		
50	Laurel E of Cornwall (RR Spurs)	Bellingham	3-H	0	14"	—	—	P		
51	Railroad Ave @ Laurel St	Bellingham	3-H	0	14"	—	—	P		
52	Laurel St @ Alley W of N State St	Bellingham	3-H	0	14"	—	—	P		
1	Bellingham Lateral & James St Rd	B'ham 8" HP		1	12"	-.675	-1.50		N	
2	James St Rd & RR Tracks (spur)	B'ham 8" HP		1	14"	-.650	-1.50		N	
3	Bellingham Lateral & Mt. Baker Hwy	B'ham 8" HP		yes		-.350	-1.50		N	
1	Bellingham H.P. & I-5	B'ham HP Dist.		yes		-.225	-1.549		N	
1	Marine Dr/BNRR	Blaine	6-B	2	8"	PE			Vent Gone	
2	I-5/4th St	Blaine	6-B	2	12"	PE			N	
3	Boblett St/SR 543 (truck route)	Blaine	7-C	2	8"	PE			N	
4	8899 Portal Way	Blaine		Yes		PE			N	
5	Hughes Ave. & R.R.	Blaine		2	6"	PE			N	

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	SR 542/Water Rd	Deming	4-D	1	6"	-.188	-1.242		N	
2	BNRR/School Bus Garage	Deming	4-D	2	6"	-.425	-1.292		N	
1	Everson Rd (SR 544)/Nooksack River	Everson	6-D	2	8"	-.338	-1.630		N	
2	Everson-Goshen Rd (SR 544)/Van Dyk Rd	Everson	4-F	2	8"	-.055	-1.532		N	
3	Everson-Goshen Rd (SR 544)/Aspen Dr	Everson	5-F	2	6"	-.298	-1.284		N	
4	Robinson St/Mead Ave	Everson	5-F	Vent gone	8"	—	—	P OK		
5	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	6"	—	—	P OK		
6	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	8"	—	—	P		
7	Everson Rd/Overflow Bridge, Nooksack River	Everson	6-E	0	8"	—	—	P OK		
8	Dahlquiat Ln/ S or SR 544 (Everson-Goshen Rd)	Everson	5-F	0	6"	—	—	P OK		
1	SR 539 (Guide Meridian) & Bartlett Rd	Ferndale	14-G	1	6"	-.410	-1.035		N	
2	SR 539 (Guide Meridian) & Pole Rd (SR 544)	Ferndale	14-H	2	10"	-.303	-1.033		N	
3	810 E Pole Rd (SR 544)	Ferndale	16-H	2	2"	-.230	-1.330		N	
4	Hannegan Rd & E Pole Rd	Ferndale	17-H	2	8"	-.310	-1.030		N	
5	Thornton Rd & BNRR	Ferndale	6-M	2	6"	-.330	-1.285		N	
6	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	1	6"	-.250	-1.024		N	
7	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	2	10"	-.250	-1.024		N	
8	Washington Ave & BNRR	Ferndale	6-O	2	8"	-.260	-1.443		N	
9	Main St & BNRR	Ferndale	6-P	2	6"	-.510	-1.334		N	

Comments: Casings not shown on Grid map

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
10	Main St & Barrett Rd	Ferndale	7-P	2	8"	-.410	-1.070		N	
11	Labounty Rd & I-5	Ferndale	7-P	2	8"	-.630	-1.070		N	
12	Aldergrove @ RR W of Kickerville (Tre Oil)	Ferndale	100-5	2	8"	-0.450	-1.800		N	
13	Portal & I-5 in town	Ferndale		2		-.550	-1.720		N	
1	SR 9/E Hoff Rd	Lawrence	3-D	1	8"	-.066	-1.32		N	
1	Guide Meridian (SR 539)/Main St	Lynden	4-G	2	6"	-.060	-1.752		N	
2	E Grover @ RR tracks (W of S Garden Dr)	Lynden	8-G	1	6"	-.070	-1.575		N	
3	1st St/BNRR	Lynden	6-G	0	6"	—	—	P		
1	Mobil Lateral & Northwest Rd	Mobil Lat	Dwg 2	2	12"	-0.620	-1.500		N	
2	Mobil Lateral & Aldrich Rd	Mobil Lat	Dwg 2	2	12"	-0.520	-1.470		N	
3	Mobil Lateral & I-5	Mobil Lat	Dwg 3	1	12"	-0.600	-1.540		N	
4	Mobil Lateral & Rural Ave	Mobil Lat	Dwg 3	2	12"	-0.380	-1.580		N	
5	Mobil Lateral & Slater Rd (Hwy I-2)	Mobil Lat	Dwg 3	2	12"	-0.450	-1.600		N	
6	Mobil Lateral BNRR	Mobil Lat	Dwg 3	1	12"	-0.650	-1.620		N	
7	Mobil Lateral & Ferndale Rd	Mobil Lat	Dwg 4	2	12"	-0.430	-1.700		N	
8	Mobil Lateral & Imhoff Rd	Mobil Lat	Dwg 4	2	12"	-0.450	-1.750		N	
9	Mobil Lateral & Haxton Way	Mobil Lat	Dwg 5	2	12"	-0.600	-1.900		N	
10	Mobil Lateral & Elder Rd	Mobil Lat	Dwg 6	2	12"	-0.500	-1.770		N	

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
11	Mobil Lateral & Lake Terrell Rd	Mobil Lat	Dwg 6	2	12"	-0.630	-1.800		N	
12	Mobil Lateral & E Bakerview Rd	Mobil Lat	Dwg 1	0	12"	—	—	P		
13	Mobil Lateral & Guide Meridian Rd	Mobil Lat	Dwg 1	0	12"	—	—	P		
14	Mobil Lateral & Waldron Rd	Mobil Lat	Dwg 2	0	12"	—	—	P		
1	Garrison Rd	N Whatcm HP	101-2	2	20"	-1.353	-1.854		N	
2	Van Buren Rd (also, BNRR)	N Whatcm HP	101-5	2	20"	-.483	-1.853		N	
3	SR 539 (Guide Meridian Rd)	N Whatcm HP	101-12	2	20"	-.380	-1.726		N	
4	W Badger Rd	N Whatcm HP	101-17	2	20"	-0.600	-1.800		N	
5	Sunrise Rd	N Whatcm HP	101-19	2	20"	-0.600	-1.800		N	
6	I-5	N Whatcm HP	101-24	2	20"	-0.580	-1.700		N	
7	Portal Way	N Whatcm HP	101-24	2	20"	-0.500	-1.700		N	
8	BNRR (W of Portal Way)	N Whatcm HP	101-24	2	20"	-0.400	-1.706		N	
9	Birch Bay - Lynden Rd	N Whatcm HP	101-25	1	20"	-0.580	-1.800		N	
10	Bay Rd	N Whatcm HP	101-28	2	20"	-0.600	-1.800		N	
11	Grandview Rd	N Whatcm HP	101-29	2	20"	-0.550	-1.800		N	
12	N Telegraph Rd	N Whatcm HP	101-1	2	20"	-.550	-1.800		N	
13	BNRR S of Morgan	N Whatcm HP	101-2	2	20"	-.580	-1.800		N	
14	Grandview RR @ 20" Main	N Whatcm HP		4	20"	-0.500	-1.700		N	
15	Railroad Spur (BNRR) unick Rd.	N Whatcm HP	100-2	0	12"	—	—	P		

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	E Madison St/BNRR	Nooksack	4-B	2	6"	-.450	-1.339		N	
1	Johnson Creek N of Bowen Rd	S Sum. 4" HP	4	0	8"	—	—	P		
1	Encogen Lateral & Mt. Baker Hwy	Squalicum HP		yes		-.250	-1.60		N	
1	BNRR Spur/Port Rd (N of Front St)	Sumas	1-A	2	8"	-.163	-1.125		N	
2	W Third St/BNRR (Main Line)	Sumas	2-A	2	6"	-.450	-1.125		N	
3	W Front St/BNRR Spur (W of Johnson Creek)	Sumas	2-B	2	8"	-.460	-1.695		N	
4	W Front St/BNRR Spur (E of Johnson Creek)	Sumas	2-B	1	8"	-.450	-1.095		N	
5	Wynn Road	~~B'HAM~~ Sumas		yes		-.600	-1.345		N	
	Ferry Term. New So.	B'HAM		2		-.560	-1.36		N	

Comments: _____

180 DAY SHORTED CASING LEAK SURVEY
Bellingham District

Report Date: 9-8-08

Survey Conducted By: Tim Donnelly

Signature: Tim Donnelly

GM Signature: [signature]

Date: 9-25-08

Total Casings with Vents: 0

Total Casings Shorted: 0

Instructions:

Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative that -0.73, take the following additional action: 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
14	Alabama @ I-5	Bellingham	5-E	2	8"	-.967	-1.026	F	N	0
19	Bayview Dr @ BNRR Blvd Park So.	Bellingham	2-J	2	6"	-1.152	-1.256	F	N	0
29	N State @ Franklin St.	Bellingham	4-G	2	14"	-.102	-1.06	F	N	0

Comments: _____

Casing Survey and Shorted Casing Leak Survey Reminder

Plant Number	Maintenance Schedule description	Maintenance Schedule task	Last Performed Date	Target Date	Compliance Date	Days to Comply
Work Group: C005						
D005TALLCAPRCASING	Casing Survey	0001	17-Mar-2008	22-Sep-2008	13-Oct-2008	40

ANNUAL CASING SURVEY REPORT SUMMARY
Bellingham District

Report Date: 3-16-07 *GM Signature:* [signature]

Survey Conducted By: Tim Donnelly *Date:* 3-20-07

Signature: [signature]

Total Casings with Vents: 132 *Total Casings Shorted:* 0

Instructions:

Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative than -0.73, take the following additional action (if there is no casing vent and no casing pipe to soil can be taken, continue with this procedure as if the casing pipe to soil potential was more negative than -0.73) : 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker-Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	BNRR E of Nooksack Ave	4" Lynden HP	2	2	8"	-.323			N	0%
2	RR immed. W of Van Buren Rd	4" Lynden HP	5	2	8"	GONE	-1.292	P		
3	RR 1000' W of Van Buren Rd	4" Lynden HP	5	2	8"	GONE	-1.292	P		
1	Turkington Rd/BNRR	Acme	3-C	2	6"	-.357			N	0%
2	SR 9, N of Galbraith Rd	Acme	3-C	2	6"	-.309			N	0%
3	BNRR, N of Galbraith Rd	Acme	3-C	2	6"	-.570			N	0%
1	Northwest Rd/Waldron Rd	Bellingham	2	2	12"	-.625			N	0%
2	Guide Meridian (SR 539)/Kellogg Rd	Bellingham	14	2	8"	-.540			N	0%

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Riser Type (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
3	Old Marine Dr/BNRR	Bellingham	44	1	6"	-.540			N	0%
4	So. Cliffside Dr.	Bellingham		2	6"	-.540			N	0%
5	Country Ln/BNRR	Bellingham	46	2	6"	-.561			N	0%
6	Britton Rd/Bellingham Lat (S of SR 542)	Bellingham	8-AA	1	12"	-.685			N	0%
7	Northwest Ave/N of McLeod Rd	Bellingham	2-B	2	6"	-.644			N	0%
8	Northbound off ramp I-5 & Meridian St	Bellingham	3-B		6"	-.481			N	0%
9	Meridian St S of Birchwood (RR Spur)	Bellingham	3-C		6"	-.491			N	0%
10	Roeder Ave @ Mt Baker Plywood (RR spur)	Bellingham	1-E	1	8"	-.558			N	0%
11	Roeder Ave @ Squalicum Creek	Bellingham	2-E	2	8"	-.850	-1.130	F	N	0%
12	Roeder Ave @ Bellingham Cold Storage	Bellingham	2-E	2	6"	-.558			N	0%
13	Marine Dr @ Seaview Circle (RR spur)	Bellingham	1-D	1	12"	-.601			N	0%
14	Alabama St @ I-5	Bellingham	5-E	2	8"	-1.325	[redacted]			
15	Roeder Ave @ Squalicum Way	Bellingham	2-F	1	6"	-.428			N	0%
16	B'ham Frozen Foods @ RR Spur (3 casings)	Bellingham	2-F	2	6"	-.544			N	0%
17	Roeder Ave @ Hilton St	Bellingham	3-F	2	6"	-.528			N	0%
18	Meridian St & W Connecticut St	Bellingham	3-E	1	12"	-.979	-1.129	F	N	0%
19	Bayview Dr @ BNRR Blvd. Park So.	Bellingham	2-J	2	6"	-.979	-1.180	F	N	0%
20	Consolidation Ave & I-5	Bellingham	5-J	2	10"	-.593			N	0%
21	McKenzie Ave & BNRR	Bellingham	1-L	1	6"	-.547			N	0%
22	"F" St @ Roeder Ave (RR tracks)	Bellingham	3-F	2	6"	-.401			N	0%
23	Kentucky St @ Grant St	Bellingham	4-F	1	8"	-.565			N	0%

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
24	Franklin St @ Iowa St	Bellingham	4-F	2	16"	-.621			N	0%
25	"C" St @ BNRR tracks (W of W Holly St)	Bellingham	3-G	2	6"	-.652			N	0%
26	Georgia Pacific @ BNRR tracks	Bellingham	3-G	1	14"	-.574			N	0%
27	Kansas St E of Franklin St	Bellingham	4-G	1	8"	-.579			N	0%
28	Franklin St S of Kansas St	Bellingham	4-G	1	14"	-.769	-1.060	P	N	0%
29	N State St @ Franklin St.	Bellingham	4-G	2	14"	-.970	-1.080	F	N	0%
30	N State St @ Whatcom Creek	Bellingham	4-G	1	14"	-.935	-1.060	F	N	0%
31	Meador Ave @ I-5	Bellingham	5-G	2	8"		-1.063	P	N	0%
32	Cornwall N of Pine (2 casings, RR spur)	Bellingham	3-H	1	8"	-.390 -.411			N	0%
33	Cornwall N of Ivy St (RR spurs)	Bellingham	3-H	2	8"	-1.124	-1.735	F	N	0%
34	Cornwall Ave S of Laurel St (RR spur)	Bellingham	3-H	2	8"	-.539			N	0%
35	Viewcrest Rd & Fieldston Rd	Bellingham	2-O	0	6"	—	-1.282	F		
36	SR 542 & Squalicum Lk Rd	Bellingham	Sh 2	0	6"	—	-1.179	PF		
37	N State St @ Laurel St	Bellingham	4-H	0	14"	-.574			N	0%
38	Nequalicum Ave & Marine Dr (Eldridge Ave)	Bellingham	2-E	0	12"	-.588				
39	Eldridge @ S end of Bridge (Squalicum Ck)	Bellingham	2-E	0	12"	-.592				
40	Northwest Ave & W Connecticut St	Bellingham	3-E	0	12"	—	-1.003	P		
41	Orleans St & E Connecticut St	Bellingham	5-E	0	12"	—	-1.160	F		
42	Alabama St. E of Iron St.	Bellingham	5-E	0	6"	—	-1.140	F		
43	I-5/Squalicum Pkwy	Bellingham	5-C	0	14"	—	-1.062	F		
44	Lahti Dr, W of Britton Rd	Bellingham	9-C	0	6"	—	-1.386	P		

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	To/Fr	Grid	Vents	Main Diameter	Pipe to Soil Potentials: Casing	Pipe to Soil Potentials: Carrier	Tinker Rasor (P/F)	Leak Survey: Gas Detected (Y/N)	Leak Survey: % Gas
45	Marine Dr, W of Bennett Dr	Bellingham	1-D	0	12"	-.507			N	0%
46	Marine Dr @ Goddard Dr	Bellingham	1-D	0	12"	-1.101	-1.206	P		
47	Marine Dr @ Lindberg Ave	Bellingham	1-D	0	12"	-.891	-1.009	P	N	0%
48	Railroad Ave @ Magnolia St (RR tracks)	Bellingham	4-G	0	6"		-1.384	F		
49	Magnolia @ Alley E of Railroad Ave	Bellingham	4-G	0	6"		-1.292	P		
50	Laurel E of Cornwall (RR Spurs)	Bellingham	3-H	0	14"	-.559				
51	Railroad Ave @ Laurel St	Bellingham	3-H	0	14"		-1.063	P		
52	Laurel St @ Alley W of N State St	Bellingham	3-H	0	14"		-1.063	P		
1	Bellingham Lateral & James St Rd	B'ham 8" HP		1	12"	-.281			N	0%
2	James St Rd & RR Tracks (spur)	B'ham 8" HP		1	14"	-.692			N	0%
3	Bellingham Lateral & Mt. Baker Hwy	B'ham 8" HP		yes		-.500			N	0%
1	Bellingham H.P. & I-5	B'ham HP Dist.		yes		-.691			N	0%
1	Marine Dr/BNRR	Blaine	6-B	2	8"	NO Vents Stacks		PE	N	0%
2	I-5/4th St	Blaine	6-B	2	12"	-.645			N	0%
3	Boblett St/SR 543 (truck route)	Blaine	7-C	2	8"	-.750	-1.504	PE	N	0%
4	8899 Portal Way	Blaine		Yes		-.589			N	0%
5	Hughes Ave. & R.R.	Blaine		2	6"	-.785	-1.503	PE	N	0%

-.635

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Linker Razor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	SR 542/Water Rd	Deming	4-D	1	6"	-.589			N	0%
2	BNRR/School Bus Garage	Deming	4-D	2	6"	-.463			N	0%
1	Everson Rd (SR 544)/Nooksack River	Everson	6-D	2	8"	-.446			N	0%
2	Everson-Goshen Rd (SR 544)/Van Dyk Rd	Everson	4-F	2	8"	-.229			N	0%
3	Everson-Goshen Rd (SR 544)/Aspen Dr	Everson	5-F	2	6"	-.270			N	0%
4	Robinson St/Mead Ave	Everson	5-F	1	8"	GONE		F	NO VENT	
5	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	6"	-		P	N	0%
6	Lincoln St./Everson Rd (SR 544)	Everson	6-D	0	8"	-.423			N	0%
7	Everson Rd/Overflow Bridge, Nooksack River	Everson	6-E	0	8"	-		P	N	0%
8	Dahlquiat Ln/ S or SR 544 (Everson-Goshen Rd)	Everson	5-F	0	6"	-		P	N	0%
1	SR 539 (Guide Meridian) & Bartlett Rd	Ferndale	14-G	1	6"	-.473			N	0%
2	SR 539 (Guide Meridian) & Pole Rd (SR 544)	Ferndale	14-H	2	10"	-.287			N	0%
3	810 E Pole Rd (SR 544)	Ferndale	16-H	2	2"	-.346			N	0%
4	Hannegan Rd & E Pole Rd	Ferndale	17-H	2	8"	-.344			N	0%
5	Thornton Rd & BNRR	Ferndale	6-M	2	6"	-.622			N	0%
6	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	1	6"	-.397			N	0%
7	Laurel Rd & SR 539 (Guide Meridian)	Ferndale	14-N	2	10"	-.545			N	0%
8	Washington Ave & BNRR	Ferndale	6-O	2	8"	-.578			N	0%
9	Main St & BNRR	Ferndale	6-P	2	6"	-.548			N	0%

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Razor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
10	Main St & Barrett Rd	Ferndale	7-P	2	8"	-.515			N	0%
11	Labounty Rd & I-5	Ferndale	7-P	2	8"	-.634			N	0%
12	Aldergrove @ RR W of Kickerville (Tre Oil)	Ferndale	100-5	2	8"	-.547			N	0%
13	Portal & I-5 in town	Ferndale		2		-.273				
1	SR 9/E Hoff Rd	Lawrence	3-D	1	8"	-.316			N	0%
1	Guide Meridian (SR 539)/Main St	Lynden	4-G	2	6"	-.240			N	0%
2	E Grover @ RR tracks (W of S Garden Dr)	Lynden	8-G	1	6"	-.177			N	0%
3	1st St/BNRR	Lynden	6-G	0	6"		-1.125	P	N	0%
1	Mobil Lateral & Northwest Rd	Mobil Lat	Dwg 2	2	12"	-.625			N	0%
2	Mobil Lateral & Aldrich Rd	Mobil Lat	Dwg 2	2	12"	-.557			N	0%
3	Mobil Lateral & I-5	Mobil Lat	Dwg 3	1	12"	-.574			N	0%
4	Mobil Lateral & Rural Ave	Mobil Lat	Dwg 3	2	12"	-.406			N	0%
5	Mobil Lateral & Slater Rd (Hwy I-2)	Mobil Lat	Dwg 3	2	12"	-.515			N	0%
6	Mobil Lateral BNRR	Mobil Lat	Dwg 3	1	12"	-.675			N	0%
7	Mobil Lateral & Ferndale Rd	Mobil Lat	Dwg 4	2	12"	-.491			N	0%
8	Mobil Lateral & Imhoff Rd	Mobil Lat	Dwg 4	2	12"	-.406			N	0%
9	Mobil Lateral & Haxton Way	Mobil Lat	Dwg 5	2	12"	-.544			N	0%
10	Mobil Lateral & Elder Rd	Mobil Lat	Dwg 6	2	12"	-.561			N	0%

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P-S)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
11	Mobil Lateral & Lake Terrell Rd	Mobil Lat	Dwg 6	2	12"	-.649			N	0%
12	Mobil Lateral & E Bakerview Rd	Mobil Lat	Dwg 1	0	12"	—	-1.315	F	N	0%
13	Mobil Lateral & Guide Meridian Rd	Mobil Lat	Dwg 1	0	12"	—	-1.249	F	N	0%
14	Mobil Lateral & Waldron Rd	Mobil Lat	Dwg 2	0	12"	—	-1.283	P	N	0%
									N	0%
1	Garrison Rd	N Whatcm HP	101-2	2	20"	-.912 W -.728 E	-1.554	F	N	0%
2	Van Buren Rd (also, BNRR)	N Whatcm HP	101-5	2	20"	-.512			N	0%
3	SR 539 (Guide Meridian Rd)	N Whatcm HP	101-12	2	20"	-.537			N	0%
4	W Badger Rd	N Whatcm HP	101-17	2	20"	-.605			N	0%
5	Sunrise Rd	N Whatcm HP	101-19	2	20"	-.673			N	0%
6	I-5	N Whatcm HP	101-24	2	20"	-.576			N	0%
7	Portal Way	N Whatcm HP	101-24	2	20"	-.497			N	0%
8	BNRR (W of Portal Way)	N Whatcm HP	101-24	2	20"	-.476			N	0%
9	Birch Bay - Lynden Rd	N Whatcm HP	101-25	1	20"	-.586			N	0%
10	Bay Rd	N Whatcm HP	101-28	2	20"	-.593			N	0%
11	Grandview Rd	N Whatcm HP	101-29	2	20"	-.675			N	0%
12	N Telegraph Rd	N Whatcm HP	101-1	2	20"	-.581			N	0%
13	BNRR S of Morgan	N Whatcm HP	101-2	2	20"	-.678			N	0%
14	Grandview RR @ 20" Main	N Whatcm HP		4	20"	-.581			N	0%
15	Railroad Spur (BNRR)	N Whatcm HP	100-2		12"	-.635			N	0%

Comments: _____

ANNUAL CASING SURVEY REPORT SUMMARY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker-Razor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
1	E Madison St/BNRR	Nooksack	4-B	2	6"	-.490			N	0%
1	Johnson Creek N of Bowen Rd	S Sum. 4" HP	4	0	8"	NA	-1.550	P	N	0%
1	Encogen Lateral & Mt. Baker Hwy	Squalicum HP		yes		-.652				
1	BNRR Spur/Port Rd (N of Front St)	Sumas	1-A	2	8"	-.573			N	0%
2	W Third St/BNRR (Main Line)	Sumas	2-A	2	6"	-.378			N	0%
3	W Front St/BNRR Spur (W of Johnson Creek)	Sumas	2-B	2	8"	-.688			N	0%
4	W Front St/BNRR Spur (E of Johnson Creek)	Sumas	2-B	1	8"	-.430			N	0%
5	Wynn Road	~~Sumas~~		yes		-.640			N	0%
	Ferry Term. New So.			2		-.464				

Comments: _____

180 DAY SHORTED CASING LEAK SURVEY
Bellingham District

Report Date: 3-16-07 *GM Signature:* [signature]

Survey Conducted By: TIM DONNELLY *Date:* 3-20-07

Signature: SEE ATTACHED

Total Casings with Vents: 132 *Total Casings Shorted:* 14

Instructions:
Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative that -0.73, take the following additional action: 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
18	Meridian St. & W. Conneticut St.	Bellingham	3-E	1	8"	-.979	-1.129	F	N	0 %
19	Bayview Dr. @ BNRR Blvd. Park So.	Bellingham	2-J	2	2"	-.979	-1.180	F	N	0 %
29	N State St. @ Franklin St.	Bellingham	4-G	2	8"	-.970	-1.080	F	N	0 %
30	N State St. @ Whatcom Creek	Bellingham	4-G	1	8"	-.935	-1.060	F	N	0 %
33	Cornwall N of Ivy St (RR Spur)	Bellingham	3-H	2	4"	-1.124	-1.785	F	N	0 %
35	View Crest Rd & Fieldston Rd	Bellingham	2-O	0	4"	—	-1.232	F	N	0 %
41	Orleans & E. Conneticut St.	Bellingham	5-E	0	2"	—	-1.160	F	N	0 %
42	Alabama St, E of Iron St.	Bellingham	5-E	0	2"	—	-1.110	F	N	0 %
43	I-5 / Squalicum Parkway	Bellingham	5-C	0	10"	—	-1.062	F	N	0 %
48	Railroad Ave @ Magnolia St (RR Tracks)	Bellingham	4-G	0	4"	—	-1.384	F	N	0 %

Comments: _____

180 DAY SHORTED CASING LEAK SURVEY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Linker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
4	Robinson St / Mead Ave	Everson	5-F	0	4"	VENT GUIDE	-1.247	F	N	0 %
12	Mobil Lateral & E. Bakerview Rd	Mobil Lat	Dwg#1	0	8"	—	-1.315	F	N	0 %
13	Mobil Lateral & Guide Meridfian	Mobil Lat	Dwg #2	0	8"	—	-1.249	F	N	0 %
1	Garrison Rd	N What HP	101-2	2	20"	-.912	-1.551	F	N	0 %

Comments: _____

180 DAY SHORTED CASING LEAK SURVEY
Bellingham District

Report Date: OCTOBER 4 2007

Survey Conducted By: S. VANCE J. SAAB

Signature:

GM Signature:

Date: 10-5-07

Total Casings with Vents: 132

Total Casings Shorted: 14

Instructions:
Take a casing pipe to soil potential reading at each casing location and record. If the casing pipe to soil potential is more negative that -0.73, take the following additional action: 1) Take a carrier pipe to soil potential reading and record; 2) Perform a Tinker Rasor survey of the casing and record whether it passes (P - no short) or fails (F - shorted casing). If a Tinker Rasor survey is performed and the test fails indicating a shorted casing take the following action: 1) Leak survey the casing and indicated whether gas was detected; 2) If gas was detected measure the % gas and record.

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
18	Meridian St. & W. Conneticut	Bellingham	3-E	1	8"	.859	1.035	F	N	0%
19	Bayview Dr. @ BNRR Blvd. Park So.	Bellingham	2-J	2	2"	-1.019	-1.221	F	N	0%
29	N State St. @ Franklin St.	Bellingham	4-G	2	8"	-.958	-.992	F	N	0%
30	N State @ Whatcom Creek	Bellingham	4-G	1	8"	-.878	.877 *	F	N	0%
33	Cornwall N of Ivy (RR Spur)	Bellingham	3-H	2	4"	-1.350	-1.802	F	N	0%
35	View Crest Rd & Fieldston Rd	Bellingham	2-O	0	4"	—	-1.190	F	N	0%
41	Orleans & E. Conneticut	Bellingham	5-E	0	2"	—	-1.160	F	N	0%
42	Alabama, E of Iron St.	Bellingham	5-E	0	2"	—	-1.183	F	N	0%
43	I-5 / Squalicum Parkway	Bellingham	5-C	0	10"	—	-1.618	F	N	0%
48	Railroad Ave. @ Magnolia St (RR Tracks)	Bellingham	4-G	0	4"	—	1.154	F	N	0%

Comments: *NOTE - RECTIFIER GROUND BED DOWN @ KING & FRASIER ST - WILL REQUIRE JOE MAXWELL TO REPLACE EXISTING MATERIAL WHICH IS IN PROCESS. ALSO SHORT/LOW CP READ INVESTIGATION #0284 NOTED 10-11-07. (COPY ATTACHED).

180 DAY SHORTED CASING LEAK SURVEY

No	Casing Location	Town	Grid	Vents	Main Diameter	Pipe to Soil Potentials		Tinker - Rasor (P/F)	Leak Survey	
						Casing	Carrier		Gas Detected (Y/N)	% Gas
4	Robinson & Mead - Everson	Everson	5F	0	4"	—	-1.291	F	N	0%
12	Mobil Lateral & E. Bakerview RD	Mobil Lat	Dwg #1	0	8"	-.901	-1.201	F	N	0%
13	Mobil Lateral & Guide Meridian	Mobil Lat	Dwg #2	0	8"	—	-1.290	F	N	0%
1	Garrison Rd	Nwhat HP	101-2	2	16" ~~20"~~	-1.062	-1.681	F	N	0%

Comments: _____

CNG 650
Rev. 12/05

CASCADE NATURAL GAS CORPORATION
LOW CP READ INVESTIGATION FORM

FORM No. 0284

INVESTIGATION DATE		DATE LOW READ TAKEN	10-11-07
LOCATION DESCRIPTION OF LOW READING	ADDRESS / CROSS STREETS: 2135 LAKE WHATCOM BLVD.		
TOWN	BELLINGHAM	DISTRICT	BELLINGHAM
CP READING	-.734	REASON READING WAS TAKEN	☒ BI MONTHLY SURVEY ☐ CASING SURVEY ☐ ANNUAL SURVEY ☐ EXPOSED STEEL ☐ OTHER

INVESTIGATION DETAILS

SELECT FOUR LOCATIONS EACH APPROXIMATELY FOUR BLOCKS NORTH, SOUTH, EAST AND WEST OF THE ORIGINAL LOW CP READING AND RECORD THE INLET AND OUTLET PIPE TO SOIL POTENTIAL AT EACH LOCATION. IF THE LOCATION OF THE ORIGINAL LOW READ IS BELOW GROUND, RECORD THE PIPE TO SOIL READING OF THE NEAREST ABOVE GROUND CNGC FACILITY.

	ADDRESS	INLET CP READ	OUTLET CP READ
NEAREST ABOVE GROUND FACILITY			
NORTH			
SOUTH			
EAST			
WEST			

DESCRIBE OTHER SYSTEM TROUBLESHOOTING THAT WAS PERFORMED AND RESULT.

On 10/31/07 possible ~~water~~ underground short found @ 1900 Baker St., sch. for excavation
On 11/30/07
1900 Baker St. short was excavated. Water service was touching 2" gas main. Lines were seperated. -.510 to -.918. Gas main was re-wrapped + buried.

DOCUMENTATION OF RESOLUTION

DESCRIPTION	LOCATION	DATE	FINAL PIPE TO SOIL READINGS: INLET	OUTLET
ORIGINAL LOW READ SITE	2135 Lake Whatcom Blvd.	11/30/07	-.912	—
NEAREST ABOVE GROUND FACILITY				
LOCATION OF LOWEST READ FROM INVESTIGATION SECTION				
OTHER				

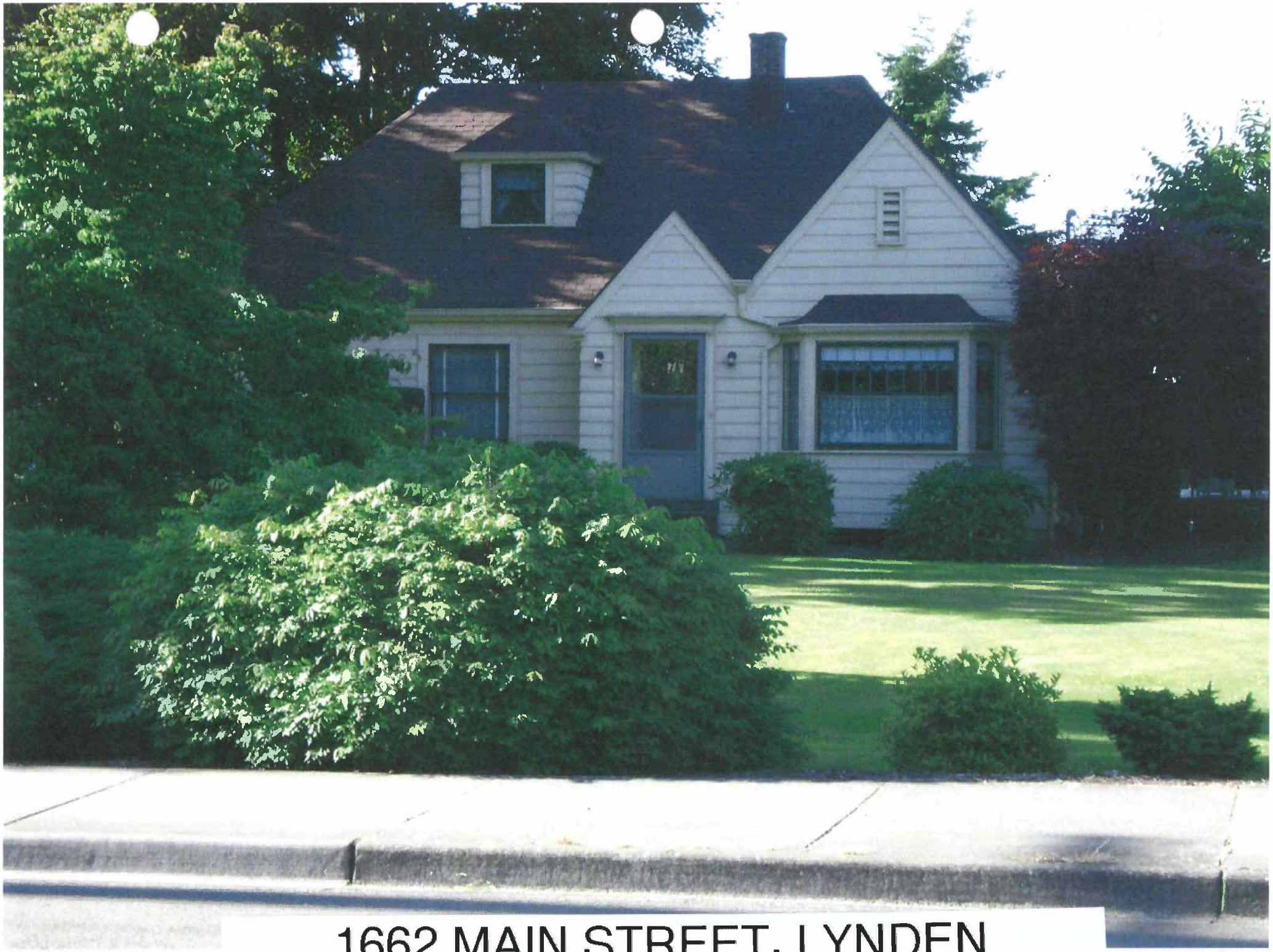
FINAL READINGS TAKEN BY (SIGN):	DATE	GENERAL MANAGER or CORROSION DEPT. REP.:	DATE
D. Ty Emly	11/30/07	D. Ty Emly	11/30/07

CASCADE NATURAL GAS CORPORATION
A Subsidiary of MDU Resources Group, Inc.

8113 W. Grandridge Blvd, KENNEWICK, WASHINGTON 99336-7166 (509)-734-4576
FACSIMILE (509)-737-9803

Exhibit F

Pictures of service lines in Lynden



1662 MAIN STREET, LYNDEN

1650 MAIN STREET, LYNDEN

1659 MAIN STREET, LYNDEN


1601 MAIN ST, LYNDEN
(1 OF 2)

1601 MAIN ST, LYNDEN
(2 OF 2)


1647 MAIN ST, LYNDEN

1674 MAIN ST, LYNDEN


CAUTION
1700 MAIN ST, LYNDEN

1718 MAIN ST, LYNDEN

1770 MAIN ST, LYNDEN

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Exhibit G

Pictures of Meter #289198

CASCADE NATURAL GAS CORPORATION

In the Community to Serve

AOC Corrective Action Plan

Please fill out completely & legibly and return to Manager.

Reported by: RK *Performing Task:* WTC AUDIT *AC Page Number:* _____ *Date:* 7-6-11

Location: BELLINGHAM FITNESS @ 1730 N. STATE, BELLINGHAM # 289198 (415 MTR)

Description of AOC:

Riser

- ☐ Needs Wrap
- ☐ Meter Stop Buried
- ☐ Concrete/Asphalt
- ☐ No Sign of Tracer Wire
- ☐ Inactive Riser Meter Bar
- ☐ Stop Not Plugged
- ☐ Set Not Straight and Plumb

Meter

- ☐ Gas Odor
- ☐ Barricades Inadequate
- ☐ No Cascade Meter Number
- ☐ Meters/HPSS Need Barricades
- ☐ No Cascade Identification
- ☐ Metal / Ground Wire Attached
- ☐ Broken Index / ERT
- ☐ Objects Endangering the Meter or HPSS
- ☐ Possible Gas Theft
- ☐ Objects On or Things Chained to Meter or HPSS
- ☐ Meter or HPSS Touching Ground or Buried
- ☐ Structure Constructed around Meter or HPSS
- ☐ 360° Welds on Support Leg on Meter Manifolds

egulator

- ☐ Vent Not In Downward Position
- ☐ Venting Gas

Access

- ☐ Gate
- ☐ Dog
- ☐ Meter Under Deck – No Access
- ☐ Bush or Plants

Other

Explain: NEED PIPE SUPPORT INSTALLED ON 3/4" PIPE BTWN SHUTOFF & REGULATOR FOR SUPPORT.

Field Recommendation: _____

****

Work Order Number: 2419700222

Date of Corrective Action: 7-7-11

Corrective Action Taken: FABRICATED & INSTALLED SUPPORT UNDER 3/4" PIPE

Completed by: S. VANCE

Before

After

CASCADE NATURAL GAS CORPORATION
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Exhibit H

Leak investigation and repair documents for leak on 16" N Whatcom Transmission Line at Trapline Rd.

CNG 293A
REV MAY 10

SPRT Scan

CASCADE NATURAL GAS CORPORATION
LEAK INVESTIGATION

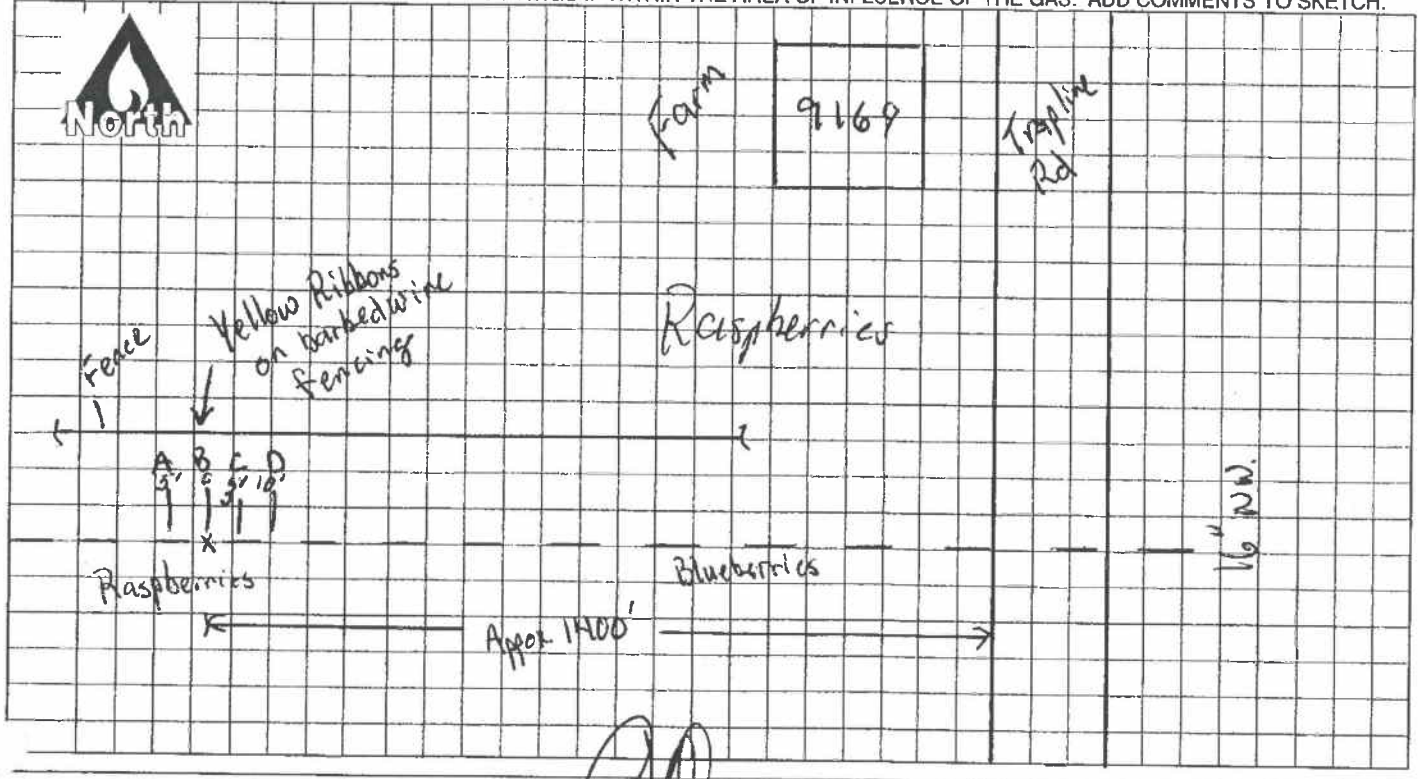
LEAK WORK ORDER NO.	172889	LEAK LOCATION ADDRESS	9169 Trapline Rd	CITY/STATE	Lynden Wa.
DETECTED DATE	TIME	REPORTED BY NAME	J Saab D Saward		
REPORTED DATE	TIME	ADDRESS IF NOT AN EMPLOYEE ADDRESS		CITY/STATE	

UNDERGROUND PROBE READINGS – IF YOU NEED MORE THAN 10 PROBES DRAW TABLE ON BACK.

ACTION CODES: IN = INITIAL RV = RE-EVALUATION FOL = FOLLOW-UP ASP = USED ASPIRATOR (SHOW LOCATION ON SKETCH)

ACTION TAKEN		RV	FOL			
DATE		7/19/10	9-8-10			
TIME		12:30	16:30			
PERFORMED BY		J Saab D Saward	SAWARD			
INST. SER. NOS.		1872	1872	SEE 293B 9-8-10		
INST. CALIB. DATES		6-21-10	8-25-10			
PROBE IDENTIFICATION (READINGS % GAS UNLESS NOTED DIFFERENT)	A	0%	Ø			
	B	3.%	Ø			
	C	5.%	Ø			
	D	0%	Ø			
	E			* AREA ALL CLEAR W/O READS AFTER REPAIR - NO FURTHER ACTION REQUIRED RK		
	F					
	G					
	H					
	I					
	J					
LEAK GRADE (1,2,3)		3 D.S.				

SKETCH – DRAW BAR HOLE LOCATIONS, PIPE, AND STREET BOUNDARIES. INCLUDE ALL INFORMATION USED IN THE GRADING OF THE LEAK, I.E., LOCATION OF PAVED AREAS AND BUILDINGS IF WITHIN THE AREA OF INFLUENCE OF THE GAS. ADD COMMENTS TO SKETCH.



SUPERVISOR REVIEW: DATE 9-10-10

ORIGINAL – DISTRICT SCAN – G:\SHARED\JDE\JDE_DOCS\DISTRICT\OPEN LEAK REPORTS\OPEN WO#@ADDRESS.TIF EMAIL – COMPLIANCE MGR

CNG 293B
REV MAY 10

CASCADE NATURAL GAS CORPORATION
LEAK RECORD

Dale Saward 9/8/10

LEAK WORK ORDER NO. 172889

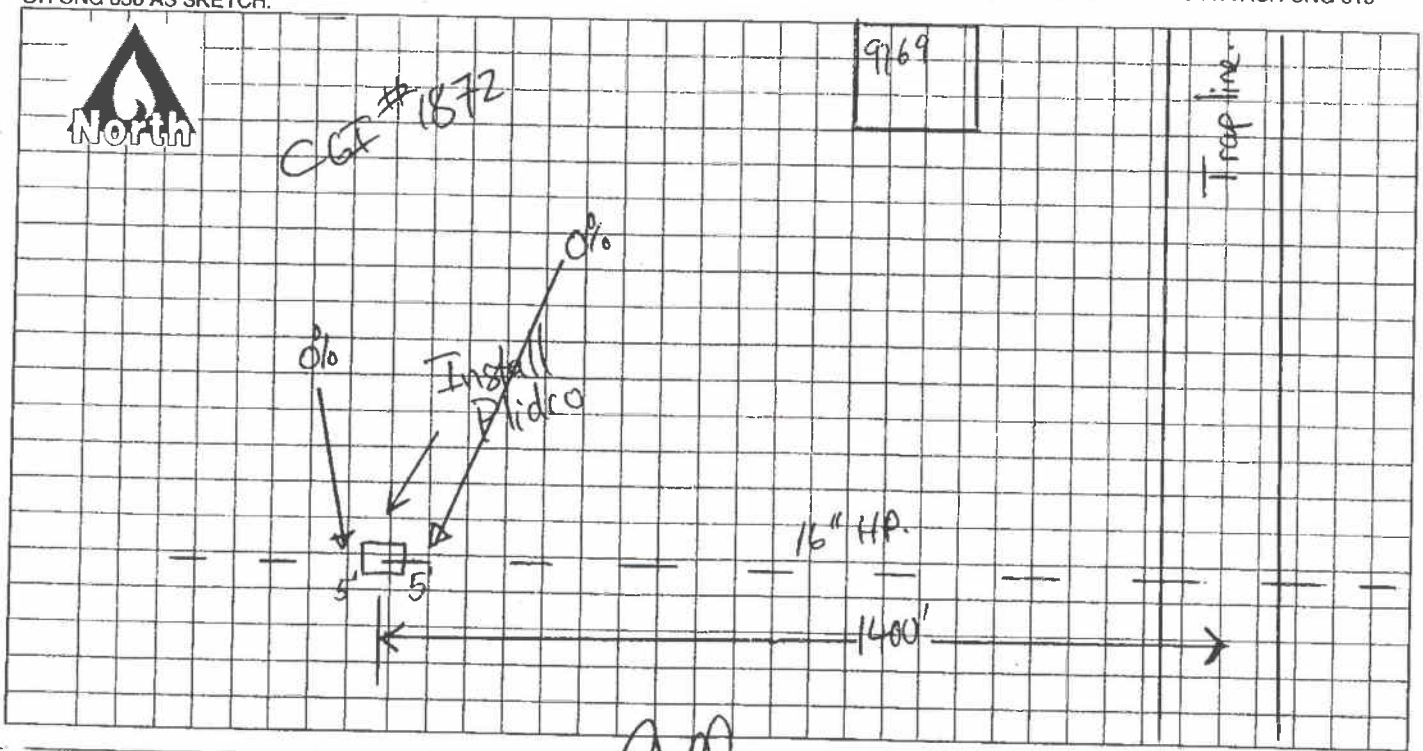
FORM COMPLETED BY Dale Saward.

REPAIR	PIPE CLASSIFICATION	MATERIAL	PIPE SIZE	INSTALL DATE
DATE 09/08/10 TIME 16:30	☐ A. MAIN ☐ B. SERVICE; RT/ACCT_____ ☑ C. TRANSMISSION LINE	☑ A. STEEL ☐ B. POLYETHYLENE ☐ C. OTHER _____	16 NPS	1971

CAUSE	ORIGIN	COMPONENT
☐ A. CORROSION ☐ B. EXCAVATION ☐ C. NATURAL FORCES ☐ D. OTHER OUTSIDE FORCE ☑ E. MATERIAL OR WELD ☐ F. EQUIPMENT FAILURE ☐ G. OPERATION ERROR ☐ H. OTHER _____	☐ A. BASE MATERIAL FRACTURE ☑ B. LONGITUDINAL WELD ☐ C. GIRTH WELD ☐ D. OTHER FIELD WELD ☐ E. CORROSION ☐ F. EXCVATION DAMAGE ☐ G. OTHER_____	☑ A. PIPE ☐ B. VALVE ☐ C. REGULATOR ☐ D. FITTING ☐ E. TAP CONNECTION ☐ F. OTHER _____

REPAIR TYPE	PRESSURE TEST	PIPE CONDITION		WIRE/SOIL POT.
☐ 1. WELD OVER SLEEVE ☐ 2. PATCH WELDED ☑ 3. CLAMP Plidco ☐ 4. REPLACE PIPE ☐ 5. REPLACE COMPONENT ☐ 6. COMPONENT RECONDITIONED ☐ 7. OTHER – DESCRIBE REPAIR IN SKETCH	BY See attached PRESSURE Hydrostatic DURATION Test METHOD Certificate. DATE TIME	EXT. ☑ GOOD ☐ FAIR ☐ POOR	INT. ☐ GOOD ☐ FAIR ☐ POOR ☑ N/A	-1.3 VDC

SKETCH – DRAW REPAIR. INCLUDE MEASUREMENTS TO NEARBY FEATURES. OK TO DRAW REPAIR ON 293A. OK TO ATTACH CNG 315 OR CNG 336 AS SKETCH.



SUPERVISOR

DATE 9-10-10

ORIGINAL – DISTRICT SCAN – G:\SHARED\JDE\JDE_DOCS\DISTRICT\CLOSED LEAK REPORTS\BILL WO# @ ADDRESS.TIF EMAIL – COMPLIANCE MGR

ATTACH ALL CNG 293A, AND CNG 293C

CNG FORM 625
Rev. Oct 05

CASCADE NATURAL GAS CORPORATION
INTEGRITY MANAGEMENT DIG REPORT

DATE OF EXCAVATION	9-8-10	HP LINE NAME AND NUMBER	#10-16" N. WHATCOM HP LINE
DISTRICT	BELLINGHAM	TOWN	BELLINGHAM
EXCAVATION LOCATION	ADDRESS / CROSS STREETS: 1400' West of Trapline Rd on 16" HP.		
REASON FOR EXCAVATION	☐ OBSERVING THIRD PARTY DIG	☐ CNG CONSTRUCTION PROJECT	☐ INTEGRITY ASSESSMENT-DIRECT EXAMINATION
	☑ OTHER -EXPLAIN IN COMMENTS		
LOCATE NO.		ARRIVAL TIME: 09:00	COMPLETED TIME: 16:30

PIPE EXAMINATION DETAILS – COLLECT AS MUCH DATA AS POSSIBLE. DESCRIBE REASON IF DATA IS NOT AVAILABLE.

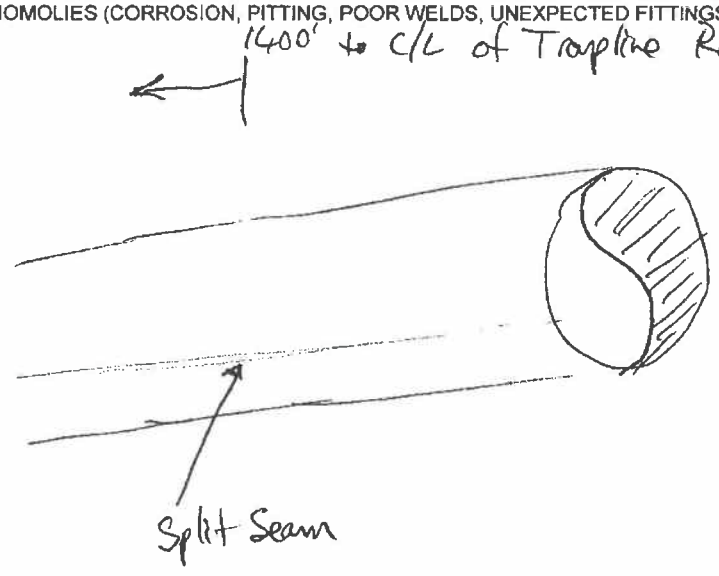
PIPE MATERIAL	☑ STEEL ☐ OTHER _____	PIPE DIAMETER (INCHES)	16 NPS
MEASURED DEPTH OF COVER (INCHES)	60"		
COATING	☑ COAL TAR ☐ X-TRU ☐ DITCH APPLIED ☐ BARE ☐ FIBER WRAP ☐ OTHER _____ ☐ FACTORY APPLIED		
COATING CONDITION	DESCRIBE ALL COATING DEFECTS AND POSSIBLE CAUSE. SKETCH LOCATIONS AND DESCRIBE REPAIRS.	FOUND: ☐ GOOD ☐ FAIR ☐ POOR LEFT: ☐ GOOD ☐ FAIR ☐ POOR	

IF PIPE MATERIAL IS EXPOSED (COATING IS DAMAGED, MISSING, OR REMOVED), COMPLETE THE FOLLOWING

PIPE CONDITION	IF PIPE CONDITION IS OTHER THAN GOOD, REPORT TO CORROSION CONTROL; SKETCH LOCATIONS	FOUND: ☑ GOOD ☐ FAIR ☐ POOR PITTING: ☐ YES ☐ NO SCALING: ☐ YES ☐ NO	LEFT: ☑ GOOD ☐ FAIR ☐ POOR PITTING: ☐ YES ☐ NO SCALING: ☐ YES ☐ NO
WELD APPEARANCE	HOW MANY WELDS EXPOSED?: 0	SKETCH LOCATION OF ALL WELDS; DESCRIBE WELDS THAT DO NOT APPEAR ACCEPTABLE: N/A	
CATHODIC PROTECTION	PIPE TO SOIL POTENTIAL (VOLTS), INDICATE POLARITY: -1.3	IF READING IS MORE POSITIVE THAN –0.90V, CONTACT CORROSION CONTROL	

IF PIPE WALL LOSS, DENTS, OR IMPACT DAMAGE IS FOUND OR SUSPECTED, CONTACT CORROSION CONTROL FOR INSTRUCTIONS.

SKETCH PIPE LOCATION, AND NEARBY AREA. INDICATE SIZE OF EXCAVATION. GIVE DISTANCES TO NEARBY LANDMARKS. IDENTIFY LOCATION OF ANOMOLIES (CORROSION, PITTING, POOR WELDS, UNEXPECTED FITTINGS, ETC.)



SPECIAL NOTE: ADDING FITTINGS OR COMPONENTS, REPAIRS, REPLACEMENTS, REINFORCEMENTS, AND REROUTES OF HP LINE AND TRANSMISSION LINES MUST BE RECORDED AS BUILT AND SUBMITTED TO ENGINEERING FOR INCLUSION INTO THE PERMANENT RECORDS. RECORD AS-BUILTS AS DIRECTED BY GENERAL MANAGER AND DISTRIBUTION CLERK.

CNG FORM 625
PG 2

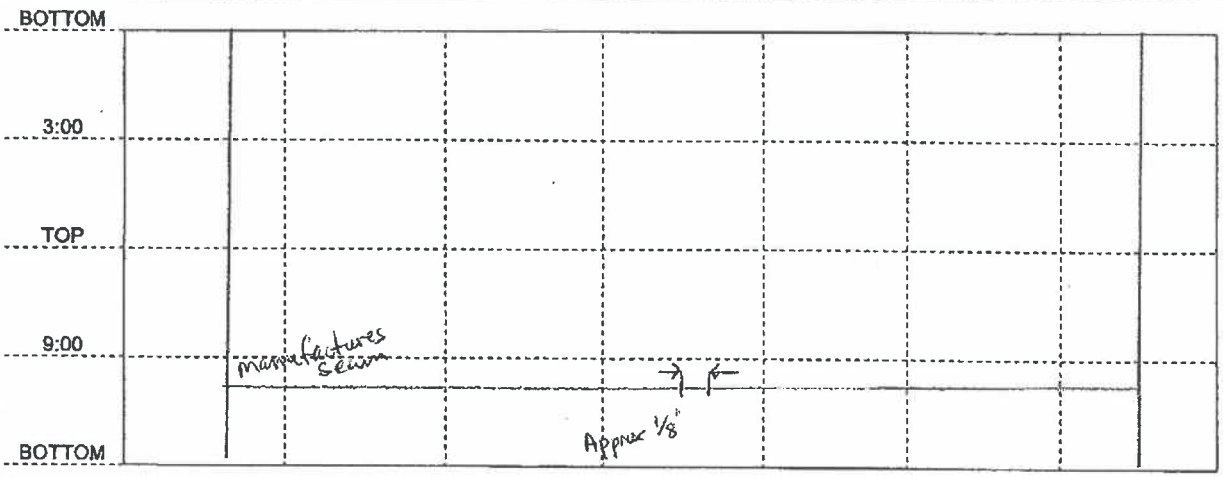
COMMENTS/DESCRIPTION OF EXAMINATION INCLUDING ANY INFORMATION THAT MIGHT AID EVALUATION OF SYSTEM QUALITY. EXPLAIN UNUSUAL CONDITIONS AND DESCRIBE THE CONDITION FOUND AS NECESSARY.

SEE ATTACHED PAPERWORK
CNG # 293A9B

REPORTED BY	DATE	GENERAL MANAGER	DATE
Dale Savard	9/8/10		9-10-10

ANOMOLY EXAMINATION DETAILS – IF WALL LOSS, DENTS, OR IMPACT DAMAGE SUSPECTED – IDENTIFY LOCATION, AREA, REMAINING WALL, AND TYPE OF ALL WALL LOSS OR ANOMOLIES. FOR GENERAL CORROSION, MULTIPLE MEASUREMENTS OF REMAINING WALL ARE NEEDED (TOPOGRAPHY MAP).

SOIL TYPE (IF KNOWN)	Sandy loam	SOIL RESISTIVITY (OHM-CM) (IF MEASURED)		BASE PIPE WALL THICKNESS (INCHES)	
HCA NUMBER (IF LOCATED IN HCA)			GPS REFERENCE POINT (IF KNOWN)		



EXAM PERFORMED BY	CORROSION CONTROL OR DESIGNATED REPRESENTATIVE	DATE
	JOEL JOHNSTONE	9-8-10

ENGINEERING REVIEW

☐	ANOMOLIES WERE FOUND ACCEPTABLE PER ASME B31G – REMAINING STRENGTH GUIDELINES (ATTACH CALCULATIONS)
☒	ACCEPTABLE REINFORCEMENT FITTINGS INSTALLED – DETAILS SHOWN ON AS-BUILT - WORK ORDER 172889
☐	PIPE WAS REMOVED – DETAILS SHOWN ON AS-BUILT - WORK ORDER _____
☐	NO ACTION NECESSARY
☐	OTHER: (WRITE IN OR ATTACH)

ENGINEER	DATE
Mike Hardesty	10/6/10

Parent W.O. No 172889 W.O. Number **172889** Cost Center 47011 FERC Subplt Est. Amount **$ 0**	**PROJECT AUTHORIZATION** **RE 16" H.P.,BELLINGHAM** **16" N.WHATCOM@ TRAPLINE RD.**	Page Number 1 Origination 02/03/10 Planned Start Planned Complete

Originator	WILKINSJ	Project Class	Equip/Facility Exp-Direct/Jobg
Level 3 Resp No.	CNGC VP Operations	FERC Subplant	NON-CAPITAL PROJECT
Project Type	Expense Proj(Direct O&M/Jobng)	Project Status	Authorization Approved

COMPLETE PROJECT DESCRIPTION & JUSTIFICATION

A Description & Justification

RE 16" H.P.,BELLINGHAM

1200' WEST OF TRAPLINE RD,IN RASPBERRY FIELD

Owner Rang Gill
M & G Farms
(360) 815-5005

ORIGINATING DIVISION APPROVALS							
Originator	Date	Dep't Head	Date	Office Manager	Date	Region Manager	Date

GENERAL OFFICE TECHNICAL REVIEWS							
Environmental Review By	Date	Regulatory Affairs Review By	Date	Legal Review By	Date	Fixed Asset Accounting Review By	Date

GENERAL OFFICE APPROVALS							
Manager	Date	Vice President	Date	President and/or CEO	Date	MDUR - President and/or CEO	Date

NG-315 07-...

ADDRESS 9169 Trapline Rd WORK ORDER # 172889

ONSTRUCTED BY Saward

PIPE PO N/A OPEN TRENCH Y / N - FOOTAGE N/A

PIPE GRADE ' PIPE CONDITION Good

DOWN STREAM PRES. 580 PSI P/S POTENTIAL -1.3

UP STREAM DESIGN PRESSURE / TEST PRESSURE / /

ACTUAL HOURS DATE COMPLETED 9/8/10

PARTS LIST

QUANTITY	SIZE	DESCRIPTION
		Plastic Pipe
		Tracer Wire
		Tapping Tee
		Riser
		Meter Bar Assembly
		Excess Flow Valve
		EFV TAG
		Grease Tube
		Wire Nut
		Plastic Reducer
		Plastic Tee
		Plastic Cap

OTHER PARTS (List Below)

1	16"	Plidco Split Sleeve.
15	rolls	Brown Trenton Tape.
2	Cans	Trenton Wax

#1174

PLIDCO® THE PIPE LINE DEVELOPMENT COMPANY

ISO 9000 REGISTERED FIRM

870 Canterbury Road
Cleveland, Ohio 44145-1419
Telephone (440) 871-5700
FAX (440) 871-9577
Email: pipeline@plidco.com

Certificate of Compliance

This is to certify the material shipped against the below referenced order numbers has been found to be as ordered and in accordance with our quality control specifications.

Material Identification

Customer Name:	CASCADE NATURAL GAS CORP
Customer Order Number:	11061OP
Vendor Item #:	CL-900
PLIDCO Order Number:	D 33914
Date Prepared:	March 2, 2010

Material Description	Serial Number	Casting Heat Number
16" 1000 WP SPLIT+SLEEVE	3424405	021-10-15 / 019-10-3

Attested by,

Quality Assurance

QUAKER CITY CASTINGS INC.

310 EUCLID STREET
SALEM, OHIO 44460

16"

CERTIFICATE OF COMPLIANCE

CUSTOMER: PIPELINE DEVELOPMENT CO.
ORDER NO. : 63235
CASTING NO. : 4049
WORK ORDER NO. : 126782

DATE: 2/3/2010
QUANTITY: 2
PACK. NO.: 89355

METAL SPECIFICATION: ASTM A 216 WCC STEEL
237 MAX BHN

CHEMISTRY (wt. %):

CARBON	0.16	MAGNESIUM	
SILICON	0.44	ALUMINUM	0.052
MANGANESE	1.03	TITANIUM	
NICKEL	0.05	VANADIUM	0.009
CHROMIUM	0.07	TIN	
MOLYBDENUM	0.02	TUNGSTEN	
SULFUR	0.007	NIOBIUM	
PHOSPHORUS	0.011	NITROGEN	
COPPER	0.09	CE VALUE	0.36

TENSILE PROPERTIES:

TENSILE (psi):	74930
YIELD (psi):	53550
ELONGATION (%):	30
R. O. A. (%):	53

CHARPY V-NOTCH IMPACT RESULTS	IMPACT ENERGY	LATERAL EXPANSION	%SHEAR
TEMP. (DEG. F)			
IMPACT 1			
IMPACT 2			
IMPACT 3			
AVERAGE			
138	145		

CASTING HARDNESS (BHN): 138

TEST BAR HARDNESS (BHN):

HEAT TREAT: NORMALIZED

HEAT NUMBER: 019-10-6

IDENTIFICATION NUMBERS: 019-10-1
019-10-3

REMARKS: QCC TEST RESULTS FROM INSTRON SATEC 150LX

SIGNATURE: J. K. Mitchell

TITLE: LAB MANAGER

2/5/10

QUAKER CITY CASTINGS INC.

310 EUCLID STREET
SALEM, OHIO 44460

CERTIFICATE OF COMPLIANCE

CUSTOMER:	PIPELINE DEVELOPMENT CO.	**DATE:**	2/10/2010
ORDER NO. :	63235	**QUANTITY:**	5
CASTING NO. :	4049	**PACK. NO.:**	89463
WORK ORDER NO. :	126782		

METAL SPECIFICATION: ASTM A 216 WCC STEEL
237 MAX BHN

CHEMISTRY (wt. %):

CARBON	0.16	MAGNESIUM	
SILICON	0.52	ALUMINUM	0.057
MANGANESE	1.00	TITANIUM	
NICKEL	0.04	VANADIUM	0.011
CHROMIUM	0.11	TIN	
MOLYBDENUM	0.01	TUNGSTEN	
SULFUR	0.007	NIOBIUM	
PHOSPHORUS	0.014	NITROGEN	
COPPER	0.08	CE VALUE	0.36

TENSILE PROPERTIES:

TENSILE (psi):	74650
YIELD (psi):	52620
ELONGATION (%):	34
R. O. A. (%):	63

CHARPY V-NOTCH IMPACT RESULTS

TEMP. (DEG. F)	IMPACT ENERGY	LATERAL EXPANSION	%SHEAR
IMPACT 1			
IMPACT 2			
IMPACT 3			
AVERAGE	138	145	

CASTING HARDNESS (BHN): 160

TEST BAR HARDNESS (BHN):

HEAT TREAT: NORMALIZED

HEAT NUMBER: 022-10-6

IDENTIFICATION NUMBERS:
021-10-15
021-10-16
021-10-17
021-10-18
021-10-19

REMARKS: QCC TEST RESULTS FROM INSTRON SATEC 150LX

SIGNATURE: N. K. Mistretta

TITLE: LAB MANAGER

RJB 2/11/10

Serial Number: 34244 05

The Pipe Line Development Company

Hydrostatic Test Certificate

Product:

☒ PSS ☐ O+S ☐ HTS ☐ C+S ☐ C+R ☐ FRSS

☐ SRE ☐ SRT ☐ W+E ☐ P+F ☐ FRR

☐ Other (*please specify*): _____

Size: 16" cast

☐ Vents (*list size(s) and quantity*): _____

Design Pressure: 1000 psi

Actual Hydrostatic Test Pressure: 1500 psi

Test Duration: 15 minutes

Test Piece Type: ☒ 1-Piece ☐ 2-Piece Test Piece(s) #: 582

Serial numbers of test stand pressure gauges: PG 121-103

☒ **No visible leakage or test pressure decay observed.**

Remarks:

Fabricated Sidebar Material Identification:

I certify the above information to be correct and complete.

Tester/Inspector Signature: N. Panza

Date: 3-1-10

I certify the information contained on this certificate is correct and complete.

Supervisor Initials: AB Date: 3/1/10

3/1/10

CNG 293
Rev. 6/03

CASCADE NATURAL GAS CORPORATION

SUBSTRUCTURE DAMAGE/LEAK REPORT

INCIDENT NO.		WORK ORDER NO.	172889	COMPLETED BY	D. Savard
INCIDENT LOCATION:	ADDRESS Trapline Rd (500yds West)		CITY /STATE Lynden	MAP GRID	16" NORTH WHATCOM H.D. LINE SHT. # 101
INCIDENT TYPE:	LEAK? ☑YES ☐ NO	THIRD PARTY DAMAGE? ☐YES ☐NO		CNG DAMAGE? ☐YES ☐ NO	
REPORTED BY:	☐A. FIRE, POLICE	☐ B. PUBLIC	☐ C. CUSTOMER	☐D. CNG	☐E. AGENCY CAUSING DAMAGE
	NAME AND ADDRESS (IF B , OR C)				

LOG OF EVENTS

	DATE	TIME	BY WHOM		DATE	TIME	BY WHOM
DETECTED	01/21	10:00	J. Saab	LEAK STOPPED	01/08/10	14:00	Savard.
REPORTED	01/21	12:20	J. Saab	LEAK GRADED	01/21	12:20	R. Kelln.
DISPATCHED				DEFERRED	1-21-10		RKelln - CNG
INVESTIGATED	01/21	12:00	J Saab / D. Savard.	REPAIRED	01/08/10	16:30	D. Savard.

RESPONSIBLE PARTY TO BE BILLED	LOCATE INFORMATION
ELLIPSE ID	IS STRUCTURE CNG OWNED?: ☐YES ☐NO
NAME/COMPANY	DID CASCADE RECEIVE/SEND PROPER NOTIFICATION OF CONSTRUCTION ACTIVITY?: ☐YES ☐ NO
STREET	CNG WORK ORDER NO. FOR LOCATING?
CITY STATE/ZIP	LOCATE CENTER TICKET NO.?
TELEPHONE ( )	WAS FACILITY MARKED?: ☐YES ☐NO
EQUIPMENT CAUSING DAMAGE	METHOD USED TO LOCATE? ☐ ELECTRONIC ☐ BELLHOLE ☐ NOT CNG ☐ OTHER
PERATOR SIGNATURE	METHOD USED TO MARK LOCATION? ☐ STAKE ☐ FLAGGING ☐ SPRAY PAINT ☐ CARSONITE MARKERS ☐ OTHER
OPERATOR NAME	HOW CLOSE WAS FACILITY TO LOCATE LINE?:
SUPERVISOR: ☐ BILL ☐ TREBLE ☐ RAA ☐ DO NOT BILL	DEPTH OF FACILITY BEFORE DAMAGE?:

DEFERRED LEAK 1/21/10

GAS LOSS INFO

IF SERVICE, DISTANCE FROM MAIN? FT	ELAPSED TIME OF GAS LOSS?	EST. SYSTEM PRESSURE PSIG	HOLE SIZE IN
SERVICE INTERRUPTION ☐YES ☐NO	CUSTOMERS AFFECTED RES ___ COM ___	IND	

IF 25 OR MORE CUSTOMERS ARE INTERRUPTED, IMMEDIATELY REPORT TO GAS CONTROL

LEAK DETAILS

	LEAK GRADING	GRADE (1, 2, 3) KELN; BAR HOLE TESTING PERFORMED? ☒YES ☐ NO MAX. SUST. READ 2.0 %; INSTRUMENT SERIAL NO.: 1875
1	CAUSE OF LEAK	☐ A. CORROSION ☐ B. THIRD PARTY DAMAGE ☐ C. OUTSIDE FORCE ☐ D. CONSTRUCTION DEFECT ☑ E. MATERIAL DEFECT ☐ F. OTHER
2	PART OF SYSTEM WHERE LEAK OCCURRED	☑ A. MAIN ☐ B. SERVICE ☐ C. OTHER
3	PART OF SYSTEM THAT LEAKED	☑ A. PIPE ☐ B. VALVE ☐ C. REGULATOR ☐ D. FITTING ☐ E. TAP CONNECTION ☐ F. OTHER; DATE INSTALLED: 1971
4	MATERIAL THAT LEAKED	☑ A. STEEL ☐ B. PLASTIC ☐ C. OTHER
5	ORIGIN OF LEAK	☐ A. BASE MATERIAL FRACTURE ☑ B. LONGITUDINAL WELD ☐ C. GIRTH WELD ☐ D. OTHER FIELD WELD ☐ E. CORROSION ☐ F. THIRD PARTY DAMAGE ☐ G. OTHER
6	CATHODICALLY PROTECTED	☑ YES ☐ NO ☐ N/A P.E.; PIPE TO SOIL /TRACER WIRE POTENTIAL: -1.3
7	PIPE DESCRIPTION	DIAMETER: 16 OPS; WALL THICKNESS: ; PIPE CONDITION: ☑ GOOD ☐ FAIR ☐ POOR; PIPE COATING: ☐1. BARE ☐2. COAL TAR ☐3. X-TRU COAT ☐4. N/A P.E. ☐5. OTHER

CNG VEHICLES

TYPE	HRS	TYPE	HRS
TYPE	HRS	TYPE	HRS
TYPE	HRS	TYPE	HRS
TYPE	HRS	TYPE	HRS

CNG 293
REV 4/15/03

INCIDENT NO. _____

REPAIR DETAILS

REPAIR/DEFERRAL WORK ORDER NO.		☐ PRESSURE TEST ☐ PRE-TESTED	PSIG	MIN	☐ AIR ☐ _____

A. PIPE: ☐1. WELD OVER SLEEVE ☐2. PATCH WELDED ☐3. CLAMP ☐4. REPLACE PIPE _____FT ☐5. OTHER _____

B. COMPONENT: ☐1. REPLACED ☐2. RECONDITIONED

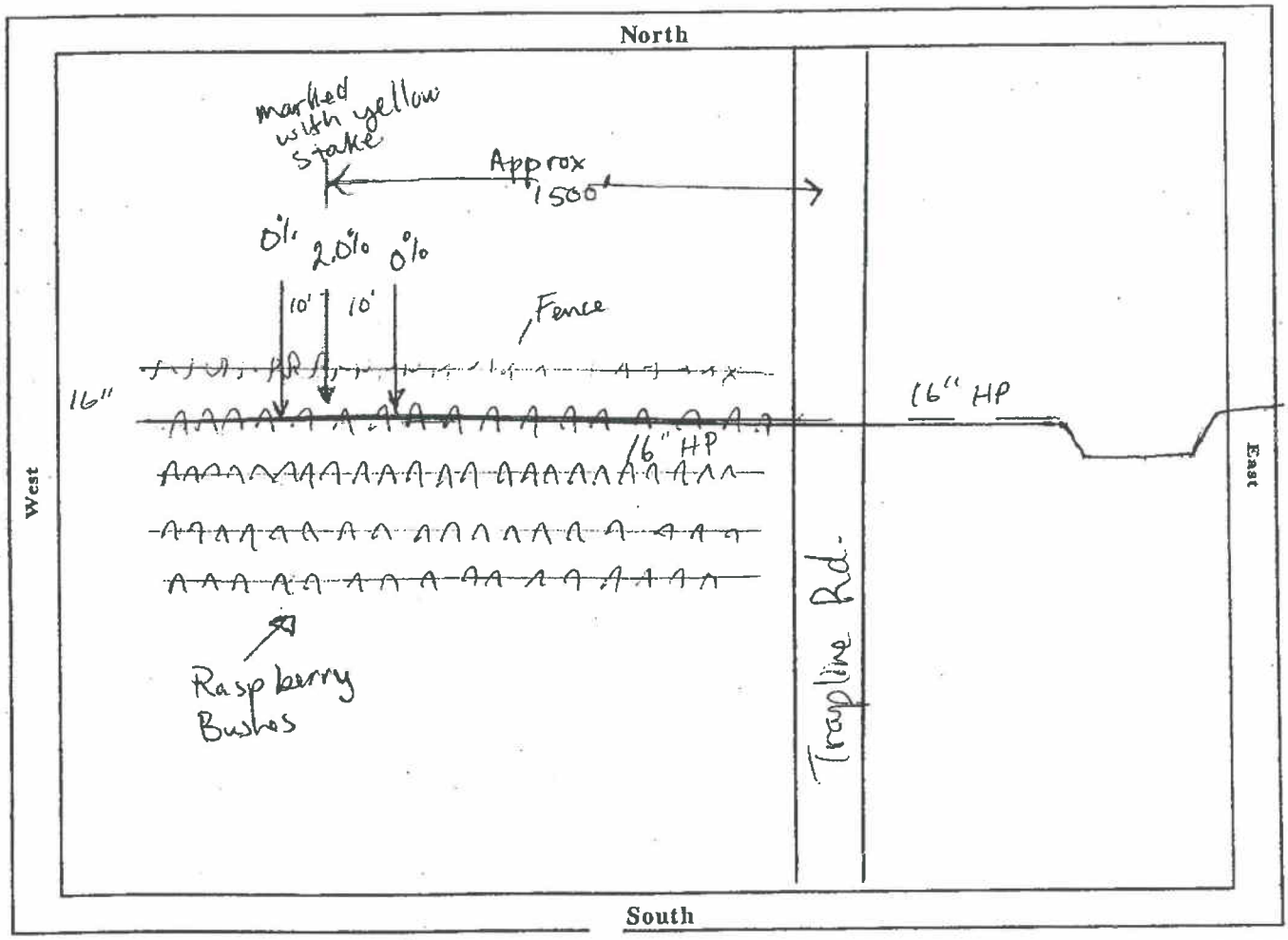
C. REPAIR IS: ☐1. PERMANENT ☐2. TEMPORARY

D. IF REPAIR IS TEMPORARY, WHAT IS CONTROL WORK ORDER:

E. FOLLOW-UP INSPECTION WORK ORDER:

SKETCH

SKETCH LOCATION INFORMATION, BAR HOLE LOCATIONS, AND CGI READINGS. INCLUDE ALL INFORMATION USED IN THE GRADING OF THE LEAK, I.E., LOCATION OF PAVED AREAS AND BUILDING IF WITHIN THE AREA OF INFLUENCE OF THE GAS. ALSO INCLUDE ALL PERTANENT INFORMATION IN REGARDS TO CONSTRUCTION ACTIVITY: POTHOLE INFO; LOCATE MARK MEASUREMENTS;ETC.



COMMENTS/DESCRIPTION OF DAMAGE/LOSS INCLUDING ANY INFORMATION THAT MIGHT AID INVESTIGATION, INCLUDING DEFFERRAL DETAILS AND DATE FOR RE-EVALUATION. EXPLAIN UNUSUAL CONDITIONS AND DESCRIBE THE DRAWING AS NECESSARY

1-21-10 CURRENTLY NOT CONDUSIVE WEATHER WISE TO TACKLE - WILL DEFER & ADVISED DANKO @ DIVISION - MONITOR UNTIL BETTER WEATHER SPRING/SUMMER & SCHEDULE REPAIR. RK

SEE ATTACHED PAPERWORK RELATED TO INVESTIGATION & REPAIR DATED 9-8-10 RK

CHECKED BY GENERAL MANAGER OR SUPERVISOR:		DATE 9-8-10

CNG 286
Rev. 01/08

CASCADE NATURAL GAS

SYSTEM SURVEILLANCE RECORD

DISTRICT Bellingham TOWN Sumas - Ferndale

QUARTERLY PATROL: QUARTER: 1st ☐, 2nd ☐, 3rd ☐, 4th ☐
(ATTACH COPY OF QUARTERLY PATROL LOG)

SPECIAL LEAK SURVEY ☐

LEAK SURVEY INSIDE BUSINESS AREA (SECTION 1) ☐

LEAK SURVEY OUTSIDE PRINCIPAL BUSINESS AREA
SECTION: 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ All ☐

☒ TRANSMISSION LINE LEAK SURVEY ☒ 1st 6 MONTHS, ☐ 2nd 6 MONTHS
☐ HIGH PRESSURE LINE LEAK SURVEY

LATERAL - FROM South P/L of B.P. Refinery TO Miniker Rd Station

LINE NAME 16" North Whatcom Transmission Line

LINE NO. OPERATING PSIG 600# MAOP #10

PIPE SIZE AND LENGTH 16" 143,907'

USE ADDITIONAL SHEETS IF NECESSARY

CONSTRUCTION ACTIVITY None

RIVER CROSSING None (Several Creek Crossing's -O.K.)

NEW HIGH OCCUPANCY STRUCTURES None

CONDITION OF ABOVE GROUND FACILITIES Good

EROSION None

RIGHT-OF-WAY CONDITION Good

PIPELINE SIGNS/MARKERS As noted on Map

☒ F.I.: MAKE Southern Cross Heath Tech MODEL FP400 DP III SERIAL NO. 48269 9471-5

CALIBRATION TEST DATE (S) Jan. 13, 15, 19, 20, 21 2010

COMMENTS: INCLUDE OPERATION AND MAINTENANCE WORK REQUEST NUMBERS (CNG #330) FOR NECESSARY REPAIRS.
LEAK INVESTIGATE ~ #172889 TMAINLINE / 16" – DEFERRED UNTIL SPRING/SUMMER CONDITIONS

Surveyed By J. Saah, D. Savard Start Date 1/13/10 End Date 1/21/10
General Manager [signature] Date 2-3-10

Original-Safety & Compliance Copy-District

CNG 295
3/06

Cascade Natural Gas Corp.

Leak Survey Detection Log

District	Bellingham	Survey Completed Date	1/21/10
Survey Type	[X] HP Line	Line No. 10	Line Name 16" N. Whatcom Trans. Line
	☐ Distribution System	Town	Section: 1 2 3 4 5 6 (circle)
	☐ Other	Describe	

Date Leak Detected	Who Detected (initials)	Grid Sheet/Line Sheet	Location/Address	Work Order	Repaired Date
1/20/2010	J.S.		1200' West of Trapline Rd.	172889*	9-8-10

* WILL MONITOR & DEFER UNTIL BETTER WEATHER & GROUND CONDITIONS SPRING/SUMMER DIVISION HAS BEEN NOTIFIED 1-25-10. – RK

Use as many sheets as necessary to record all detected leaks.

Survey Performed and Form Completed by	District Supervisor Review
Signed: Dale Loucied	Signed: R Kelln
Date: 01/21/10	Date: 2-4-10

CASCADE NATURAL GAS CORPORATION

MAINTENANCE/CALIBRATION LOG

Heath F.I. Unit

Model Number: Southern Cross FP400

Serial Number: 48269 District: BELLINGHAM

Date	Work Performed	By
1/11/2010	Calibration 20" Sumas 4" Lynden	J. Saab
1/12/10	Calibration	J. Saab
1/13/10	Calibration 16" N. Whatcom H.P.	D. Saward
1/14/10	Calibration	D Saward
1/15/10	Calibration 16 N. Whatcom H.P.	J. Saab
1/19/10	Calibration 16" What H.P.	D Saward
1/20/10	Calibration 16" What HP	J Saab
1/21/10	Calibration 16" What HP	D. Saward

CASCADE NATURAL GAS CORPORATION

MAINTENANCE/CALIBRATION LOG

Blue

Heath F.I. Unit

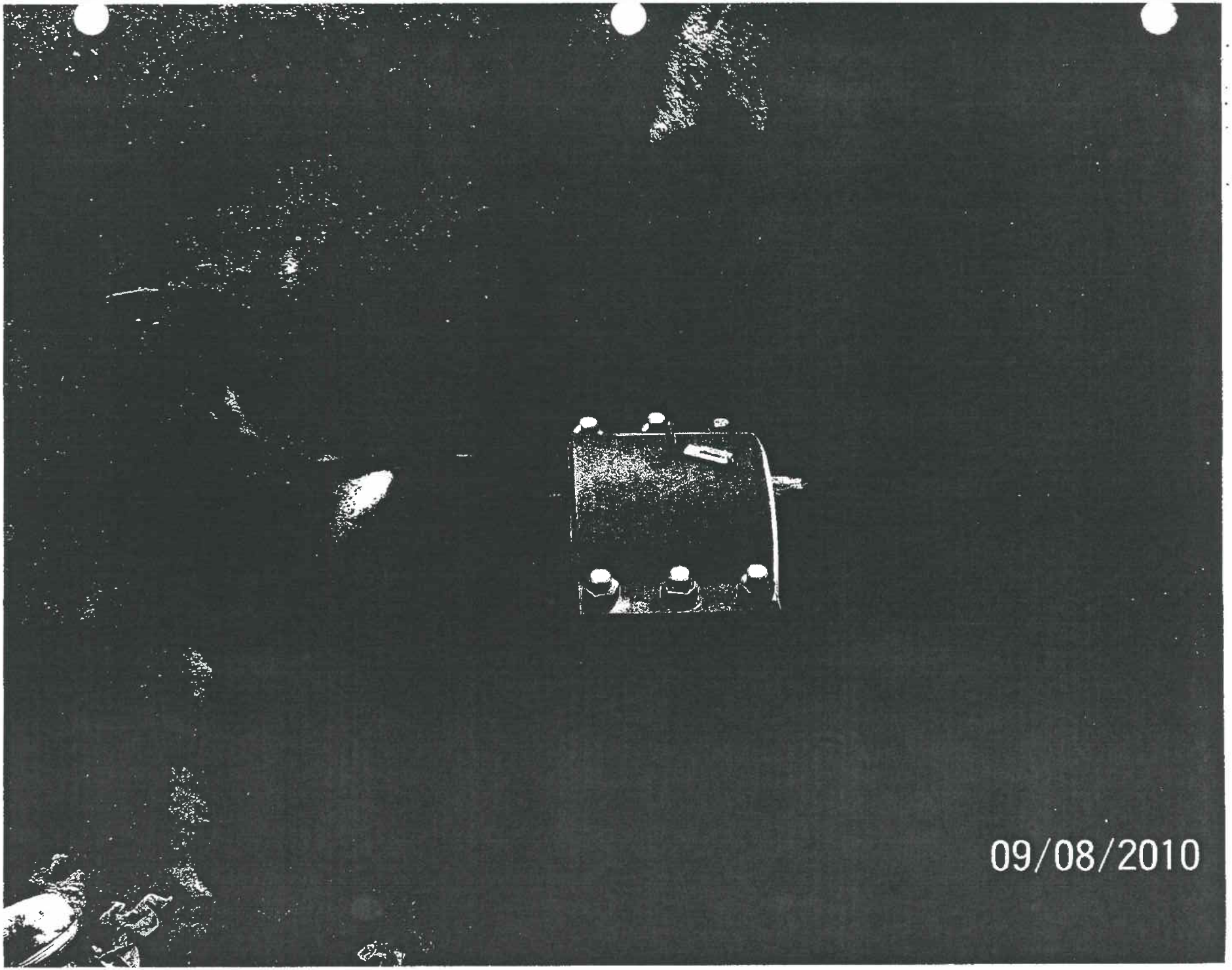
Model Number: ~~Heath~~ Tech · DP III

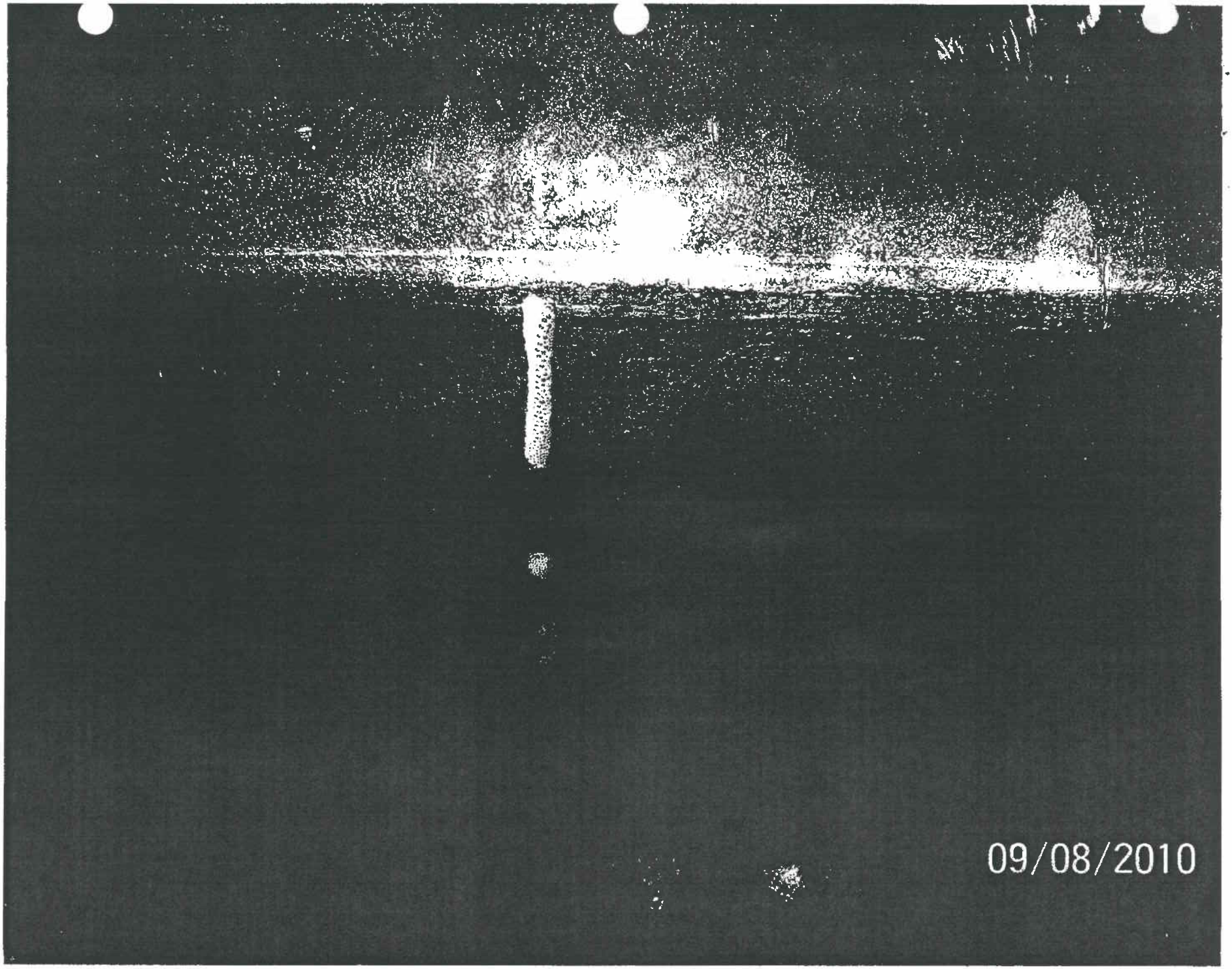
Serial Number: 94715

District: / BELLINGHAM

Date	Work Performed	By
1/14/10	Calibration	D. Saward
1/15/10	Calibration	D. Saward
1/19/10	Calibration 16" what HP.	D. Saward
1/20/10	Calibration 16" What HP	D-Saward
1/21/10	Calibration 16" What HP	J. Saab.


09/08/2010


09/08/2010


09/08/2010


09/08/2010

CASCADE NATURAL GAS CORPORATION
A Subsidiary of MDU Resources Group, Inc.

8113 W. Grandridge Blvd, KENNEWICK, WASHINGTON 99336-7166 (509)-734-4576
FACSIMILE (509)-737-9803

Exhibit I

As-built drawings for Franklin St. & State St., Bellingham installation

CNG 330'. (Rev. 5/10) CASCADE NATURAL GAS CORPORATION

DISTRIBUTION LINE REPORT

MATERIAL LIST

Item No.	Quantity Proposed	Quantity "As-Built"	Stock Code	Description
1	435'	494'	28043/705X42	10" X-TRU COAT PIPE
2	2	2	SP-726	10" HP LINESTOP (5700)
3	2	2	32078/CAP10X52	10" HP CAP (X/H)
4	3	5	EL-751 XS2	10" 90° HP ELL.
5	2	4	33936/751XH52	10" 45° HP ELL WGT
6	—	6	4648/N-243	SNV-A VALVE NIPPLE
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

DESCRIPTION

W/O No. 178608
City BELLINGHAM State WA Grid No. 18-M, 18-N
Blacktop 515' Concrete ___ Gravel, Rock ___ Sod, Dirt ___
Initiated by R. KELLN Date 6-7-2010
Prepared by G. SWENSON Date 9-15-2010
Approved by (Distribution Clerk) F. MORCHOUSE Date 10-11-2010
Constructed by (District Manager) CNG/SWENSON Date 12-16-10
Test Pressure 105/400' Duration 1 HR/24 HRS By A. SAD / D. SAVARD
Pressure Test Method NITROGEN Date/Time 11-20-10 / 2158 HRS.
"As-Built" by G. SWENSON Date 2-2-2011
Checked by (Distribution Clerk / District Manager) R KELLN Date 2-4-2011
Const. problems ___
Pipe P.O. No. X-TRU 10777 / FBE 11476 Wire/Soil Pot. ___ VDC
Locate No. 1024246 Start Date 10/29/10 Time 12:00 AM
Ext. Pipe Condition: Good ☒ Fair ☐ Poor ☐ Prism: OK ☒
Int. Pipe Condition: Good ☒ Fair ☐ Poor ☐ N/A ☐ Notified ☐

FOR GENERAL OFFICE USE ONLY

Tax Code No. ___ Date ___ By ___
Posted: Op. Print ☐ Orig. ☐ Grid ☐ CR ☐ DA ☐

North

REPLACEMENT

10" H.P. LINE

1700 BLK. OF FRANKLIN ST.

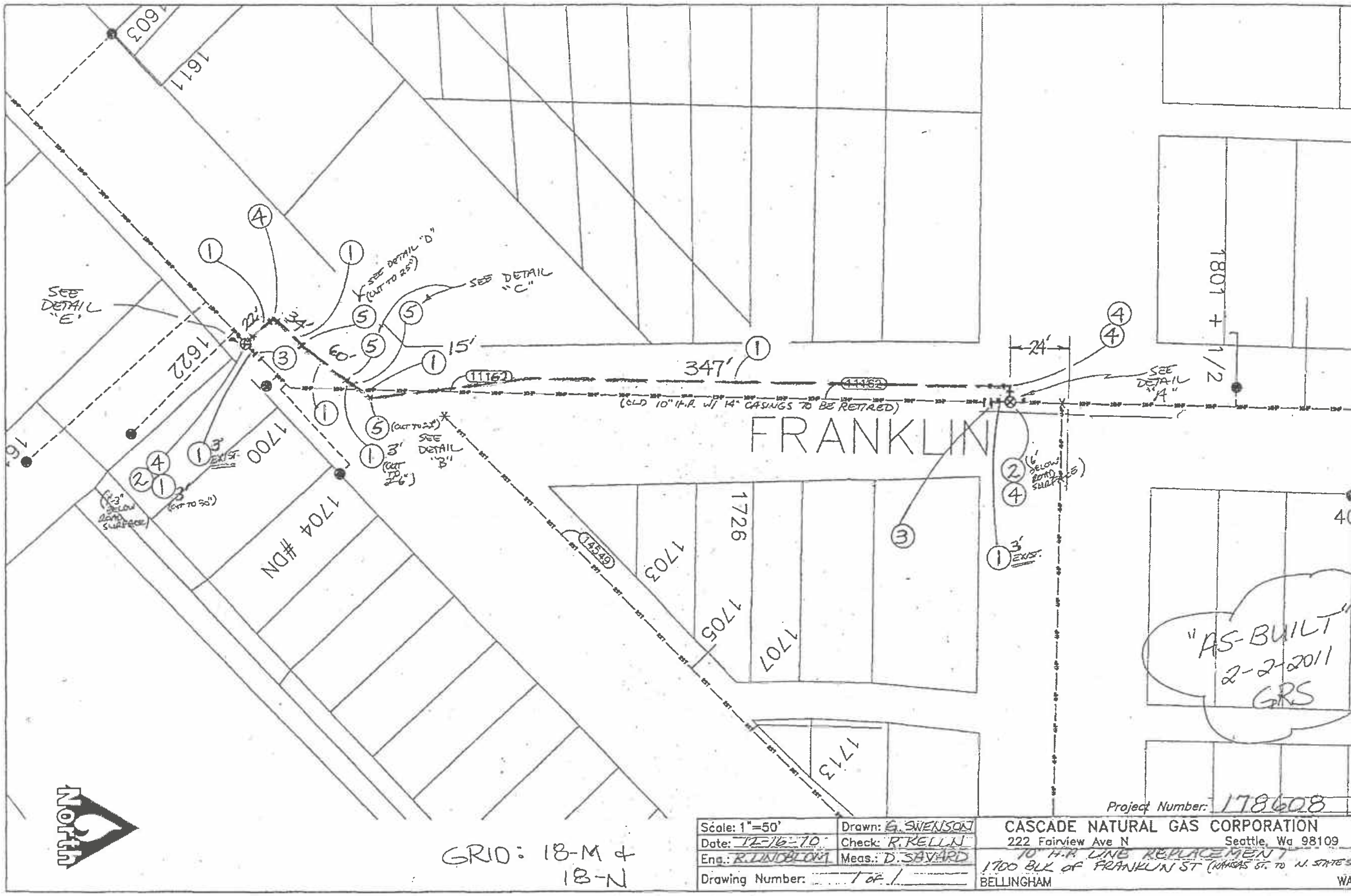
(FROM KANSAS ST. S. TO N. STATE ST.)

BELLINGHAM, WA

(SEE ATTACHED DWG.)

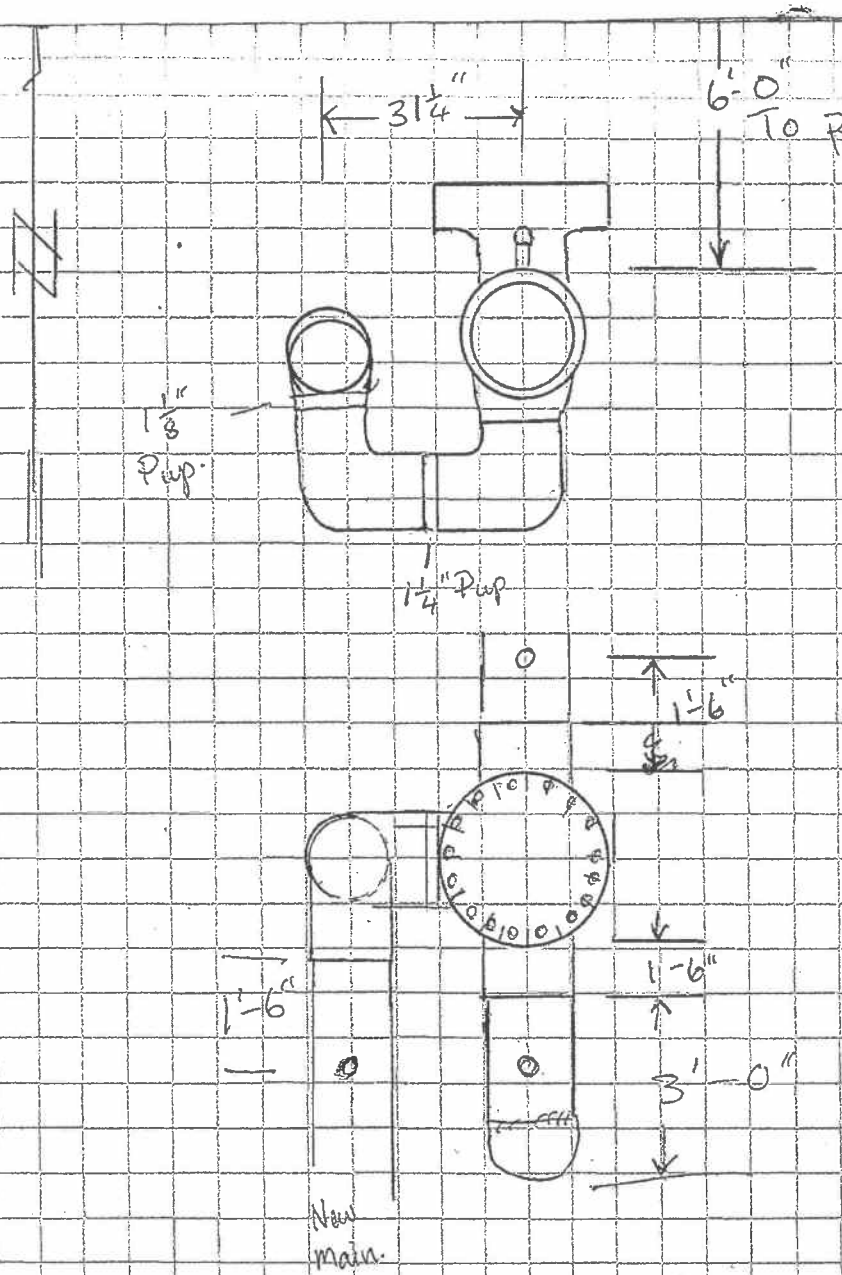
Proposal Scanned: GS	Eng Notified: GS	Materials: DH/DS	WO Closed: GRS	Posted: GRS	As-Built Scanned: GRS
10-25-10	10-25-10	11-29-10	12-16-10	2-2-11	2-4-11

"AS-BUILT"



Scale: 1"=50'	Drawn: G. SWENSON	CASCADE NATURAL GAS CORPORATION
Date: 12-16-10	Check: R. KELLN	222 Fairview Ave N Seattle, Wa 98109
Eng.: R. LINDBLOM	Meas.: D. SAVARD	10" H.P. LINE REPLACEMENT 1700 BLK of FRANKLIN ST (KANSAS ST. TO N. STATE ST.)
Drawing Number: 1 of 1		BELLINGHAM WA

Project Number: 178608



Detail "A"

E.R. NO. 178608

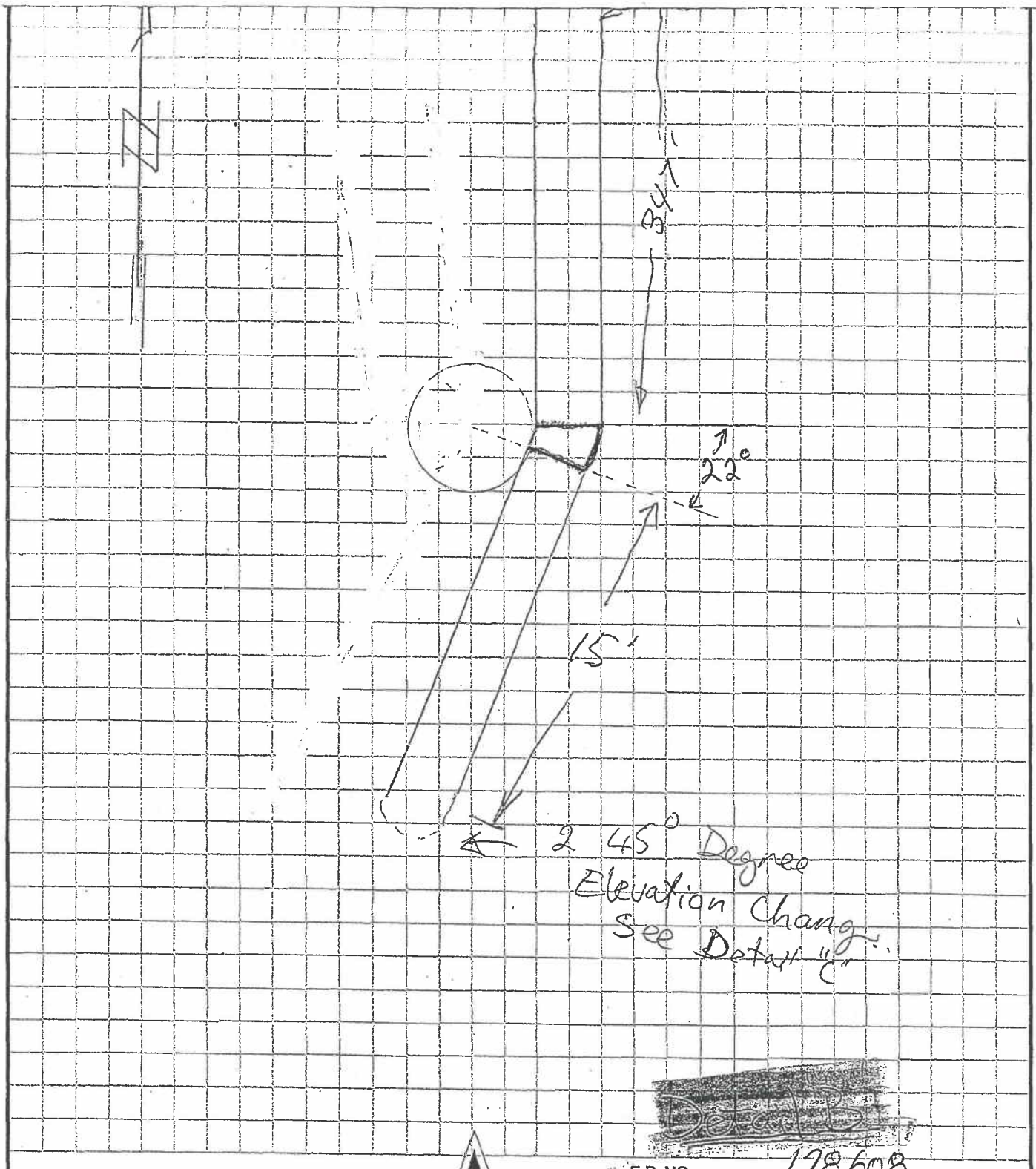
Scale	NONE	Drawn	D. SAVARD
Date	12/16/09	Check	G. SWENSEN
Eng.		Meas.	D. SAVARD
Grid No.	18-N	Dwg. No.	1 OF 1

CASCADE NATURAL GAS CORPORATION
222 Fairview Ave. No. Seattle, Wash. 98109

10" H.P. / N. STATE ST. & FRANKLIN ST.

BHAM WA

Form 167 Rev. 8/88



Scale	NONE	Drawn	D. SAVARD
Date	12/16/09	Check	G. SWENSON
Eng.		Meas.	D. SAVARD
Grid No.	18-N	Dwg. No.	1 OF 1

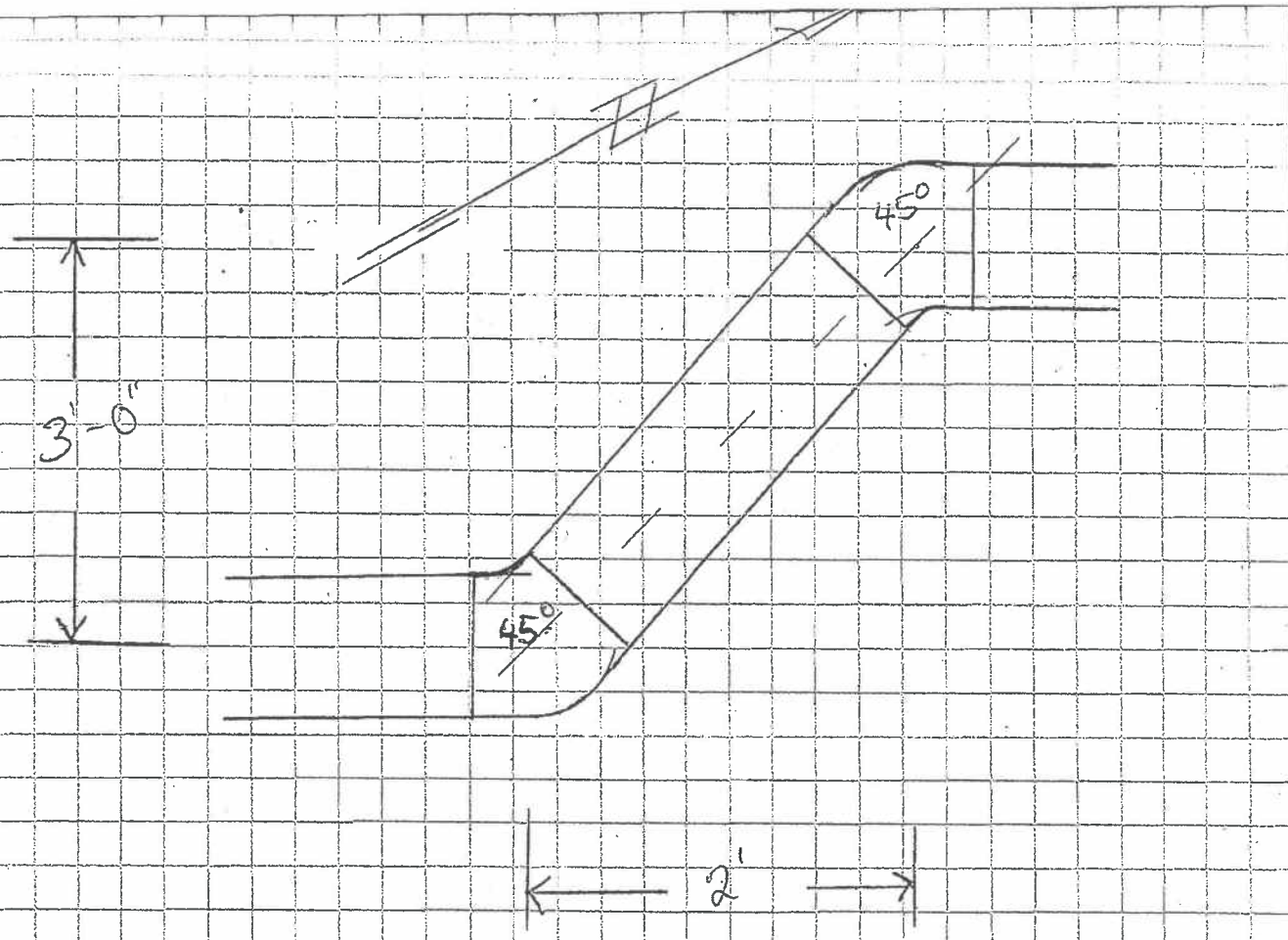
E.R. NO. 178608

CASCADE NATURAL GAS CORPORATION
222 Fairview Ave. No. Seattle, Wash. 98109

10" H.P. / N. STATE ST. & FRANKLIN ST.

BELLINGHAM WA

Form 167 Rev. 8/88



Detail "C"

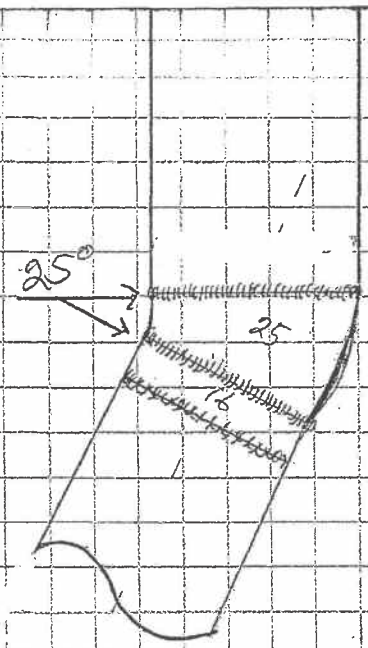
E.R. NO. 178608

Scale NONE	Drawn D. SAVARD
Date 12/16/09	Check G. SWENSON
Eng.	Meas. D. SAVARD
Grid No. 18-N	Dwg. No. 1 OF 1

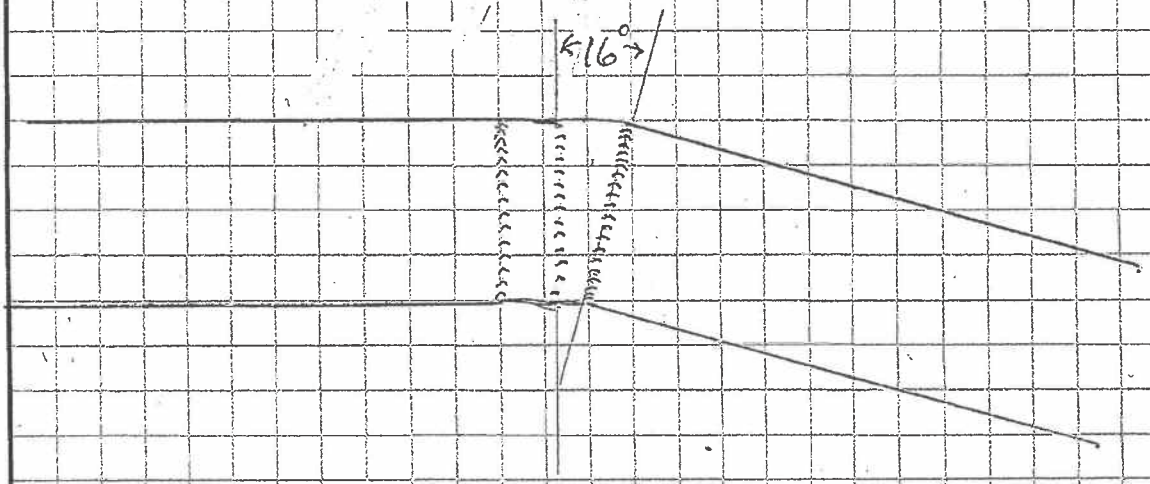
CASCADE NATURAL GAS CORPORATION
222 Fairview Aye. No. Seattle, Wash. 98109

10" H.P. / N. STATE ST.
BHAM & FRANKLIN ST. WA

Form 167 Rev. 8/88



Side View



Detail D

E.R. NO. 178608

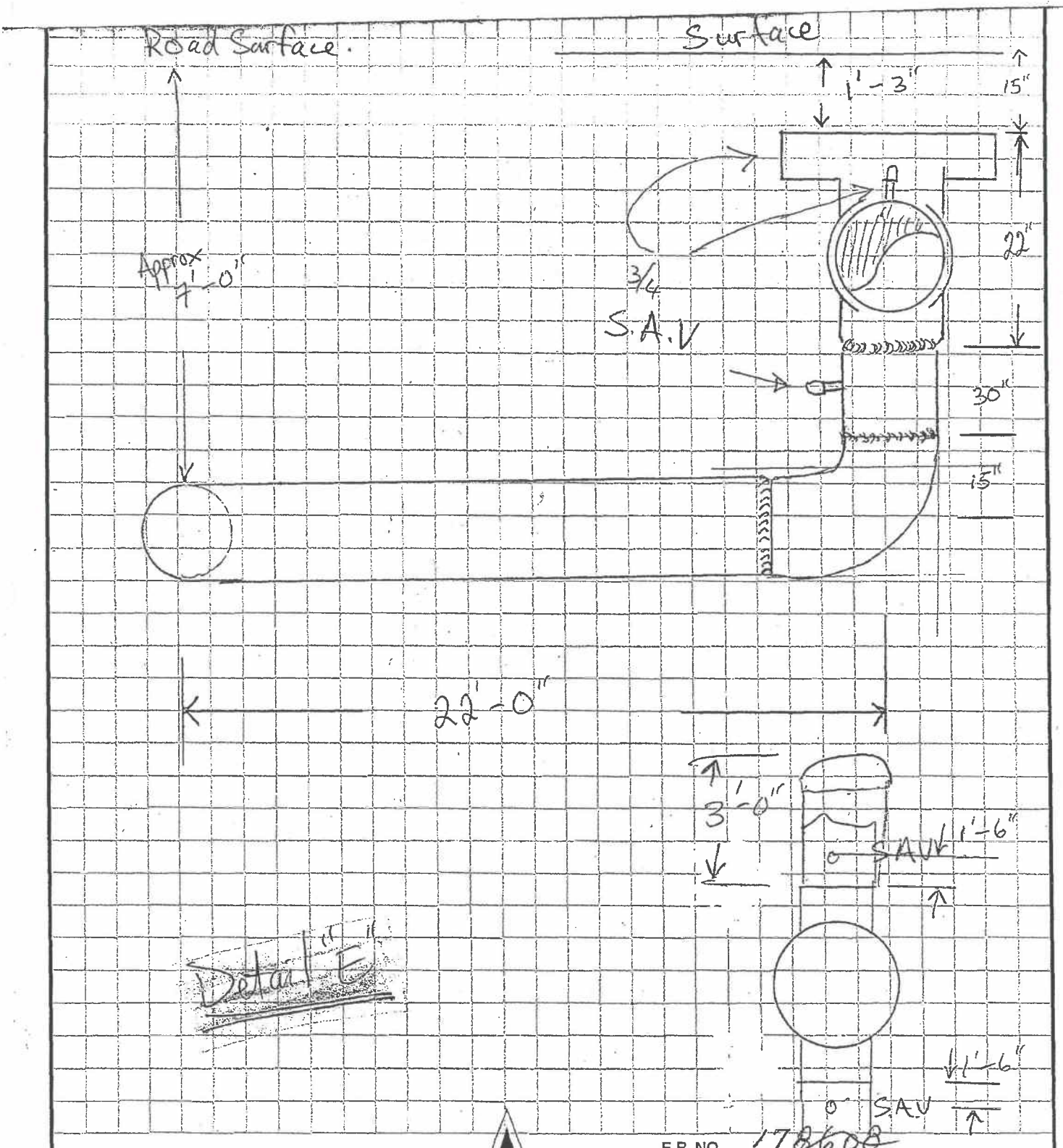
Scale	NONE	Drawn	D. SAVARD
Date	12/16/09	Check	G. SWENSON
Eng.		Meas.	D. SAVARD
Grid No.	18-N	Dwg. No.	1 OF 1

CASCADE NATURAL GAS CORPORATION
222 Fairview Ave. No. Seattle, Wash. 98109

10" H.P. / N. STATE ST. & FRANKLIN ST

BHAM WA

Form 167 Rev. 8/88



E.R. NO. 178608

Scale	NONE	Drawn	D. SAVARD
Date	12/16/09	Check	G. SWENSON
Eng.		Meas.	D. SAVARD
Grid No.	18-N	Dwg. No.	1 OF 1

CASCADE NATURAL GAS CORPORATION
222 Fairview Ave. No. Seattle, Wash. 98109

10" H.P. / N. STATE ST
BHAM + FRANKLIN ST. WA

Form 167 Rev. 8/88

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Exhibit J

Excerpt from Cascade Natural Gas CP 607

A copy of each report will be forwarded to the Engineering Department and will be retained for the life of the system.

.043 All materials for use on pressurized gas distribution systems will be purchased by the Administrative Services Department and supplied through Central Stores to the Districts. Unless specifically authorized by the Engineering Department or Division Superintendent, District purchases are not allowed. This assures that only tested and approved materials of the proper grade and specification are used to construct Cascade facilities.

.044 The maximum cumulative ultraviolet light exposure limit for HDPE 3408 carbon black pipe and fittings purchased by Cascade is 20 years. MDPE 2406 yellow pipe, MDPE and HDPE yellow fittings and tracer wire have a maximum cumulative exposure limit of 3 years. Yellow fittings and tracer wire shall be stored away from sunlight exposure, whether indoors or on a truck. It is best practice to use the yellow plastic products within 2 years of their manufacture date.

.045 Approved materials are listed in the Company parts database.

.046 Previously installed PE pipe and non-mechanical fittings may be reused if they are inspected, and are found to be like new materials. Tracer wire splice kits and mechanical fittings may not be reused. Materials rejected for reuse shall not be reported as defective, they shall be discarded.

.047 The approved transition fittings for making tie-ins to existing steel pipe systems are detailed in Section .12 of this CP.

.05 MATERIAL INSPECTION AND REPAIR

.051 Construction

Each length of pipe and each fitting must be visually inspected prior to installation to ensure that it has no determinable damage or defects that could impair its serviceability. Materials suspected of being damaged or defective shall not be installed. Materials shall be considered defective if they appear substantially different from those previously supplied. Defective materials shall be submitted to a District supervisor for documentation and reporting as described in CP 118, Defective /Unacceptable Material Report.

The following requirements affect pipe and fittings that are found to be defective after attempting to install them:

a. Defects in PE pipe, tubing, or butt fusions are corrected by removing the damaged section as a cylinder and installing new pipe.

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Exhibit K

Pressure test data for Franklin St. & State St., Bellingham installation

[redacted]

DESCRIPTION OF WORK

Attached to and made a part of that certain General Services Contract between CASCADE NATURAL GAS CORPORATION (Owner) and PILCHUCK CONTRACTORS, INC. (CONTRACTOR), dated October, 2010.

A. Term of Agreement:

Beginning: October, 11th, 2010 and after Owner has issued verbal notice to proceed.

Contractor is to provide Owner with a Certificate of Liability Insurance showing Owner as Certificate Holder prior to start of work.

Completion: November 1st, 2010
Work Order: J178822

B. Compensation

For the work, labor, materials and other things done and furnished by the Contractor in place here under, Owner shall pay the Contractor unit prices for the actual number of units installed as follows:

ITEM	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1. Install 10-inch steel pipe	**475 LF**	**1 LS**	[redacted]

This item includes installation of an estimated 475 Lf pipe segment approximately five (5) feet west of the existing pipeline, beginning on Franklin St. south of Kansas St., and ending approximately 475 feet south at tie-in point on State St. Pipe will be installed at a minimum depth of 5 feet below existing grade, per the City of Bellingham.

Installation to include: Mobilization, calling for locates, receiving, unloading, and stock piling pipe and materials, clearing, stringing, trenching, laying, backfilling, compacting, testing to **275** psig (design pressure **175** psig), pigging, drying to minimum dewpoint of 15°F, clean up, restoration to grade, stripping, all test

DIVISION TEST DATA REPORT

DESCRIPTION 10" H.P. FRANKLIN ST WO# 178608

Out Side Dew Point 38.8 11/14/10 Time 12:30 AM / PM
1st Inside Pipe Dew Point Test 1st -6.1 2nd -28.2 Time 1:51 AM / PM
2nd Inside Pipe Dew Point Test 1st -6.1 2nd -51.5 Time 1:53 AM / PM

Pre-Test
One hour
Date on 11 / 19 / 10 Date off 11 / 19 / 10
Time on 1936 AM / PM Time off 2037 AM / PM
Pressure on 105 PSIG Pressure off 105 PSIG
Ambient Temp. On 34 Ambient Temp. Off 33

Medium NITROGEN Minimum Duration Required 1 HR

Recording Instrument REYNOLDS CHART RECORDER Calibration date 12 / 18 / 09
Or Gage Model # 808-2 Serial # 226060
Verified ~~Vaetrix Ele.~~ ASHCROFT 0-1000 Dead weight tester 0 – 2000 lb. S/N: W0J040
Calibration Date 12 / 16 / 09

Installed By C.N.G. ADDAM SAD Attested By C.N.G. JOEL JOHNSTONE

Full Test
Date on 11 / 19 / 10 Date off 11 / 20 / 10
Time on 2150 AM / PM Time off 2158 AM / PM
Pressure on 808 PSIG Pressure off 806 PSIG
Ambient Temp. On 30° Ambient Temp. Off 31°

Design 400 Minimum Duration Required 24 HR

Medium NITROGEN

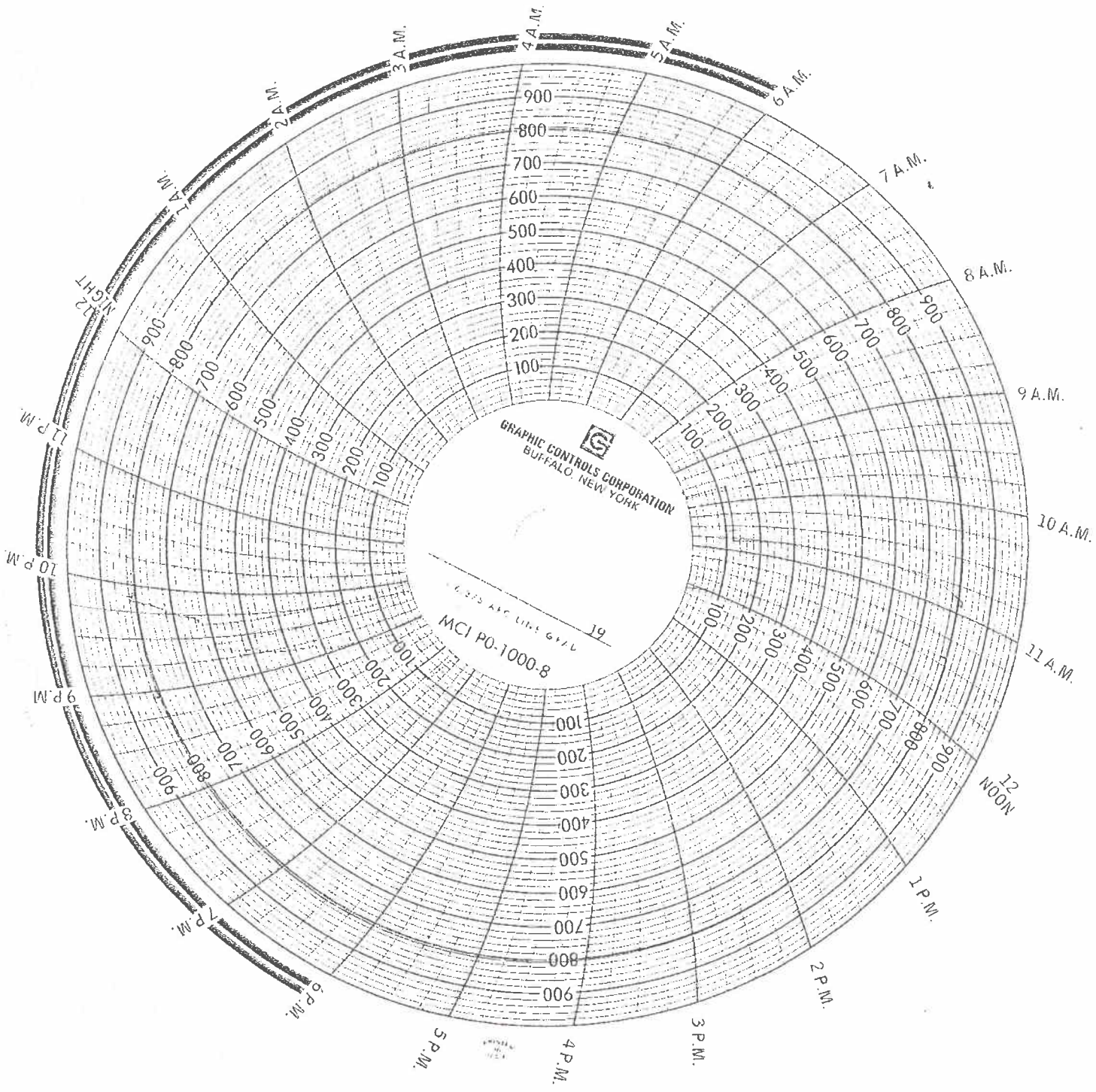
Recording Instrument REYNOLDS CHART RECORDER Calibration date 12 / 18 / 09
Or Gage Model # 808-2 Serial # 226060
Verified ASHCROFT 0-1000 Vaetrix Ele. Dead weight tester 0 – 2000 lb. S/N: ~~226060~~ W0J040
Calibration Date 12 / 16 / 09

Installed By C.N.G. ADDAM SAD Attested By C.N.G. JOEL JOHNSTONE

Number Of Brush Pigs 4 - 10" BRUSH Number Of Sponge Pigs 6-10" / 2 - 12" FOAM

Comments TESTED 477' OF 10" .250 WALL 5 - 10" 90°
2 - 10" 45°, 1 - 10" 21° FITTING 5 - 1" SAFA-VALVES
2 - 10" BOTTOM OUT LINE STOPPER FITTINGS.
Reviewed and approved in Engineering by Kevin Raschkow
7/13/2011

X-TRU COAT WO# 10797 - FBE - 11476


GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
MCI P0-1000-8
19
12 NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
12 MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.

FRANKLIN ST 174775

1 HR PRE TEST

DATE ON
11-19-10
TIME ON 19:36
PRES ON 105
AMB TEMP 34

DATE OFF
11-19-10
TIME OFF 20:39
PRES. OFF 105
TEMP 33

RECORDING INSTRUMENT - REYNOLDS CHART RECORDER
MODEL 808-2 SERIAL 226060 CAL 12-18-09
ASHCROFT 0-1000 GAGE
SERIAL WDJ040 CAL 12-16-09

Roll Test

DATE ON 11/19/10
TIME ON 21 50
PRES ON 808
TEMP 30

DATE OFF 11/20/10
TIME OFF 21 58
PRES OFF 800
TEMP 31

DESIGN . 400
MEDIUM - NITROGEN

INSTALLED BY
ADAM SAS

ATTESTED BY
JOEL JOHNSTONE

BRUSH PIGS - 4 - 10"

SPONGE PIGS - 6 - 10" 2 - 12"

TESTED 477' OF 10" .250 WALL X-TRUCOAT 10797 - 330'
FBE 11476 147'
5 - 10" 90° 2 - 10" 45° 1 - 10" 21° FITTING - 5 - 1" SAVAVAIVE
2 - 10" BOTTOM OUT LINE STOPPER FITTING

CASCADE NATURAL GAS CORPORATION
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FACSIMILE (509)-737-9803

Exhibit L

Investigation documents for Franklin St. & State St. anomaly

Kelln, Rick

From: Kelln, Rick
Sent: Friday, September 11, 2009 6:08 PM
To: Raschkow, Kevin; Marek, Chanda; Knowles, Dustin; Gilley, Shanon
Cc: Grunhurd, Dave; Van Corbach, Gordon; Haugness, Brandon; Johnstone, Joel; Danko, Bill
Subject: Franklin & State HP Dig Results (WO#169733)
Attachments: Intergrity Dig Report - Franklin & State HP.jpg; Intergrity Dig Report - Franklin & State HP 001.jpg; Intergrity Dig Report - Franklin & State HP 002.jpg; Proposed Solution @ Franklin & State HP.jpg

Everyone –

This week we focused our efforts in looking into a deferred leak that had originally investigated 5/8/09 with a follow-up bar hole investigation 11/10/08. As water & depth were issues, we chose to wait until now for our best shot at a more thorough investigation, taking 3 days 9/8-10/09. This investigation required Rental of a large Excavator, and shoring when necessary to enter the excavation.

We found that we have several casings in this 450 ft. stretch of 10" HP pipe that is part of the #2 HP Bellingham Distribution Line. In the 3 areas that we opened up, we found an unsealed end of casing, also an extremely long casing vent pipe that was packed tightly right along the side of the carrier pipe causing a short, and an unrecorded 14" barrel estimated to be approximately 36 ft. long, that had been plated on the ends. The end that we had exposed was leaking, as was the save a valve nipple in the middle. At 20 ft. we opted to button things up, versus excavating out more pavement to expose the other end, but would expect that there are problems there as well.

Attached you will find what I feel is the most important paperwork scans needed to make a decision, but chose not to include the actual Substructure Damage Report at this time. Be assured that there is more detail than what you see here for audit scrutiny. We also have photo's, but wanted to get this out yet today before I left work.

If you need more than what I have here, just ask.

Rick Kelln | General Manager, Bellingham District

Cascade Natural Gas Corporation
A Subsidiary of MDU Resources Group, Inc.
1910 Racine St., Bellingham, WA 98229 - 4773
[cell] 360.201-4440
[email] rick.kelln@cngc.com

CNG 293A
REV MAY 10

CASCADE NATURAL GAS CORPORATION

LEAK INVESTIGATION

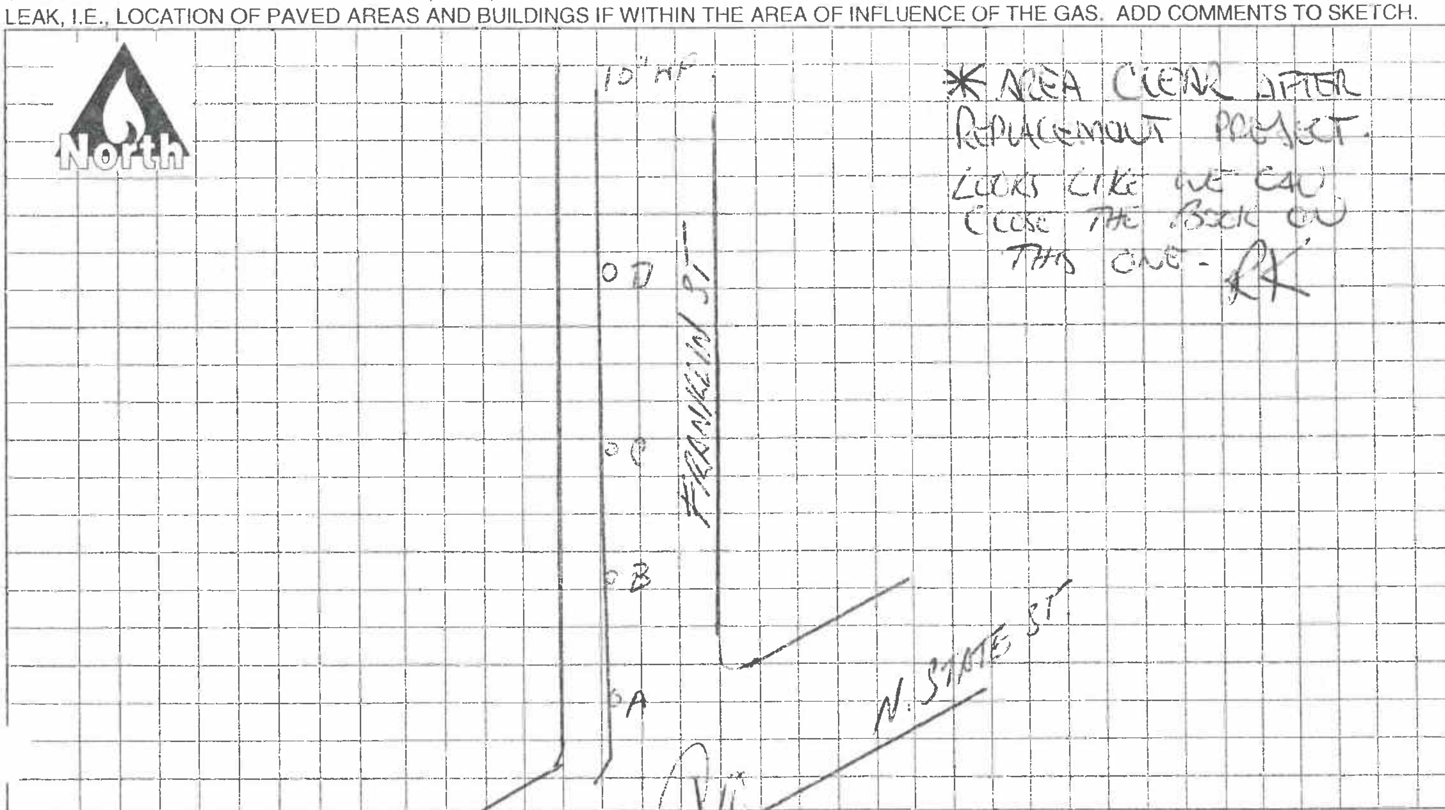
LEAK WORK ORDER NO.	178822	LEAK LOCATION	ADDRESS: N. STATE & FRANKLIN	CITY /STATE: BELLINGHAM	
DETECTED	DATE: 1/18/11	TIME: 915 AM	REPORTED BY	NAME: JJ VANCE B. SAVARD	
REPORTED	DATE: 1/18/11	TIME: 915 AM	ADDRESS IF NOT AN EMPLOYEE	ADDRESS:	CITY /STATE:

UNDERGROUND PROBE READINGS – IF YOU NEED MORE THAN 10 PROBES DRAW TABLE ON BACK.

ACTION CODES: IN = INITIAL RV = RE-EVALUATION FOL = FOLLOW-UP ASP = USED ASPIRATOR (SHOW LOCATION ON SKETCH)

ACTION TAKEN		FOL				
DATE		1-18-11				
TIME		0915				
PERFORMED BY		Savard/Vance				
INST. SER. NOS.		1872				
INST. CALIB. DATES						
PROBE IDENTIFICATION (READINGS % GAS UNLESS NOTED DIFFERENT)	A	0%				
	B	0%				
	C	0%				
	D	0%				
	E					
	F					
	G					
	H					
	I					
	J					
LEAK GRADE (1,2,3)						

SKETCH – DRAW BAR HOLE LOCATIONS, PIPE, AND STREET BOUNDARIES. INCLUDE ALL INFORMATION USED IN THE GRADING OF THE LEAK, I.E., LOCATION OF PAVED AREAS AND BUILDINGS IF WITHIN THE AREA OF INFLUENCE OF THE GAS. ADD COMMENTS TO SKETCH.



SUPERVISOR REVIEW: RK	DATE 1-31-11

ORIGINAL – DISTRICT SCAN – G:\SHARED\JDE\JDE_DOCS\DISTRICT\OPEN LEAK REPORTS\OPEN WO#@ADDRESS.TIF EMAIL – COMPLIANCE MGR

CNG 293
REV JAN 08

CASCADE NATURAL GAS CORPORATION
SUBSTRUCTURE DAMAGE/LEAK REPORT

DEFERRED
LEAK 11/10/08

INCIDENT TYPE	3RD PARTY DAMAGE ☐	LEAK ☑		CASCADE CREW DAMAGE ☐	
INCIDENT NO		WORK ORDER NO.	AA013422	COMPLETED BY	KERN - CNG
INCIDENT LOCATION	ADDRESS N STATE & FRANKLIN		CITY /STATE BELLINGHAM, WA		MAP GRID 5-F
REPORTED BY	☐ A. FIRE, POLICE	☐ B. PUBLIC	☐ C. CUSTOMER	☒ D. CNG	☐ E. AGENCY CAUSING DAMAGE
	NAME AND ADDRESS (IF B , OR C)				

LOG OF EVENTS

	DATE	TIME	BY WHOM		DATE	TIME	BY WHOM
DETECTED	5-8-08		SAVARD - CNG	LEAK STOPPED	11-21-10		ADDITIONAL WORK IN PLACE
REPORTED	5-8-08		SAVARD - CNG	LEAK GRADED	5-8-08		VANCORBACH - CNG
DISPATCHED	5-9-08		VANCORBACH - CNG	DEFERRED	5-8-08 / 11-10-08		VANCORBACH - CNG
INVESTIGATED	5-9-08		SAVARD - CNG	REPAIRED	11-21-10		ADDITIONAL DIGGING TO REPAIR

RESPONSIBLE PARTY TO BE BILLED	LOCATE INFORMATION
ELLIPSE ID	LOCATE CENTER TICKET NO.?
NAME/COMPANY	HOW CLOSE WAS FACILITY TO LOCATE LINE?:
STREET	DEPTH OF FACILITY BEFORE DAMAGE?:
CITY STATE/ZIP	MARKING METHOD: ☐ STAKES ☐ FLAGS ☐ SPRAY PAINT ☐ CARSONITE MARKERS ☐ OTHER
TELEPHONE ( )	**DAMAGE REASON (GM)**
EQUIPMENT CAUSING DAMAGE	☐ UTILITY MISLOCATED ☐ FAILED TO CALL FOR LOCATES ☐ FAILED TO HAND EXPOSE ☐ FAILED TO PROTECT ☐ FAILED TO WAIT 48 HOURS ☐ FAILED TO MAINTAIN MARKS ☐ OTHER
EQUIPMENT OPERATOR NAME	
OR (GM) : ☐ BILL ☐ RAA ☐ WARNING ☐ DO NOT BILL	3RD PARTY DAMAGE CAUSED BY: ☐ PRO ☐ HOMEOWNER
WA (GM) : ☐ BILL ☐ TREBLE ☐ WARNING ☐ DO NOT BILL	**GM NOTE: FOR CNG DAMAGE OR MISSED LOCATE**, BE SURE TO EXPLAIN YOUR REVIEW IN COMMENT SECTION OR ATTACH SHEETS

CNG VEHICLES ON SITE						
	TYPE	HRS	TYPE	HRS	TYPE	HRS
	TYPE	HRS	TYPE	HRS	TYPE	HRS
	TYPE	HRS	TYPE	HRS	TYPE	HRS

GAS LOSS INFO

IF SERVICE, DISTANCE FROM MAIN? FT	ELAPSED TIME OF GAS LOSS?	EST. SYSTEM PRESSURE PSIG	HOLE SIZE IN
SERVICE INTERRUPTION ☐YES ☐NO	CUSTOMERS AFFECTED RES ____	COM ____	IND ____

IF 25 OR MORE CUSTOMERS ARE INTERRUPTED, IMMEDIATELY REPORT TO GAS CONTROL.

LEAK DETAILS

LEAK GRADING	GRADE (1, 2, 3) 3 VANCORBACH	BAR HOLE TESTING PERFORMED? ☒YES ☐ NO MAX. SUST. READ 30 %	INSTRUMENT SERIAL NO.: 1875

1	CAUSE OF LEAK	☐ A. CORROSION ☐ B. EXCAVATION ☐ C. NATURAL FORCES ☐ D. OTHER OUTSIDE FORCE ☒ E. MATERIAL OR WELDS ☐ F. EQUIPMENT ☐ G. OPERATIONS ☐ H. OTHER
2.	PART OF SYSTEM WHERE LEAK OCCURRED	☒ A. MAIN ☐ B. SERVICE ☐ C. OTHER
3	PART OF SYSTEM THAT LEAKED:	☐ A. PIPE ☐ B. VALVE ☐ C. REGULATOR ☐ D. FITTING ☐ E. TAP CONNECTION ☒ F. OTHER Encapsulating barrel — DATE INSTALLED: (N/A FOR TPD)
4	MATERIAL THAT LEAKED	☒ A. STEEL ☐ B. PLASTIC ☐ C. OTHER
5	ORIGIN OF LEAK	☐ A. BASE MATERIAL FRACTURE ☒ D. OTHER FIELD WELD ☐ E. CORROSION ☐ B. LONGITUDINAL WELD ☐ C. GIRTH WELD ☐ F. THIRD PARTY DAMAGE ☐ G. OTHER
6	CATHODICALLY PROTECTED	☒ YES ☐ NO ☐ N/A P.E. — PIPE TO SOIL /TRACER WIRE POTENTIAL:
7	PIPE DESCRIPTION	DIAMETER: 10" / 16"? WALL THICKNESS: — PIPE CONDITION: ☒ GOOD ☐ FAIR ☐ POOR COATING CONDITION: ☒ GOOD ☐ FAIR ☐ POOR
		PIPE COATING: ☐1. BARE ☒2. COAL TAR ☐3. X-TRU COAT ☐4. N/A P.E. ☐5. OTHER

CNG 253
REV JAN 08

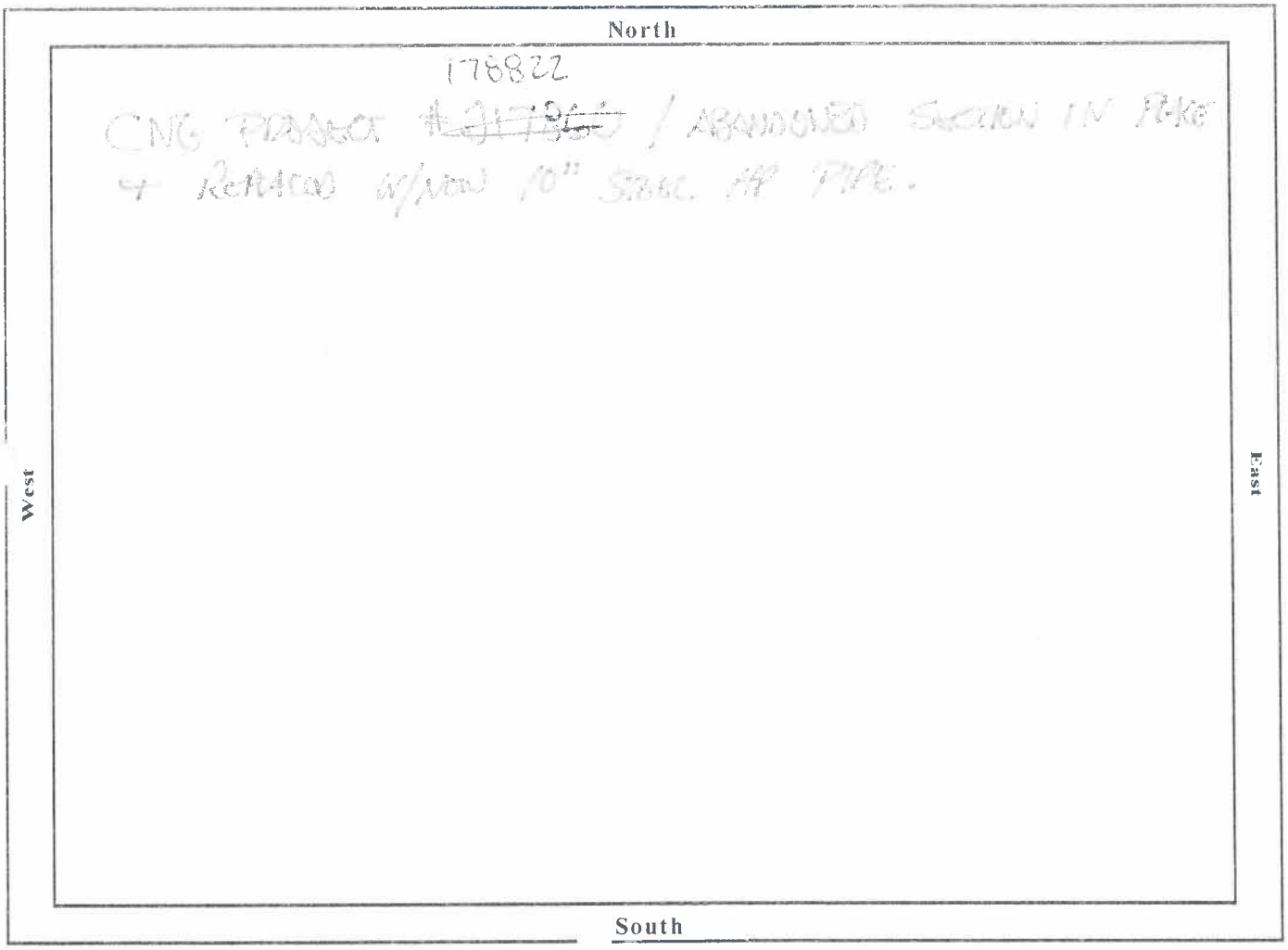
INCIDENT NO.

REPAIR DETAILS

PRESSURE TEST		PSIG	MIN	☐ AIR ☐ NITROGEN ☐ WATER	IF MORE THAN ONE TEST, DOCUMENT THEM ALL IN COMMENTS
REPAIR IS	☐1. PERMANENT ☐2. TEMPORARY	REPAIR METHOD	☐1. WELD OVER SLEEVE ☐2. PATCH WELDED ☐3. CLAMP ☐4. REPLACE PIPE _____FT ☐5. REPLACE COMPONENT ☐6. COMPONENT RECONDITIONED ☐7. OTHER		
REPAIR DESCRIPTION					
FOLLOW-UP LEAK SURVEY IS REQURIED IF RESIDUAL GAS REMAINS IN GROUND AFTER REPAIR. FOLLOW-UP DATE MUST BE SET PER CP 750.				FOLLOW-UP AND DEFERRAL WORK ORDER NUMBERS.:	

SKETCH

SKETCH LOCATION INFORMATION, BAR HOLE LOCATIONS, AND CGI READINGS. INCLUDE ALL INFORMATION USED IN THE GRADING OF THE LEAK, I.E., LOCATION OF PAVED AREAS AND BUILDING IF WITHIN THE AREA OF INFLUENCE OF THE GAS. ALSO INCLUDE ALL PERTANENT INFORMATION IN REGARDS TO CONSTRUCTION ACTIVITY: POTHOLE INFO; LOCATE MARK MEASUREMENTS;ETC.



COMMENTS/DESCRIPTION OF DAMAGE/LOSS INCLUDING ANY INFORMATION THAT MIGHT AID INVESTIGATION, INCLUDING DEFFERRAL DETAILS AND DATE FOR RE-EVALUATION. EXPLAIN UNUSUAL CONDITIONS AND DESCRIBE THE DRAWING AS NECESSARY

5-8-08 SAVARD / CGI #1875 @ 80% / CLASS III VANCOUBACH

5-9-08 SAVARD / CGI #1875 BEFORE/AFTER ASPHALT READS @ BARHOLES

5-12-08 / 5-13-08 / VANCE SAVARD / ED WHITE - EXCAVATE / MAIN 10" DEEP W/EXCESSIVE WATER - NO BUBBLES NOTED. DETERMINED TO MONITOR & CHECK WHEN DRYER CONDITIONS PERMIT.

11-10-08 / VANCE CGI # 1872 / READING @ 15% / DETERMINED TO CONTINUE MONITOR & DEFERRED DIGGING UP RK

9/8, 9+10/09 Investigated Possible Leaking barrel. See Attached Dig Report for Details

CHECKED BY GENERAL MANAGER OR SUPERVISOR:

DATE 11-10-08

Ticket No: 9217315 ++EMERGENCY++
Send To: CNG16 Seq No: 2 Map Ref:

Transmit Date: 9/08/09 Time: 8:57 AM Op: orelec
Original Call Date: 9/08/09 Time: 8:55 AM Op: orelec
Work to Begin Date: 9/08/09 Time: 9:00 AM

State: WA County: WHATCOM Place: BELLINGHAM
Address: Street: FRANKLIN ST
Nearest Intersecting Street: N STATE ST

Twp: 38N Rng: 3E Sect-Qtr: 30-SE-NE
Twp: Rng: Sect-Qtr:

Type of Work: REPAIR GAS MAIN
Location of Work: MARK ENTIRE INTER. SEE CREW ON SITE FOR SPECIFICS.

Remarks: ++CALLER REQUESTS AREA MARKED A.S.A.P++
:

Company : CASCADE NATURAL GAS Best Time:
Contact Name: JOE WILKINSON Phone: (360)733-5986
Alt. Contact: GORDON Phone: (360)303-2020
Contact Fax : (360)733-1416
Work Being Done For: CASCADE NATURAL GAS
Additional Members:
BELLNH01 BLKRC01 PSEELC42 QLNWA30

CNG FOR 625
Rev. Oct 05

CASCADE NATURAL GAS CORPORATION
INTEGRITY MANAGEMENT DIG REPORT

DATE OF EXCAVATION	9/8,9,+10/09	HP LINE NAME AND NUMBER	Bellingham H.P. Dist. Syst. #2
DISTRICT	Bellingham	TOWN	Bellingham
EXCAVATION LOCATION	ADDRESS / CROSS STREETS: Franklin St. + State St.		
REASON FOR EXCAVATION	☐ OBSERVING THIRD PARTY DIG	☒ CNG CONSTRUCTION PROJECT	☐ INTEGRITY ASSESSMENT-DIRECT EXAMINATION ☐ OTHER - EXPLAIN IN COMMENTS
LOCATE NO.	9217315	ARRIVAL TIME: NA	COMPLETED TIME: NA

PIPE EXAMINATION DETAILS – COLLECT AS MUCH DATA AS POSSIBLE. DESCRIBE REASON IF DATA IS NOT AVAILABLE.

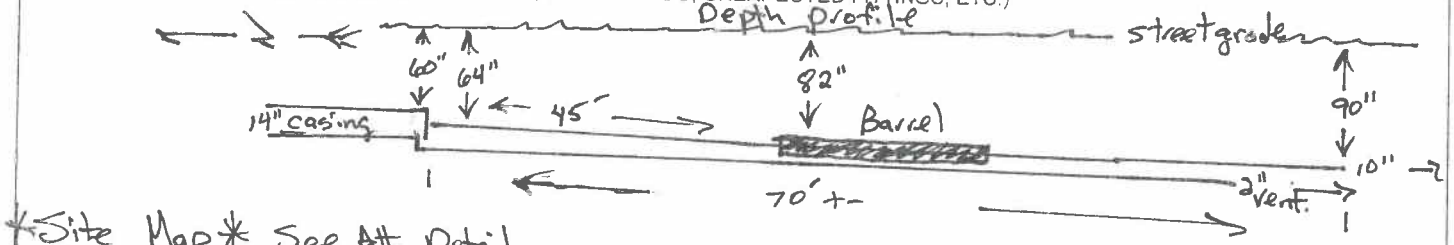
PIPE MATERIAL	☒ STEEL ☐ OTHER _____	PIPE DIAMETER (INCHES)	10	MEASURED DEPTH OF COVER (INCHES)	90" → 64"
COATING	☒ COAL TAR ☐ X-TRU ☐ BARE ☐ FIBER WRAP ☐ OTHER _____			☒ DITCH APPLIED ☒ FACTORY APPLIED	
COATING CONDITION	DESCRIBE ALL COATING DEFECTS AND POSSIBLE CAUSE. SKETCH LOCATIONS AND DESCRIBE REPAIRS.			FOUND: ☐ GOOD ☒ FAIR ☐ POOR LEFT: ☒ GOOD ☐ FAIR ☐ POOR	

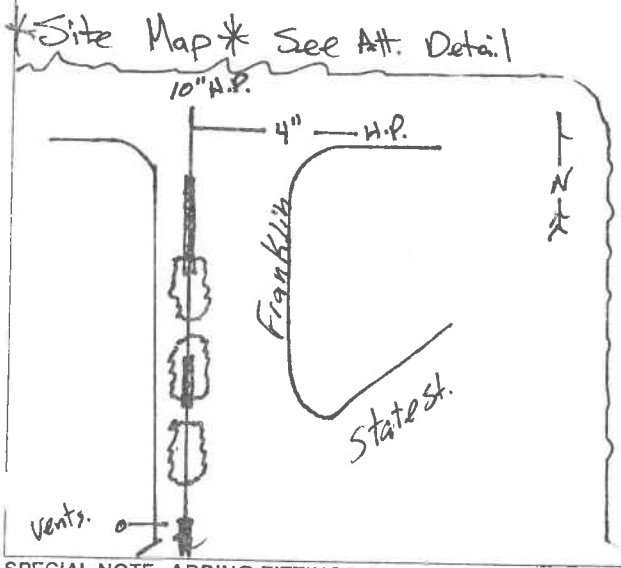
IF PIPE MATERIAL IS EXPOSED (COATING IS DAMAGED, MISSING, OR REMOVED), COMPLETE THE FOLLOWING

PIPE CONDITION	IF PIPE CONDITION IS OTHER THAN GOOD, REPORT TO CORROSION CONTROL; SKETCH LOCATIONS	FOUND: ☒ GOOD ☐ FAIR ☐ POOR PITTING: ☐ YES ☒ NO SCALING: ☐ YES ☒ NO	LEFT: ☒ GOOD ☐ FAIR ☐ POOR PITTING: ☐ YES ☐ NO SCALING: ☐ YES ☐ NO
WELD APPEARANCE	HOW MANY WELDS EXPOSED?: 0	SKETCH LOCATION OF ALL WELDS; DESCRIBE WELDS THAT DO NOT APPEAR ACCEPTABLE.	
CATHODIC PROTECTION	PIPE TO SOIL POTENTIAL (VOLTS), INDICATE POLARITY: -0.800 → -1.002	IF READING IS MORE POSITIVE THAN –0.90V, CONTACT CORROSION CONTROL	

IF PIPE WALL LOSS, DENTS, OR IMPACT DAMAGE IS FOUND OR SUSPECTED, CONTACT CORROSION CONTROL FOR INSTRUCTIONS.

SKETCH PIPE LOCATION, AND NEARBY AREA. INDICATE SIZE OF EXCAVATION. GIVE DISTANCES TO NEARBY LANDMARKS. IDENTIFY LOCATION OF ANOMOLIES (CORROSION, PITTING, POOR WELDS, UNEXPECTED FITTINGS, ETC.)





SPECIAL NOTE: ADDING FITTINGS OR COMPONENTS, REPAIRS, REPLACEMENTS, REINFORCEMENTS, AND REROUTES OF HP LINE AND TRANSMISSION LINES MUST BE RECORDED AS BUILT AND SUBMITTED TO ENGINEERING FOR INCLUSION INTO THE PERMANENT RECORDS. RECORD AS-BUILTS AS DIRECTED BY GENERAL MANAGER AND DISTRIBUTION CLERK.

CNG FORM 625
PG 2

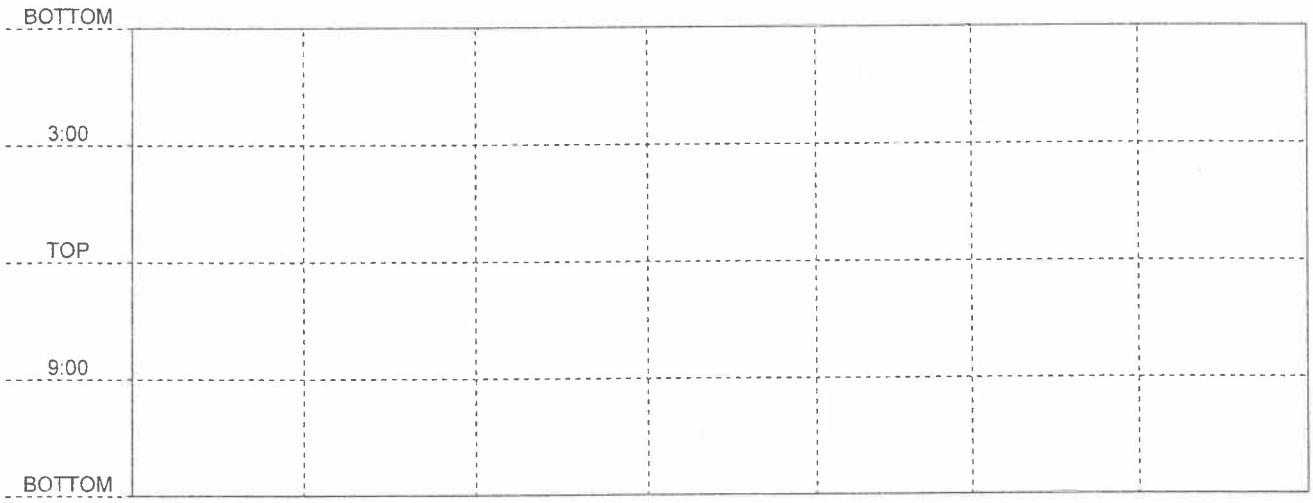
COMMENTS/DESCRIPTION OF EXAMINATION INCLUDING ANY INFORMATION THAT MIGHT AID EVALUATION OF SYSTEM QUALITY. EXPLAIN UNUSUAL CONDITIONS AND DESCRIBE THE CONDITION FOUND AS NECESSARY

Dug 3 sections of 10" H.P. line as noted on attached map. Purpose of Dig was to investigate possible leaking barrel and prior work @ casing ends On 9/8 Dug to look for N. end of casing crossing State St. Did not find end. Wrapped pipe where exposed. Did find vent pipe pressed against 10" line. 9/9 Dug S. end of casing from Kansas st. found end shorted to Main w/ no seals. 9/10 Dug @ suspected barrel location. Found Plate style ends on barrel + fitting on barrel leaking. Backfilled pending engineering.

REPORTED BY	DATE	GENERAL MANAGER	DATE
Brian McConnell	9/10/09		9/11/09

ANOMOLY EXAMINATION DETAILS – IF WALL LOSS, DENTS, OR IMPACT DAMAGE SUSPECTED – IDENTIFY LOCATION, AREA, REMAINING WALL, AND TYPE OF ALL WALL LOSS OR ANOMOLIES. FOR GENERAL CORROSION, MULTIPLE MEASUREMENTS OF REMAINING WALL ARE NEEDED (TOPOGRAPHY MAP)

SOIL TYPE (IF KNOWN)		SOIL RESISTIVITY (OHM-CM) (IF MEASURED)		BASE PIPE WALL THICKNESS (INCHES)	
HCA NUMBER (IF LOCATED IN HCA)		GPS REFERENCE POINT (IF KNOWN)			



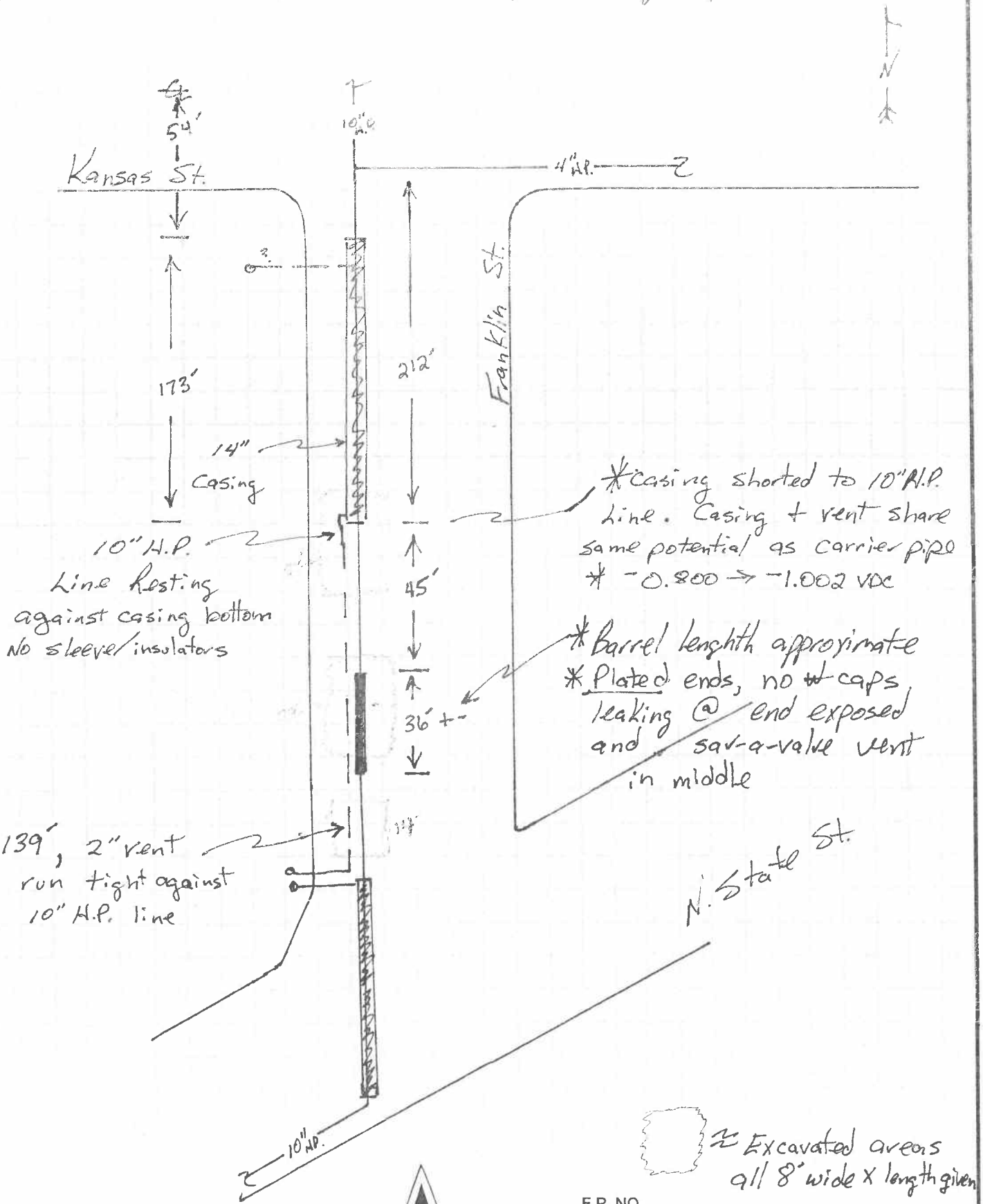
EXAM PERFORMED BY	CORROSION CONTROL OR DESIGNATED REPRESENTATIVE	DATE

ENGINEERING REVIEW

☐	ANOMOLIES WERE FOUND ACCEPTABLE PER ASME B31G – REMAINING STRENGTH GUIDELINES (ATTACH CALCULATIONS)
☐	ACCEPTABLE REINFORCEMENT FITTINGS INSTALLED – DETAILS SHOWN ON AS-BUILT - WORK ORDER _____
☐	PIPE WAS REMOVED – DETAILS SHOWN ON AS-BUILT - WORK ORDER _____
☐	NO ACTION NECESSARY
☐	OTHER: (WRITE IN OR ATTACH)

ENGINEER	DATE

9/8-10/09 10" H.P. Leak investigation Dig Map Detail



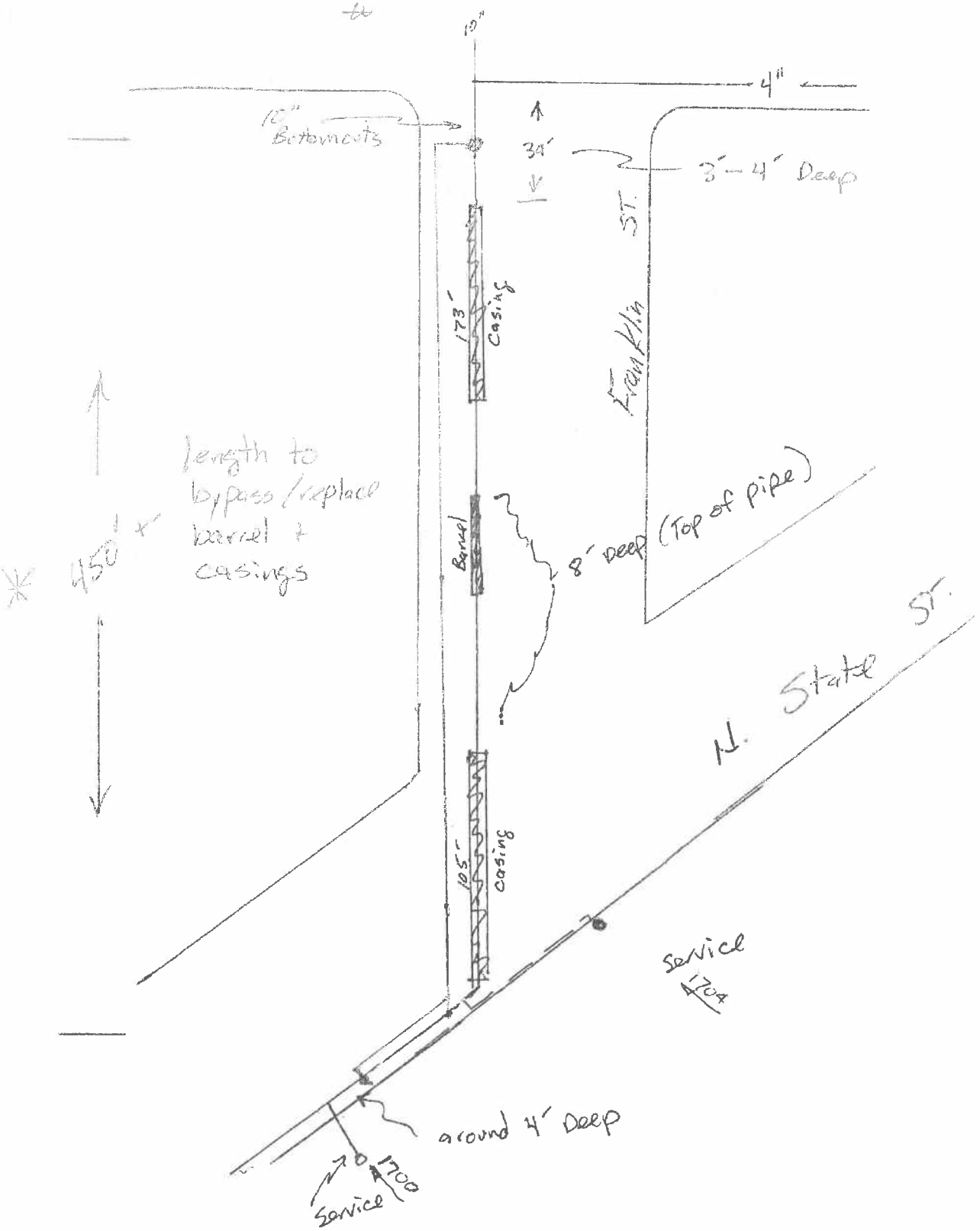
le None	Drawn McConnell
Date 9/10/09	Check
Eng.	Meas.
Grid No.	Dwg. No.

E.R. NO.

CASCADE NATURAL GAS CORPORATION
222 Fairview Ave. No. Seattle, Wash. 98109

Form 167 Rev. 8/88

* Notes for possible Replacement



CASCADE NATURAL GAS

11/08/08 10:02:33 ****WORK ORDER**** Page: 1

WO # / Desc AA013422 rp N. State & Franklin B'ham Priority

Location #
Addr:

DEFERRED LEAK

Parent Project:
Project:
WO Originator: VAN CORBACH,GORDON E Raised Date: 05/09/08
Work Group: C005 Bellingham Construction Employees
Assigned To :

Constructed By: _____ Open Trench Y/N/P: _____

Pipe PO or ID No: _____ Open Trench Footage: _____

Pipe Grade: _____ Pipe Condition: _____

Down Streen Pressure _____/_____

Up Stream Design Pressure/Test Pres _____/_____/_____

P/S Potential: _____

WO Complete	Actual Hours	Date Completed	Signature of Employee
YES / NO	1.5	11 / 10 / 8	

WO Extended Text
AOC noted on leak survey Classified Grade 3 per division.
Drill holes to aspirate. Check again late today and report findings.

11/8/08 DEFERRED LEAK CHECK - need to revisit and recheck area with CGI/Barholing to determine if condition remains the same, or changing. Make sure to document locations & reads on this update workorder.

Equipment:

Materials: Issue Requisition #

Estimated	Actual	Stock Cd	Part Number / De	uck ock	Extra Matls
0					

CNG 330A 4/96

OPERATION & MAINTENANCE REQUEST

CASCADE NATURAL GAS CORPORATION

TOWN NAME	TOWN	Paytown	REQUEST NO.
Bellingham			

DATE ORDERED	TIME TAKEN	TAKEN BY	DATE WANTED	SERVICE REQUESTED BY AND PHONE	LOCATE TICKET
[illegible]	1500	DS			

TYPE OF ORDER	TIME ARRIVED	TIME COMPLETED	DATE COMPLETED	EMPLOYEE SIGNATURE	EMPL CD
Monitor Leak	835 / 1000 Am	300 / 330 PM	11/10/18	[signature]	

NATURE OF REQUEST

CONDITION FOUND

WORK LOCATION	FRANKLIN + STATE ST.
CONTRACTOR NAME	CNG
PERSON CONTACTED AT JOB SITE	
MAILING ADDRESS	
CITY, STATE & ZIP CODE	

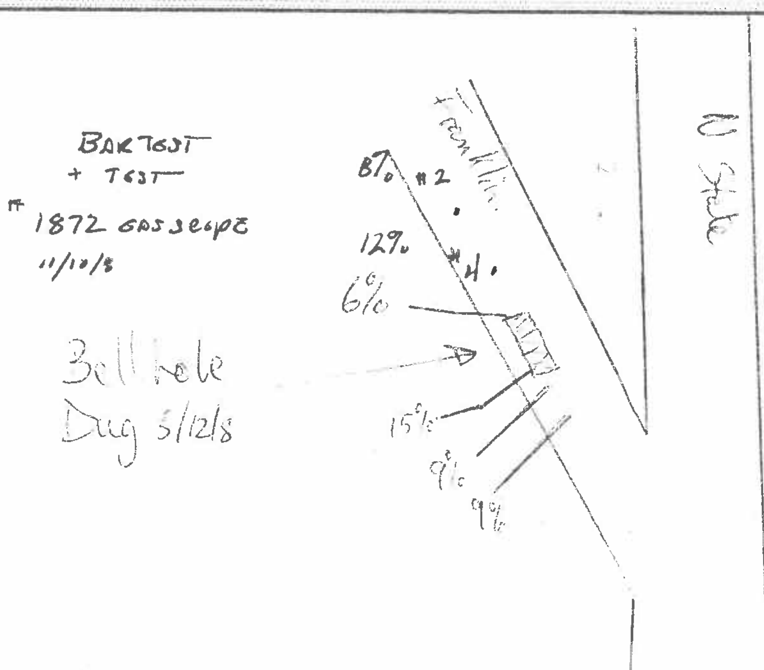
PIPE CONDITION				ODORANT PERCEPTIBLE?			OVERHEAD POWER LINE WITHIN 10 FEET
GOOD	FAIR	POOR	N/A	YES	NO	N/A	

LEAK REPORT FILED		APPLIED ONLINE	
DATE	BY	DATE	TIME
PHONE 1		PHONE 2	
CONTRACTOR SIGNATURE X		DATE	

ACTION TAKEN

BARRED OUT TEST HOLES, TOOK READS IN AM AND 3:00 PM, FOUND 8% IN TEST HOLE #2 18' NORTH OF NEW PATCH. FOUND 12% IN #4, 6' NORTH OF NEW PATCH. NO READS SOUTH OF NEW PATCH TOWARDS N. STATE ST.

MAP



CASCADE NATURAL GAS

05/09/08 07:30:27 ****WORK ORDER**** Page: 1

WO # / Desc AA013422 rp N. State & Franklin B'ham Priority

Location #
Addr:

Parent Project:
Project:
WO Originator: VAN CORBACH,GORDON E Raised Date: 05/09/08
Work Group: C005 Bellingham Construction Employees
Assigned To :

Constructed By: _____ Open Trench Y/N/P: _____

Pipe PO or ID No: _____ Open Trench Footage: _____

Pipe Grade: _____ Pipe Condition: _____

Down Streen Pressure _____/_____

Up Stream Design Pressure/Test Pres _____/_____/_____

P/S Potential: _____

WO Complete	Actual Hours	Date Completed	Signature of Employee
YS / (NO)	4.0 8.0 5/9 5/12	05 / 13 / 08	Gordon Corbach

WO Extended Text
AOC noted on leak survey Classified Grade 3 per division.
Drill holes to aspirate. Check again late today and report findings.

Equipment:

Materials: Issue Requisition #

Estimated	Actual	Stock Cd	Part Number / Description	Truck Stock	Extra Matls
0					

5/9/08 - Drill holes, probe + record reads as per attached drawing.

5/12/08 - Meet with Ed White from division, dig bell hole from hole 7½ to 4½ (see drawing) main is approx 10' deep, excessive amount of ground water no bubbles. Backfill hole + put temporary black top patch on bell hole.

WO # / Desc AA013422 rp N. State & Franklin B'ham Priority

Additional materials used:

Actual	Stock Cd	Part Number / Description	Truck Stock	Extra Matls

Comments:

5/9/08

CNG 330A 4/06

OPERATION & MAINTENANCE REQUEST

CASCADE NATURAL GAS CORPORATION

TOWN NAME	TOWN	Paytown	REQUEST NO.
Bellingham			

TE ORDERED	TIME TAKEN	TAKEN BY	DATE WANTED	SERVICE REQUESTED BY AND PHONE	LOCATE TICKET

TYPE OF ORDER	TIME ARRIVED	TIME COMPLETED	DATE COMPLETED	EMPLOYEE SIGNATURE	EMPL CD
AOC			5-8/5-9-08	SAUND - CNG	RL

NATURE OF REQUEST

CONDITION FOUND

WORK LOCATION: Franklin + State St.

PIPE CONDITION				ODORANT PERCEPTIBLE?			OVERHEAD POWER LINE WITHIN 10 FEET
GOOD	FAIR	POOR	N/A	YES	NO	N/A	

MAILING ADDRESS

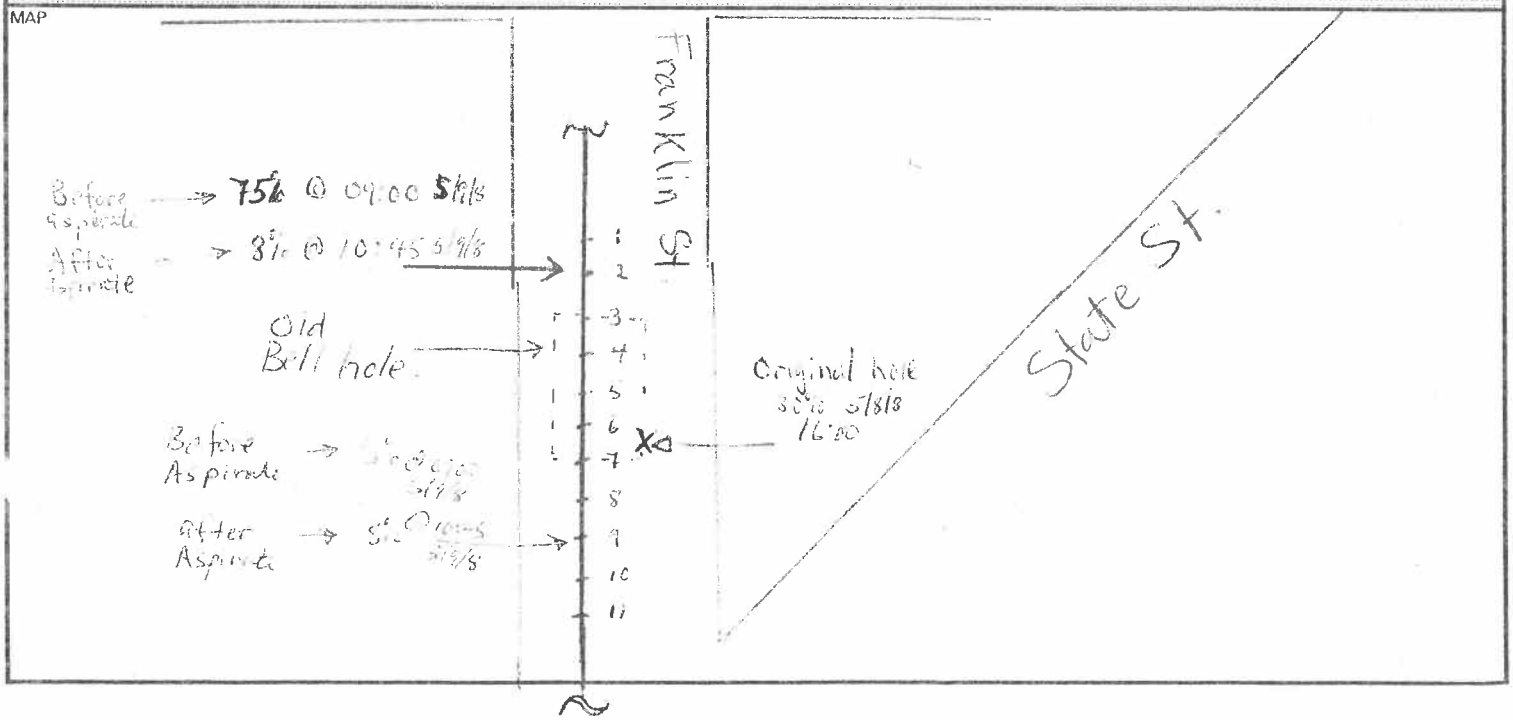
CONTRACTOR NAME	LEAK REPORT FILED		APPLIED ONLINE	
	DATE	BY	DATE	TIME
PERSON CONTACTED AT JOB SITE				
MAILING ADDRESS	PHONE 1		PHONE 2	
CITY, STATE & ZIP CODE	CONTRACTOR SIGNATURE X		DATE	

ACTION TAKEN

Drill holes + take reads @ 9.00
Aspirate till 10:45 take reads

Kansas St

MAP



OPERATION & MAINTENANCE REQUEST
CASCADE NATURAL GAS CORPORATION

TOWN NAME	TOWN	Paytown	REQUEST NO
Bellingham			

DATE ORDERED	TIME TAKEN	TAKEN BY	DATE WANTED	SERVICE REQUESTED BY AND PHONE	LOCATE TICKET
		DS			

TYPE OF ORDER	TIME ARRIVED	TIME COMPLETED	DATE COMPLETED	EMPLOYEE SIGNATURE	EMPL CD
ACC			5/9/18		

NATURE OF REQUEST

CONDITION FOUND

WORK LOCATION: Franklin + State St.

PIPE CONDITION				ODORANT PERCEPTIBLE?			OVERHEAD POWER LINE WITHIN 10 FEET
GOOD	FAIR	POOR	N/A	YES	NO	N/A	

MAILING ADDRESS

CONTRACTOR NAME	LEAK REPORT FILED		APPLIED ONLINE	
	DATE	BY	DATE	TIME
PERSON CONTACTED AT JOB SITE				
MAILING ADDRESS	PHONE 1		PHONE 2	
CITY, STATE & ZIP CODE	CONTRACTOR SIGNATURE X		DATE	

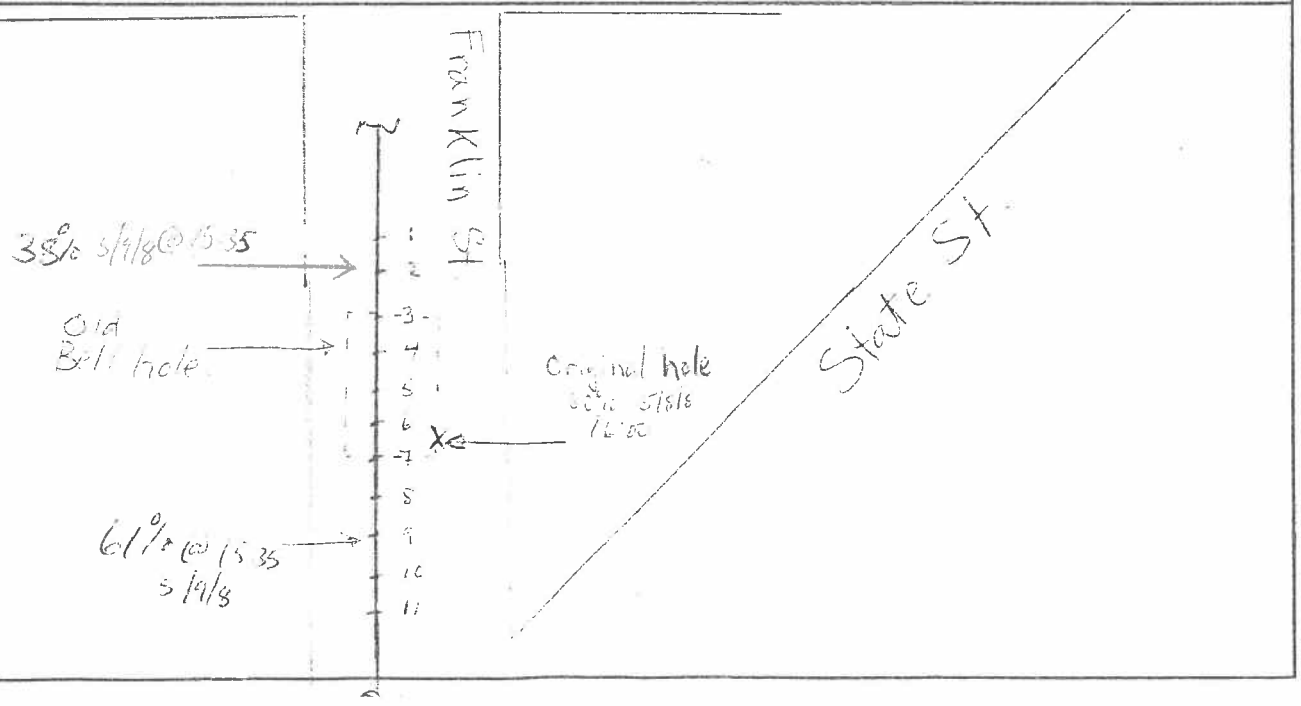
ACTION TAKEN

Drill holes + take reads 09:12

Aspirate till 10:45 take reads

Kansas St

MAP



Ticket No: 8145161 PRIORITY
Send To: CNG16 Seq No: 15 Map Ref:

Transmit Date: 5/09/08 Time: 12:10 PM Op: orfran
Original Call Date: 5/09/08 Time: 12:03 PM Op: orfran
Work to Begin Date: 5/12/08 Time: 8:30 AM

State: WA County: WHATCOM Place: BELLINGHAM
Address: Street: FRANKLIN ST
Nearest Intersecting Street: N STATE ST

Twp: 38N Rng: 3E Sect-Qtr: 30
Twp: 38N Rng: 3E Sect-Qtr: 30-SE-NE

Type of Work: REPAIR GAS MAIN
Location of Work: MARK FROM ABV INTER N APX 1 BLK ON FRANKLIN ST TO INTER
: WITH KANSAS ST. AREA MARKED IN WHITE.

Remarks: CALLER REQUESTS MARKS BY 05/12/2008 BY 08:30 AM++ NO GUAR
: CALLER GAVE TOWNSHIP, RANGE, SECTION INFO

Company : CASCADE NATURAL GAS Best Time:
Contact Name: JOE WILKINSON Phone: (360)733-5986
Alt. Contact: GORDON VANCORBACH Phone: (360)303-2020
Contact Fax : (360)733-1416
Work Being Done For: CASCADE NATURAL GAS
Additional Members:
BELLNH01 PSEELC42 QLNWA30

CNG 130A 4/96

OPERATION & MAINTENANCE REQUEST

CASCADE NATURAL GAS CORPORATION

TOWN NAME	TOWN	Paytown	REQUEST NO
Bellingham			

E ORDERED	TIME TAKEN	TAKEN BY	DATE WANTED	SERVICE REQUESTED BY AND PHONE	LOCATE TICKET
5/8/8		DS			

TYPE OF ORDER	TIME ARRIVED	TIME COMPLETED	DATE COMPLETED	EMPLOYEE SIGNATURE	EMPL CD
A.O.C					

NATURE OF REQUEST

Contact Division / Engineering

CONDITION FOUND

50% as per CCL 1875

WORK LOCATION

N State St + Franklin St

PIPE CONDITION				ODORANT PERCEPTIBLE?			OVERHEAD POWER LINE WITHIN 10 FEET
GOOD	FAIR	POOR	N/A	YES	NO	N/A	

MAILING ADDRESS

CONTRACTOR NAME

PERSON CONTACTED AT JOB SITE

MAILING ADDRESS

CITY, STATE & ZIP CODE

LEAK REPORT FILED		APPLIED ONLINE	
DATE	BY	DATE	TIME

PHONE 1

PHONE 2

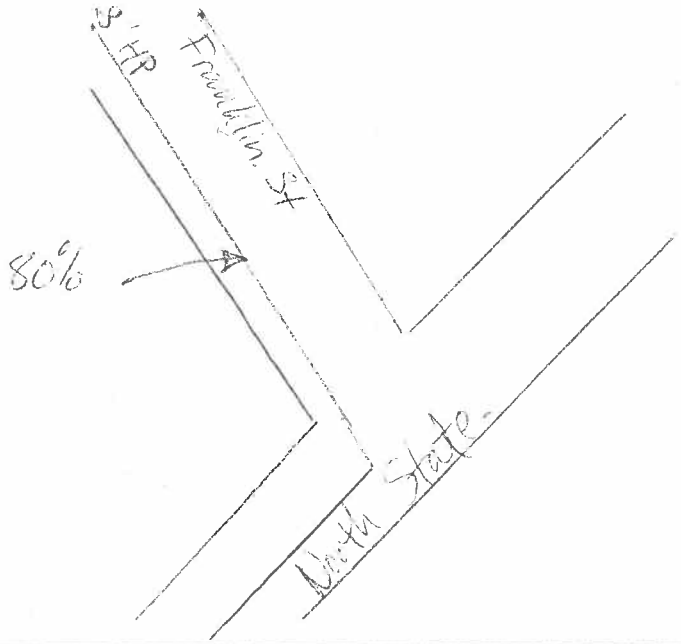
CONTRACTOR SIGNATURE X

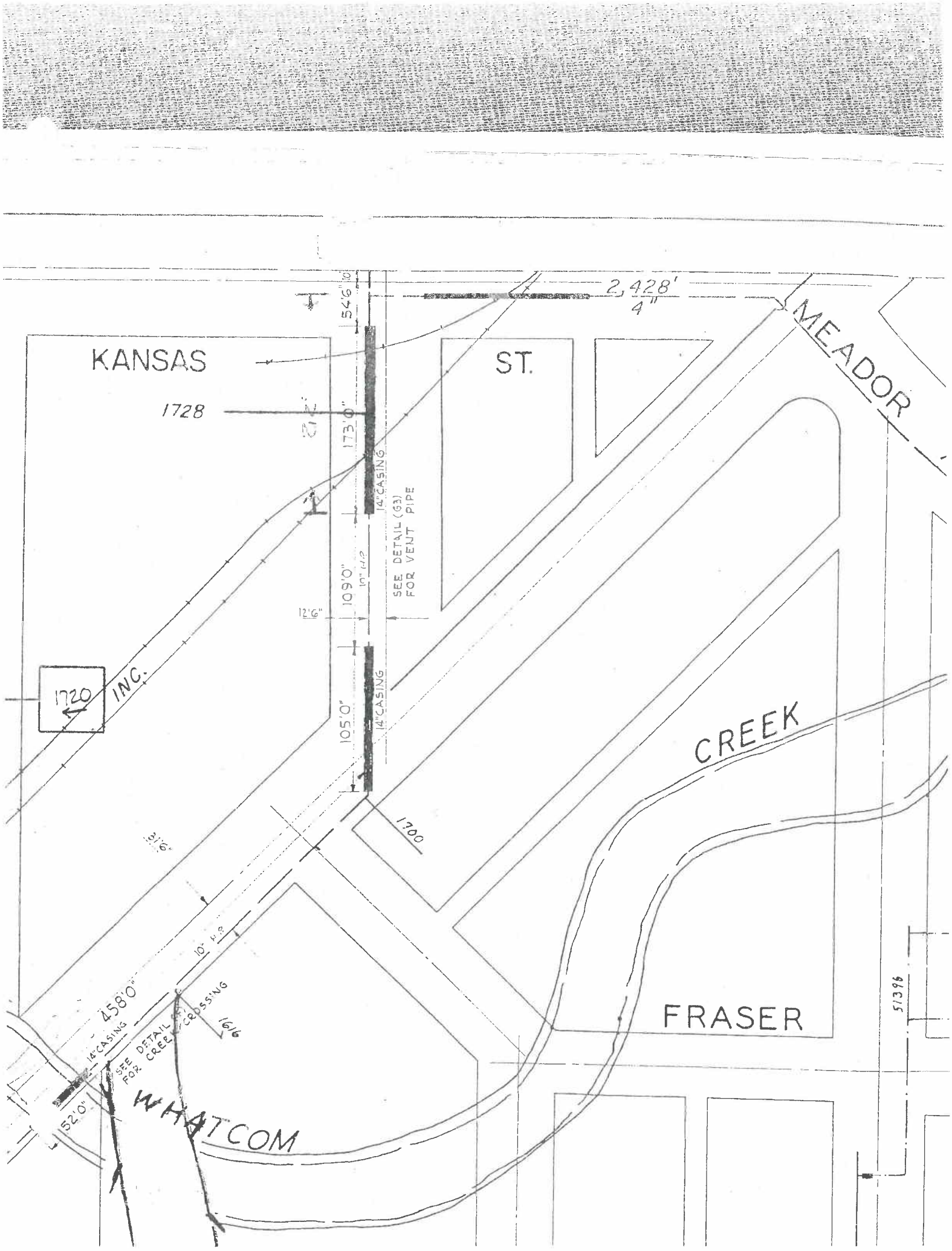
DATE

ACTION TAKEN

Area marked in white

MAP




KANSAS
ST.
MEADOR
1728
1720
INC.
2,428'
4"
54'6"
173'0"
14"CASING
SEE DETAIL (G3)
FOR VENT PIPE
109'0"
12'6"
105'0"
14"CASING
CREEK
1700
458'0"
14"CASING
SEE DETAIL
FOR CREEK CROSSING
52'0"
WHATCOM
FRASER
51396

Franklin & State St., Bellingham, WA (IN PROGRESS)

5/8/08	Detected/Reported Savard-CNG CGI#1875 Max Sust. Read @80% Gas
5/8/08	Graded #3 VanCorbach\Ed White
5/9/08	Investigated/Aspiration Savard-CNG CGI#1875 Max Sust. Read @61% Gas
5/12/08	Investigated – Excessive Water – No Bubbles – Determined to Monitor & Defer digging up when dryer conditions permit. (Ed White – Division)
11/10/08	Follow up Investigation – Vance-CNG- CGI#1875 Max Sust. Read @15%LEL
9/8-10/09	Investigative Dig – CNG #625 Report to Engineering for determining resolution.
11/1/10	Replacement Initiated. Repairs in progress.
3-14-06	Section #1 Leak Survey (Annual Business District)
6-8-06	5 year Leak Survey (Section #4 Bellingham)
10-8-06	HP#2 Bellingham Dist. HP Line Survey – No Problems Noted
4-27-07	Section #1 Leak Survey (Annual Business District)
12-7-07	HP#2 Bellingham Dist. HP Line Survey – No Problems Noted
5-21-08	Section #1 Leak Survey (Annual Business District)*

*Leak noted 5/8/08 during Survey, See above for details.

10-30-08	HP#2 Bellingham Dist. HP Line Survey – No New Problems Noted
6-17-09	Section #1 Leak Survey (Annual Business District)
11-3-09	HP#2 Bellingham Dist. HP Line Survey – No New Problems Noted
8-26-10	Section #1 Leak Survey (Annual Business District)
2-13-06	Annual Casing Survey
	Franklin s of Kansas -.668 / N State @ Franklin -.410
3-15-07	Annual Casing Survey
	Franklin s of Kansas -.769 P 0%G / N State @ Franklin -.935 F 0%G
10-4-07	Shorted Casing Survey
	N State @ Franklin -.958 F 0% G
3-17-08	Annual Casing Survey
	Franklin s of Kansas -,411 / N State @ Franklin -.852 F 0%G
9-25-08	Shorted Casing Survey
	N State @ Franklin -1.02 F 0%G
3-20-09	Annual Casing Survey
	Franklin s of Kansas -.576 / N State @ Franklin -1.059 P 0%G
9-17-09	Shorted Casing Survey
	N State @ Franklin -.960 0%G
3-11-10	Annual Casing Survey
	Franklin s of Kansas -.611 / N State @ Franklin -1.062 Passed T/R & TCM 3-22-10 (0%G)
9-20-10	Shorted Casing Survey (No Entry – Passed T/R & TCM 3-22-10

CASCADE NATURAL GAS CORPORATION
A Subsidiary of MDU Resources Group, Inc.

8113 W. Grandridge Blvd, KENNEWICK, WASHINGTON 99336-7166 (509)-734-4576
FACSIMILE (509)-737-9803

Exhibit M

Public Awareness brochures

YOUR GAS PIPING

Important Customer Information

The gas piping from the company's meter to the appliance belongs to the customer and is therefore the customer's responsibility. Be sure it is the proper kind of pipe and that it is installed, tested and maintained in accordance with applicable state and local piping codes. The piping should be installed by a qualified person and inspected by local building officials. Avoid burying house piping under buildings whenever possible, although it may be allowed, provided specific safety code standards are followed. **When excavating near buried gas piping, the piping should be located in advance by calling – Call Before You Dig at 811 – and the excavation done by hand.** Plumbing contractors and heating contractors can assist in inspecting and repairing of piping. Your installer and building official can provide specific, detailed requirements for installation.

Particular attention should be given to protecting any underground house piping from corrosion. If the piping is not maintained, it may be subject to potential hazards of corrosion leakage. Piping should be periodically inspected for leaks and corrosion. A repair must be made if any unsafe condition is discovered.

If existing underground piping is not installed to current code standards, it may represent a hazard and should be inspected. Contact a qualified heating contractor, plumber or appliance installer for further information or to arrange for an inspection.

CASCADE NATURAL GAS CORPORATION®
A Subsidiary of MDU Resources Group, Inc

In the Community to Serve®

3/11

SU TUBERÍA DE GAS

Importante Información del cliente

La tubería de gas desde el medidor de la compañía hasta al aparato electrodoméstico pertenece al cliente y por lo tanto es responsabilidad del cliente. Asegúrese que la tubería instalada sea adecuada, probada, y mantenida de acuerdo con los códigos de tuberías estatales y locales aplicables. La tubería debe ser instalada por una persona cualificada e inspeccionada por los oficiales locales. Evite enterrar las tuberías de la vivienda debajo de los edificios siempre que sea posible, aunque esté permetido siempre siga las normas del código de seguridad. **Cuando excave cerca de la tubería enterrada de gas, la tubería tiene que ser localizada con anticipación llamando al----- Llame antes de excavar al 811 - y la excavación hecha a mano.** Los contratistas de plomería y sistemas de calefacción pueden asistirle en la inspección y reparación de la tubería. Su instalador y el oficial de construcción pueden brindarle requisitos específicos y detalles para la instalación.

Debe prestar atención especial a la tubería subterránea, para protegerla contra la corrosión. Si la tubería no se mantiene, puede estar expuesta al peligro potencial de fugas por la corrosión. Las tuberías deben ser inspeccionadas periódicamente de fugas o corrosión. Reparaciones deben ser hechas si se descubre que su estado es inseguro.

Si la tubería subterránea existente no ha sido instalada de acuerdo a los estándares del código actual, podría representar un peligro y debe ser inspeccionada. Para más información comuníquese con una empresa de calefacción, plomero o instalador de aparatos electrodomésticos cualificado o para ordenar una inspección.

CASCADE NATURAL GAS CORPORATION®
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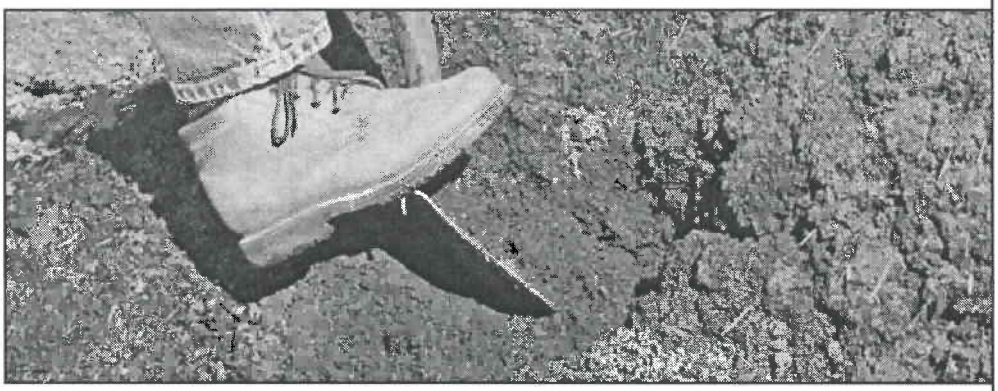
PUBLIC AWARENESS & SAFETY

APRIL 2011

CASCADE NATURAL GAS CORPORATION®
A subsidiary of MDU Resources Group, Inc.

In the Community to Serve®

DAMAGE PREVENTION – IT'S A SHARED RESPONSIBILITY



Statistics show that someone working or digging around a pipeline, physically striking it and damaging it causes the majority of pipeline incidents. Major damage could cause a break and blowing gas. Minor damage that is ignored can become a dangerous failure months later if not repaired. Even if you just nick the protective coating of Cascade's pipe, call Cascade Natural Gas for an inspection prior to burying it. The pipe you damaged might hurt you and your neighbors if it isn't fixed.

HELP PREVENT DAMAGE – IT'S FREE!

Washington and Oregon law requires that all utilities be members of the Call Before You Dig system in your area.

When any excavator or homeowner is going to dig, they call the free phone number (811) and report the job location and information. Utility employees will come out to mark the locations of underground pipes, wires, data cables and so on. This service is provided to you free of charge.

YOUR GAS PIPING – IMPORTANT CUSTOMER INFORMATION

The gas piping from the company's meter to the appliance belongs to the customer and is therefore the customer's responsibility to maintain this pipe. If the pipe is not maintained, it may be subject to the potential hazards of corrosion and leaks. Be sure it is the proper kind of pipe and that it is installed, tested and maintained in accordance with the applicable state and local piping codes.

Additional safety information can be found on our Safety and Education page of our website www.cngc.com.

Want to learn more?

The following websites have more information about the law, the One Call system, and everyone's responsibilities for safe digging.

Washington – www. washington811.com • **Oregon** – www.digsafelyoregon.com
Pipeline Association for Public Awareness – www.pipelineawareness.org
Pipeline Safety Trust – www.pstrust.org • **811 Call Before You Dig** – www.call811.com
National Pipeline Mapping System – www.npms.phmsa.dot.gov

A public service newsletter by Cascade Natural Gas Corporation

Call Before You Dig – It's the Law!

Washington and Oregon law requires persons doing any type of excavation to Call Before You Dig. The law covers both public and private property. Excavating includes any movement of rocks, soil or other material on or below ground. You must call at least two business days before you dig. You must wait two business days so that utility employees have time to complete your request.

There is only one exception to the law. Property owners and renters are not required to Call Before You Dig if the work meets two conditions. First, the work must be entirely on private property. Second, the excavation will not be deeper than 12 inches.

811
Know what's below.
Call before you dig.

What do the marks mean?

Utility employees will mark the ground over their underground utility with colored paint, stakes or flags. The marks show the location and path of the utility. The marks for your site will depend on which utilities are in your neighborhood.

Red – Electric
Yellow – Gas, Oil, Fuel
Orange – Cable TV, Phone
Blue – Drinking Water
Green – Sewer
Purple – Non-Drinking Water
Pink – Survey Marks
White – Excavator Marks

Emergencies – Customer Service – Billing Inquiries

1-888-522-1130

El Conocimiento Público y la Seguridad

Abril 2011

Cascade Natural Gas Corporation
A Subsidiary of MDU Resources Group, Inc.
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Prevención de Daños – Una Responsabilidad Compartida

Las estadísticas muestran que la mayoría de los incidentes son causados por quien, haciendo trabajos o cavando, golpea o causa algún daño en las líneas de tuberías. Una avería grande podría ausar roturas y pérdidas de gas. Las averías pequeñas cuando no se atienden a tiempo, pueden convertirse en un problema peligroso meses más tarde si no se arreglan. Aún si solamente raspase la capa protectora de la cañería de Cascade's, llame para pedir una inspección antes de cubrirlo. La añería que dañó puede ser peligrosa para usted y sus vecinos si no se repara.

Usted puede ayudar a prevenir los daños. ¡Es gratis!

La ley en Washington y Oregon exige que todas las empresas de servicios sean parte del sistema Call Before You Dig (Llame Antes de Cavar) en su zona.

Cuando una empresa o el dueño de una propiedad necesitan hacer una excavación, deben telefonear al número gratuito (811) para reportar su ubicación y toda la información relacionada. Los empleados de la compañía acudirán a señalar la localización de cañerías y cables enterrados. Este servicio se provee sin cargo.

Su Tubería de Gas – Información Importante del Cliente

La tubería de gas desde el medidor de la empresa al aparato pertenece al cliente y por lo tanto es responsabilidad del cliente mantener esta tubería. Si la tubería no se mantiene, puede estar sujeto a los riesgos potenciales de corrosión y fugas. Asegúrese de que sea el tipo adecuado de tubería que está instalado, probado y mantenido de acuerdo con el estado aplicable y los códigos locales de la tubería. Información adicional de seguridad se pueden encontrar en nuestra página de Seguridad y Educación de nuestro sitio web www.cngc.com

¿Quiere saber más?

Los sitios de Internet que aparecen a continuación, contienen más información acerca de la ley, el sistema One Call (un llamado) y la responsabilidad de todos y cada uno de excavar con precaución.
Washington – www. washington811.com • **Oregon** – www.digsafelyoregon.com
Pipeline Association for Public Awareness – www.pipelineawareness.org
Pipeline Safety Trust – www.pstrust.org • **811 Call Before You Dig** – www.call811.com
National Pipeline Mapping System – www.npms.phmsa.dot.gov

Llame antes de cavar, ¡es la ley!

La ley de los estados de Washington y Oregon exige que quien lleve a cabo cualquier tarea de excavación, debe avisar antes. La ley cubre tanto áreas públicas como las propiedades privadas. Incluye todo movimiento de rocas, suelo u otro material sobre o por debajo del suelo. El llamado de be hacerse al menos dos días laborables antes del trabajo. También, se debe esperar dos días laborables para que se pueda completar la tarea de señalización.

Existe solamente una excepción a la ley. Los propietarios e inquilinos no están obligados a llamar antes de excavar si se cumple con dos condiciones; primero, si el trabajo se encuentra completamente en propiedad privada. Segundo; si la excavación no excede unaprofundidad de 12 pulgadas.

811
Determine lo que está bajo tierra.
Llama antes de excavar.

¿Qué significan las marcas?

Las señales se harán con pintura de colores, postes o banderillas en el suelo, justo por encima de cañerías y cableados. Las señales indicarán la línea por donde pasan. Estas señales dependerán del tipo de servicios que reciba su barrio.

Rojo – Electricidad
Amarillo – Gas, combustibles
Naranja – Cable de TV, teléfono
Azul – Agua potable
Verde – Cloaca
Morado – Agua no potable
Rosa – Mediciones
Blanco – Señales para excavadoresrks

Emergencias – Servicio al Cliente – Investigaciones de Facturacion

1-888-522-1130