



8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166
TELEPHONE 509-734-4500 FACSIMILE 509-737-9803
www.cngc.com

September 30, 2019

Oregon Public Utility Commission
Filing Center
201 High St SE, Suite 100
P.O. Box 1088
Salem, OR 97308-1088

Re: UM 1899(2), Cascade Natural Gas Corporation's System Safety Plan

Cascade Natural Gas Corporation (Cascade or Company) submits its annual System Safety Plan in compliance with Commission Order No. 17-084, entered March 6, 2017. The Order requires natural gas companies to submit an annual "Safety Project Plan" (Plan) report to the Commission by September 30th of each year. The Order lays out the requirements of the Plan, which is to be provided to the Commission as an informational report only. The Company's attached report satisfies these requirements, demonstrates Cascade's priority commitment to natural gas safety, and meets the objective of being informational and easy to understand for the public, our customers, and other regulatory stakeholders.

Please contact me at (509)734-4599 if you have any questions.

Sincerely,

/s/ Ryan Privratsky

Ryan Privratsky
Director, System Integrity
Cascade Natural Gas Corporation
8113 W Grandridge Blvd
Kennewick, WA 99336-7166
ryan.privratsky@cngc.com



**Cascade Natural Gas Corporation
2020 Annual Oregon
System Safety Plan**

OPUC Commission Order No. 17-084

September 2019

Table of Contents

I. Overview of Cascade Natural Gas Corporation 2

II. System Safety Plan Overview 3

III. Cascade’s Commitment to and Prioritization of Safety Planning 3

IV. Technical Reports Filed Annually with the Commission’s Safety Staff 4

V. Risks to Cascade’s Distribution System 4

VI. Early Vintage Steel Pipe (EVSP) 7

VII. Cascade’s 2020 Safety Initiatives 8

VIII. 2019 Completed Capital Projects 16

IX. 2020 Capital Budget 16

X. 2020 O&M Expenditures 16

XI. Cost Benefit Analyses 17

XII. Regulatory and Legislative Update 17

XIII. Significant Changes to Cascade’s 2020 Safety Programs 18

APPENDIX A - Public Awareness Information

APPENDIX B - DIMP Model Output

I. Overview of Cascade Natural Gas Corporation

Until the early 1950s, Pacific Northwest communities outside the larger metropolitan areas were passed over for natural gas service. In 1953, Pacific Northwest businessmen Lester Pettit, Spencer Clark, and Stewart Matthews formed Cascade Natural Gas Corporation (Cascade) to serve these communities with clean, affordable natural gas.

In those early days, the founders faced many financial, engineering and operational challenges as they strived to expand service and enhance their operations. Cascade grew steadily to become one of the fastest growing natural gas utilities in the nation.

Today, Cascade is a regulated utility offering natural gas service in the states of Oregon and Washington. Cascade has approximately 294,000 total customers in 96 communities – 68 of which are in Washington and 28 in Oregon. Cascade's service areas are concentrated in western and central Washington, and central and eastern Oregon. Cascade owns and operates 35.4 miles of transmission pipeline, 1,659 miles of distribution pipeline, and 74,500 services lines in Oregon. Interstate pipelines transmit Cascade's natural gas from production areas in the Rocky Mountains and western Canada. Customers in Oregon are served from Cascade's Southern region which includes Bend and surrounding communities, Ontario, Baker City and the Pendleton/Hermiston areas.



Communities Served in Oregon

Athena	Echo	Madras	Pendleton	Sunriver
Baker City	Gilchrist	Metolius	Pilot Rock	Umatilla
Bend	Hermiston	Milton-Freewater	Powell Butte	Vale
Boardman	Huntington	Mission	Prineville	Weston
Chemult	Irrigon	Nyssa	Redmond	
Crescent	La Pine	Ontario	Stanfield	

Cascade's headquarters is located in Kennewick, Washington.

II. System Safety Plan Overview

This System Safety Plan (Plan) conforms to the requirements established in Order No. 17-084 (Order), issued in Docket No. UM 1722, the Commission's Investigation into the Recovery of Safety costs by Natural Gas Utilities. The Order requires local distribution companies (LDCs) to file a system safety plan each year which provides the following:

- An explanation of the Company's commitment to and prioritization of safety planning;
- An explanation of the technical reports provided to the Commission's Safety Staff;
- An explanation of the perceived risks addressed by the Company's safety initiatives;
- A brief narrative of each safety program for the 12-month planning period, including:
 - Supporting analysis underlying the safety initiatives;
 - A discussion of the cost-benefit analysis supporting Company decisions; and
 - A narrative on alternatives safety initiatives that the Company considered;
- The expected level of capital and Operations and Maintenance (O&M) expenses required to mitigate issues identified by risk analysis or to meet newly implemented federal code;
- An update on regulatory and legislative changes; and
- A list of any program changes from the prior reporting year.¹

This Plan provides the required information, as listed above, for the 12-month timeframe of January 1, 2020, through December 31, 2020 (2020).

III. Cascade's Commitment to and Prioritization of Safety Planning

Cascade is committed to providing its customers with safe and reliable gas service. To accomplish this, Cascade is continuously engaged in proactive initiatives aimed at maintaining the integrity of Cascade's pipeline system. The list below highlights Cascade's significant pipeline safety activities:

- System Integrity Department responsible for Cascade's Distribution Integrity Management Plan (DIMP) and its Transmission Integrity Management Plan (TIMP), which are discussed in more detail in Section VII of this Plan. The System Integrity team is also tasked with assessing risks to Cascade's pipeline system and creating plans to mitigate these risks.
- Public Awareness & Damage Prevention (PA/DP) Department responsible for Cascade's Public Awareness and Damage Prevention programs, which are discussed in more detail in Section VII of this Plan. The PA/DP team leads Cascade's efforts in promoting safety information, reducing damages and educating customers, public, and contractors about natural gas and excavation safety.
- A Management of Change (MOC) process is the administration and use of a software program used to propose, approve, and notify all affected personnel of procedural and technical changes, and to deliver and track training to affected personnel.

¹ Commission Order No. 17-084, Appendix A, pages 4-5, ¶ 20 and ¶ 22

- Cascade's Safety and Technical Training Department performs many safety-related responsibilities focused on keeping Cascade employees and the public safe. In compliance with 49 CFR 192 Subpart N, this department is tasked with training and certifying that a Cascade employee is qualified to work on a pipeline. An employee may not perform work on Cascade's pipeline without the proper training.²
- Development of a Safety Management System (SMS) based on the Plan-Do-Check-Adjust (PDCA) continuous improvement framework and compliant with the requirements of API RP 1173. The SMS program will build a culture of continuous improvement, focused on quality and efficiency, driven by the identification and reeducation of operational risk. Quality management concepts are being integrated throughout the required elements of the program.
- Development of a Quality Control Department which is in the process of developing the quality control framework for the MDU Utility Group (MDUG) companies.

IV. Technical Reports Filed Annually with the Commission's Safety Staff

In 2019, Cascade filed the following technical reports with the Commission's Safety Staff:

- An O&M Manual was filed in April 2019. The O&M Manual is filed annually in compliance with 49 CFR 192.605. This manual provides procedures for all O&M tasks that Cascade might perform on its facilities.
- Cascade provided the Commission with an updated TIMP in April 2018.
- Cascade provided the Commission with an updated DIMP in September 2019.
- 2018 PHMSA Gas Distribution System Annual Report
- 2018 PHMSA Gas Transmission and Gathering Systems Annual Report

In a typical year, Cascade also responds to the Commission's data requests and to findings in Commission audits.

V. Risks to Cascade's Distribution System

By using Cascade's Distribution Integrity Management Plan (DIMP) risk model, which is described in more detail in Section VII, Cascade has identified the following top three threats to its distribution pipeline system:

1. Excavation Damage

Excavation Damage is the largest, system-wide threat to Cascade's system, which makes up approximately forty-two percent of the total risk for Oregon.

Excavation Damage is the breaking, cutting, or other destruction of pipeline facilities caused by earth moving or other equipment, tools, or vehicles. All buried facilities in Cascade's distribution system are in danger of being damaged by excavation activities. Consideration is given to piping within protective casings, inside underground structures

² Pipeline work must be performed by a *qualified operator* per 49 CFR 192, Subpart N.

such as basins or vaults which may be shielded or protected from excavation damage. The most significant root cause factors for Excavation Damage are listed below:

- An excavator uses insufficient excavation practices.
- The excavator does not comply with Oregon law that requires anyone planning to break, move, or displace soil to contact Oregon Utility Notification Center (OUNC) to request that all underground utilities be identified before breaking soil.³
- Underground utilities in the excavation site are not properly located and marked because the OUNC representatives were unable to find the excavation area;
- The OUNC is unable to properly locate underground utilities because the excavator failed to properly identify the excavation area; and
- Records of underground utilities are incorrect and, therefore, underground facilities are not properly located prior to excavation.

2. Weld/Joint Failure

Weld/Joint failure is the second largest, system-wide threat to Cascade's distribution system which makes up approximately twenty-one percent of the total risk for Oregon.

Weld/Joint failure risk is identified when it is known or anticipated that potential defects in pipe, fittings, components and joints may be present due to manufacturing processes and welding standards for the pipe vintage. Below are the descriptions of major factors that contribute to Cascade's Weld/Joint risk:

- **Weld Standards:** Risk is assigned to steel pipe installed prior to 1980 due to 49 CFR Part 192 requirements for operators in weld standards and welder qualifications that were federally mandated in 1970. By 1980 Cascade had significantly increased weld standards and welder qualifications to meet 49 CFR Part 192 requirements.
- **2" 1960's Vintage Gas Welds:** In 2018 Cascade completed a weld investigation on 1960's vintage 2" steel gas butt welds and found a high percentage of visual inspection failures and destructive testing failures causing concern for weld integrity for size and vintage.
- **External Stresses on Vintage Welds:** External stresses on vintage welds is an interactive threat on vintage steel (defined as pre-1980 and or an unknown install date) main and service welds susceptible to landslide and or frost heave external stresses. Frost heave and landslide soil movement longitudinal external stresses and displacement strain might be readily tolerated by some materials or piping in sound condition, while low ductility materials or pipe joints made by vintage techniques may remain reliable absent certain external stresses, however, when these circumstances exist simultaneously the likelihood of failure in the pipeline is significantly greater due to interacting threats.

³ See OAR 952-001-0001 through OAR 952-001-0100.

3. Missing Values and Corrosion

Missing Value and Corrosion risk are tied for the third and fourth largest, system-wide threat to Cascade's distribution system with risk scores of 20,945,247 and 20,137,334 respectively.

Missing Values

Missing Values is the third largest, system-wide threat to Cascade's system, which makes up approximately fourteen percent of the total risk for Oregon.

Missing Values refers to unavailable data points, such as pipe installation date, material type, leak cause, and other values that are necessary to identify threats on the system through use of Cascade's risk model.

Corrosion

Corrosion is the fourth largest, system-wide threat to Cascade's distribution system which makes up approximately fourteen percent of the total risk for Oregon.

Corrosion is the result of electrochemical reactions between metals and substances in the environment. All metallic pipe and affixed components are subject to the threat of external corrosion. Internal corrosion is a threat when liquid water has infiltrated the pipe. Cascade does not transport corrosive gas in its distribution system; and, therefore, internal corrosion is unlikely. Atmospheric corrosion is a subset of external corrosion that will occur only on pipe and components that are not buried. Below are the descriptions of major factors that currently contribute to Cascade's Corrosion risk in Oregon:

- **Material Age:** Cathodic protection was mandated federally in 1960 and all of Cascade's distribution systems were fully protected by 1978. Pipe installed prior 1978 is at a higher risk of operating with no or inadequate cathodic protection.
- **Atmospheric Corrosion:** Aboveground pipe is susceptible to the threat of atmospheric corrosion in areas where environmental conditions result in increased likelihoods for atmospheric corrosion to occur. Some of these factors include proximity to salt water bodies of water, areas with high annual rainfall, bridge crossing, and facilities in vaults.
- **Cathodic Protection Treats:** Various threats exist that impact Cascade's cathodic protection systems from providing adequate cathodic protection. These threats can result in a higher external corrosion threat. Some of these threats include: steel pipe in arid climates (annual rainfall \leq 15 inches/year), cathodic protection shielding, steel pipe casings, and electrically shorted casings.

Additional threats to the distribution system include material, natural forces such as landslides, lightning, or earthquakes; other outside forces such as fires, vandalism or vehicular damage; equipment failure such as the malfunction of a control valve or regulator; and incorrect operation, which refers to human error when performing a task.

VI. Early Vintage Steel Pipe (EVSP)

Cascade has identified an increased risk of failure on different subsets of early vintage steel pipe (EVSP). EVSP is steel mains, service lines, and associated fittings installed earlier than 1/1/1970. These pipeline segments present an increased risk of failure due to age and obsolete materials, parts and/or equipment.

The primary risks on EVSP include external corrosion, material, weld, or joint failure, equipment failure, and missing data. External corrosion on EVSP is attributed to bare, disbonded, damaged or poorly performing pipe coatings, poor soil and backfill conditions, ineffective cathodic protection, and other factors. Material, weld, or joint failure on EVSP is typically associated with issues with pipe welds made during installation (lack of weld standards and welder qualification), vintage acetylene gas welds, or pipe and fitting material leaks. Equipment failures on EVSP are normally contributed to leaks at main to service connections where O-rings have failed, mechanical couplings and fittings, and on other aging equipment installed when the pipe was originally installed. EVSP also has increased risk associated with pipe with unknown attributes or missing data, which includes unknown physical infrastructure (i.e. pipe material, pipe specifications, construction information) and historical information (i.e. corrosion control records, maintenance records, leak records).

Ongoing analysis of EVSP continues to show this pipe has a greater likelihood to leak, have corrosion, and/or substandard pipe conditions. These segments of main and their associated service piping have an elevated risk of failure as validated by DIMP and TIMP risk analysis. The different subsets of EVSP include:

Pre-CNG Pipe

Cascade operates pipeline segments that are classified as Pre-CNG pipe segments. Pre-CNG pipe segments are distribution systems that were constructed to distribute manufactured gas or natural gas. These pipelines were originally installed, owned, operated, and maintained by others prior to 1955. Cascade acquired many of these systems in the late 1950s and throughout the 1960s. The pipe coating typically found on Pre-CNG pipe is typically bare steel or coal tar wrapped. This pipe is of concern since it is over 60 years old and operated with no or inadequate cathodic protection until the early 1970s, leaving the pipe suspect to elevated corrosion risk. Pre-CNG pipe also has elevated risks associated with missing data with not fully knowing the physical infrastructure and historical information of the Pre-CNG pipe. The extent of this pipe varies throughout Cascade's and depends on the history of the system and how it was acquired by Cascade. The total miles of Pre-CNG in Oregon is shown in the table below.

Total Miles of Pre-CNG Distribution Main	41.63*
Total Miles of Pre-CNG Transmission Main	0

* Includes 41.44 miles with missing or unknown install date.

FISH

Cascade operates pipeline segments that are classified as FISH pipe segments. FISH pipe segments are distribution systems that were installed by Fish Service & Management Corporation in the 1950's through the early 1960's. FISH pipe is normally coal tar wrapped. FISH pipe is of concern since it is around 60 years old and may have operated with no or inadequate cathodic protection until the early 1970s, leaving the pipe suspect to elevated corrosion risk. FISH pipe also tends to have an elevated likelihood to have leaks associated with material and welds. The extent of this pipe varies throughout Cascade's system and depends on the history of the system and how Cascade built out the system in the late 1950's and early 1960's. The total miles of FISH in Oregon is shown in the table below.

Total Miles of FISH Distribution Main	22.11*
Total Miles of FISH Transmission Main	0

* Includes 11.41 miles with missing or unknown install date.

Pre-1970

Cascade operates pipeline segments installed earlier than 1/1/1970 that are not classified as either Pre-CNG or FISH. These pipeline segments were originally installed by either Cascade employees or other contractors hired by Cascade. These pipeline segments are typically coal tar wrapped. This pipe is of concern due to its overall age and cathodic protection history since it may have had no or inadequate cathodic protection until the early 1970s, leaving the pipe suspect to corrosion risk. This pipe also has an elevated weld failure risk associated with leaks on vintage metal arc welds and acetylene gas welds. The total miles of Pre-1970 in Oregon is shown in the table below.

Total Miles of Pre-1970 Distribution Main	319.69*
Total Miles of Pre-1970 Transmission Main	14.75

* Includes 55.65 miles with missing or unknown install date and excludes unknown install dates on PE main

VII. Cascade's 2020 Safety Initiatives

To address the threats to Cascade's distribution system, Cascade engages in several safety initiatives. Cascade's safety activities can generally be separated into the following three categories:

1. Prescriptive Regulatory Initiatives – This refers to actions Cascade takes to comply with specific federal and state minimum safety standards.
2. Proactive, Performance-Based Actions – This refers to actions Cascade takes to comply with subjective rather than prescriptive federal and state minimum safety standards. Such standards require Cascade to develop and perform risk-based analytics, and to implement a plan for responding to identified risks.

3. Additional Prudent, Risk-Reduction Actions – This refers to Cascade's programs or activities that go above compliance to minimum safety standards and are engaged in to improve the public's safety.

Each safety activity category is described in further detail below:

1. Prescriptive Regulatory Actions

The most comprehensive regulations governing Cascade's distribution system is the Pipeline and Hazardous Materials Safety Administration's (PHMSA) Code of Federal Regulations (CFR), Title 49, Parts 190-199. 49 CFR Part 192 includes multiple and broad prescriptive requirements related to the transportation of natural gas. These regulations require transporters of gas to inspect pipelines at regular intervals to confirm that the pipeline is meeting the operational requirements established in federal code. Compliance to these regulations provides Cascade with the baseline data for the proactive, performance-based actions. Prescriptive regulations are straight-forward guidelines on how to operate and maintain a pipeline. Compliance to prescriptive regulations does not require risk or cost based analysis.

The prescriptive regulatory compliance work that Cascade will be performing in 2020 includes performing atmospheric corrosion surveys; monitoring cathodic protection performance; performing leak surveys; patrolling the system, performing preventative maintenance on control valves; odorizing natural gas received into Cascade's system, and performing general system maintenance. Since this work is required, Cascade did not perform cost benefit analyses to determine if the work should be done, and alternatives to this work were not considered.

2. Proactive, Performance Based Actions

While certain sections of 49 CFR 192 tell the utility exactly what to do, compliance to other parts of 49 CFR 192 is more subjective. For instance, certain sections of 49 CFR 192 tell gas pipeline operators to identify existing and potential threats, evaluate and rank the risks, and implement measures to mitigate the highest risks. In response to the more subjective PHMSA regulations found in 49 CFR 192, Cascade has developed programs focused on activities to mitigate pipeline safety risk. These programs include integrity management, public awareness, and damage prevention programs.

Integrity Management

Transmission Integrity Management Program (TIMP)

PHMSA rules required Cascade to create and implement a TIMP by December 17, 2004. The purpose of TIMP is to identify, prioritize, assess, evaluate, repair, and validate the integrity of transmission pipelines that could, in the event of a leak or failure, affect High Consequence Areas (HCAs). The threats that are identified and evaluated in TIMP include:

- Corrosion (External, Internal, Stress Corrosion Cracking)
- Material

- Construction
- Equipment
- Excavation Damage
- Incorrect Operations
- Vandalism
- Weather and Outside Forces
- Cyclical Fatigue

Cascade's TIMP Plan describes these risks and steps in greater detail.

TIMP activities include baseline assessments and reassessments of transmission lines using pressure testing, inline inspection, and other direct assessment methods. They also include pipeline replacements, relocations, and modifications in compliance with integrity management rules, and to mitigate identified threats.

Distribution Integrity Management Program (DIMP)

The requirement for Cascade to have a DIMP became effective on February 12, 2010. Operators were given until August 2, 2011, to write and implement a DIMP that demonstrates an understanding of the distribution system design and material characteristics; describes the operating conditions and environment; provides the maintenance and operating history; identifies existing and potential threats; evaluates and rank risks; identifies and implements measures to address risks; measures program performance; monitors results; evaluates effectiveness; and periodically assesses and improves the plan. The threats that are identified and evaluated in DIMP include:

- Corrosion
- Natural Forces
- Excavation Damage
- Other Outside Force Damage
- Material, Weld, or Joint Failure
- Equipment Failure
- Incorrect Operation
- Missing Data
- Other – Forces unique to a specific area on the system

Cascade's DIMP Plan describes these risks and steps in greater detail.

DIMP activities include risk-based projects warranting Accelerated Action (AA) to address system integrity risks. These AA's are made up of projects that have been identified through risk modeling, industry identified threats, and by Subject Matter Experts (SME's) within Cascade.

Analysis and Quantification

As part of Cascade's DIMP and TIMP Plans, a risk analysis has been created and is maintained. Information collected as part of DIMP and TIMP are inputted into the risk analysis, where it is analyzed to find areas of elevated risk and trends. This allows Cascade to quantify the risk associated with each pipeline segment based on factors that are pertinent to the integrity of the system.

Identification of Risk Management Actions

DIMP and TIMP risk analysis results and SME input are used to identify and prioritize risk management actions to address the threats and associated risk to Cascade's distribution systems. Risk management is accomplished by taking actions to reduce the likelihood of an occurrence, by alleviating the consequences of an occurrence or both. Appropriate actions are dependent on the group being addressed, the associated threat, whether the threat is current or potential in the future and the viability of the action in managing the relevant risk factors. Possible risk management actions include:

- Replacement of pipe, facilities, components, equipment
- GIS entry/data clean up
- Damage Prevention
- Public Awareness
- Leak Management
- Maintenance Programs
- Operator Qualification Program

Obtaining New Information

Cascade obtains new information for DIMP and TIMP through the following methods:

1. Observing trending – DIMP and TIMP are analyzed on a yearly basis. The analysis includes reviewing leak information, failure analysis, and system condition data to identify trends. The analysis provides insight into the risks associated with pipe segments and facilities identified as having an elevated risk of failure.
2. New information is gathered through normal activities. Gathering new information from forms or other methods used to collect information related to the physical attributes and/or operating and maintenance activities. Integrating newly collected information into DIMP and TIMP.
3. SME panel meetings – SME panel meetings are held on an appropriate basis. Information from the panel meetings are used to validate the DIMP and TIMP risk analysis and new information is inputted into the DIMP and TIMP risk analysis.

4. Updating risk analysis – Cascade’s DIMP and TIMP risk analysis is updated annually. Results of the risk analysis are used to prioritize risk management actions.
5. Continuous improvement – The assessment, prioritization, and mitigation of system risks continue to be refined as new and additional risk knowledge is incorporated into DIMP and TIMP through normal O&M and DIMP and TIMP activities. Activities related to DIMP and TIMP could include gathering data, conducting targeted inspections and assessments, and completing remediation and replacement work associated with integrity management driven programs.

Based on new information that is obtained, the integrity management activities may be modified appropriately to further accelerate or decelerate necessary risk management actions. Additionally, Cascade is actively monitoring system threats and performance and may identify additional pipeline segments and facilities that have an elevated risk of failure.

2020 Planned Integrity Management Activities

DIMP

In 2020, Cascade will continue to evaluate existing and new threats to its distribution system. In addition, Cascade will continue to complete required routine program requirements as outline in the DIMP plan and continue ongoing risk management actions. Cascade is also in the process of integrating its DIMP plan and risk model with the other MDUG companies to align key program elements across the corporation. Any significant changes will be outlined in future updates.

TIMP

In 2020, Cascade will continue to evaluate existing and new threats to its transmission system. No integrity baseline or reassessments are scheduled to be completed in 2020. In addition, Cascade will continue to complete required routine program requirements as outline in the TIMP plan. Cascade is also in the process of integrating its TIMP plan with the other MDUG companies to align key program elements across the corporation. Cascade has contracted with a consultant in 2019 to review each companies TIMP plans, identify potential gaps, incorporate new upcoming TIMP regulations, and draft an integrated TIMP plan to align with current best practices and 49 CFR Part 192 Subpart O. A finalized integrated TIMP plan is scheduled to be completed during the first quarter of 2020. Any significant changes will be outlined in future updates.

Public Awareness and Damage Prevention

Public Awareness

In compliance with API RP 1162, Cascade's Public Awareness Program promotes, actively manages, and enhances the public's knowledge of pipeline safety, emergency responsiveness, and damage prevention. Listed below are the goals of Cascade's Public Awareness campaign:

- Increase the awareness of the identified stakeholder audiences to the presence of pipelines in their community and the role those pipelines play in transporting energy.
- Educate stakeholders that pipelines are a proven safe mode of natural gas transportation.
- Increase stakeholders' knowledge of the measures Cascade takes to prevent pipeline accidents.
- Improve stakeholders' understanding of the role they can play in helping to prevent pipeline accidents caused by third party damage and right-of-way encroachment.
- Develop programs that can be managed, implemented, and evaluated for continual improvement.

Damage Prevention

Cascade's Damage Prevention Program and Public Awareness activities play a vital role in preventing damage caused to Cascade's facilities by third party excavators—the highest threat to Cascade's distribution system. Cascade is fighting this threat by engaging other natural gas companies in a comprehensive public communication campaign known as the *811* or *Call Before You Dig* program. Cascade communicates, cooperates, and coordinates with government agencies, utilities, contractors, engineers, customers, and the general public through membership in the *811* one-call centers and through other communications, education, and awareness initiatives. The Damage Prevention Program seeks to achieve the following:

- Ensure the protection of the pipeline in each operating district through participation in a qualified One-Call Notification system.
- Locate and mark Cascade-owned or operated facilities per Company Procedures to prevent damage to buried facilities during excavation
- Maintain a means for informing potential excavators of the existence and purpose of the Cascade Damage Prevention Program.
- Inspect and examine pipelines that Cascade suspects may have been damaged by excavation activities.
- Report excavation damage in the appropriate reporting tools.
- Notify excavators of their responsibilities after an excavation damage event.

- Attend and actively participate in local utility coordinating councils in each district's service area.

2020 Planned Public Awareness and Damage Prevention Activities

Cascade's Public Awareness and Damage Prevention activities are similar from year to year. Cascade's involvement at community events varies each year as events scheduled change. Planned 2020 expenses for Public Awareness and Damage Prevention in Oregon include the following activities.

- Sending customers bill stuffers each month that feature a Public Awareness message. Examples of Cascade's mailers are included in Appendix A.
- Running at least one thirty second television commercial, radio advertisement, or online advertisement.
- Sending a direct mailer on pipeline safety to a targeted audience – customers located near transmission pipelines.
- Proving safety-related advertisements, staffing booths at community events, giving out promotional giveaways, and sponsoring local trainings. Some examples of outreach Cascade participated in for 2019 are listed below:
 - Booth at the Mid-Oregon Construction Safety Summit
 - Sponsored the Oregon Safety Summit and participated in the PANW booth
 - Booth at Wild Horse Casinos Safety Fair in Pendleton
 - Sponsored the La Pine County Fair and provided 811 ads
 - Sponsored the Prineville Rodeo in Bend and provided 811 ads
 - 811 advertisement in the High School sporting event programs
 - Booth at the Malheur County Fair
 - Booth at the Baker County Fair
 - Sponsored an Excavator & Emergency Responder Training in Baker City
 - Cascade helped develop and fund Construction Contractors Board (CCB) Online Excavator Training in both English and Spanish

Current proposed changes to the Public Awareness and Damage Prevention programs for 2020 include:

- Filing complaints against every professional excavator/contractor that is negligent of the Oregon Dig Law
- Billing every professional excavator/contractor that is negligent of the Oregon Dig Law

- Holding Emergency Responders trainings in all Cascade Oregon counties in collaboration with other pipeline operators in the area Pipeline Association of the Northwest (PANW)

3. Additional Prudent Risk Reduction Actions

Additional risk reduction activities are not required by federal code, but Cascade engages in them because they increase the public's safety and the safety of Cascade's distribution system. Below are the additional safety initiatives that Cascade is pursuing in 2020:

- Safety Management System

In 2017 Cascade hired a third-party contractor to conduct an audit to determine where Cascade's daily practices vary from the standards set forth in American Petroleum Institute (API) Recommended Practice 1173. In 2020, Cascade will continue to work on the development and implementation of a corporate wide MDUG SMS. The SMS manager and four dedicated specialists are working on the execution of the strategic vision for the MDUG SMS program and detailed project plan.

- High Pressure MAOP Records Review

Reviewing records for all pipeline segments and facilities operating above 60 psig operating in Oregon to validate each pipeline's MAOP and identify missing critical information necessary to validate MAOP. From this review, Cascade will develop a MAOP Validation and Determination Plan to collect critical information that is currently missing.

- Engineering Plan Review

Cascade is in the process of developing and implementing a defined process for the development of engineering plans and quality control review requirements for specific high-risk engineering projects.

VIII. 2019 Completed Capital Projects

Significant capital projects completed or scheduled to be completed in 2019 include:

PROJECT	DISTRICT	TYPE OF PIPE REPLACED, RISKS	ACTUAL / PLANNED IN-SERVICE DATE
BEND PIPE REPLACEMENT PHASE 8 SECTION 1	BEND	PRE-CNG PIPE - IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND LEAK HISTORY	OCT 2019
BEND PIPE REPLACEMENT PHASE 8 SECTION 2A	BEND	PRE-CNG PIPE - IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND LEAK HISTORY	DEC 2019
6" BEND HP REPLACEMENT PHASE 2	BEND	IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND SHALLOW BURY DEPTH	DEC 2019
BAKER CITY BRIDGE CROSSING REPLACEMENTS	EASTERN OREGON	REPLACE POORLY COATED AND DIFFICULT TO INSPECT BRIDGE CROSSING	OCT 2019
4" MADRAS HP REPLACEMENT PHASE 2	BEND	PIPE INSTALLED IN 1962, CORROSION AND MATERIAL FAILURE (SEAM LEAKS) HISTORY	MAY 2019

IX. 2020 Capital Budget

In 2020, Cascade estimates it will invest approximately \$6.96 million in capital to address integrity management concerns identified through DIMP, TIMP, and safety related conditions identified by SME's and local district personnel. Below are all 2020 capital projects for system safety with costs that are estimated to exceed \$100,000:

PROJECT	DISTRICT	TYPE OF PIPE TO BE REPLACED, RISKS	ESTIMATED COST
BEND PIPE REPLACEMENT PHASE 8 SECTION 2A & 9	BEND	PRE-CNG PIPE - IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND LEAK HISTORY	\$3,160,000
6" BEND HP REPLACEMENT PHASE 3	BEND	IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND SHALLOW BURY DEPTH	\$1,540,000
MILTON FREEWATER CANAL CROSSING REPLACEMENT	PENDLETON	REPLACE POORLY COATED AND DIFFICULT TO INSPECT CANAL CROSSING	\$200,000
4" MADRAS HP REPLACEMENT PHASE 3	BEND	PIPE INSTALLED IN 1962, CORROSION AND MATERIAL FAILURE (SEAM LEAKS) HISTORY	\$2,060,000

DIMP model outputs for the projects listed above are included in Appendix B.

X. 2020 O&M Expenditures

Cascade's anticipated 2020 O&M budgets for DIMP, TIMP, Public Awareness, and Damage Prevention are listed below.

SAFETY INITIATIVES	ESTIMATED 2020 BUDGET
DIMP	\$200,000
TIMP	\$200,000
PUBLIC AWARENESS & DAMAGE PREVENTION	\$200,000

XI. Cost Benefit Analyses

Cost benefit analysis and alternatives analysis is sometimes difficult in the context of regulated safety programs. Such an analysis has not been of major consideration in this plan because most of the safety projects are mandated by 49 CFR Part 192, industry best practices, or by engineering and operational requirements. The assigned risk and prioritization for implementing these projects are based on studies and analysis of Cascade's transmission and distribution systems. Studies are performed on a regular basis as part of normal operations. These studies and analysis identify potential threats and risks that can then be mitigated or eliminated by the application of best engineering practices, operational knowledge/experience along with the experience of SME's. The study analysis is used to identify and implement measures and plans to address potential threats and risks, which are then prioritized by projects or included in programs to most efficiently and effectively mitigate or eliminate the threat(s)/risk(s).

With programs and requirements prescribed in federal code such as DIMP and TIMP, the risk assessment analysis essentially acts as Cascade's cost benefit analyses for projects. If the analysis demonstrates a risk is significant, Cascade will invest in the costs to implement appropriate risk management actions. The value of public safety and human life is of significant consideration when reviewing potential threats. Cascade may consider alternative means for mitigating a threat, such as repairing a leak, damaged coatings, or corroded pipe rather than replacing the segment of the pipe, but usually, best practices or regulations for the specific circumstances dictate that solution.

XII. Regulatory and Legislative Update

PHMSA currently has several active rulemaking proceedings that will result in the adoption of new rules which will have a direct impact on Cascade's current and future safety programs. Once any of these rule makings are published, Cascade will assess the full impact of the new or amended rules to determine its full impact. Cascade will then modify existing safety projects and look at development of additional safety projects to address the new mandated requirements. Below is an overview of two PHMSA rulemakings that Cascade is closely tracking.

1. Docket No. PHMSA-2011-0023 – Safety of Gas Transmission and Gathering Pipelines (Transmission Mega Rule)

The Notice of Proposed Rulemaking is a comprehensive update to the Transmission Integrity Management requirements and is the largest revision of the code since its inception in 1970. Currently the rule is being separated into three rulemakings.

- Phase 1 of the rulemaking will include requirements around expansion of integrity management principles beyond HCAs, MAOP validation, material validation, record keeping, and seismicity.
- Phase 2 of the rulemaking will include requirements around coating inspection, interference currents, internal corrosion, risk models, repair criteria, management of change.

- Phase 3 of the rulemaking will include requirements around reporting, gas gathering lines, and definitions.

2. Docket No. PHMSA-2014-0098 – Plastic Pipe Rule

The Notice of Proposed Rulemaking required tracking and traceability of all new plastic pipe installations. Rule went final on 11/20/2018, PHMSA-2018-24925, with an effective date 1/22/2019. PHMSA delayed adopting the proposed definitions of “traceability information” and “tracking information” and tracking and traceability recordkeeping requirements to a later date.

3. Docket No. PHMSA-2019-05677- Exercise of Enforcement Discretion Regarding Farm Taps

The Notice of Proposed Rulemaking notifying operators that PHMSA will not take any enforcement actions relating to violations of 192.740 with respect to operators that choose to include farm taps in their DIMP plans, and will instead require that such operators comply with the existing DIMP regulations of 49 CFR part 192, subpart P.

XIII. Significant Changes to Cascade’s 2020 Safety Programs

Cascade continues to monitor PHMSA rulemakings and assess the changes Cascade will need to make to comply with newly adopted rules. Cascade is expecting to see some changes to some of the existing safety programs in 2020 due to the new regulatory requirements around the Transmission Mega Rule.

APPENDIX A
Public Awareness Information

Pipeline Safety Information

Our goal is to provide safe, reliable natural gas service to our customers and ensure the safety of people living and working near our natural gas pipelines. This handout is an important part of our ongoing communication plan to increase awareness of pipeline safety. Please take the time to read this critical information.

NATURAL GAS

The popular choice ... Natural gas is the most popular energy for home heating. Its uses are expanding to many other applications due to its ease of use and its positive environmental qualities. Natural gas provides about 24 percent of all the energy used in the United States and natural gas utilities serve more than 65 million residential, commercial and industrial customers.

The safest choice ... According to National Transportation Safety Board statistics, natural gas pipelines are the safest method of energy transportation. Cascade Natural Gas uses the latest technology, security and industry practices to monitor pipelines and maintain service and safety. Cascade executes many programs to ensure your safety: *Design and construction monitoring 24 hours a day, seven days a week; integrity management; inspection and patrol training; public awareness coordination; and communication with police and fire officials.*

The safety commitment ... It is extremely unlikely that a natural gas leak will occur. The information provided here will prepare you in the event of an occurrence. These safety guidelines will provide you with important information to help you avoid dangerous activity and help you recognize and respond to a natural gas leak. Protecting you, your property and the environment is our commitment.

Additional information

Cascade Natural Gas Corporation 1-888-522-1130
www.cngc.com

Pipeline Association for Public Awareness
www.pipelineawareness.org

National Pipeline Mapping System
www.npms.phmsa.dot.gov

American Gas Association www.aga.org

Pipeline Safety Trust www.pstrust.org

Washington www.washington811.com

Oregon www.digsafelyoregon.com

811 Call Before You Dig www.call811.com

Pipeline markers are important

Pipeline markers are an important safety precaution. Since pipelines are buried underground, pipeline markers are used to help in their identification. These markers are found where a pipeline intersects a street, highway or railway. Pipeline markers are used to designate the general route of the pipeline, but are not found near every pipeline. Be aware of any pipeline markers in your neighborhood; write down the natural gas operator's name and phone number in case of an emergency.

Pipeline markers provide critical information in keeping you safe. You can always find three things on a pipeline marker to help you in case of an emergency or for additional information: the name of the pipeline company, emergency number and the material being transported in the pipeline.

Markers DO NOT show: The depth of, the number of and the exact location of the pipeline.

Markers DO show: The approximate location of the pipeline, the product transported, the natural gas operator and the operator's emergency phone number.



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

REMEMBER TO CALL 811 BEFORE YOU DIG!

The leading cause of damage to buried pipelines is the failure to call and obtain the pipeline's exact location. Damage to pipelines, such as a scratch, gouge, crease or dent, may cause a leak. Before you start any excavation activity on your property, you are required by state law to contact your One-Call Center. Natural gas operators will mark the location of their lines at no cost to you. Excavation activities can be as simple as planting a tree, installing landscaping, building a fence or installing a swimming pool. Be safe – call before you dig! Contact your One-Call Center before performing any simple or complex excavation activities on your property! This call and service is provided to you at no charge.

Recognizing a suspected leak

Sight – Discolored vegetation or bubbling in water, blowing dust, or a fire or explosion near a pipeline marker. Natural gas is lighter than air and would appear to be a light white fog that will dissipate quickly into the atmosphere, unlike propane, which will create a heavy dense fog hovering near the ground surfaces.

Sound – Hissing, whistling or roaring noise.

Smell – The distinctive gaseous odor is an odorant added to natural gas and has a smell similar to rotten eggs or a recently lit match. See scratch-n-sniff below.



Scratch this flame with your fingernail and sniff the gas odor.

The odor you smell is the harmless chemical we add to natural gas so you can detect a gas leak.

Leaking natural gas is dangerous. It can cause a fire or explosion – If you ever smell faint whiffs of a gaseous odor, check to see if a pilot is out or if a burner valve is partially turned on. If you cannot find the source or if the smell is outdoors, call us at once. If the odor is extremely strong, evacuate the premises immediately. Don't light a match or switch **anything** on or off, including garage door openers. Do not use a phone in the home. After you leave the premises, call us from the nearest telephone at once. Keep clear until the fire department or Cascade personnel say it's safe to return.

Cascade emergency number: 1-888-522-1130

CARBON MONOXIDE

What is it? – Odorless, colorless, tasteless and toxic gas. Breathing too much carbon monoxide (CO) deprives the body of oxygen and may cause immediate physical danger and even death.

How is it caused? – Incomplete combustion by fuel, appliances and vehicles running in garages.

Symptoms – Dizziness, nausea, tightness in chest, headache and fatigue. Flulike symptoms without the fever.

What to do? – If symptoms are severe, move victim into fresh air immediately and call 911 for medical assistance. Evacuate the structure until the cause of carbon monoxide is determined and eliminated.

Prevention – Never block or close a source of combustion air to a heat-producing appliance. Never use a gas range or oven for home heating. Never operate a car in an enclosed area, such as the garage. Install carbon monoxide detectors in your home and follow manufacturer recommendations for maintenance of your heating appliances.

Natural gas

The safest choice ... Cascade Natural Gas Corporation uses the latest technology, security and industry practices to monitor pipelines and maintain service to ensure your safety: design and construction monitoring 24/7; integrity management; inspection and patrol training; public awareness coordination; and communication with police and fire officials.

Recognizing a suspected leak

Natural gas is a colorless, odorless, non-toxic substance.

Smell — The distinctive gaseous odor is added to natural gas. The odor is a harmless chemical we add to natural gas so you can detect a gas leak.

Sight — A dense fog, mist or white cloud.

Discolored vegetation or bubbling in water or blowing dust.

Sound — Hissing, whistling or roaring noise.

Leaking natural gas is dangerous. It can cause a fire or explosion. If you ever smell faint whiffs of a gaseous odor, check to see if a pilot is out or if a burner valve is partially turned on. If you cannot find the source or if the smell is outdoors, call us at once. **If the odor is extremely strong, evacuate the premises immediately.** Don't light a match or switch **anything** on or off, including garage door openers. Do not use a phone in the home. After you leave the premises, call us from the nearest telephone at once. Keep clear until the fire department or Cascade Natural Gas personnel say it's safe to return.

Additional information:

Cascade Natural Gas Corporation 1-888-522-1130
www.cngc.com

Pipeline Association for Public Awareness
www.pipelineawareness.org

National Pipeline Mapping System
www.npms.phmsa.dot.gov

American Gas Association www.aga.org

Pipeline Safety Trust www.pstrust.org

Washington www.washington811.com

Oregon www.digsafelyoregon.com

811 Call Before You Dig www.call811.com

Safety commitment

It is extremely unlikely that a natural gas leak will occur. Our goal is to provide safe, reliable natural gas service to our customers and ensure the safety of people living and working near our natural gas pipelines. We have an ongoing relationship with emergency officials, and the security of our pipeline facilities is our highest priority. *This handout is an important part of our ongoing communication plan to increase awareness of pipeline safety. Protecting you, your property and the environment is our commitment.*

Pipeline markers are important

Pipeline markers are an important safety precaution. Since pipelines are buried underground, markers are used to help in their identification. These markers are found where a pipeline intersects a street, highway or railway. Pipeline markers are used to designate the general route of the pipeline, but are not found near every pipeline. Be aware of any pipeline markers in your neighborhood; write down the natural gas operator's name and phone number in case of an emergency. You can always find three things on a pipeline marker to help you in case of an emergency or for additional information: the name of the pipeline company, emergency number, and the material being transported in the pipeline.

Markers DO NOT show: The depth of, the number of, and the exact location of the pipeline.

Markers DO show: The approximate location of the pipeline, the product transported, the natural gas operator and the operator's emergency phone number.



Pipeline easements and rights-of-way

Encroaching on gas pipeline easements or rights-of-way inhibits the course of excavation, surveying the pipeline, and performing routine maintenance. In order to perform these critical activities, our maintenance personnel must be able to access the entire easement or right-of-way, as provided in negotiated easement agreements with property owners. Please respect the easement or right-of-way by not placing obstructions or encroachments within the right-of-way.

Critical safety information regarding your clogged drain or sewer piping

Please be aware if a clogged drain or plugged sewer system requires a plumber or a professional to clear, there could be a cross bore present. A cross bore is the intersection of an existing underground utility by a second utility that results in direct contact between the utilities. That direct contact could create a hazardous condition.

One of the more hazardous cross bores is when a utility such as natural gas, electric or fiber optics are bored through a sewer pipe. When the sewer cleaning professional tries to clear the clog or plugged sewer line with a rotating cutter, if there are intersecting electric cables or a natural gas line it could cause damage to your home, injury or even death.

If you need your sewer system cleared:

- Call or ask your sewer clearing professional to contact Cascade Natural Gas prior to clearing the drain.
- We will promptly meet your professional to locate and mark our natural gas facilities free of charge.
- Never use a sewer clearing machine to clear a line until the obstruction has been identified.

Remember to call 811 before you dig!

The leading cause of damage to buried pipelines is the failure to call and obtain the pipeline's exact location. Damage to pipelines, such as a scratch, gouge, crease or dent, may cause a leak. Before you start any excavation activity on your property, you are required by state law to contact your One-Call Center. Natural gas operators will mark the location of their lines at no cost to you. Excavation activities can be as simple as planting a tree, installing landscaping, building a fence or installing a swimming pool. Contact your One-Call Center by calling 811 before performing any simple or complex excavation activities on your property. **This call and service is provided to you at no charge.**



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

Natural gas

La Opción Segura ... La Corporación Cascade Natural Gas utiliza la tecnología mas segura y avanzada de la industria para vigilar las tuberías y mantener el servicio para su seguridad. Diseño y supervisión de la construcción 24 horas al día los 7 días de la semana, manejo de integridad, inspección y rondas de patrullaje; coordinación para el conocimiento al publico, y comunicación con funcionarios de los departamentos de policía y de bomberos

Como Reconocer una Fuga sospechosa

El gas natural es una sustancia no tóxica, sin olor ni color.

Olor - Un olor distintivo gaseoso se agrega al gas natural. El olor es un químico inofensivo añadido a gas natural, para que pueda detectar la fuga de gas.

Vista - una densa neblina, neblina o nube blanca. Vegetación descolorida o burbujas en el agua o polvo en el aire.

Sonido Siseo, silbido o ruido rugiente.

Fugas de gas natural es peligroso. Puede causar un incendio o explosión. Si usted alguna vez llega a oler estos olores debiles, compruebe si es un piloto o válvula del quemador que está parcialmente encendida. Si usted no encuentra el origen o si el olor está afuera de la casa, llámenos inmediatamente. **Si el olor es extremadamente fuerte evacue el local inmediatamente.** No encienda cerillos y nunca prenda o apague los interruptores, incluyendo las puertas de la cochera. No use el teléfono de casa. Después de salir del local, llamémonos desde el teléfono más cercano. Manténgase alejado hasta que el departamento de bomberos o personal de la empresa Cascade Natural Gas digan que es seguro volver.

información adicional:

Corporación Cascade de Gas Natural 1-888-522-1130
www.cngc.com

Asociación de tubería para Conciencia pública
www.pipelineawareness.org

Tubería Nacional Sistema de Mapas
www.npms.phmsa.dot.gov

Asociación de Gas Americano www.aga.org

Tubería de seguridad de confianza www.pstrust.org

Washington www.washington811.com

Oregon www.digsafelyoregon.com

811 Llame antes de escavar www.call811.com

El Compromiso de Seguridad

Es muy poco probable que se produzca una fuga de gas natural. Nuestra meta es proporcionar el servicio de gas natural seguro, confiable a nuestros clientes, y garantizar la seguridad de personas que viven y trabajan cerca de las tuberías de gas natural. Tenemos una relación permanente con las autoridades de emergencia, y la seguridad de nuestras instalaciones de tuberías es nuestra prioridad más alta. *Este folleto es una parte importante de nuestro plan de comunicación permanente para aumentar la conciencia de seguridad de la tubería. Nuestro compromiso es proteger su propiedad y el medio ambiente.*

Marcadores de tuberías son importantes

Marcadores de tubería son medida de seguridad importante. Debido a las tuberías que están enterradas bajo tierra, se utilizan marcadores de tubería para ayudar a identificarlas. Los Marcadores de tubería se encuentran donde la tubería cruza con una calle, carretera o ferrocarril. Los marcadores se utilizan para designar la ruta general del gasoducto, pero no se encuentran cerca de cada gasoducto. Tenga en cuenta cualquier marcador de tubería en su barrio; Escriba el nombre del operador de Gas Natural y número de teléfono en caso de una emergencia.

Marcadores de tubería proporcionan información crítica a la hora de mantenerse seguro. Siempre se puede encontrar tres cosas en un marcador de tubería para que le ayude en caso de una emergencia o para obtener información adicional: el nombre de la empresa, número de emergencia, y el material que se transporta en la tubería.

Marcadores no muestran: La profundidad, el numero, ni la ubicación exacta de la tubería.

Marcadores si muestran: La ubicación aproximada de la tubería, el producto transportado, el operador de gas natural y número de teléfono de emergencia del operador de gas natural.



Servidumbres y derechos de paso para tuberías

La intrusión en las cañerías o en el derecho de paso disminuye nuestra habilidad para reducir daños al excavar, inspeccionar la línea y llevar a cabo mantenimiento de rutina. Para estas actividades críticas nuestro personal debe ser capaz de acceder al derecho de paso o servidumbre de acuerdo a los acuerdos negociados con los propietarios. Por favor, respete el derecho de paso y servidumbre y no lo obstruya ni usurpe.

Información crítica de seguridad con respecto a su tubería de desagüe o alcantarillado obstruido

Tome en cuenta si un drenaje obstruido o tapado que requiere de un plomero o un profesional para destapar el alcantarillado podría ser que sea una línea de gas instalada accidentalmente a través del conducto de alcantarillado. Esto es la intersección de servicios subterráneos existentes por una segunda utilidad que resulta en el contacto directo de las utilidades. Ese contacto directo puede crear una situación peligrosa.

Una de las perforaciones transversales más peligrosas es cuando una utilidad tal como gas natural, eléctricos o de fibra óptica se taladra a través de una tubería de alcantarillado. Cuando los plomeros o profesionales de limpieza de alcantarillado intentan destapar la obstrucción de la línea de alcantarillado usando un cortador rotativo. Si se cruzan los cables eléctricos o de una línea de gas natural puede causar daños a su casa, lesiones, e incluso la muerte.

Si necesita que su línea de drenaje sea limpiada:

- Llame o consulte a su profesional de limpieza de alcantarillado y pidales en contactar Cascade Natural Gas antes de limpiar el drenaje.
- Nos reuniremos con su lo profesional para localizar y marcar nuestro gasoducto de gas natural de forma gratuita.
- Nunca utilice una máquina de limpieza de alcantarillado para destapar una línea del drenaje hasta que la obstrucción ha sido identificada.

Recuerda de llamar al 811 antes de excavar!

La principal causa de daños a las tuberías enterradas es el fracaso de llamar y obtener la ubicación exacta de la tubería. Daños a las tuberías, como un rasguño, abolladura o pliegue, puede causar una fuga. Antes de iniciar cualquier actividad de excavación en su propiedad, está obligado, por la ley, ponerse en contacto con su centro de llamadas 811. Operadores de gas natural marcan la ubicación de sus líneas sin costo alguno para usted. Las actividades de excavación pueden ser tan simples como plantar un árbol, instalación de jardinería, la construcción de una cerca o la instalación de una piscina. Póngase en contacto con su centro de llamadas antes de realizar cualquier actividad de excavación simples o complejas en su propiedad! Esta llamada y el servicio son proporcionados a usted sin costo alguno.



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

¡Información de seguridad de tubería!

Nuestra meta es proporcionar el servicio de gas natural seguro, confiable a nuestros clientes, y garantizar la seguridad de personas que viven y trabajan cerca de los gasoductos naturales. Este folleto es una parte importante de nuestro plan de comunicación permanente para aumentar la conciencia de seguridad de la tubería. Tómese el tiempo de leer esta información crítica.

GAS NATURAL

La Opción Popular ... El gas natural es la energía más popular para la calefacción de casa. Sus usos se están expandiendo a muchas otras aplicaciones debido a su facilidad de uso y sus cualidades ambientales positivas. Gas natural proporciona alrededor del 24 por ciento de toda la energía utilizada en los Estados Unidos, y las utilidades de gas natural sirven a más 65 millones de clientes residenciales, comerciales e industriales.

La Opción Segura ... Según las estadísticas de la Mesa Directiva de Transportación Nacional, las tuberías de gas natural es el método más seguro para transportar energía. La Corporación Cascade de Gas Natural usan la tecnología, seguridad y las prácticas de industria más recientes para supervisar tuberías y mantener el servicio y la seguridad. Cascade ejecuta muchos programas para garantizar su seguridad: diseño y construcción, vigilancia 24 horas al día, 7 días a la semana. Manejo de integridad, entrenamiento de inspección y vigilancia, coordinación de conocimiento público y comunicación con funcionarios de la policía y los bomberos.

El Compromiso de Seguridad ... Es muy poco probable que se produzca una fuga de gas natural. La información proporcionada aquí preparará en caso de un incidente. Estas guías de seguridad le proporcionarán importante información para ayudarle a evitar la actividad peligrosa y cómo reconocer y responder a una fuga de gas natural. Nuestro compromiso es proteger, su propiedad y el medio ambiente.

información adicional:

Corporación Cascade de Gas Natural 1-888-522-1130
www.cngc.com

Asociación de tubería para Conciencia pública
www.pipelineawareness.org

Tubería Nacional Sistema de Mapas
www.npms.phmsa.dot.gov

Asociación de Gas Americano www.aga.org

Tubería de seguridad de confianza www.pstrust.org

Washington www.washington811.com

Oregon www.digsafelyoregon.com

811 Llame antes de excavar www.call811.com

Los Marcadores de tubería son importantes

Marcadores de tubería son medida de seguridad importante. Debido a las tuberías que están enterradas bajo tierra, se utilizan marcadores de tubería para ayudar a identificarlas. Los Marcadores de tubería se encuentran donde la tubería cruza con una calle, carretera o ferrocarril. Los marcadores se utilizan para designar la ruta general del gasoducto, pero no se encuentran cerca de cada gasoducto. Tenga en cuenta cualquier marcador de tubería en su barrio; Escriba el nombre del operador de Gas Natural y número de teléfono en caso de una emergencia.

Marcadores de tubería proporcionan información crítica a la hora de mantenerse seguro. Siempre se puede encontrar tres cosas en un marcador de tubería para que le ayude en caso de una emergencia o para obtener información adicional: el nombre de la empresa, número de emergencia, y el material que se transporta en la tubería.

Marcadores no muestran: La profundidad, el número, ni la ubicación exacta de la tubería.

Marcadores si muestran: La ubicación aproximada de la tubería, el producto transportado, el operador de gas natural y número de teléfono de emergencia del operador de gas natural.



Determina lo que está bajo tierra.
Llama antes de excavar.

RECUERDA DE LLAMAR AL 811 ANTES DE EXCAVAR!

La principal causa de daños a las tuberías enterradas es el fracaso de llamar y obtener la ubicación exacta del oleoducto. Daños a las tuberías, como un cero, gubia, pliegue o abolladura, puede causar una fuga. Antes de iniciar cualquier actividad de excavación en su propiedad, está obligado, por la ley, ponerse en contacto con su centro de llamadas de uno. Operadores de gas natural marca la ubicación de sus líneas sin costo alguno para usted. Las actividades de excavación pueden ser tan simples como plantar un árbol, instalación de paisajismo, la construcción de una cerca o la instalación de una piscina. Este seguro; Llame antes de excavar! Póngase en contacto con su centro de llamadas antes de realizar cualquier actividad de excavación simples o complejas en su propiedad! Esta llamada y el servicio son proporcionados a usted sin ningún cobro adicional.

Reconociendo una Fuga Sospechosa

Vista – vegetación descolorida o burbujas en el agua, sople de polvo, o un incendio o una explosión cerca de un marcador de tubería. Gas natural es más ligero que el aire, que parece una niebla blanca que se dispersa rápidamente en la atmósfera, a diferencia de la gas propano, una pesada niebla densa flotando cerca de la superficie del suelo.

Sonido Siseo, silbido o ruido rugiente.

Olor – El olor es gaseoso distintivo un odorante añadido por el gas natural para ayudar a detectar una fuga de gas. El olor es una química inofensiva y tiene un olor similar a huevos podridos o recientemente cerillo encendido.

Al otro lado rasguñe la llama con su uña y huele el olor de gas

El olor que usted huela son químicas inofensivas que añadimos al gas natural para que pueda detectar una fuga de gas.

Fugas de gas natural es peligroso. Puede causar un incendio o explosión. Si alguna vez huele tufo débiles de este olor, compruebe si es un piloto o válvula de quemador que está parcialmente encendido. Si usted no encuentra el origen o si el olor está afuera, llámenos inmediatamente. Si el olor es extremadamente fuerte evacue el local inmediatamente. No encienda cerillos no prenda o apague los interruptores de las luz **nunca**, incluyendo abriendo puertas de garajes. No use el teléfono en el edificio. Después de salir del local, llámenos desde el teléfono más cercano. Manténgase alejado hasta que el departamento de bomberos o personal de la empresa Cascade Natural Gas digan que es seguro volver.

Numero de emergencia de Cascade 1-888-522-1130

Monóxido de Carbono

¿Qué es?: Gas sin olor, sin color, sin sabor y tóxico. Si respiran demasiado CO priva el cuerpo de oxígeno y puede causar peligro físico y hasta la muerte.

Cómo se produce?: Combustión incompleta por combustible, aparatos y vehículos que están corriendo en garajes.

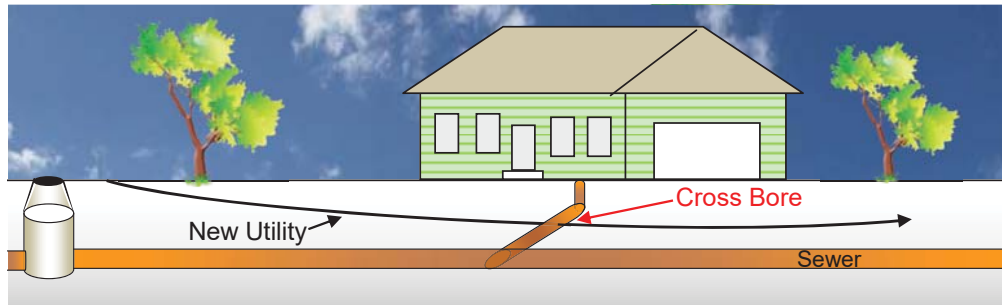
Síntomas: Mareos, náuseas, opresión en el pecho, dolor de cabeza y fatiga. Síntomas de gripe sin fiebre.

Qué hacer?: Si los síntomas son graves, mueva víctima al aire fresco inmediatamente y llame al 911 para recibir asistencia médica. Evacuar la estructura hasta que la causa del monóxido de carbono se determina y se elimina.

Prevención: Nunca bloquear o cerrar una fuente de aire de combustión a un equipo de producción de calor. Nunca use una estufa de gas o el horno para calefacción doméstica. Nunca opere un vehículo en área cerrada, como el garaje. Instale detectores de monóxido de carbono en su hogar y siga las recomendaciones del fabricante para el mantenimiento de sus aparatos de calefacción.

CALL BEFORE YOU CLEAR

ALWAYS CALL CASCADE NATURAL GAS BEFORE CLEARING A SEWER LINE

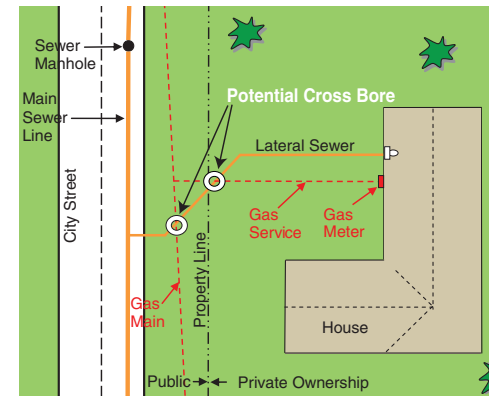
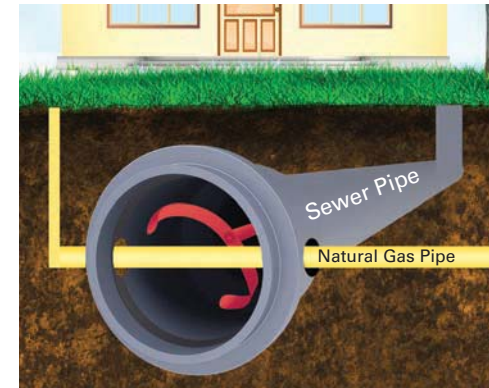


Be alert when unblocking an underground sewer line. A cross bore could exist and cause a natural gas emergency. In areas where trenchless technology has been used to install underground utility lines, there is a possibility that our gas pipeline may cross through a sewer pipe, resulting in a cross bore.

Not all sewer lines have been mapped or installed with tracing technology, and cannot be located on private property before drilling. If a clog in the sewer line occurs, plumbers and homeowners often use a rotating cutter that can be inserted to clear the line. While good for clearing out objects such as tree roots, these devices can also cut through plastic natural gas distribution lines, communication lines, water lines and electric lines that were unintentionally installed through sewer lines. If it is a gas line, natural gas could enter the sewer system and create a hazardous situation, including explosion, complete destruction of the structure, and injury or death of occupants.

FOR YOUR SAFETY, IF YOU NEED YOUR UNDERGROUND SEWER LINE CLEARED:

- Call or ask your sewer clearing professional to contact Cascade Natural Gas at **888-522-1130** prior to clearing your sewer line. We will promptly arrive to locate and mark our natural gas pipelines, free of charge.
- Never use a sewer clearing machine to clear a line until the obstruction has been identified.
- Take action if you notice bubbles rising through standing water or in the toilet bowl or a strong odor of natural gas. If these signs are present, immediately stop what you are doing and evacuate the premises (leaving the exit door open). From a safe distance, call 911 and Cascade Natural Gas at **888-522-1130**.



For additional cross bore information, check out the Cross Bore Safety Association website: crossboresafety.org or the Call Before You Clear website: callbeforeyouclear.com

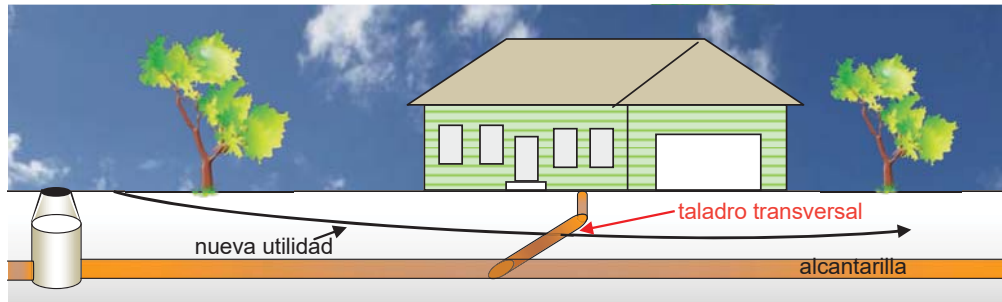
A safety message from



In the Community to Serve®

LLAME ANTES DE DESPEJAR

SIEMPRE LLAME AL CASCADE NATURAL GAS ANTES DE LIMPIAR UNA LÍNEA DE ALCANTARILLADO

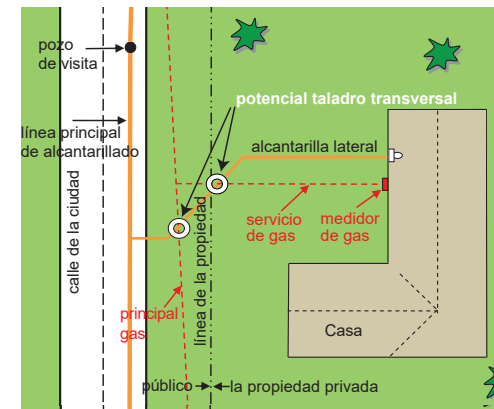
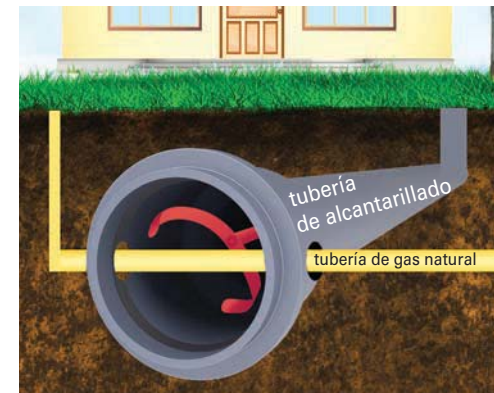


Esté alerta al desbloquear una línea de alcantarillado subterráneo. Un agujero transversal podría existir y causar una emergencia de gas natural. En áreas donde la tecnología sin zanjas se ha utilizado para instalar líneas subterráneas de servicios públicos, existe la posibilidad de que nuestra tubería de gas pueda atravesar una tubería de alcantarillado, resultando un agujero transversal.

No todas las líneas de alcantarillado se han mapeado o instalado con tecnología de rastreo, y no se pueden ubicar en propiedad privada antes de la perforación. Si se produce una obstrucción en la línea de alcantarillado, los plomeros y los propietarios suelen utilizar un cortador giratorio que se puede insertar para despejar la línea. Aunque son buenos para despejar objetos tales como raíces de árboles, estos dispositivos también pueden cortar las líneas de distribución de gas natural de plástico, las líneas de comunicación, las líneas de agua y las líneas eléctricas que se instalaron involuntariamente a través de las líneas de alcantarillado.

PARA SU SEGURIDAD, SI NECESITA UNA LÍNEA DE ALCANTARILLADO SUBTERRÁNEO DESPEJADO:

- Llame o solicite a su profesional de limpieza de alcantarillado que se comunique con Cascade Natural Gas Corporation al **888-522-1130** antes de limpiar su línea de alcantarillado. Pronto llegaremos para ubicar y marcar nuestros gasoductos de gas natural, sin cargo.
- Nunca use una máquina limpiadora de alcantarillas para despejar una línea hasta que la obstrucción haya sido identificada.
- Tome medidas si nota burbujas que se elevan a través del agua estancada o en la taza del inodoro o un fuerte olor a gas natural. Si estas señales están presentes, detenga inmediatamente lo que está haciendo y evacue el local (dejando la puerta de salida abierta). Desde una distancia segura, llame al 911 y a Cascade Natural Gas al **888-522-1130**.



Para obtener información adicional sobre el diámetro interior, consulte la página de internet de Cross Bore Safety Association: crossboresafety.org o la Llamada Antes De Borrar página de internet: callbeforeyouclear.com

Un mensaje de seguridad de



In the Community to Serve®

Keep Snow and Ice Away From Meters

As we enter the winter season and the snow begins to fall, customers are encouraged to inspect their natural gas meters on a regular basis and remove any ice and snow built up. This is for your personal safety. Keeping your meters clear of accumulation will help prevent damage that could result in a hazardous situation.

Why is it important to keep your meter clear of snow and ice buildup?

- Accumulated snow and ice places stress on the regulator and meter piping, and could cause gas to leak into your home and create an unsafe condition.
- Excessive snow cover may result in abnormal pressure, affect appliance operation and interrupt your service.
- If there is an emergency, response crews will need clear access to your meter.

Meters are designed to withstand extreme weather conditions, but remember to protect them from ice and snow buildup during the harsh winter months.

- When removing heavy accumulations of snow or ice, do not strike meters with snow blowers, blades or shovels.
- Do not kick your meter to break or clear ice.
- Use a broom, a snow brush or your hands to lightly remove snow and ice that is capable of being removed. For extremely heavy ice buildup, please contact Cascade Natural Gas.
- Remove icicles and snow from overhead eaves and gutters to prevent damage to the meter as they fall. Also, dripping water can splash and freeze on the meter or vent pipes.



Carefully clear and keep the snow and ice away from the meter for your personal safety.

Meter Reading and Safety Requires Clear Access to Meter at All Times

Ice and snow may block the electronic reading of your meter. Our desire is to accurately bill your natural gas usage.

- Please keep the area in front of and around your gas meter clear at all times. If you are storing a boat or trailer in front of your meter, try not to completely block off the meter.
- Please contact Cascade Natural Gas to discuss the building of decks, boxes or landscaping planned around your meter to avoid creating a hazardous situation.

Excavation damage prevention

The greatest risk to underground natural gas pipelines is accidental damage during excavation. Using recommended safe digging practices prevents harm to pipelines and services on your property. Call 811 two business days before you dig.



If you believe damage has occurred around the meter, or you have no heat or smell gas, call Cascade Natural Gas immediately.

All Emergencies – 24-Hour Response – 1-888-522-1130

Customer Service

1-888-522-1130

Call 7 a.m.-7 p.m. Monday-Friday

www.cngc.com

Thank you for your cooperation.

Follow Cascade
Natural Gas on
Facebook.



In the Community to Serve®

IF YOUR NATURAL GAS SERVICE IS INTERRUPTED FOR ANY REASON, PLEASE CALL US IMMEDIATELY: 1-888-522-1130.



Excess Flow Valve (EFV)

NOTIFICATION

The United States Department of Transportation (DOT) has issued a new pipeline safety regulation requiring natural gas utility companies to notify customers about the availability of Excess Flow Valves (EFV) for installation on the natural gas service line to their home or business.

What is an EFV?

An EFV is a safety device designed to automatically stop or restrict the flow of natural gas if an underground pipe is broken or severed. Such damage is usually the result of some type of excavation. Although an EFV may help limit the effects or damage of such an incident, the best way to protect against such incidents is to ensure that anyone excavating on your property has called 811 to have buried pipelines properly marked before digging. Installation of an EFV will not protect against customer appliance gas leaks, small gas service line punctures or gas meter leaks. An EFV may not protect a pipeline from damage caused by flooding or earthquakes. EFVs are not available for some customers due to the amount of gas used, areas with delivery pressure less than 10 psi or other circumstances that hinder the effectiveness of the EFV.

Where is an EFV installed?

The EFV is installed underground on the service line that runs between the gas main located in public right of way or a dedicated utility easement and the natural gas meter. Generally the EFV is installed as close as possible to the gas main. In some instances the location may need to be installed further from the gas main to accommodate interference from other buried structures.

How much does it cost to have an EFV installed?

If you would like to have an EFV installed in your service line, please contact Cascade Natural Gas Corporation at 1-888-522-1130 or email customerservice@cngc.com. The customer is solely responsible for the cost associated with installing the EFV. There will be no ongoing cost to the customer associated with the maintenance or replacement of the EFV. Installation costs vary greatly due to different soil conditions within our service territory. Estimates for cost and timeframe for construction will be provided as requested on a case-by-case basis. The EFV will be installed at a time that is mutually agreeable to the company and customer. Since the EFV will be installed on Cascade's natural gas pipe, only Cascade or its approved contractors may perform the installation.



In the Community to Serve®
www.cngc.com



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

EMERGENCY GAS Shut-Off

To be fully prepared for an emergency, you should know how to shut off the natural gas service to your home.

The following are examples of emergencies; however, it is not a comprehensive list:

- Fire in structure or near the meter.
- Earthquakes with enough magnitude to displace equipment.
- Floods.
- Wind damage.
- Carbon monoxide symptoms.
- Gas odors.

If an emergency occurs, but ***you do not experience flulike symptoms or smell or hear escaping gas, then you probably do not need to shut off your gas.*** Doing so may deprive you of service unnecessarily.

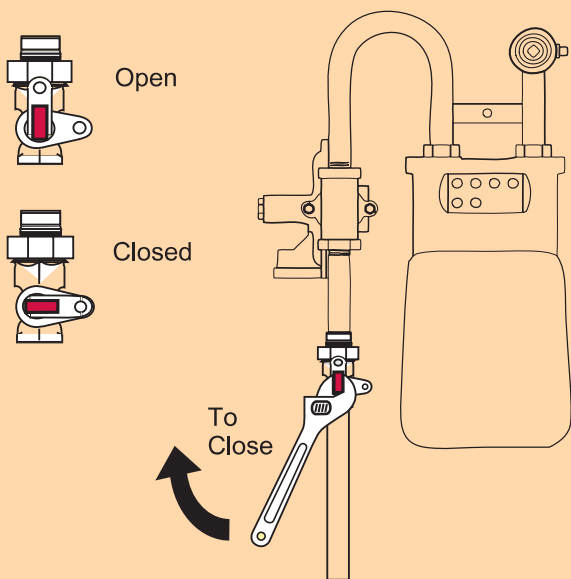
However, ***if you are experiencing flulike symptoms, are in doubt, or smell or hear escaping gas,*** then:

DO NOT:

- Switch anything on or off, such as lights, electrical switches, garage door openers or vehicles.
- Smoke, use lighters, matches or other open flames.
- Use a telephone of any type, including cell phones.
- Return for personal items.

DO:

- Immediately leave the house.
- From a remote location, call Cascade Natural Gas at **1-888-522-1130** or call emergency responders at **911**.
- At your discretion, **if it is safe to do so, shut off the gas meter** following the instructions on reverse side.
- Once the gas is off, **LEAVE IT OFF** until a Cascade Natural Gas service representative can check out the system. The equipment will be checked by a technician, who can ensure that the system is intact and operable.



HOW TO *Shut-Off* A GAS METER

- Locate the meter shut-off valve (usually the first fitting) on the gas supply pipe coming out of the ground.
- Use a long-handled wrench to turn the valve one-quarter turn so that the lever is crosswise to the pipe (see diagram).
- Once the lever is off, **LEAVE IT OFF** until a qualified Cascade Natural Gas service representative can check out the system.



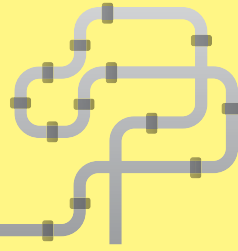
In the Community to Serve®

All Emergencies – Customer Service:
1-888-522-1130 • www.cngc.com

(see reverse side) 02/18

Your Gas Piping

Important Customer Information



The house piping from Cascade Natural Gas' meter to an appliance belongs to the customer; maintenance of the house piping is 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. The installer and building official can provide specific, detailed requirements for installation. Plumbing contractors and heating contractors can assist in inspecting and repairing the house piping. If existing underground piping is not installed to current code standards, it may represent a hazard.

Particular attention should be given to protecting any underground house piping from corrosion. If the piping is not maintained, it may be subject to the 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.

Call 811 two business days before digging to alert utilities to locate and mark THEIR buried lines from the street to your house. This is a free service. These locates do not include house piping you may have installed to your property and must be located by a private company. Dig carefully by hand within 24 inches of the marked pipeline.



In the Community to Serve®

04/18

SU TUBERÍA DE GAS



Importante Información del cliente

Toda aquella tubería desde el medidor de Cascade Natural Gas hasta los electrodomésticos en su hogar son propiedad del dueño de casa, cuales mantenimiento y responsabilidad son del propietario.

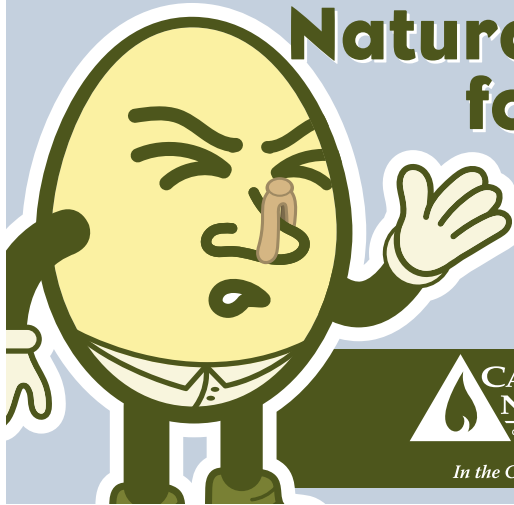
Asegúrese que el tipo de tuberías que use sean apropiables, instaladas, probadas y mantenidas en conforme con aplicables códigos de tuberías locales y estatales. La instalación de la tubería debe ser el trabajo de un contratista clasificado e inspeccionada por funcionarios locales de construcción. Al punto de instalación, evite enterrar las tuberías de casa debajo de estructuras siempre sea posible. Un contratista o funcionario de construcción puede proporcionarle detalles y requisitos específicos. Unos contratistas de plomería o calefacción pueden asistirle en inspeccionar o proporcionarle reparaciones de tuberías en su casa. Si la existente tubería subterránea no está instalada según a los estándares de código actuales, puede representar un peligro.

Debe prestarse atención en particular, a la protección contra la corrosión a cualquier tubería subterránea. Si la tubería no se mantiene, puede ser sujeto a los potenciales peligros de fuga por la corrosión. Las tuberías deben ser inspeccionadas periódicamente para detectar fugas y o corrosión. Se deben realizar reparaciones si se descubren condiciones inseguras.

Llame al 811 dos días hábiles antes de excavar para alertar a los servicios públicos que localicen y marquen sus líneas subterráneas de la calle a su casa. El servicio es gratuito y no incluye localizar líneas subterráneas instaladas por el propietario que deben ser localizadas por un contratista privado. Excave a mano con precaución dentro de 24 pulgadas de las líneas marcada.



In the Community to Serve®



Natural Gas Smells Bad for a Good Reason

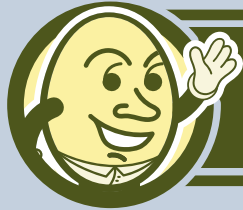
Huele mal por una buena razón

In its natural state, natural gas is odorless and colorless. For easy detection, an odorant is added to give it a foul smell, reminiscent of rotten eggs or sulfur. Scratch the egg on the back of this insert to get a whiff of the strong odor you may smell during a natural gas leak.



In the Community to Serve®

1-888-522-1130
cngc.com



Scratch this egg with your fingernail and sniff the gas odor.

Rasguñe esta huevo con su uña y huela el olor del gas.

If you ever smell faint whiffs of this odor, check to see if a pilot is out or if a burner valve is partially turned on. If you cannot find the source, call us at once.

If the odor is extremely strong:

- Evacuate the premises immediately.
- Don't switch anything on or off, such as lights, electrical switches, garage door openers, or telephones of any type.
- Don't smoke, use lighters, matches or other open flames.
- After you leave the premises, call us from the nearest telephone at once.

Si alguna vez usted huele un olor este olor, revise que ningún piloto esté apagado, o que ninguna válvula de quemador esté medio abierta. Si no encuentra la causa del escape, llámenos cuanto antes.

Si el olor es demasiado fuerte:

- Evacuar el lugar inmediatamente.
- No encienda ni apague nada, como luces o ningún interruptor eléctrico, ni teléfonos de cualquier tipo u abra puerta de garaje.
- No se debe fumar, usar encendedores, fósforos u otras llamas.
- Después de salir de las instalaciones, llámenos al teléfono más cercano.

SUSPECT A GAS LEAK?



Do you SEE?

A patch of discolored soil or dead vegetation, dirt being blown into the air, water bubbling or spraying into the air, fire or explosion.



Do you HEAR?

Unusual noises or a hissing sound.



Do you SMELL?

A strange odor similar to rotten eggs or a recently lit match.

If you suspect a natural gas leak, leave the area and then call us. **DO NOT** use a cell phone or start a vehicle near any suspected natural gas leak. If leaking gas ignites, do not attempt to put out the flames. **Call 911** and then **Cascade Natural Gas**.

EMERGENCY LINE:
1-888-522-1130



Know what's below.
Call before you dig.

If you plan to dig deeper than 12" on residential property or any depth on public or commercial property call **811** at least two business days before you plan to dig. **It's the law. The call and the service are free.**



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

In the Community to Serve®

Dig Safe Guide

POCKET SIZE



IT'S FREE. IT'S EASY. IT'S THE LAW

1

Whiteline Dig Area

Outline/mark
your planned
dig site in
white.



2

Call 811 to Locate

Call at least 2 full
business days
before you
plan to dig.
The call and
the service are free.



Detach pocket size Dig Safe Guide along the perforated line and fold

3

Markings for Underground Utility Lines



Wait!

Do not dig until all known utilities are marked.

Proposed Excavation	White
Temporary Survey Markings	Pink
Electric Power Lines, Cables, Conduit and Lighting Cables	Red
Gas, Oil, Steam, Petroleum or Gaseous Materials	Yellow
Communication, Alarm or Signal Lines, Cables or Conduit	Orange
Potable Water	Blue
Redeamed Water, Irrigation and Slurry Lines	Purple
Sewers and Drain Lines	Green

4



Dig Safe

Maintain the marks. Determine the precise location of the marked utilities by hand-digging. Dig safely using proven excavation methods.

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

Damaging an underground facility is dangerous for you and for the people around you. A broken pipe or cable may cause outages, expensive repairs and legal problems.



CUSTOMER SERVICE/ EMERGENCY LINE: 1-888-522-1130



PIPELINE SAFETY & RELIABILITY:

You are receiving this postcard because a high pressure, underground, natural gas pipeline is located on or near your property. Please review this information carefully. Cascade Natural Gas is committed to delivering natural gas through a highly engineered pipeline system in a safe, environmentally sound process.

BE AWARE OF PIPELINE LOCATIONS

Always look for Yellow Pipeline Markers. For more information on what pipelines are in your area, please go to www.npms.phmsa.dot.gov. Please note, the viewer does not contain all gas distribution lines, but will show the larger transmission lines in an area.

RIGHT-OF-WAYS

Pipeline right-of-ways or easements are strips of land in which pipelines are installed. Certain land uses are prohibited on a right-of-way or require permission from **Cascade Natural Gas**. If you have any questions, please call our customer service center at **1-888-522-1130**.

If you would like more details about the safety information included on this postcard, please visit our website at www.cngc.com/safety or e-mail us at awareness@cngc.com.

Esta información está disponible en español en nuestro sitio web www.cngc.com/safety-education/public-awareness.

PIPELINE MARKERS

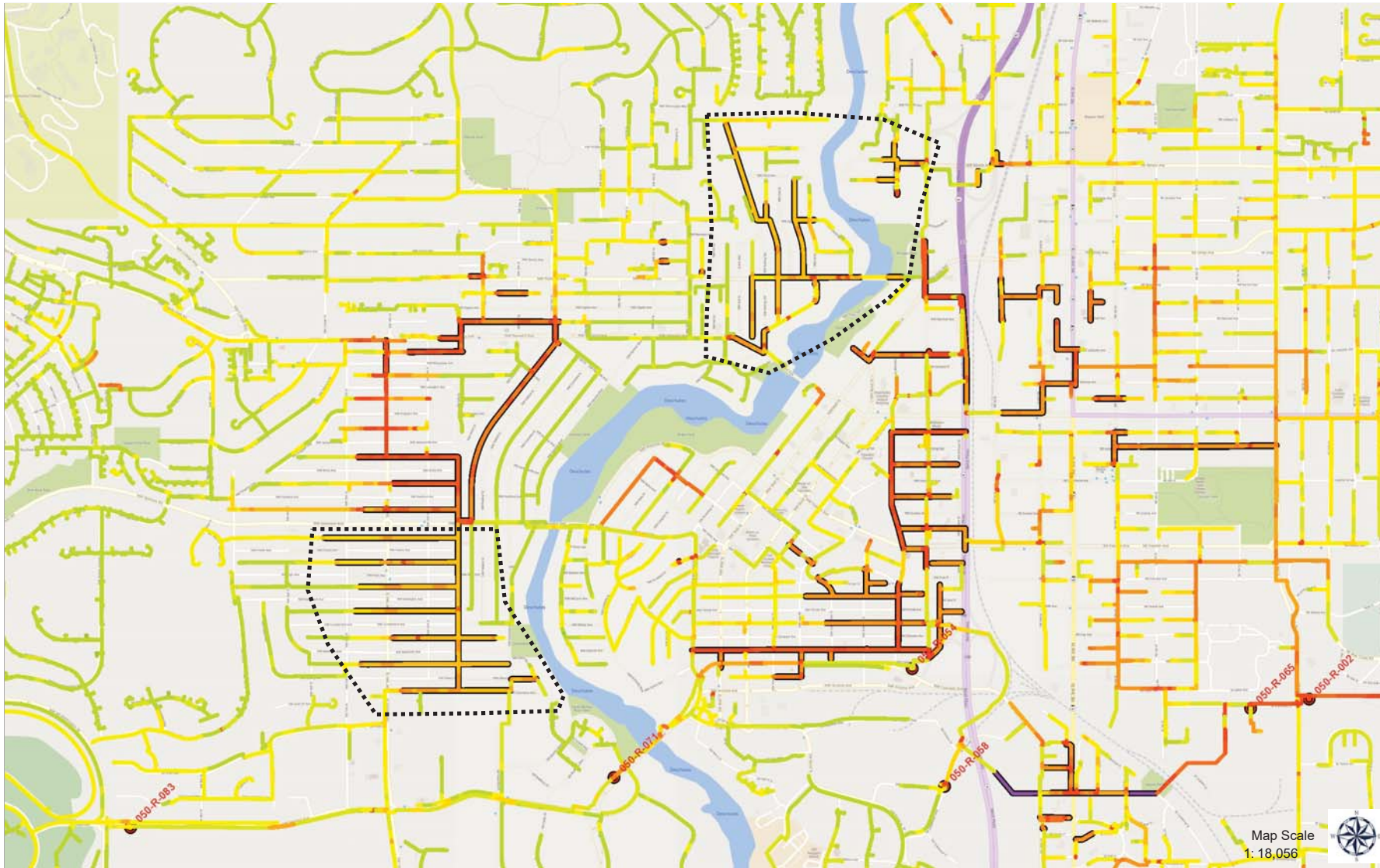
Pipeline markers are used to designate the general route of a pipeline but are not found near every pipeline. Pipeline markers will not designate the exact location, depth or number of pipelines.

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

Cascade Natural Gas Corporation
8113 W Grandridge Blvd
Kennewick, WA 99336

APPENDIX B
DIMP MODEL OUTPUT

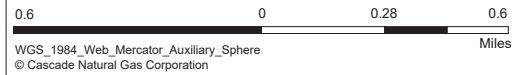
2020 BEND PIPE REPLACEMENT



Map Legend

- Risk Mains 2018
- < -0.83 Std. Dev.
- -0.83 - -0.50 Std. Dev.
- -0.50 - -0.17 Std. Dev.
- -0.17 - 0.17 Std. Dev.
- 0.17 - 0.50 Std. Dev.
- 0.50 - 0.83 Std. Dev.
- 0.83 - 1.2 Std. Dev.
- 1.2 - 1.5 Std. Dev.
- 1.5 - 1.8 Std. Dev.
- 1.8 - 2.2 Std. Dev.
- 2.2 - 2.5 Std. Dev.
- 2.5 - 2.8 Std. Dev.
- > 2.8 Std. Dev.
- Risk Mains 2018 PRECNG
- Odorizer
- Regulator Station
- Transmission Main
- Project Area

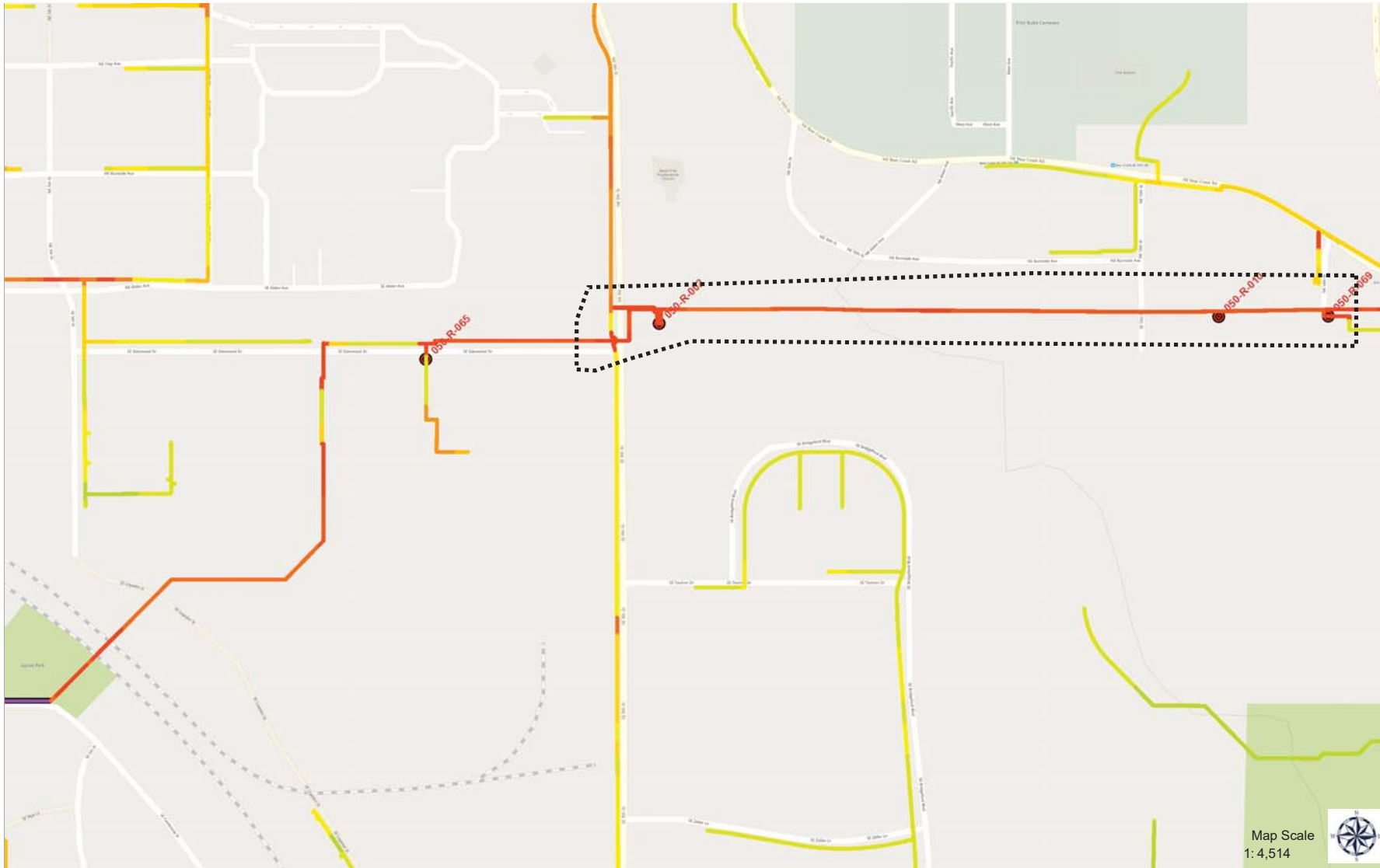
Map Scale
1:18,056



This map is a user generated static output from the GIS Web Viewer mapping website and is for reference only. It is not to be relied upon for construction purposes. It is provided for planning purposes only.
FIELD LOCATES ARE REQUIRED FOR LOCATION OF UTILITY FACILITIES

Notes:
BEND DISTRICT
PRE-CNG PIPE - IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND LEAK HISTORY

6" BEND HP REPLACEMENT PHASE 3



Map Legend

Risk Mains 2018

- < -0.83 Std. Dev.
- 0.83 - -0.50 Std. Dev.
- 0.50 - -0.17 Std. Dev.
- 0.17 - 0.17 Std. Dev.
- 0.17 - 0.50 Std. Dev.
- 0.50 - 0.83 Std. Dev.
- 0.83 - 1.2 Std. Dev.
- 1.2 - 1.5 Std. Dev.
- 1.5 - 1.8 Std. Dev.
- 1.8 - 2.2 Std. Dev.
- 2.2 - 2.5 Std. Dev.
- 2.5 - 2.8 Std. Dev.
- > 2.8 Std. Dev.

- Risk Mains 2018 PRECNG
- Odorizer
- Regulator Station
- Transmission Main
- ⬡ Project Area

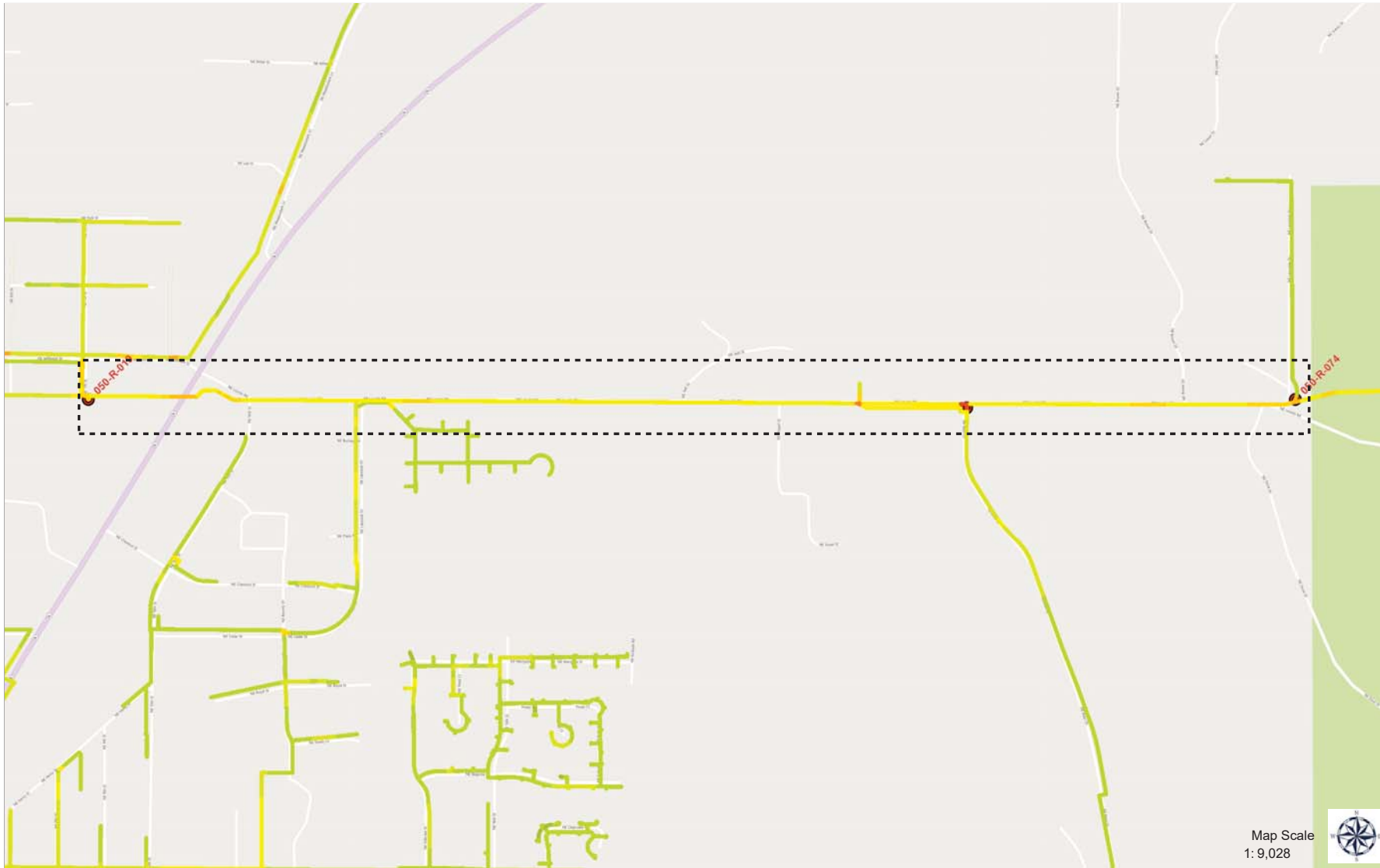
Map Scale
1:4,514

0.1 0 0.07 0.1
Miles
WGS_1984_Web_Mercator_Auxiliary_Sphere
© Cascade Natural Gas Corporation

This map is a user generated static output from the GIS Web Viewer mapping website and is for reference only. It is not to be relied upon for construction purposes. It is provided for planning purposes only.
FIELD LOCATES ARE REQUIRED FOR LOCATION OF UTILITY FACILITIES

Notes:
BEND DISTRICT
IDENTIFIED HIGH (RED) RISK IN DIMP, CORROSION AND SHALLOW BURY DEPTH

4" MADRAS HP REPLACEMENT PHASE 3



Map Legend

- < -0.83 Std. Dev.
- -0.83 - -0.50 Std. Dev.
- -0.50 - -0.17 Std. Dev.
- -0.17 - 0.17 Std. Dev.
- 0.17 - 0.50 Std. Dev.
- 0.50 - 0.83 Std. Dev.
- 0.83 - 1.2 Std. Dev.
- 1.2 - 1.5 Std. Dev.
- 1.5 - 1.8 Std. Dev.
- 1.8 - 2.2 Std. Dev.
- 2.2 - 2.5 Std. Dev.
- 2.5 - 2.8 Std. Dev.
- > 2.8 Std. Dev.

- Risk Mains 2018 PRECNG
- Odorizer
- Regulator Station
- Transmission Main
- Project Area

Map Scale
1: 9,028

0.3 0 0.14 0.3
Miles
WGS_1984_Web_Mercator_Auxiliary_Sphere
© Cascade Natural Gas Corporation

This map is a user generated static output from the GIS Web Viewer mapping website and is for reference only. It is not to be relied upon for construction purposes. It is provided for planning purposes only.
FIELD LOCATES ARE REQUIRED FOR LOCATION OF UTILITY FACILITIES

Notes:
BEND DISTRICT
PIPE INSTALLED IN 1962, CORROSION AND MATERIAL FAILURE (SEAM LEAKS) HISTORY



MILTON FREEWATER CANAL CROSSING REPLACEMENT



Map Legend

Risk Mains 2018

- < -0.83 Std. Dev.
- -0.83 - -0.50 Std. Dev.
- -0.50 - -0.17 Std. Dev.
- -0.17 - 0.17 Std. Dev.
- 0.17 - 0.50 Std. Dev.
- 0.50 - 0.83 Std. Dev.
- 0.83 - 1.2 Std. Dev.
- 1.2 - 1.5 Std. Dev.
- 1.5 - 1.8 Std. Dev.
- 1.8 - 2.2 Std. Dev.
- 2.2 - 2.5 Std. Dev.
- 2.5 - 2.8 Std. Dev.
- > 2.8 Std. Dev.

Risk Mains 2018 PRECNG

- Odorizer
- Regulator Station
- Transmission Main
- Project Area

Map Scale
1:4,514



0.1 0 0.07 0.1
Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Cascade Natural Gas Corporation

This map is a user generated static output from the GIS Web Viewer mapping website and is for reference only. It is not to be relied upon for construction purposes. It is provided for planning purposes only.
FIELD LOCATES ARE REQUIRED FOR LOCATION OF UTILITY FACILITIES

Notes:

PENDLETON DISTRICT

REPLACE POORLY COATED AND DIFFICULT TO INSPECT CANAL CROSSING