

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own
Motion to Adopt New Safety and Reliability
Regulations for Natural Gas Transmission and
Distribution Pipelines and Related Ratemaking
Mechanisms.

Rulemaking 11-02-019
(Filed February 24, 2011)

**CALIFORNIA SAFETY PLAN COMPLIANCE FILING OF
WEST COAST GAS COMPANY, INC.**

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Dated: June 24, 2013

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INTRODUCTION

1. West Coast Gas Company, Inc. (WCG) respectfully submits to the California Public Utilities Commission (Commission) its Safety Plan (Plan) in compliance with the Decision Amending Scope of Rulemaking 11-02-019 and Adding Respondents, dated April 20, 2012 (D.12-04-010).

2. In February 2011, the Commission opened Rulemaking 11-02-019 to coordinate pipeline safety efforts, obtain public input, and propose any necessary rule and/or policy changes.¹

3. In October 2011, the California Legislature passed Senate Bill (SB) 705, which was subsequently codified as Sections 961 and 963 of the California Public Utilities Code. The regulations require, among other things, that each gas corporation operating in California develop a plan for the “safe and reliable operation of its commission-regulated gas pipeline facilities subject to approval, modification and adequate funding by the commission.” The

¹ D.12-04-010. at p.8-9.

Commission² must review and accept, modify or reject each utility's plan by December 31, 2012.³

4. In D.12-04-010, the Commission addressed the requirements of Public Utilities Code §§961 and 963 by requiring all California gas system operators to file a safety plan no later than June 29, 2012. Through the safety plans, operators must demonstrate how they address each element of Public Utilities Code §§961 and 963.⁴

5. WCG operates two Commission jurisdictional distribution systems. One is located in Sacramento County at the former Mather Air Field and the other is located in Merced County at the former Castle Air Force Base. The Maximum Allowed Operating Pressures of between 7 and 50 psig. Its customers consist of 1,271 residential customers and 200 commercial customers. WCG has operated and maintained these two distributions since for over 16 years. During that time period WCG has not experienced an emergency situation that resulted in injury to any customer, employee, or the public or damage to any stakeholders' property. WCG does not operate any intra or interstate pipelines.

WEST COAST GAS COMPANY, INC.'S CALIFORNIA SAFETY PLAN

6. Attached hereto and incorporated herein as Exhibit "A" is West Coast Gas' Safety Plan.

7. Based upon the foregoing, and in response to D.12-04-010, WCG respectfully requests that the Commission approve its Plan on or before December 31, 2013.

8. West Coast Gas Company, Inc. furthers requests that the Commission grant such further relief as it deems appropriate.

² Public. Util. Code §961(b)(1); Id. at §961(b)(2).

³ WCG initially submitted the required Safety Plan in June 2012; CPUC staff subsequently required revisions to the original submittal and the Safety Plan attached hereto, as revised, has been deemed by Commission staff to be compliant with relevant Commission orders.

⁴ D.12-04-010 at p. 17.

Respectfully submitted June 24, 2013 at San Francisco, California.

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EXHIBIT A

West Coast Gas Company, Inc.

SAFETY PLAN

Revised
06.21.2013

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Appendix F	Employee Safety Plan
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1. PURPOSE AND SCOPE

1.1 OUR COMMITMENT TO SAFETY

- 1.1.1 West Coast Gas Company Inc. (WCG) is committed to providing safe and reliable natural gas service. The safety of our customers and their property, the safety of our employees and the public is and will continue to be the top priority of WCG. While we have an excellent safety record, we continuously strive to improve our operations by acquiring new technology and equipment and through continuous employee training. At the end of our plan we provide an attestation, signed by the preparer of WCG's plan.
- 1.1.2 In order to protect people and property, WCG is proactive in identifying and resolving potential problems before they occur. The reliability of our distribution systems is ensured through proper design, safe construction practices, integrity management programs, routine patrolling, inspection, maintenance and through improvement projects. The continuous interaction between management and our employees regarding the safe and reliable operation of the WCG natural gas distribution system is a key element of WCG's overall safety plan.
- 1.1.3 We also maintain a relationship with public safety and emergency response agencies within the communities we serve. These partnerships help to ensure immediate and effective emergency response in the event of a natural gas related incident.
- 1.1.4 We have developed this Safety Plan to help communicate our various policies, procedures, standards and manuals support **our commitment to safety**. The continued commitment to safety depends not only on knowledge, skills and work performance, but on the identification of potential issues and the swift and specific reaction to any emergency situation that may arise.
- 1.1.5 We are proud of our operating history. We have never experienced a gas emergency that has resulted in the loss of life or injury to persons or property.

1.2 REGULATION REQUIREMENTS

- 1.2.1 WCG's Safety Plan (Plan) was prepared in order to comply with the California Public Utility Commission (CPUC) requirements as set forth in R.11-02-019 and the mandates of Senate Bill (SB) 705 as codified in the California Public Utilities Code Sections 961 and 963:
 - 1.2.1.1 WCG shall implement and utilize its Plan upon the CPUC approval. The Plan will clearly document and define WCG policies and procedures related to:

- Safety Systems **{CA Public Utilities Code § 961(d)(1)(2)}** are those policies and procedures that identify and minimize hazard and system risk. Emergency Response **{CA Public Utilities Code § 961(d)(5)(6)(8)}** are those policies and procedures that limit the damage from accidents, provide for timely response to reports of leaks, hazardous conditions and emergency events and prepare for and respond to earthquakes and other major events.
- State and Federal Pipeline Regulations **{CA Public Utilities Code § 961(d)(7)(9),(c)}** establish a minimum baseline for pipeline safety in the United States.
- Continuing Operations **{CA Public Utilities Code § 961(b)(3),(d)(3)(4)(10)}** are those that ensure the safety of the public and WCG employees, provide for transportation capacity to safely and reliably deliver gas to all customers, provide for effective patrol and inspection to detect leaks, and to ensure an adequate sized, qualified and properly trained WCG workforce.
- Emerging Industry Issues **{CA Public Utilities Code § 961(d)(11)}** are any additional matters that the CPUC or WCG determines should be included in this Plan.

1.2.1.2 **WCG shall periodically review and update the Plan. WCG will review, update or change the plan on an annual basis.**

1.2.1.3 The Plan shall be consistent with federal pipeline safety statutes as set forth in Chapter 601 of Subtitle VIII of Title 49 of the United States Code and the regulations and the best practices in the natural gas industry.

WCG continuously reviews DOT-PHSMA for updates, bulletins and changes in the CFR49. We have access to improvements in materials and equipment through our suppliers who provide information and in some instances training.

1.2.1.4 The Plan shall set forth how the WCG will implement the Plan.

1.2.1.5 WCG shall provide opportunities for ongoing participation by the WCG's workforce in the development and implementation of the Plan, with the objective of creating a culture of safety within the WCG and to minimize the potential for accidents, explosions, fires and dangerous conditions.

1.3 OBJECTIVES

1.3.1 WCG will implement its Plan actions:

- 1.3.1.1 Protect people and property by identifying and minimizing hazards and risks in order to minimize the likelihood of accidents, explosions, fires and dangerous conditions. **{CA Public Utilities Code § 961(d)(1)}**

WCG's Public Awareness Program (PAP) is designed to communicate information to WCG's customers, excavators who perform digging within WCG service area and the general public. The seven elements of the PAP program related to the requirement of § 961(d)(1) are as follows:

PROGRAM ELEMENTS:

There are seven (7) program elements that WCG's Public Awareness Program must address:

1. General Information of the Natural Gas Distribution System Purpose and Reliability.
2. Use of the One-Call notification system prior to excavation and other damage prevention activities.
3. The possible hazards associated with the unintended release of gas from a pipeline.
4. Physical indications that a release of gas has occurred.
5. Steps that should be taken for Public safety in the event of a gas leak.
6. Procedures for the public to report a gas leak to WCG.
7. Establishing and maintaining lines of communication with emergency responders and local public officials.

WCG's Quality Management Emergency Response Plan and Operating and Maintenance Plan addresses practices and procedures designed to minimize the risk of accidents, explosions, fires and dangerous conditions. The following sections of this manual contain practices and procedures specifically designed to prevent dangerous conditions:

Part C - Line Markers: Identify underground gas facilities

Part D - Patrolling: Proactive monitoring of the system

Part E - Leak Surveys: Identify and classify gas leaks

Part I - Key Valve Maintenance: Insuring valve operations during an emergency

Part K - Cathodic Protect: Protecting steel pipe from corrosion

Part L - Leak Repairs: Repairing Class I leaks immediately, scheduling the repair of Class II leaks and monitoring Class III leaks

Part N and Part O - Periodic inspection and testing of regulation stations.

WCG's DIMP process has identified third party excavators as the primary risk to WCG's distribution system. Our "Call Before You Dig" public awareness program combined with aggressive patrolling and monitoring of our system, has and will continue to limit the potential threat that unsupervised excavation can cause.

- 1.3.1.2 Identify and implement improvements to pipeline safety systems that may be deployed to minimize hazards, including adequate documentation of gas pipeline facility history and capability. **{CA Public Utilities Code § 961(d)(2)}**

WCG has in place a series of "key", "in-line" and "curb" valves that are critical to minimizing hazards to residents, businesses and the public within WCG service area. WCG maintains over 250 valves at Mather and Castle. We have developed an elaborate valve maintenance program and valve location mapping. Each WCG field technician is trained in locating and operating systems valves in case of an emergency.

WCG has invested in modern, state of the art impressed current cathodic protection (ICCP) systems to protect steel pipe from galvanic corrosion that can lead to gas leaks. Ground beds and rectifiers were installed in the industrial and housing area of Mather in 1998. A similar ICCP system was installed at Castle in 2003.

- 1.3.1.3 Provide adequate transportation and storage capacity to reliably and safely deliver gas to all customers consistent with rules authorized by the CPUC governing core and noncore reliability and curtailment, including provisions for expansion, replacement, preventative maintenance and reactive maintenance and repair of gas piping facilities. **{CA Public Utilities Code § 961(d)(3)}**

As previously noted, WCG gas distribution system contains numerous key, in-line and curb valves. The primary purpose of

these valves is to isolate individual buildings (curb valves), smaller sections of the main distribution pipelines (in line valves) and entire areas of the distribution system (key valves). In case of an emergency an individual building, WCG can isolate that building from the rest of the system thus shutting off gas to the affected building or structure while maintained service to other customers in the area.

In addition, many areas of WCG's gas distribution system are "looped". Looping allows gas to flow into a main from two different directions. Therefore, in the case where it becomes necessary to isolate an entire section of the a distribution main by closing in-line valves, other customers, receiving service from the same main outside of the affected area, will not have their service interrupted.

WCG does operate a regulation station within its distribution system. The regulation station is equipped with pressure regulated by-pass equipment that allows WCG to perform maintenance without having to interrupt service to any customer.

- 1.3.1.4 Perform effective patrols and inspections of gas pipeline facilities to detect leaks and other compromised facility conditions and make timely reports. **{CA Public Utilities Code § 961(d)(4)}**

Part D of WCG's Operating and Maintenance Plan address WCG's system patrolling protocol including frequency. In addition, covered employees are trained in identifying "Abnormal Operating Conditions" as defined in the 49 CFR Part 192, Subpart N.

Part E of WCG's Operating and Maintenance Plan contains a description of WCG's detailed procedures for performing leak surveys, classifying detected leaks, timing of leak repairs and monitoring Class III leaks. In addition to the leak surveys conducted by WCG covered employees, WCG periodically contracts with independent leak survey firms to confirm the efficacy of its own in-house surveys.

- 1.3.1.5 Provide appropriate and effective system controls, with respect to both equipment and personnel procedures, to limit the likelihood of damage from accidents, explosions, fires and dangerous conditions. **{CA Public Utilities Code § 961(d)(5)}**

In order to identify and minimize hazards and systemic risks, WCG various operation and maintenance programs was well as proactive activities. WCG Operating and Maintenance Plan

includes the following activities and programs that address the requirements of Code § 961(d)(5):

- Emergency Response Procedures (Part B)
- Line Markers (Part C)
- Pipeline Patrols (Part D)
- Leak Surveys (Part E)
- Testing-Reinstating Service Lines and Piping (Part F)
- Prevention of Accidental Ignition of Gas (part H)
- Valve Maintenance Programs (Part I)
- Odorization of Gas (Part J)
- Leak Repairs and Construction (Part L)
- Uprating Procedures (Part M)
- Inspection of Regulation Station (Part N)
- Operator Qualifications Program (Part Q)
- Employee Drug and Alcohol Testing Program (Part R)
- MSA Inspections During Meter Reading
- Constant Surveillance of the Distribution
- Quarterly Notices to Customers on Gas Safety
- USA Underground Membership
- Inspection of Contractor Excavations

The two charts below contain WCG's Scheduled General Maintenance Program for both Mather and Castle. The charts list the maintenance activity as well as time periods when these activities are performed.

West Coast Gas Company, Inc.

General Maintenance Schedule

MATHER

Maintenance Functions	Fed Std.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Patrol Distribution Lines: Business Areas (A,B,C, and D)	192.721												
Residential Areas (F and G)													
2. Gas Leak Detection Surveys Business Areas (A,B,C, and D)	192.723												
Residential Areas (F and G)													
3. Valve Maintenance	192.747												
4. Ground Bed Watering													
5. Corrosion Control - Atmospheric	192.481												

6. Corrosion Control - Examination (Testing of pipe as exposed)	192.459														
7. Corrosion Control, Monitoring & Testing - Rectifiers Business Areas (A,B,C, and D)	192.465														
Residential Areas (F and G)															
8. New Pipe Testing (80 psi)	192.517	Pipe tested when received into warehouse.													
9. Vault Maintenance	192.749														
10. PSIG @ WCG Reg Station	192.739														
11. Odorization "Sniff Test"	192.625														
12. Emergency Exercises & Safety Meetings	192.615														
13. PE Qualifying															

West Coast Gas Company, Inc.
General Maintenance Schedule
CASTLE

Maintenance Functions	Fed Std.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Patrol Distribution Lines: Business Areas	192.721												
2. Gas Leak Detection Surveys Distribution Mains and Services	192.723												
3. Valve Maintenance	192.747												
4. Corrosion Control - External Monitoring and Testing	192.465												
5. Corrosion Control - Atmospheric	192.481												
6. Corrosion Control - Examination (Testing of pipe as exposed)	192.459												
7. Odorization "Sniff Test"	192.625												

8. Emergency Exercises & Safety Meetings	192.615												
9. Ground Bed Watering													

1.3.1.6 Provide timely response to customer and employee reports of leaks or abnormal operating conditions and emergency events. **{CA Public Utilities Code § 961(d)(6)}**

Significant odor of gas in or near building - unconfirmed or undetermined leak source.	Call 911 and request fire department assistance if not on scene. Identify affected area and close valves. Evacuate buildings as necessary.	Co-ordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. check all piping and appliance for leaks.
Transient or occasional light odor of gas in or near a building - unconfirmed leak source.	Identify affected area and close valves. Evacuate buildings as necessary.	Co-ordinate with emergency services and customers and necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. Check all piping and appliance for leaks.
Odor of gas emanating from single appliance.	Identify affected appliance and close appliance valves. Evacuate buildings as necessary.	Co-Ordinate with customer as necessary. Monitor for gas accumulations. Ventilates as necessary. Repair leaks.
Suspected leaking gas meter.	Isolate meter by closing gas valves.	Co-ordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition.

1.3.1.7 Include appropriate protocols for determining maximum allowable operating pressures for transmission pipeline segments. **{CA Public Utilities Code § 961(d)(7)}**

The WCG gas distribution system at Mather consists of two separate systems. In the commercial area of Mather, the MAOP is 10 psig and the operating pressure is 7 psig. The residential housing area is supplied by PG&E at distribution pressure of 50 psig. The MAOP in the housing area is 60 psig and the operating pressure is 42 to 49 psig. One section of the house area operates at a lower pressure of 9 to 12 psig and has a MAOP of 15 psig.

The MAOP and operating pressure in the commercial area was established by the U.S.A.F. when Mather was a military base.

Between 1998 and 2000, WCG replaced approximately 50% of the steel coated mains in the commercial area with PE pipe that was pressure tested by WCG before installation at 80 psig. All new service line connections in the commercial area are PE pipe pressure tested at 75 psig. Service regulators located at meters and meter manifold reduce the pressure from 7 psig down to 1/4 psig. During this same time period, WCG replaced all the existing meter set assemblies, including regulators and meters to insure that the operating pressure would be maintained and that the MAOP would not be exceeded.

The MAOP and operating pressure in the house area was established by PG&E when it operated the gas distribution system under contracts with the U.S.A.F. Between 2002 and 2005, WCG replaced about 30% of all gas mains with pressure tested PE pipe. All 1,231 gas service lines were replaced with pressure tested PE Pipe and every regulator and meter was replaced with new equipment.

The MAOP of Castle is 20 psig and the operating pressure is 17 psig. The U.S.A.F. established both the MAOP and operating pressure at 1-0 psig. WCG uprated the MAOP and the operating pressure to 20 psig in November 2002. The Castle uprate was performed using the requirement of 49 CFR Part 192, Subpart N.

Under Federal Regulations 49 CFR §192 (Part 192), a pipeline's MAOP may be governed by several factors, including the highest actual operating pressure to which the segment was subjected during the five-year period preceding November 12, 1970. The effect of this clause - which is commonly referred to as the "Grandfather Clause" - is to allow operators to maintain the MAOP of pipelines that were installed prior to 1970 without having to pressure test or derate them. It is thus not surprising (and would be expected) that a pipeline operator would not have documentation of a strength test for pipelines installed before regulations requiring these tests were adopted. Both Mather gas systems and Castle's gas systems were operated before 1970 and the previous operators established the MAOP.

WCG performs numerous maintenance activities to validate the integrity of the distribution system, including leak surveys, pipeline patrols, damage prevention programs, corrosion control measures, pressure monitoring, valve maintenance program and an operator qualification program. The gas leak

history is consistent with the expectations of a safely operated distribution system. A majority of gas leaks consist of gas odor calls that typically require customer attention because the leak source is after the gas meter. The remedial and preventative work activities performed to operate, maintain, and ensure the integrity and security of facilities are scheduled, performed and tracked and documented by WCG.

1.3.1.8 Prepare for and respond to earthquakes and other major events to minimize damage. **{CA Public Utilities Code § 961(d)(8)}**

EMERGENCY	IMMEDIATE RESPONSE	CONTINUING RESPONSE
Fire or explosion in the gas system.	Identify affected area and close gas meter valves. Do not extinguish fire generating from open or broken pipes, flanges, etc. Evacuate at least 500 to 1,000 feet dependent on the size of the release. Repair and restore system post-emergency once cleared by fire department and inspected by regulatory authority.	Assist fire, police and emergency services as required. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition.
Danger to segment of gas main system due to natural hazard of human caused events (earthquakes or terrorist actions).	Identify affected area and close gas meter valves. Seek technical expertise as necessary to quantify hazards. Be prepared to close main interconnection with PG&E if the number of gas segments that are damaged cannot be controlled by closing Key Valves.	Co-ordinate with emergency service and other first responders. Interact with customers as needed. Monitor as necessary, eliminate sources of ignition.

In case of a major event that results in the release of large amounts of gas into the atmosphere, WCG staff has the responsibility to immediately notify public safety officials of gas risks. Ordering evacuations and public protection is lawfully the responsibility of the public safety officials. In the absence of public safety officials, WCG staff shall take immediate actions to notify and protect the public from gas risks. This will include the establishment of Perimeter Zone(s) that will be set up around the affected area and include a Public Protection/Evacuation Zone - The Evacuation Zone is the larger area surrounding the Hazard Zone, in which a lesser degree of risk to emergency personnel exists, but from which

all civilians will be removed. The limits of this zone will be enforced by the local responding police department when necessary. The area to be evacuated depends upon the nature and extent of the fire, explosion or leak.

- 1.3.1.9 Meet or exceed the minimum standards for safe design, construction, installation, operation and maintenance of gas transmission and distribution facilities prescribed by regulations issued by the US Department of Transportation in Part 192 (commencing with Section 192.1) of Title 29 of the Code of Federal Regulations. **{CA Public Utilities Code § 961(d)(9)}**

WCG's operations, maintenance and safety programs are designed to meet or exceed the requirements of the US Department of Transportation as codified in Part 192 of Title 49. WCG has developed its Operation and Maintenance Plan (O&M) according to the regulations. The O&M consists of standard practices for construction, maintenance and repair of gas mains and service lines. The plan includes the following policy and procedures:

- Operating, maintaining and repairing the pipeline in accordance with each of the requirements of 49 CFR 192 Subparts L and M.
- Controlling corrosion in accordance with the operations and maintenance requirements of 49 CFR 192 Subpart I.
- Making construction records, maps and operating history available to appropriate operating personnel.
- Gathering of data needed for reporting incidents under 49 CFR Part 191 in a timely and effective manner.
- Starting up and shutting down any part of the pipeline in a manner designed to assure operation within the Maximum Allowable Operating Pressure (MAOP) limits prescribed by 49 CFR 192.619-192.623, plus the build up allowed for operations of pressure limiting and control devices.
- Periodically reviewing the work performed by operator personnel to determine the effectiveness and adequacy of the procedures used in normal operation and maintenance and modifying these procedures when deficiencies are found.
- Responding promptly to a report of gas odor inside or near a building.

- Instructions enabling personnel who perform operations and maintenance activities to recognize conditions that potentially may be safety related conditions that are subject to the reporting requirements of 49 CFR 191.23. the procedures required by 49 CFR 192.613(a), 192.615, and 192.617.

Plan Review and Update

The plan is revised annually by qualified personnel. Annually or more frequently as appropriate, each supervisor reviews the work performed by the operations personnel reporting to him to ensure that the procedures in use are adequate. The supervisor ensures that any necessary revisions are made to the operating procedures and forwards the changes to the person responsible for maintaining the O&M Plan.

Recordkeeping

All documents generated for gas mains and service lines and periodic maintenance are kept on file in WCG's Sacramento Office and are subject to review by the CPUC's Gas Safety and Reliability Branch. These records are kept for a period of at least 10 years.

- 1.3.1.10 Ensure an adequately sized and qualified, and properly trained gas corporation workforce to carry out the Plan. **{CA Public Utilities Code § 961(d)(10)}**

WCG ensures the qualification and training of the workforce through the Operator Qualifications Plan (OQ Plan) as presented in the Operator Qualifications Plan. Program Manual (2012 revision and as required by 49 CFR, Subpart N (801-809), Qualification of Pipeline Personnel. A qualified individual will possess the appropriate combination of information (knowledge), craftsmanship (skills), and proficiency (ability or capabilities) that allows the individual to perform covered tasks and recognize and react to abnormal operating conditions.

- 1.3.1.11 Include any additional matters that the CPUC determines should be included in the Plan. **{CA Public Utilities Code § 961(d)(11)}**

1.4 APPLICABILITY, IMPLEMENTATION AND REVISION

- 1.4.1 This Plan applies to all WCG and contractor personnel who perform covered task. This includes, but is not limited to field employees, field supervision and contractors.

- 1.4.2 WCG's Plan will be effective upon CPUC approval. Implementation of the Plan is through application of reference documents which address all of the elements set forth in the regulation. Initial implementation will occur through specific overview training with all affected personnel identified in the Plan. Training will be documented in accordance with DOT and CPUC guidelines. Annual review of the Plan will involve Company management and affected covered employees. Each new employee with received training on the purpose, scope and detailed policies and procedures contained it the WCG Plan.
- 1.4.3 The Plan references other existing WCG policies, procedures, programs and plans. These referenced documents are reviewed annually and updated as needed. The Plan will be reviewed annually in conjunction with these referenced documents. In addition, the Plan will be revised based upon changes to regulatory requirement, policies or procedural changes, editorial changes or as determined by WCG.

MANUAL/PROGRAM/PLAN	CA PUBLIC UTILITIES CODE	R.11-02-019 TOPIC
Operations & Maintenance Plan (OMP) - All Parts of the Plan	<i>CA Public Utilities Code § 961(d)(1)-(9), § 963(b)(3)</i>	Safety Systems Emergency Response State & Federal Regulations Continuing Operations
Distribution Integrity Management Program (DIMP) - Shrimp Threat Assessment	<i>CA Public Utilities Code § 961(d)(1)(2)(9), § 963(b)(3)</i>	Safety Systems State & Federal Regulations Continuing Operations
Damage Prevention Program (DPP)	<i>CA Public Utilities Code § 961(c), (d)(1)(2)(9)</i>	Safety Systems State & Federal Regulations
Public Awareness Program (PAP) - Each of the Seven Program Elements	<i>CA Public Utilities Code § 961(d)(1)(2)(5)(9)</i>	Safety Systems Emergency Response State & Federal Regulations
Emergency Plan (EP) - Part B	<i>CA Public Utilities Code § 961(d)(2)(5)(6)(8)(9)</i>	Safety Systems Emergency Response State & Federal Regulations
Operator Qualification Plan (OQ Plan) - Entire Plan	<i>CA Public Utilities Code § 961(c), (d)(10)</i>	State & Federal Regulations Continuing Operations
Employee Safety Manual - Entire Plan	<i>CA Public Utilities Code § 961(d)(1)(2)(5)(10)</i>	Safety Systems Emergency Response Continuing Operations
Customer Service Manual (CSM)	<i>CA Public Utilities Code § 961(d)(1)(2)(4)(5)(6)(9), § 963(b)(3)</i>	Safety Systems Emergency Response State & Federal Regulations Continuing Operations
Material Specification	<i>CA Public Utilities Code § 961(d)(1)(2)(9)</i>	Safety Systems State & Federal Regulations
Drug and Alcohol Plan (D&A Plan)	<i>CA Public Utilities Code § 961(c), (d)(10)</i>	State & Federal Regulations Continuing Operations

2. PLAN PROVISIONS

The WCG Plan embodies the policies and procedures specified in the WCG's manuals, plans and programs listed below.

2.1 OPERATING AND MAINTENANCE PLAN

2.1.1 WCG's Operating and Maintenance Plan contains policies and procedures for the operations and maintenance of WCG's distribution system meeting or exceeding the minimum standards set forth in US Department of Transportation Regulations title 49 CFR Part 192.

2.1.2 The Operating and Maintenance Plan contains procedures for leak survey and leak detection (Part E), patrolling requirements (Part D), emergency response requirements (Part B), identification of abnormal and unusual operating conditions (Part Q), corrosion control requirements (Part K), measurement and control requirements (Part O and Appendix B), design standards and general operational standards for WCG's distribution facilities (Parts C, H, I, J, M, N, P, R and Part S).

2.1.3 Distribution Integrity Management Program - Appendix B

- WCG's Distribution Integrity Management Program (DIMP) is based on a risk based process that attempts to identify and prioritize the risks in order to insure the safety and integrity of the WCG distribution systems.
- WCG has acquired and used a web based DIMP analysis program called SHRIMP. SHRIMP was developed by the American Public Gas Association for its members who are predominately small natural gas distribution entities.

2.1.4 Damage Prevention Program - Appendix C

- "Call Before You Dig" call center along with a vigilant program to monitor all excavation is the key to prevent damage to underground distribution facilities. WCG has an aggressive program to monitor all excavations within its service territory and to continuously inform its customers to the dangers of excavating on their property without first requesting WCG to locate its gas facilities.
- WCG is committed to designing, constructing, operating and maintaining its pipelines in a manner that ensures long-term safety and product reliability to the public, its customers, contractors and employees. This includes minimizing service interruptions and negative impacts caused by excavation damage.

2.1.5 Public Awareness Program - Appendix C

- WCG developed a Public Awareness Program to comply with the American Petroleum Institute (API) recommended practice RP1162. WCG's Public Awareness Program includes requirements from US Department of Transportation Regulation

Title 49 CFR Parts 192.605, 192.614, 192.615 and 192.616 to enhance messages, methods, procedures and documentation.

2.2 EMERGENCY PLAN - APPENDIX A, PART B

2.2.1 When any emergency arises that affects the normal, safe distribution of gas to customers, it is essential that a predetermined course of action and the means necessary to accomplish these actions be immediately taken to protect customers and their property, employees, contractors, first responders and the public in general. WCG's Emergency Response Plan describes the procedures and policies for accomplishing these objectives. All personnel are trained, drilled and critiqued on emergency preparedness in order to maintain effective and timely responses to natural gas related emergencies.

2.3 OPERATOR QUALIFICATION PLAN - APPENDIX D

2.3.1 The Operator Qualification (OQ) Plan was developed and implemented to comply with US Department of Transportation Regulation Title 49 CFR Part 192, Subpart N, Qualification of Pipeline Personnel. WCG's OQ Plan identifies covered employees and defines covered tasks and the required qualifications for all work that meets the four part test: (1) The activity is performed on a distribution facility, (2) The activity is an operations or maintenance task, (3) The activity is performed as a requirement of Title 49 CFR Part 192 and (4) The activity affects the operation or integrity of the pipeline. WCG administers the OQ Plan for all approved contractor and WCG employees that perform work for WCG on its distribution facilities.

2.4 EMPLOYEE SAFETY PLAN - APPENDIX F

2.4.1 WCG maintains a comprehensive employee safety program for covered employees. As part of the program, WCG has developed the safety policies and procedures contained in the Employee Safety Plan and has also developed a written accident prevention program. These publications outline the safety responsibilities of all employees, including general safety rules and specific safety requirement. All employees are encouraged to read them carefully, become familiar with them and strictly adhere to all safety rules and procedures that apply to their job. In addition, WCG provides each employee with the proper tools and equipment to do their job safely, as well as personal protective equipment to use without hesitation.

2.5 CUSTOMER SERVICE MANUAL - APPENDIX G

2.5.1 The Customer Service Manual (CSM) is a guide for WCG employees and WCG customers and contractor of customers on the physical requirements of established gas service. The CSM contains policies and procedures for the installation of above ground customer facilities. The CSM contains instructions and specifications to be used by WCG and WCG customers in an effort to deliver safe, reliable and uniform service

to customers. In order to ensure the safety of the customer and the WCG distribution system as a whole, it is necessary that WCG provide service only after the gas piping facilities, meters and regulators are satisfactorily installed.

2.6 MATERIAL SPECIFICATIONS - APPENDIX A, PART F

2.6.1 WCG Material Specifications denote the requirements that must be met for all natural gas carrying components utilized in WCG's distribution system. These specification include the material; applicable standards (national, federal or other), terminology, materials and manufacturing standards, material performance requirements, dimensions and tolerances, inspection, certification, Material Safety Data Sheets (MSDS) information, product marking and labeling, packaging, stock classification descriptions and approved manufacturers or product suppliers.

2.7 DRUG AND ALCOHOL PLAN - APPENDIX A, PART R AND APPENDIX E

2.7.1 WCG's Anti Drug and Alcohol Misuse Prevention (D&A) Plan provides policies, procedures and protocols for drug and alcohol testing of individuals who perform covered tasks including operations, maintenance or emergency response functions on natural gas facilities. WGC retains an outside testing laboratory that conducts random drug tests of all WCG employees who perform covered tasks.

3. EMPLOYEE SAFETY PLAN - APPENDIX F

3.1 The Employee Safety Plan (Appendix F) contains general and task specific instructions for WCG field employees. Any employee or contractor who perceived a breach of safety requirements is authorized to stop work immediately and communicate the breach to their management. Additionally, employees are required to report immediately any regulatory violations, suspected regulatory violations and potentially harmful or dangerous **situations**.

4. PLAN REVIEW REQUIREMENTS

4.1 Personnel are encouraged to actively evaluate the effectiveness and provide feedback, where applicable, on all sections of the Plan as well as through regular manual, policy and procedure review processes.

4.2 This plan will be reviewed, changed or updated each year.

ATTESTATION

The WCG plan was prepared by several members of WCG staff, both administrative and field personnel. The overall co-ordination of its preparation was performed by Raymond J. Czahar, CFO. WCG will review and revise its Safety Plan each year but not less than every 18 months.

Raymond J. Czahar

Raymond J. Czahar
CFO

West Coast Gas Company, Inc.

SAFETY PLAN

Revised
06.21.2013

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1. PURPOSE AND SCOPE

1.1 OUR COMMITMENT TO SAFETY

- 1.1.5 West Coast Gas Company Inc. (WCG) is committed to providing safe and reliable natural gas service. The safety of our customers and their property, the safety of our employees and the public is and will continue to be the top priority of WCG. While we have an excellent safety record, we continuously strive to improve our operations by acquiring new technology and equipment and through continuous employee training. At the end of our plan we provide an attestation, signed by the preparer of WCG's plan.

- 1.1.6 In order to protect people and property, WCG is proactive in identifying and resolving potential problems before they occur. The reliability of our distribution systems is ensured through proper design, safe construction practices, integrity management programs, routine patrolling, inspection, maintenance and through improvement projects. The continuous interaction between management and our employees regarding the safe and reliable operation of the WCG natural gas distribution system is a key element of WCG's overall safety plan.

- 1.1.7 We also maintain a relationship with public safety and emergency response agencies within the communities we serve. These partnerships help to ensure immediate and effective emergency response in the event of a natural gas related incident.

- 1.1.8 We have developed this Safety Plan to help communicate our various policies, procedures, standards and manuals support **our commitment to safety**. The continued commitment to safety depends not only on knowledge, skills and work performance, but on the identification of potential issues and the swift and specific reaction to any emergency situation that may arise.
- 1.1.5 We are proud of our operating history. We have never experienced a gas emergency that has resulted in the loss of life or injury to persons or property.

1.2 REGULATION REQUIREMENTS

- 1.2.5 WCG's Safety Plan (Plan) was prepared in order to comply with the California Public Utility Commission (CPUC) requirements as set forth in R.11-02-019 and the mandates of Senate Bill (SB) 705 as codified in the California Public Utilities Code Sections 961 and 963:
- 1.2.1.1 WCG shall implement and utilize its Plan upon the CPUC approval. The Plan will clearly document and define WCG policies and procedures related to:
- Safety Systems **{CA Public Utilities Code § 961(d)(1)(2)}** are those policies and procedures that identify and minimize hazard and system risk. Emergency Response **{CA Public Utilities Code § 961(d)(5)(6)(8)}** are those policies and procedures that limit the damage from accidents, provide for timely response to reports of leaks, hazardous conditions and emergency events and prepare for and respond to earthquakes and other major events.
 - State and Federal Pipeline Regulations **{CA Public Utilities Code § 961(d)(7)(9),(c)}** establish a minimum baseline for pipeline safety in the United States.
 - Continuing Operations **{CA Public Utilities Code § 961(b)(3),(d)(3)(4)(10)}** are those that ensure the safety of the public and WCG employees, provide for transportation capacity to safely and reliably deliver gas to all customers, provide for effective patrol and inspection to detect leaks, and to ensure an adequate sized, qualified and properly trained WCG workforce.
 - Emerging Industry Issues **{CA Public Utilities Code § 961(d)(11)}** are any additional matters that the CPUC or WCG determines should be included in this Plan.
- 1.2.1.3 WCG shall periodically review and update the Plan. WCG will review, update or change the plan on an annual basis.

- 1.2.5.3 The Plan shall be consistent with federal pipeline safety statutes as set forth in Chapter 601 of Subtitle VIII of Title 49 of the United States Code and the regulations and the best practices in the natural gas industry.

WCG continuously reviews DOT-PHSMA for updates, bulletins and changes in the CFR49. We have access to improvements in materials and **equipment through our suppliers who provide information and in some instances training.**

- 1.2.1.6 The Plan shall set forth how the WCG will implement the Plan.
- 1.2.1.7 WCG shall provide opportunities for ongoing participation by the WCG's workforce in the development and implementation of the Plan, with the objective of creating a culture of safety within the WCG and to minimize the potential for accidents, explosions, fires and dangerous conditions.

1.3 OBJECTIVES

- 1.3.1 WCG will implement its Plan actions:

- 1.3.1.1 Protect people and property by identifying and minimizing hazards and risks in order to minimize the likelihood of accidents, explosions, fires and dangerous conditions. **{CA Public Utilities Code § 961(d)(1)}**

WCG's Public Awareness Program (PAP) is designed to communicate information to WCG's customers, excavators who perform digging within WCG service area and the general public. The seven elements of the PAP program related to the requirement of § 961(d)(1) are as follows:

PROGRAM ELEMENTS:

There are seven (7) program elements that WCG's Public Awareness Program must address:

1. General Information of the Natural Gas Distribution System Purpose and Reliability.
2. Use of the One-Call notification system prior to excavation and other damage prevention activities.
3. The possible hazards associated with the unintended release of gas from a pipeline.

4. Physical indications that a release of gas has occurred.
5. Steps that should be taken for Public safety in the event of a gas leak.
6. Procedures for the public to report a gas leak to WCG.
7. Establishing and maintaining lines of communication with emergency responders and local public officials.

WCG's Quality Management Emergency Response Plan and Operating and Maintenance Plan addresses practices and procedures designed to minimize the risk of accidents, explosions, fires and dangerous conditions. The following sections of this manual contain practices and procedures specifically designed to prevent dangerous conditions:

Part C - Line Markers: Identify underground gas facilities

Part D - Patrolling: Proactive monitoring of the system

Part E - Leak Surveys: Identify and classify gas leaks

Part I - Key Valve Maintenance: Insuring valve operations during an emergency

Part K - Cathodic Protect: Protecting steel pipe from corrosion

Part L - Leak Repairs: Repairing Class I leaks immediately, scheduling the repair of Class II leaks and monitoring Class III leaks

Part N and Part O - Periodic inspection and testing of regulation stations.

WCG's DIMP process has identified third party excavators as the primary risk to WCG's distribution system. Our "Call Before You Dig" public awareness program combined with aggressive patrolling and monitoring of our system, has and will continue to limit the potential threat that unsupervised excavation can cause.

- 1.3.1.2 Identify and implement improvements to pipeline safety systems that may be deployed to minimize hazards, including adequate documentation of gas pipeline facility history and capability. **{CA Public Utilities Code § 961(d)(2)}**

WCG has in place a series of "key", "in-line" and "curb" valves that are critical to minimizing hazards to residents, businesses and the public within WCG service area. WCG maintains over

250 valves at Mather and Castle. We have developed an elaborate valve maintenance program and valve location mapping. Each WCG field technician is trained in locating and operating systems valves in case of an emergency.

WCG has invested in modern, state of the art impressed current cathodic protection (ICCP) systems to protect steel pipe from galvanic corrosion that can lead to gas leaks. Ground beds and rectifiers were installed in the industrial and housing area of Mather in 1998. A similar ICCP system was installed at Castle in 2003.

- 1.3.1.3 Provide adequate transportation and storage capacity to reliably and safely deliver gas to all customers consistent with rules authorized by the CPUC governing core and noncore reliability and curtailment, including provisions for expansion, replacement, preventative maintenance and reactive maintenance and repair of gas piping facilities. **{CA Public Utilities Code § 961(d)(3)}**

As previously noted, WCG gas distribution system contains numerous key, in-line and curb valves. The primary purpose of these valves is to isolate individual buildings (curb valves), smaller sections of the main distribution pipelines (in line valves) and entire areas of the distribution system (key valves). In case of an emergency an individual building, WCG can isolate that building from the rest of the system thus shutting off gas to the affected building or structure while maintained service to other customers in the area.

In addition, many areas of WCG's gas distribution system are "looped". Looping allows gas to flow into a main from two different directions. Therefore, in the case where it becomes necessary to isolate an entire section of the a distribution main by closing in-line valves, other customers, receiving service from the same main outside of the affected area, will not have their service interrupted.

WCG does operate a regulation station within its distribution system. The regulation station is equipped with pressure regulated by-pass equipment that allows WCG to perform maintenance without having to interrupt service to any customer.

- 1.3.1.4 Perform effective patrols and inspections of gas pipeline facilities to detect leaks and other compromised facility conditions and make timely reports. **{CA Public Utilities Code § 961(d)(4)}**

Part D of WCG's Operating and Maintenance Plan address WCG's system patrolling protocol including frequency. In addition, covered employees are trained in identifying "Abnormal Operating Conditions" as defined in the 49 CFR Part 192, Subpart N.

Part E of WCG's Operating and Maintenance Plan contains a description of WCG's detailed procedures for performing leak surveys, classifying detected leaks, timing of leak repairs and monitoring Class III leaks. In addition to the leak surveys conducted by WCG covered employees, WCG periodically contracts with independent leak survey firms to confirm the efficacy of its own in-house surveys.

- 1.3.1.5 Provide appropriate and effective system controls, with respect to both equipment and personnel procedures, to limit the likelihood of damage from accidents, explosions, fires and dangerous conditions. **{CA Public Utilities Code § 961(d)(5)}**

In order to identify and minimize hazards and systemic risks, WCG various operation and maintenance programs was well as proactive activities. WCG Operating and Maintenance Plan includes the following activities and programs that address the requirements of Code § 961(d)(5):

- Emergency Response Procedures (Part B)
- Line Markers (Part C)
- Pipeline Patrols (Part D)
- Leak Surveys (Part E)
- Testing-Reinstating Service Lines and Piping (Part F)
- Prevention of Accidental Ignition of Gas (part H)
- Valve Maintenance Programs (Part I)
- Odorization of Gas (Part J)
- Leak Repairs and Construction (Part L)
- Uprating Procedures (Part M)
- Inspection of Regulation Station (Part N)
- Operator Qualifications Program (Part Q)
- Employee Drug and Alcohol Testing Program (Part R)
- MSA Inspections During Meter Reading
- Constant Surveillance of the Distribution
- Quarterly Notices to Customers on Gas Safety
- USA Underground Membership
- Inspection of Contractor Excavations

The two charts below contain WCG's Scheduled General Maintenance Program for both Mather and Castle. The charts list the maintenance activity as well as time periods when these activities are performed.

West Coast Gas Company, Inc.
General Maintenance Schedule
MATHER

Maintenance Functions	Fed Std.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Patrol Distribution Lines: Business Areas (A,B,C, and D)	192.721												
Residential Areas (F and G)													
2. Gas Leak Detection Surveys Business Areas (A,B,C, and D)	192.723												
Residential Areas (F and G)													
3. Valve Maintenance	192.747												
4. Ground Bed Watering													
5. Corrosion Control - Atmospheric	192.481												
6. Corrosion Control - Examination (Testing of pipe as exposed)	192.459												
7. Corrosion Control, Monitoring & Testing - Rectifiers Business Areas (A,B,C, and D)	192.465												
Residential Areas (F and G)													
8. New Pipe Testing (80 psi)	192.517	Pipe tested when received into warehouse.											
9. Vault Maintenance	192.749												
10. PSIG @ WCG Reg Station	192.739												
11. Odorization "Sniff Test"	192.625												
12. Emergency Exercises & Safety Meetings	192.615												
13. PE Qualifying													

West Coast Gas Company, Inc.
General Maintenance Schedule
CASTLE

Maintenance Functions	Fed Std.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Patrol Distribution Lines: Business Areas	192.721	■			■			■			■		
2. Gas Leak Detection Surveys Distribution Mains and Services	192.723				■	■							
3. Valve Maintenance	192.747			■	■	■	■	■	■				
4. Corrosion Control - External Monitoring and Testing	192.465		■		■		■		■		■		■
5. Corrosion Control - Atmospheric	192.481					■							
6. Corrosion Control - Examination (Testing of pipe as exposed)	192.459	■	■	■	■	■	■	■	■	■	■	■	■
7. Odorization "Sniff Test"	192.625		■			■			■			■	
8. Emergency Exercises & Safety Meetings	192.615		■			■			■			■	
9. Ground Bed Watering								■	■				

1.3.1.6 Provide timely response to customer and employee reports of leaks or abnormal operating conditions and emergency events. {CA Public Utilities Code § 961(d)(6)}

Significant odor of gas in or near building - unconfirmed or undetermined leak source.	Call 911 and request fire department assistance if not on scene. Identify affected area and close valves. Evacuate buildings as necessary.	Co-ordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. check all piping and appliance for leaks.
Transient or occasional light odor of gas in or near a building - unconfirmed leak source.	Identify affected area and close valves. Evacuate buildings as necessary.	Co-ordinate with emergency services and customers and necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. Check all piping and appliance for leaks.
Odor of gas emanating from single appliance.	Identify affected appliance and close appliance valves. Evacuate buildings as necessary.	Co-Ordinate with customer as necessary. Monitor for gas accumulations. Ventilates as necessary. Repair leaks.

Suspected leaking gas meter.	Isolate meter by closing gas valves.	Co-ordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition.
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- 1.3.1.7 Include appropriate protocols for determining maximum allowable operating pressures for transmission pipeline segments. **{CA Public Utilities Code § 961(d)(7)}**

The WCG gas distribution system at Mather consists of two separate systems. In the commercial area of Mather, the MAOP is 10 psig and the operating pressure is 7 psig. The residential housing area is supplied by PG&E at distribution pressure of 50 psig. The MAOP in the housing area is 60 psig and the operating pressure is 42 to 49 psig. **One section of the house area operates at a lower pressure of 9 to 12 psig and has a MAOP of 15 psig.**

The MAOP and operating pressure in the commercial area was established by the U.S.A.F. when Mather was a military base.

Between 1998 and 2000, WCG replaced approximately 50% of the steel coated mains in the commercial area with PE pipe that was pressure tested by WCG before installation at 80 psig. All new service line connections in the commercial area are PE pipe pressure tested at 75 psig. Service regulators located at meters and meter manifold reduce the pressure from 7 psig down to 1/4 psig. During this same time period, WCG replaced all the existing meter set assemblies, including regulators and meters to insure that the operating pressure would be maintained and that the MAOP would not be exceeded.

The MAOP and operating pressure in the house area was established by PG&E when it operated the gas distribution system under contracts with the U.S.A.F. Between 2002 and 2005, WCG replaced about 30% of all gas mains with pressure tested PE pipe. All 1,231 gas service lines were replaced with pressure tested PE Pipe and every regulator and meter was replaced with new equipment.

The MAOP of Castle is 20 psig and the operating pressure is 17 psig. The U.S.A.F. established both the MAOP and operating pressure at 1-0 psig. WCG uprated the MAOP and the operating pressure to 20 psig in November 2002. The Castle uprate was performed using the requirement of 49 CFR Part 192, Subpart N.

Under Federal Regulations 49 CFR §192 (Part 192), a pipeline's MAOP may be governed by several factors, including the highest actual operating pressure to which the segment was subjected during the five-year period preceding November 12, 1970. The effect of this clause - which is commonly referred to as the "Grandfather Clause" - is to allow operators to maintain the MAOP of pipelines that were installed prior to 1970 without having to pressure test or derate them. It is thus not surprising (and would be expected) that a pipeline operator would not have documentation of a strength test for pipelines installed before regulations requiring these tests were adopted. Both Mather gas systems and Castle's gas systems were operated before 1970 and the previous operators established the MAOP.

WCG performs numerous maintenance activities to validate the integrity of the distribution system, including leak surveys, pipeline patrols, damage prevention programs, corrosion control measures, pressure monitoring, valve maintenance program and an operator qualification program. The gas leak history is consistent with the expectations of a safely operated distribution system. A majority of gas leaks consist of gas odor calls that typically require customer attention because the leak source is after the gas meter. The remedial and preventative work activities performed to operate, maintain, and ensure the integrity and security of facilities are scheduled, performed and tracked and documented by WCG.

- 1.3.1.8 Prepare for and respond to earthquakes and other major events to minimize damage. {CA Public Utilities Code § 961(d)(8)}

EMERGENCY	IMMEDIATE RESPONSE	CONTINUING RESPONSE
Fire or explosion in the gas system.	Identify affected area and close gas meter valves. Do not extinguish fire generating from open or broken pipes, flanges, etc. Evacuate at least 500 to 1,000 feet dependent on the size of the release. Repair and restore system post-emergency once cleared by fire department and inspected by regulatory authority.	Assist fire, police and emergency services as required. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition.
Danger to segment of gas main system due to natural hazard of human caused	Identify affected area and close gas meter valves.	Co-ordinate with emergency service and other first responders.

events (earthquakes or terrorist actions).	Seek technical expertise as necessary to quantify hazards. Be prepared to close main interconnection with PG&E if the number of gas segments that are damaged cannot be controlled by closing Key Valves.	Interact with customers as needed. Monitor as necessary, eliminate sources of ignition.
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Incase of a major event that results in the release of large amounts of gas into the atmosphere, WCG staff has the responsibility to immediately notify public safety officials of gas risks. Ordering evacuations and public protection is lawfully the responsibility of the public safety officials. In the absence of public safety officials, WCG staff shall take immediate actions to notify and protect the public from gas risks. This will include the establishment of Perimeter Zone(s) that will be set up around the affected area and include a Public Protection/Evacuation Zone - The Evacuation Zone is the larger area surrounding the Hazard Zone, in which a lesser degree of risk to emergency personnel exists, but from which all civilians will be removed. The limits of this zone will be enforced by the local responding police department when necessary. The area to be evacuated depends upon the nature and extent of the fire, explosion or leak.

- 1.3.1.9 Meet or exceed the minimum standards for safe design, construction, installation, operation and maintenance of gas transmission and distribution facilities prescribed by regulations issued by the US Department of Transportation in Part 192 (commencing with Section 192.1) of Title 29 of the Code of Federal Regulations. **{CA Public Utilities Code § 961(d)(9)}**

WCG's operations, maintenance and safety programs are designed to meet or exceed the requirements of the US Department of Transportation as codified in Part 192 of Title 49. WCG has developed its Operation and Maintenance Plan (O&M) according to the regulations. The O&M consists of standard practices for construction, maintenance and repair of gas mains and service lines. The plan includes the following policy and procedures:

- Operating, maintaining and repairing the pipeline in accordance with each of the requirements of 49 CFR 192 Subparts L and M.
- Controlling corrosion in accordance with the operations and maintenance requirements of 49 CFR 192 Subpart I.

- Making construction records, maps and operating history available to appropriate operating personnel.
- Gathering of data needed for reporting incidents under 49 CFR Part 191 in a timely and effective manner.
- Starting up and shutting down any part of the pipeline in a manner designed to assure operation within the Maximum Allowable Operating Pressure (MAOP) limits prescribed by 49 CFR 192.619-192.623, plus the build up allowed for operations of pressure limiting and control devices.
- Periodically reviewing the work performed by operator personnel to determine the effectiveness and adequacy of the procedures used in normal operation and maintenance and modifying these procedures when deficiencies are found.
- Responding promptly to a report of gas odor inside or near a building.
- Instructions enabling personnel who perform operations and maintenance activities to recognize conditions that potentially may be safety related conditions that are subject to the reporting requirements of 49 CFR 191.23, the procedures required by 49 CFR 192.613(a), 192.615, and 192.617.

Plan Review and Update

The plan is revised annually by qualified personnel. Annually or more frequently as appropriate, each supervisor reviews the work performed by the operations personnel reporting to him to ensure that the procedures in use are adequate. The supervisor ensures that any necessary revisions are made to the operating procedures and forwards the changes to the person responsible for maintaining the O&M Plan.

Recordkeeping

All documents generated for gas mains and service lines and periodic maintenance are kept on file in WCG's Sacramento Office and are subject to review by the CPUC's Gas Safety and Reliability Branch. These records are kept for a period of at least 10 years.

- 1.3.1.10 Ensure an adequately sized and qualified, and properly trained gas corporation workforce to carry out the Plan. **{CA Public Utilities Code § 961(d)(10)}**

WCG ensures the qualification and training of the workforce through the Operator Qualifications Plan (OQ Plan) as presented in the Operator Qualifications Plan. Program Manual (2012 revision and as required by 49 CFR, Subpart N (801-809), Qualification of Pipeline Personnel. A qualified individual will possess the appropriate combination of information (knowledge), craftsmanship (skills), and proficiency (ability or capabilities) that allows the individual to perform covered tasks and recognize and react to abnormal operating conditions.

- 1.3.1.11 Include any additional matters that the CPUC determines should be included in the Plan. **{CA Public Utilities Code § 961(d)(11)}**

1.4 APPLICABILITY, IMPLEMENTATION AND REVISION

- 1.4.1 This Plan applies to all WCG and contractor personnel who perform covered task. This includes, but is not limited to field employees, field supervision and contractors.
- 1.4.2 WCG's Plan will be effective upon CPUC approval. Implementation of the Plan is through application of reference documents which address all of the elements set forth in the regulation. Initial implementation will occur through specific overview training with all affected personnel identified in the Plan. Training will be documented in accordance with DOT and CPUC guidelines. Annual review of the Plan will involve Company management and affected covered employees. Each new employee with received training on the purpose, scope and detailed policies and procedures contained it the WCG Plan.
- 1.4.3 The Plan references other existing WCG policies, procedures, programs and plans. These referenced documents are reviewed annually and updated as needed. The Plan will be reviewed annually in conjunction with these referenced documents. In addition, the Plan will be revised based upon changes to regulatory requirement, policies or procedural changes, editorial changes or as determined by WCG.

MANUAL/PROGRAM/PLAN	CA PUBLIC UTILITIES CODE	R.11-02-019 TOPIC
Operations & Maintenance Plan (OMP) - All Parts of the Plan	<i>CA Public Utilities Code § 961(d)(1)-(9), § 963(b)(3)</i>	Safety Systems Emergency Response State & Federal Regulations Continuing Operations
Distribution Integrity Management Program (DIMP) - Shrimp Threat Assessment	<i>CA Public Utilities Code § 961(d)(1)(2)(9), § 963(b)(3)</i>	Safety Systems State & Federal Regulations Continuing Operations
Damage Prevention Program (DPP)	<i>CA Public Utilities Code § 961(c), (d)(1)(2)(9)</i>	Safety Systems State & Federal Regulations
Public Awareness Program (PAP) - Each of the Seven Program Elements	<i>CA Public Utilities Code § 961(d)(1)(2)(5)(9)</i>	Safety Systems Emergency Response State & Federal Regulations
Emergency Plan (EP) - Part B	<i>CA Public Utilities Code</i>	Safety Systems Emergency

	<i>§ 961(d)(2)(5)(6)(8)(9)</i>	Response State & Federal Regulations
Operator Qualification Plan (OQ Plan) - Entire Plan	<i>CA Public Utilities Code § 961(c), (d)(10)</i>	State & Federal Regulations Continuing Operations
Employee Safety Manual - Entire Plan	<i>CA Public Utilities Code § 961(d)(1)(2)(5)(10)</i>	Safety Systems Emergency Response Continuing Operations
Customer Service Manual (CSM)	<i>CA Public Utilities Code § 961(d)(1)(2)(4)(5)(6)(9), § 963(b)(3)</i>	Safety Systems Emergency Response State & Federal Regulations Continuing Operations
Material Specification	<i>CA Public Utilities Code § 961(d)(1)(2)(9)</i>	Safety Systems State & Federal Regulations
Drug and Alcohol Plan (D&A Plan)	<i>CA Public Utilities Code § 961(c), (d)(10)</i>	State & Federal Regulations Continuing Operations

2. PLAN PROVISIONS

The WCG Plan embodies the policies and procedures specified in the WCG's manuals, plans and programs listed below.

2.1 OPERATING AND MAINTENANCE PLAN

- 2.1.1 WCG's Operating and Maintenance Plan contains policies and procedures for the operations and maintenance of WCG's distribution system meeting or exceeding the minimum standards set forth in US Department of Transportation Regulations title 49 CFR Part 192.
- 2.1.2 The Operating and Maintenance Plan contains procedures for leak survey and leak detection (Part E), patrolling requirements (Part D), emergency response requirements (Part B), identification of abnormal and unusual operating conditions (Part Q), corrosion control requirements (Part K), measurement and control requirements (Part O and Appendix B), design standards and general operational standards for WCG's distribution facilities (Parts C, H, I, J, M, N, P, R and Part S).
- 2.1.3 Distribution Integrity Management Program - Appendix B
- WCG's Distribution Integrity Management Program (DIMP) is based on a risk based process that attempts to identify and prioritize the risks in order to insure the safety and integrity of the WCG distribution systems.
 - WCG has acquired and used a web based DIMP analysis program called SHRIMP. SHRIMP was developed by the American Public Gas Association for its members who are predominately small natural gas distribution entities.
- 2.1.4 Damage Prevention Program - Appendix C

- "Call Before You Dig" call center along with a vigilant program to monitor all excavation is the key to prevent damage to underground distribution facilities. WCG has an aggressive program to monitor all excavations within its service territory and to continuously inform its customers to the dangers of excavating on their property without first requesting WCG to locate its gas facilities.
- WCG is committed to designing, constructing, operating and maintaining its pipelines in a manner that ensures long-term safety and product reliability to the public, its customers, contractors and employees. This includes minimizing service interruptions and negative impacts caused by excavation damage.

2.1.5 Public Awareness Program - Appendix C

- WCG developed a Public Awareness Program to comply with the American Petroleum Institute (API) recommended practice RP1162. WCG's Public Awareness Program includes requirements from US Department of Transportation Regulation Title 49 CFR Parts 192.605, 192.614, 192.615 and 192.616 to enhance messages, methods, procedures and documentation.

2.2 EMERGENCY PLAN - APPENDIX A, PART B

2.2.1 When any emergency arises that affects the normal, safe distribution of gas to customers, it is essential that a predetermined course of action and the means necessary to accomplish these actions be immediately taken to protect customers and their property, employees, contractors, first responders and the public in general. WCG's Emergency Response Plan describes the procedures and policies for accomplishing these objectives. All personnel are trained, drilled and critiqued on emergency preparedness in order to maintain effective and timely responses to natural gas related emergencies.

2.3 OPERATOR QUALIFICATION PLAN - APPENDIX D

2.3.1 The Operator Qualification (OQ) Plan was developed and implemented to comply with US Department of Transportation Regulation Title 49 CFR Part 192, Subpart N, Qualification of Pipeline Personnel. WCG's OQ Plan identifies covered employees and defines covered tasks and the required qualifications for all work that meets the four part test: (1) The activity is performed on a distribution facility, (2) The activity is an operations or maintenance task, (3) The activity is performed as a requirement of Title 49 CFR Part 192 and (4) The activity affects the operation or integrity of the pipeline. WCG administers the OQ Plan for all approved contractor and WCG employees that perform work for WCG on its distribution facilities.

2.4 EMPLOYEE SAFETY PLAN - APPENDIX F

2.4.1 WCG maintains a comprehensive employee safety program for covered employees. As part of the program, WCG has developed the safety policies and procedures contained in the Employee Safety Plan and has also developed a written accident prevention program. These publications outline the safety responsibilities of all employees, including general safety rules and specific safety requirements. All employees are encouraged to read them carefully, become familiar with them and strictly adhere to all safety rules and procedures that apply to their job. In addition, WCG provides each employee with the proper tools and equipment to do their job safely, as well as personal protective equipment to use without hesitation.

2.5 CUSTOMER SERVICE MANUAL - APPENDIX G

2.5.1 The Customer Service Manual (CSM) is a guide for WCG employees and WCG customers and contractor of customers on the physical requirements of established gas service. The CSM contains policies and procedures for the installation of above ground customer facilities. The CSM contains instructions and specifications to be used by WCG and WCG customers in an effort to deliver safe, reliable and uniform service to customers. In order to ensure the safety of the customer and the WCG distribution system as a whole, it is necessary that WCG provide service only after the gas piping facilities, meters and regulators are satisfactorily installed.

2.6 MATERIAL SPECIFICATIONS - APPENDIX A, PART F

2.6.1 WCG Material Specifications denote the requirements that must be met for all natural gas carrying components utilized in WCG's distribution system. These specifications include the material; applicable standards (national, federal or other), terminology, materials and manufacturing standards, material performance requirements, dimensions and tolerances, inspection, certification, Material Safety Data Sheets (MSDS) information, product marking and labeling, packaging, stock classification descriptions and approved manufacturers or product suppliers.

2.7 DRUG AND ALCOHOL PLAN - APPENDIX A, PART R AND APPENDIX E

2.7.1 WCG's Anti Drug and Alcohol Misuse Prevention (D&A) Plan provides policies, procedures and protocols for drug and alcohol testing of individuals who perform covered tasks including operations, maintenance or emergency response functions on natural gas facilities. WCG retains an outside testing laboratory that conducts random drug tests of all WCG employees who perform covered tasks.

3. EMPLOYEE SAFETY PLAN - APPENDIX F

3.1 The Employee Safety Plan (Appendix F) contains general and task specific instructions for WCG field employees. Any employee or contractor who perceived a breach of safety requirements is authorized to stop work immediately and communicate the breach to their management. Additionally, employees are

required to report immediately any regulatory violations, suspected regulatory violations and potentially harmful or dangerous **situations**.

4. PLAN REVIEW REQUIREMENTS

- 4.1 Personnel are encouraged to actively evaluate the effectiveness and provide feedback, where applicable, on all sections of the Plan as well as through regular manual, policy and procedure review processes.
- 4.2 This plan will be reviewed, changed or updated each year.

ATTESTATION

The WCG plan was prepared by several members of WCG staff, both administrative and field personnel. The overall co-ordination of its preparation was performed by Raymond J. Czahar, CFO. WCG will review and revise its Safety Plan each year but not less than every 18 months.

Raymond J. Czahar
Raymond J. Czahar
CFO

West Coast Gas Company Inc.

Safety Plan Appendices

- Appendix A Operating and Maintenance Plan
- Appendix B Distribution Integrity Management Program
- Appendix C Public Awareness Program
- Appendix D Operator Qualifications Plan
- Appendix E Drug and Alcohol Plan
- Appendix F Employee Safety Plan
- Appendix G Customer Service Manual

West Coast Gas Company Inc.

Appendix A

Operating and Maintenance Plan

West Coast Gas Company, Inc.

OPERATING AND MAINTENANCE PLAN

Current Revision
May 2013

Prior Revision
May 2012

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EXECUTIVE SUMMARY

General: This plan describes how WEST COAST GAS COMPANY INC. (WCG), will operate, maintain the Natural Gas Distribution Systems at Mather and Castle, and comply with all rules and regulations set forth under U.S. Department of Transportation as well as the California Public Utilities Commission (CPUC) regulations. WCG will perform these tasks in strict compliance with the requirements of the Research and Special Programs Administration and the Office of Pipeline Safety in carrying out their duties regarding pipeline safety under the Natural Gas Pipeline Safety Act of 1968, specifically provisions of Title 49 of the Code of Federal Regulations (49 CFR). Additionally, WCG will comply with the CPUC's General Order 112E and all other applicable terms and conditions contained therein.

The Operations and Maintenance Plan for the Natural Gas Distribution System, as of October 2008, will be continuously updated to reflect the unique physical and operating conditions as they may change over time.

At a minimum, all rules that are concerned with safety of the general public and employees' safety, to the extent they are affected by basic design, quality of materials and workmanship, as well as requirements for testing and maintenance of gas distribution facilities require a comprehensive plan with the following elements:

<u>Part</u>	<u>Description</u>
A.	Instructions for Employees and Regular Maintenance Program
B.	Emergency Procedures
C.	Line Markers
D.	Patrolling
E.	Leakage Surveys
F.	Testing for Reinstating a Service Line – Installation of Steel and Plastic Pipe.
G.	Abandonment of Facilities
H.	Accidental Ignition of Gas
I.	Key Valves Maintenance
J.	Measuring the Odorization of Gas
K.	Cathodic Protection
L.	Leak Repairs
M.	Upgrading
N.	Inspection of Regulator Stations
O.	Testing of Relief Devices at Regulator Stations
P.	Cast Iron Pipe
Q.	Covered Employee Qualification Program
R.	Drug and Alcohol Testing Program

Note that WCG's O&M plan is supplemented with more detailed information on specific O&M procedures, O&M forms and historical records which are located in WCG Technical Library. This document was prepared in order to give covered employees an overall view of WCG's O&M plan and is a starting point to understanding the practices and procedures required to insure safe and reliable operation of the gas distribution systems at Mather and Castle.

Site History and Current Use

The Mather Field Natural Gas Distribution System consists of two separate distribution systems with two separate points of interconnection with PG&E: the Industrial Area and the Housing Area. The Castle Natural Gas Distribution System consists of a single distribution system with a single point of interconnection with PG&E. A brief description of each system is set forth below:

MATHER

Industrial Area:

Service Area: Approximately 1,200 acres.

PG&E Points of Interconnection: 1 Regulation and Metering Station

PG&E delivers transmission level service to the Mather Industrial area at 240 PSIG. The delivery pressure is reduced to 7 PSIG; current distribution MAOP for the Industrial Area. There are currently 74 commercial customers in the Industrial Area of Mather. The operating pressure of 7 PSIG was established by the USAF during the 40 years it operated the system.

Housing Area:

Service Area: Approximately 1,000 acres.

PG&E Points of Connection: 1 Metering Station

Currently, PG&E delivers distribution level service to the Mather Housing Area at 42 to 49 PSIG. MAOP Distribution Pressure is 60 PSIG in the Wherry Section and 15 PSIG in the Capehart Section. WCG operates and maintains a regulation station that reduces pressure from 50 PSIG to 9 to 12 PSIG for gas supplied to the Capehart Section. The operating pressure of 50 PSIG for the Wherry Section was established by the USAF during the 40 years it operated the system. The original MAOP for the Capehart Section was 7 PSIG, again established by the USAF. In November 2002, WCG increased the MAOP for the Capehart Section to 15 PSIG.

There are 1271 residential services in the Housing Area. There are 5 commercial customers including the FAA Building. PG&E has begun the process of constructing a transmission line from Sunrise Boulevard on the east side of the Mather Housing Area and running along Douglas Boulevard inside Mather and inside WCG's service territory. WCG is considering the establishment of a second point of interconnection with PG&E on Douglas. PG&E estimates this project will be completed in July 2011.

CASTLE

Service Area: All the area within the boundary of the former Castle Air Force Base.

PG&E Points of Interconnection: 1 Regulation and Metering Station

PG&E delivers distribution level service (50 PSIG) to Castle. The delivery pressure is reduced to 17 PSIG at the PG&E metering and regulation station; the current distribution MAOP for Castle. The MAOP and operating pressure of the Castle distribution system is 20 PSIG. There are currently 50 commercial customers including the Federal Correctional Facility.

Glossary of Terms

Abandoned pipeline is a pipeline that is physically separated from its source of gas and is no longer maintained under Part 192.

Abandonment is the process of abandoning a pipeline.

Adhesive joint is a joint made in plastic piping by the use of an adhesive substance which forms a bond between the mating surfaces without dissolving either one of them.

Ambient temperature is the temperature of the surrounding medium, usually used to refer to the temperature of the air in which a structure is situated or a device operates. See also Ground Temperature, Temperature.

Bell-welded pipe is furnace-welded pipe which has a longitudinal butt joint that is forge-welded by the mechanical pressure developed in drawing the furnace-heated skelp through a cone-shaped die. The die, commonly known as a "welding bell", serves as a combined forming and welding die. This type of pipe is produced in individual lengths from cut-length skelp. Typical specifications: ASTM A 53, API 5L. See also Furnace-butt-welded pipe, Pipe manufacturing processes.

Carbon steel. By common custom, steel is considered to be carbon steel when (i) no minimum content is specified or required for aluminum, boron, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, vanadium, zirconium, or any other element added to obtain a desired alloying effect; (ii) the specified minimum content for copper does not exceed 0.40 percent; or (iii) the specified maximum content does not exceed 1.65 percent for manganese, 0.60 percent for silicon or 0.60 percent for copper.

All carbon steels may contain small quantities of unspecified residual elements unavoidably retained from raw materials. These elements (copper, nickel, molybdenum, chromium, etc.) are considered incidental and are not normally determined or reported.

Cast iron. The unqualified term cast iron applies to gray cast iron which is a cast ferrous material in which a major part of the carbon content occurs as free carbon in the form of flakes interspersed through the metal.

Cold expanded pipe is seamless or welded pipe which is formed and then expanded in the pipe mill while cold so that the circumference is permanently increased by at least 0.50 percent.

Continuous-welded pipe is furnace-welded pipe which has a longitudinal butt joint that is forge-welded by the mechanical pressure developed in rolling the hot-formed skelp through a set of round pass welding rolls. It is produced in continuous lengths from coiled skelp and subsequently cut into individual lengths. Typical specifications: ASTM A53, API 5L. See also Furnace-butt-welded pipe, Pipe Manufacturing processes.

Control piping is pipe, valves and fittings used to interconnect air, gas or hydraulically operated control apparatus.

Curb valve is a valve installed for the purpose of shutting off the gas supply to a building. It is installed below grade in a service line, at or near the property line. It is operated by use of a removable key or wrench, through a curb box or standpipe.

Customer meter is a device which measures gas delivered to a customer for consumption on his premises.

Deactivation (Inactivation) is the process of making the pipeline inactive.

Distribution Line means a pipeline other than a gathering or transmission line.

Double submerged-arc-welded pipe is pipe having longitudinal or spiral butt joints. The joints are produced by at least two passes, including at least one each on the inside and on the outside of the pipe. Coalescence is produced by heating with an electric arc or arcs between the bare metal electrode or electrodes and the work. The welding is shielded by a blanket or granular, fusible material on the work. Pressure is not used and filler metal for the inside and outside welds is obtained from the electrode or electrodes. Typical specifications: ASTM A 381, API 5 L. See also Pipe manufacturing processes.

Ductile iron (sometimes called nodular iron) is a cast ferrous material in which the free graphite present is in a spheroidal form rather than a flake form. The desirable properties of ductile iron are achieved by means of chemistry and a ferritizing heat treatment of the castings.

Gas means natural gas, flammable gas, or gas which is toxic or corrosive.

Gathering Line means a pipeline that transports gas from a current production facility to a transmission line or main.

High pressure distribution system means a distribution system in which the gas pressure in the main is higher than the pressure provided to the customer.

Electric-flash-welded pipe is pipe having a longitudinal butt joint wherein coalescence is produced, simultaneously over the entire area of abutting surfaces, by the heat obtained from resistance to the flow of electric current between the two surfaces, and by the application of pressure after heating is substantially completed. Flashing and upsetting are accompanied by the expulsion of metal from the joint. Typical specification: API 5L, API 5LX. See also Pipe manufacturing processes.

Electric-fusion-welded pipe is pipe having a longitudinal butt joint wherein coalescence is produced in the preformed tube by manual or automatic electric-arc welding. The weld may be single or double and may be made with or without the use of filler metal. Spiral-welded pipe is also made by the electric-fusion-welded process with a butt joint, a lap joint or a lock-seam joint. See also Pipe manufacturing processes.

Electric-resistance-welded pipe is pipe which has a longitudinal butt joint wherein coalescence is produced by the application of pressure and by the heat obtained from the resistance of the pipe to the flow of an electric current in a circuit of which the pipe is a part. It is produced in individual lengths or in continuous lengths from coiled skelp and subsequently cut into individual lengths. See also Pipe manufacturing processes.

Furnace-butt-welded pipe. There are two such types of pipe defined in this glossary: Bell-welded pipe and Continuous-welded pipe. See also Pipe manufacturing processes.

Furnace-lap-welded pipe is pipe which has a longitudinal lap joint that is produced by the forge welding process. In this process, coalescence is produced by heating preformed tube to welding temperature and then passing it over a mandrel. The mandrel is located between the two welding rolls that compress and weld the overlapping edges. Typical specification: API 5L. The manufacture of -this type of pipe was discontinued, and the process was deleted from API 5L in 1962. See also Pipe manufacturing processes.

Ground temperature is the temperature of the earth at pipe depth. See also Ambient temperature, Temperature.

Heat fusion joint is a joint made in thermoplastic piping by heating the parts sufficiently to permit fusion of the materials when the parts are pressed together.

Hoop stress is the stress in a pipe wall, acting circumferentially in a plane perpendicular to the longitudinal axis of the pipe, and produced by the pressure of the fluid in the pipe. In this Guide, hoop stress in pipe is calculated by the formula:

$$Sh = PD/2t$$

Sh = hoop stress, psig

P = internal pressure, psig

D = outside diameter of pipe, inches

t = nominal wall thickness, inches

Also see Maximum allowable hoop stress.

Hot taps are connections made to transmission lines, mains or other facilities while they are in operation. The connecting and tapping is done while the facility is under gas pressure.

Inactive pipeline is a pipeline that is being maintained under Part 192 but is not presently being used to transport gas.

Instrument piping is pipe, valves and fittings used to connect instruments to main piping, to other instruments and apparatus, or to measuring equipment.

Iron See Cast Iron, Ductile Iron, Malleable Iron.

Joint See Length.

Listed specification means a specification listed in section I of Appendix B of this part.

Low-pressure distribution system means a distribution system in which the gas pressure in the main is substantially the same as the pressure provided to the customer.

Leakage surveys are systematic inspections made for the purpose of finding leaks in a gas piping system. The types of inspections commonly made are described in Guide Material Appendix G-1 1 "Gas Leakage Control Guidelines for Natural Gas" and Guide Material Appendix G-1 1A "Gas Leakage Control Guidelines for Petroleum Gas Systems".

Length is a piece of pipe as delivered from the mill. Each piece is called a length regardless of its actual dimension. While this is sometimes called "joint", the term "length" is preferred.

Long-term hydrostatic strength of plastic pipe is the estimated hoop stress, in psi, which would result in a failure of the pipe if the pipe were subjected to 100,000 hours of hydrostatic pressure.

Malleable iron is a mixture of iron and carbon, including small amounts of silicon, manganese, phosphorous and sulfur which, after being cast, is converted structurally by heat treatment into primarily a matrix of ferrite containing nodules of temper carbon.

Main means a distribution line that serves as a common source of supply for more than one service line.

Maximum actual operating pressure means the maximum pressure that occurs during normal operations over a period of 1 year.

Maximum allowable operating pressure means the maximum pressure at which a pipeline or segment of a pipeline may be operated under this part. **MAOP** is the maximum allowable operating pressure.

Maximum allowable hoop stress is the maximum hoop stress permitted for the design of a piping system. It depends upon the material used, the location of the pipe and the operating conditions. See also Hoop Stress.

Maximum allowable test pressure is the maximum internal fluid pressure permitted for testing, for the materials and locations involved.

Meters See Customer meter, Meter set assembly.

Meter set assembly, as used herein, refers to the riser, regulator, meter and all associated couplings and fittings.

Monitoring regulator is a pressure regulator, set in series with another pressure regulator, for the purpose of providing automatic overpressure protection in the event of a malfunction of the primary regulator.

Municipality means a city, county, or any other political subdivision of a State.

Nodular iron See Ductile iron.

Nominal wall thickness (t) is the wall thickness, in inches, computed by, or used in, the design formula for steel pipe in 192.105. Pipe may be ordered to this computed wall thickness without adding an allowance to compensate for the under-thickness tolerances permitted in approved specifications.

Operating stress is the stress in a pipe or structural member under normal operating conditions.

Offshore means beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

Operator means a person who engages in the transportation of gas.

Overpressure protection is the use of a device or equipment installed for the purpose of preventing pressure in a pipe system or other facility from exceeding a predetermined limit. See also Pressure limiting station, Pressure regulating station, Pressure relief station, and Service regulator

Parallel encroachment pertains to that portion of the route of a transmission line or main which lies within, runs in a generally parallel direction, and does not necessarily cross, the rights-of-way of a road, street, highway, or railroad.

Person means any individual, firm, joint venture, partnership, corporation, association, State, municipality, cooperative association, or joint stock association, and includes any trustee, receiver, assignee, or personal representative thereof.

Pipe means any pipe or tubing used in the transportation of gas, including pipe-type holders.

Pipe See Bell-Welded pipe, Cold expanded pipe, Continuous-welded pipe, Control piping, Double-submerged arc-welded pipe, Electric-flash-welded pipe, Electric-fusion-welded pipe, Electric-resistance-welded pipe, Furnace-butt-welded pipe, Furnace-lap-welded pipe, Instrument piping, Length, Pipe-container, Pipe manufacturing processes, Pipe-type holder, Sample piping, Seamless pipe.

Pipe-container is a gas-tight structure assembled from pipe and end closures. See also Pipe-type holder.

Pipeline means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies.

Pipeline facility means new and existing pipelines, rights-of-way, and any equipment, facility, or building used in the transportation of gas or in the treatment of gas during the course of transportation.

Pipe manufacturing processes. Types and names of welded joints are used herein as defined in the American Welding Society Publication "AWS Definitions Welding and Cutting" (AWS A 3.0) except for the following terms which are defined in this glossary.

Bell-welded pipe
Continuous-welded pipe
Double-submerged-arc- welded pipe
Electric-flash-welded pipe
Electric-fusion-welded pipe
Electric-resistance-welded pipe
Furnace-butt-welded pipe
Furnace-lap-welded pipe
Seamless pipe

Pipe-type holder is any pipe-container or group of interconnected pipe-containers installed at one location for the sole purpose of storing gas. See also Pipe-container.

Plastic (noun) is a material which contains, as an essential ingredient, an organic substance of high molecular weight. It is solid in its finished state and, at some stage of its manufacture or processing, can be shaped by flow. The two general types of plastic referred to in this Guide are thermoplastic and thermosetting. See also Thermoplastic, Thermosetting plastic. Plastic pipe joints. See Adhesive joint, Heat fusion joint, Solvent cement joint.

Pressure is expressed in pounds per square inch above atmospheric pressure, i.e., gage, pressure (abbreviation-psig), unless otherwise stated. See Maximum allowable test pressure, Overpressure- protection, Pressure limiting station, Pressure regulating station, Pressure relief station, Standup pressure test.

Pressure limiting station consists of apparatus which, under abnormal conditions, will act to reduce, restrict or shut off the supply of gas flowing into a transmission line, main, holder, pressure vessel or compressor station piping in order to prevent the gm pressure from exceeding a predetermined limit. While normal pressure conditions prevail, the pressure limiting station may exercise some degree of control of the flow of gas or may remain in the wide open position. Included in the station are any enclosures and ventilating equipment, and any piping and auxiliary equipment (such as valves, control instruments or control lines).

Pressure regulating station consists of apparatus installed for the purpose of automatically reducing and regulating the gas pressure in the downstream transmission line, main, holder, pressure vessel or compressor station piping to which it is connected. Included in the station are any enclosures and ventilating equipment, and any piping and auxiliary equipment (such as valves, control instruments or control lines).

Pressure relief station consists of apparatus installed to vent gas from a transmission line, main, holder, pressure vessel, or compressor station piping in order to prevent the gas pressure from exceeding a predetermined limit. The gas may be vented into the atmosphere or into a lower pressure gas system capable of safely receiving the gas being discharged. Included in the station are any enclosures and ventilating equipment, and any piping and auxiliary equipment (such as valves, control instruments or control lines).

Private rights-of-way are those that are not located on roads, streets or highways used by the public, nor on railroad rights-of-way.

Proprietary items are items made by a company having the exclusive right of manufacture.

Regulators See Pressure limiting station, Pressure regulating station, Pressure relief station, Service regulator.

Sample piping is pipe, valves and fittings used for the collection of samples of gas or other fluids.

Seamless pipe is a wrought tubular product made without a welded seam. It is manufactured by hot working steel or, if necessary, by subsequently cold finishing the hot-worked tubular product to produce the desired shape, dimensions and properties. See also Pipe manufacturing processes.

Secondary stress is stress created in the pipe wall by loads other than internal fluid pressure. Examples are backfill loads, traffic loads, beam action in a span and loads at supports and at connections to the pipe.

Secretary means the Secretary of Transportation or any person to whom he has delegated authority in the matter concerned.

Service Line means a distribution line that transports gas from a common source of supply to (1) a customer meter or the connection to a customer's piping, whichever is farther downstream, or (2) the connection to a customer's piping if there is no customer meter. A customer meter is the meter that measures the transfer of gas from an operator to a consumer.

Service line valve is a valve located in the service line ahead of the service regulator, or ahead of the meter when there is no regulator.

Service regulator is a device installed on a gas service line to control the pressure of the gas delivered to the customer.

SMYS means specified minimum yield strength is -

- (1) For steel pipe manufactured in accordance with a listed specification, the yield strength specified as a minimum in that specification; or
- (2) For steel pipe manufactured in accordance with an unknown or unlisted specification, the yield strength determined in accordance with 192.107 (b).

Solvent cement joint is a joint made in thermoplastic piping by the use of solvent or solvent cement which forms a continuous bond between the mating surfaces.

State means each of the several states, the District of Columbia, and the Commonwealth of Puerto Rico.

Standard pressure test is a test to demonstrate that a pipe or piping system does not leak as evidenced by the lack of a drop in pressure over a specified period of time after the source of pressure has been isolated.

Steel is an iron-base alloy, malleable in some temperature range as initially cast, containing manganese, carbon and often other alloying elements. See also Carbon steel.

Stress is the resultant internal force that resists change in the size or shape of a body acted on by external forces. See Hoop stress, Maximum allowance hoop stress, Operating stress, Secondary stress, Yield strength, Tensile strength.

Temperature (expressed in degrees Fahrenheit (F) unless otherwise stated). See also Ambient temperature, Ground temperature.

Tensile strength is the highest unit tensile stress (referred to the original cross section) that a material can sustain before failure (psi).

Thermoplastic is a plastic which is capable of being repeatedly softened by increase of temperature and hardened by decreases of temperature.

Thermosetting plastic is a plastic which is capable of being changed into a substantially infusible or insoluble product when cured under the application of heat or by chemical means.

Thickness See Nominal wall thickness.

Transmission Line means a pipeline, other than a gathering line, that

- (1) Transports gas from a gathering line or storage facility to a distribution center or storage facility;
- (2) Operates at a hoop stress of 20 percent or more of SMYS; or
- (3) Transports gas within a storage field.

Transportation of gas means the gathering, transmission, or distribution of gas by pipeline or the storage of gas, in or affecting interstate or foreign commerce.

Valve See Curb valve, Service line valve.

Vault is an underground structure which may be entered, and which is designed to contain piping and piping components (such as valves or pressure regulators).

Yield strength is the strength at which a material exhibits a specified limiting permanent set, or produces a specified total elongation under load. The specified limiting set or elongation is usually expressed as a percentage of gage length, and its values are specified in the various material specifications acceptable under this Guide.

PART A INSTRUCTIONS FOR EMPLOYEES

This Quality Assurance and Operating and Maintenance (O&M) Plan is published, distributed and maintained by WCG. The O&M Plan's purpose is to set forth requirement and procedures covering all company operating and maintenance procedures which **MUST BE FOLLOWED**

during normal operations and while making repairs (49 CFR 192.605(a)). Appendix C contains the regular scheduled maintenance plans for Mather and Castle. Other parts of this O&M Plan address procedures that must be followed during abnormal operations (an Emergency) (49 CFR §192.605(c)) in order to provide safety when operating design limits have been exceeded. Given the importance of controlling gas pressure throughout WCG's gas distribution systems, we have included Appendix B. Appendix B is a primer on gas pressure regulation that includes definitions, gas regulation terminology, and descriptions of and operations of gas regulation devices.

PART B EMERGENCY PROCEDURES

These procedures have been prepared to provide data essential in an abnormal, emergency situations. The pipeline (distribution system) safety requirements for abnormal, emergency situations are contained in 49 CFR 192.605(c).

No emergency procedure can cover all situations. There is no substitution for the sound judgment by the person or persons involved. In any abnormal, emergency situation, the safety of the public must always be given first priority.

In addition, everyone who will have the responsibility of handling an emergency situation should be familiar with the contents of this Emergency Procedure.

WHAT IS AN EMERGENCY CONDITION?

An emergency condition exists when YOU DETERMINE THAT EXTRAORDINARY PROCEDURES, EQUIPMENT, MANPOWER, AND/OR SUPPLIES MUST BE USED TO PROTECT THE PUBLIC FROM EXISTING OR POTENTIAL ABNORMAL OPERATION SITUATIONS.

These abnormal situations may include, but are not limited to facility failures in:

- Unintended closure of valves or shutdowns;
- Increase or decrease in pressure or flow rate outside normal operating limits;
- Loss of communications;
- Operation of any safety device, and
- Any other foreseeable malfunction of a component, deviation from normal operation, or personnel error, which may result in a hazard to persons or property.

WHAT IS THE PROPER OPERATIONAL PROCEDURE FOR RESPONDING TO ABNORMAL, EMERGENCY CONDITIONS?

1. If you are on duty at the facility and the report is received on the emergency phone number (916-364-4102) during normal business hours, the following procedures **must** be followed:
 - a. Immediately notify WCG Operating Personnel on the Emergency Notification List.

- b. Notify other agencies and support providers as necessary and depending on the specifics of the situation (Fire Department, Security Officers, etc.).
 - c. Implement the procedures outlined in the Emergency Procedures Instructions.
2. If you are the scheduled WCG Emergency Duty Designate for the facility and a report is received on the emergency phone number (916-364-4102) after normal business hours, the following procedures **must** be followed:
- a. Immediately notify Operating Personnel on the Emergency Notification List.
 - b. Notify other agencies and support providers as required (Fire Department, Security Officers, etc.).
 - c. Implement the procedures outlined in the Emergency Procedures Instructions.

The major elements of the Abnormal Situation Procedures are:

- I. Emergency Notification List
- II. Map of Key Valve Location
- III. Emergency Equipment
- IV. Responding to Gas Leak Reports and Interruption of Gas Service
- V. A check list for Abnormal, Emergency Situations
- VI. Reporting Requirements (Telephone Report)
- VII. Restoration of Gas Service Due to Outage
- VIII. Education and Training
- IX. Accident Investigation.

I. ABNORMAL, EMERGENCY NOTIFICATION LIST

1. WCG OPERATING PERSONNEL:

<u>TITLE</u>	<u>PHONE</u>	<u>EQUIPMENT RESPONSIBILITY</u>
Operations Manager (Mark Williams)	916-826-7300 YES	
Field Operations Supervisor (Brandon Roberts)	916-205-4038	YES
Field Technician (Lucas Tramontanas)	916-544-0485	YES
WCG Assigned Field Personnel	916-364-4102	YES

2. OTHERS TO NOTIFY

<u>AGENCY</u>	<u>LOCATION</u>	<u>PHONE NO.</u>
Rancho Cordova Sheriff	Rancho Cordova (Emergency)	911
Rancho Cordova Sheriff	Non-Emergency	916-445-5711
Fire Department	Rancho Cordova (Emergency)	911
Fire Department	Non-Emergency	916-566-4000

II. MAP OF KEY VALVE LOCATIONS

A MAP THAT SHOWS KEY VALVES, SYSTEM PRESSURES, AND SOURCE OF SUPPLY MUST BE KEPT READILY AVAILABLE IN THE EMERGENCY RESPONSE VEHICLES AND IN THE EMERGENCY FILE. ALL EMPLOYEES MUST KNOW ITS LOCATION AND CONTENTS.

Remember: The gas distribution system is a complex network of interconnected mains. They are fed by regulators and have valves throughout for shutting off or diverting the flow of gas. Although pressure in the mains may vary a few pounds, improper operation of a valve may create a hazardous condition, or make a hazardous condition worse.

ONLY properly authorized personnel should operate valves. Fire, Police, other officials, or other outside individuals ARE NOT AUTHORIZED to operate OR TO INSTRUCT OTHERS, including gas company personnel, to operate valves. (Except "end-use" valve, commonly called the meter shut-off.)

III. EMERGENCY EQUIPMENT

The equipment necessary to meet emergency conditions that may develop at the natural gas distribution system are located at WCG's maintenance facility 9203 Beatty Drive, Sacramento, California. This equipment (at a minimum) will consist of valve keys, maps and records, shutoff tools, shovels, leak repair equipment, air compressor, barricades, generator, lighting and tool kits. A similar set of emergency response equipment is located in building 1323 at Castle.

Periodic checks of emergency equipment will be taken and records of these inspections will be kept on file at least once a year but not to exceed 15 months.

IV. RESPONDING TO GAS LEAK REPORTS

All covered employees of WCG will become familiar with procedures concerning gas leak calls and reports.

1. The employee receiving a report of a gas leak should get as much of the information as possible to fill out the leak report form properly. Use common sense: saving human life and then property are the primary considerations in that order.
2. All reports of leaks on customer premises get priority. LEAKS INSIDE A BUILDING GET TOP PRIORITY.
3. After getting the information, and determining that a hazardous leak may exist inside a building, remind the customer or caller of all the following information.
 - No one is to turn ON or OFF any electrical switches.
 - No one is to ring door bells or use the phone.
 - Extinguish all open flames. DO NOT LIGHT MATCHES, CIGARETTES, etc.
 - Ventilate the building (open doors and windows if possible).
 - Turn off gas supply, if feasible.
 - Everyone in the building is to leave the building and go a safe distance (about a block) away. GO ON FOOT – do not start any vehicles.
4. Dispatch necessary personnel to the location of the reported leak.
5. DUTIES OF FIRST WCG EMPLOYEE OF THE SCENE:
TAKE EVERY CORRECTIVE ACTION NECESSARY TO PROTECT LIFE AND PROPERTY FROM DANGER (IN THAT ORDER.) IT IS THE RESPONSIBILITY OF THE PERSON IN CHARGE TO:
 - Set up communication.

- Coordinate the operation.
- Make all decisions concerning emergency valves-isolating areas--and the use of emergency equipment.
- If required, implement the check list for a major emergency (covered in this plan)

6. LEAKS OUTSIDE BUILDING MINIMUM OPERATOR RESPONSE ACTIONS FOR

- Assess the danger to public surrounding building, occupants, and property.
- Extinguish all open flames. No Smoking.
- If necessary, notify fire and police. (Natural gas master meter operators should also notify gas utility.)
- Block the street.
- Notify the WCG Supervisor or other responsible persons.
- Bar- hole next to the foundation of the building.
- Check neighboring buildings for gas.
- Implement Check List for major emergency
- Repair the leak.
- If you are positively sure it is safe, return occupants to buildings.

7. LEAK INSIDE BUILDING

- Evaluate the house or building immediately to determine concentrations of gas and source of leak. Evacuate if necessary.
- DO NOT operate any electrical switches.
- DO NOT use the phone (Including Cell Phone).
- Turn off gas valve.
- Ventilate the building.
- Bar-whole around the outside perimeter of the building especially around the foundation. Check the area around water meter and other openings.
- If ground is gas-free and if house/building is gas-free, turn on meter valve. CHECK ALL GAS PIPING AND APPLIANCES FOR LEAKS. (Is the meter hand turning normally or spinning? Conduct soap bubble test.)
- Implement Check List for major emergency.
- Repair the leak.
- If the leak cannot be repaired, notify customer. Turn off meter, lock it, and leave.

8. GAS BURNING INSIDE BUILDING

- Call fire department.
- If fire is at an appliance, shut gas off at appliance valve.
- If not possible to shut gas off at appliance valve, shut gas off at meter.
- If not possible to shut of gas meter, shut off curb valve.
- If the building has no curb value, shut off gas via main valves.
- Once gas supply to the building is shut off, Implement Emergency Check List

9. INTERRUPTION IN GAS SUPPLY

An interruption to a gas supply line could be due to: freezing of the regulators, actuation of over/under pressure shut-off in regulators, a break in a service line, terrorist activity, or PG&E curtailment of supply.

- If interruption is "system-wide" call local transmission provider (PG&E) and inquire as to local area transmission problems or curtailment.
- If a leak is detected on PG&E side of point of interconnection, inform PG&E of the location of any possible gas leak.
- Close appropriate valve in our system to isolate the break (if necessary).
- Implement Check List.
- It may be necessary to shut off all services and invoke procedure contained under PART VII, Restoration of Gas Service Due to outage.

V. MAJOR EMERGENCY CHECK LIST

1. Has fire department been called?
2. Have persons been evacuated and area blockaded?
3. Has local security personnel been notified?
4. Has WCG repair crew been notified?
5. Has company call list been executed?
6. Has communication been established?
7. Has outside help been requested?
8. Have ambulances been called?
9. Has leak been shut off or brought under control?
10. Has WCG supervisor been notified?
11. Have the proper valves required to shut down or reroute gas been identified and located?
12. If an area has been cut off from a supply of gas, has the individual service of each customer been cut off?
13. Is the situation under control and has the possibility of recurrence been eliminated?
14. Has surrounding area, including buildings adjacent to and across streets, been probed for the possibility of further leakage?
15. Has proper tag been put on meter?
16. Has the report to the state (CPUC Safety Branch) been made?

17. Has telephonic report to DOT/RSPA been made?

VI REPORTING REQUIREMENTS

Notification must be made to the U.S. Department of Transportation (via phone) and the California Public Utility Commission (via the CPUC web page) for any leak where:

There is a release of gas from a pipeline in the distribution system,

AND

1. There is a death or personal injury requiring hospitalization or there is estimated property damage (including the cost of gas lost, of the WCG system or others), of \$50,000 or more.
2. There is an event that is significant in the judgment of the responsible WCG pipeline system supervisor, even though it was not described in paragraph (1) above.

The report to DOT and CPUC should contain:

- Identity of reporting operator (WCG),
- Name and phone number of individual reporting the incident,
- The location of the leak (city, county, state, and street address),
- The time of the leak (date and hour),
- The number of fatalities and personal injuries if any,
- Type and extent of property damage, and
- Description of the incident

An incident requiring a telephone/CPUC web page report must be followed up with a written report. See Appendix A for written report instructions. The telephonic or web page report, if required, should be made at the earliest practicable moment following discovery (within 2 hours.)

The U.S. Department of Transportation, National Response Center (NRC) will receive your phone call. CALL 1-800-424-8802

The CPUC web page is located at www.cpuc.ca.gov/puc/emrep . This web sit contains fill in forms to report the incident. If necessary, one can also report to the CPUC via telephone at 800-235-1076. The CPUC General Order 112-E Incident Reporting Requirement are contained in Appendix A.

VII RESTORATION OF GAS SERVICE DUE TO OUTAGE

When the supply of gas has been cut off to building or an area, no gas should be turned on to the affected area until the individual service to each customer has been turned off.

A house/building to house/building operation is mandatory. The individual service of each customer must be turned off, either at the meter or at service valves (also known as curb valves). If the service valve cannot be located, the gas flow must be shut off in some manner (most often with a squeeze tool that crimps the service line).

In restoring service to an affected area all gas piping and meters must be purged and appliances relit. Never turn on gas at the meter unless you have access to ALL appliances on the customer's side of the meter (house piping). In the event a customer is not at home a card

must be left in a conspicuous location requesting the customer to call the gas company to arrange for restoration of service. **NEVER TURN-ON GAS SERVICE at the METER WITHOUT HAVING ACCESS to the PREMISES. ALL GAS APPLIANCES WITHIN the PREMISES THAT REQUIRE A RELIT MUST BE RELIT!**

The WCG person in charge is to coordinate this operation and be held responsible for same.

A complete record of the incident, with drawings, etc., must be kept on file.

VIII EDUCATION AND/OR TRAINING

Employee Training

WCG employees will periodically be trained in emergency procedures, including but not limited to:

1. Update of Emergency Plan.
2. Review of employee responsibilities in an emergency.
3. Review of location and use of emergency equipment.
4. Review the locations and use of:
 - System maps.
 - Main records.
 - Service records.
 - Valve records.
 - Regulator station operations including shut off valve location.
 - Properties of natural gas – The mixture of Gas and Air can cause a fire or explosion. Keeping gas within the confines of the gas piping is key to a safe system.
5. Take a hypothetical emergency situation and STEP BY STEP review with employees the action to be taken, including contact with public officials, firemen, police, local gas utility, etc.
6. Record keeping.
7. Telephone reports (U.S. DOT, CPUC, etc.)
8. Records of emergency training shall be kept on file including names of attendees and items discussed.
9. Liaison with appropriate fire, police and other public officials.

Public Education

WCG will have a continuing education program that enables customers, the public, appropriate governmental organizations, and persons engaged in excavation related activities, to recognize a gas emergency. WCG will instruct the public in reporting gas odors, leaks and

other emergencies to WCG. The primary means of disseminating information to WCG customers is through the monthly billing process (billing inserts).

Liaison with public officials and local gas utilities. WCG will also establish liaison with fire, local security services with respect to emergency procedures. WCG will set up communications guidelines.

A RECORD MUST BE KEPT OF ALL MEETINGS, TRAINING SESSIONS, AND OTHER RELATED ACTIVITIES, such as:

- Training sessions on proper procedures to follow during a gas emergency.
- Meetings to learn capabilities, responsibilities, and procedures respecting gas emergencies of each group above.

Information to news media. During an emergency, all information requests will be referred to the WCG person coordinating emergency actions. The WCG representative's response will include the following elements for public announcement:

- Calm the situation.
- Do not make reckless comments.
- Tell precisely what the public can do to help.
- Tell specifically what WCG is doing about it.
- Give the facts to prevent baseless rumors.
- Do not speculate regarding the situation in absence of facts.

The WCG spokesperson will include specific procedures which must be followed to ensure the greatest public safety, during an emergency, or because of extraordinary construction or maintenance requirements (49 CFR 192.605(c)).

PART C LINE MARKERS

This Section of WCG's O&M plan specifies locations where you will mark pipe locations. The following are the federal requirements (49 CFR 192.707):

Buried distribution pipelines. A line marker must be placed and maintained as close as practical over each buried distribution main at each crossing of a highway, street, or railroad. A line marker must also be placed wherever necessary to identify the location of the main to reduce the possibility of damage or interference. Line markers are not required for buried mains in Class 3 or 4 locations where it can be shown to be impractical, or where you participate in a damage prevention program (such as "one call" or "call before you dig" system). WCG is an active member of the USA Underground one call system.

Distribution pipelines above ground. Line markers must be placed and maintained along each section of a main that is located above ground in an area accessible to the public. (An example would be an unsecured pressure regulator station.)

Markers. The following must be written legibly on a background of sharply contrasting color on each line marker.

1. The word "Warning," "Caution," or "Danger" followed by the words "Gas (or name of gas transported) Pipeline." Letters -must be at least 1-inch high with one-quarter-inch stroke.
2. The name of the operator (WCG) and the telephone number (916/364-4100) where WCG can be reached at all times (49 CFR 192.707).

PART D PATROLLING

This Section of the WCG O&M Plan delineates important provisions for patrolling mains located in places or on structures in the gas distribution system where anticipated physical movement or external loading (weight, traffic) could cause failure or leakage (49 CFR 192.721). These places or structures include bridges, waterways, land slide areas, areas susceptible to earth subsidence (cave ins), or areas of construction activity. Patrolling of these mains will be at intervals not exceeding 4-1/2 months but at least four times each calendar year. Patrolling will be done by walking/driving along the pipeline and observing factors affecting safe operation.

PART E LEAKAGE SURVEYS

A leakage survey of the Gas Distribution System will be made at intervals not exceeding 15 months but at least once each calendar year (49 CFR 192.723).

Annual leakage surveys will be conducted with a DP-IR and/or combustible gas indicator (CGI). During the survey, be especially watchful for the following conditions as an aid to conducting a more meaningful and comprehensive survey. In addition to the leak surveys conducted by WCG covered employees, WCG periodically contracts with independent survey firms to confirm the efficacy of its own in-house surveys.

Available openings for finding gas leaks include water, sewer, electric, and telephone systems; manholes; cracks in pavement; and hollow walls (cinder block construction) in areas near gas piping. Also, see the literature in the WCG Technical Library for details about gas indicators and types of leakage surveys.

All leaks discovered must be recorded.

1. When a leak is discovered, it must be investigated to determine if a hazard exists. If a hazardous condition is found, immediate action must be taken. The operator must protect life and property until the conditions are no longer hazardous. ALL leaks found should be classified as soon as located. If a leak is hazardous, it must be repaired immediately. As a guide for classifying leaks, leak surveyors should refer to the ASME "Leak Classification Guide and Action Criteria".
2. Leak Classifications

Grade 1 Leak: Grade 1 leaks represent an existing or probable hazard to persons or property. They require immediate repair or continuous action until the conditions are no longer hazardous.

Grade 2 Leak: A leak that is recognized as being non-hazardous at the time of detection but justifies scheduled repair based on probable future hazard.

Leaks should be repaired or cleared within one calendar year but no later than 15 months from the date the leak was reported. Grade 2 leaks should be reevaluated at least every six months until cleared. The frequency of the reevaluation should be determined by the location (near buildings) and magnitude of the leakage condition.

Grade 3 Leak: A leak that is recognized as being non-hazardous at the time of detection and can be reasonably expected to remain non-hazardous

If not repaired, the leak should be reevaluated during the next scheduled survey, or within 15 months of the date reported or discovered, whichever occurs first, until the leak is re-graded or no longer results in a reading.

3. Indicate the approximate location of each leak found on the appropriate form.

PART F
TESTING FOR REINSTATING A SERVICE LINE
And
INSTALLATION OF STEEL AND PLASTIC PIPE

This part of the WCG Operating and Maintenance Plan contains the requisite provisions for testing (before placing in service) each disconnected service line in the same manner as a new service line (49 CFR 192.725). This part also contains the WCG protocol for installing steel and P.E. pipe.

This Federal standard for reinstalling a service line is set forth in its entirety:

- (a) Except as provided in paragraph (b) of this section, each disconnected service line must be tested in the same manner as a new service line, before being reinstated.
- (b) Each service line temporarily disconnected from the main must be tested from the point of disconnection to the service line valve in the same manner as a new service line, before reconnecting. However, if provisions are made to maintain continuous service, such as by installation of a bypass, any part of the original service line used to maintain continuous service need not be tested.
- (c) Pressure testing requirements for plastic and metallic service lines are listed at the end of this part under "Plastic Pipe Installation, Rule 9" and "Metallic Pipe Installation," respectively.

METALLIC PIPE INSTALLATION

All the conditions listed below must be met when you install metallic pipe.

- Make each joint in accordance with written procedures that have been proven by test or experience to produce strong gas tight joints.

- Obtain and follow the manufacturer's recommendations for each specific fitting used. The manufacturer's procedures will be retained in this part of the WCG O&M plan.
- Handle pipe properly without damaging the outside coating. Any gouges or scratches should be covered with an appropriate coating. If coating damage is not corrected, accelerated corrosion can occur in that area.
- Coat or wrap steel pipe at all welded and mechanical joints before backfilling. Pressure test new pipe for leaks before backfilling. Mains to be operated at less than 1-psig should be tested to at least 10 psig. Mains to be operated at or above 1 psig but less than 100 psig must be tested to at least 90 psig. Service lines to be operated at 1 psig but not more than 40 psig must be given a leak test at a pressure of not less than 50 psig.
- Support the pipe along its length with proper backfill.
- Make certain that backfill material does not contain stones, cinders, bottles, or cans that may, damage, or scratch pipe coating.
- Cathodically protect steel pipes.
- Electrically insulate dissimilar metals.
- Make certain that compression type fittings that are intended to be electrically conductive have armored gaskets. Bond over insulating fittings to maintain electrical continuity for cathodic protection and for locating steel pipe.

Welding of steel pipe is difficult. Before you weld steel in the distribution pipeline, you **MUST** review the pipeline safety requirements covered in Subpart E of 49 CFR Part 192. The important things to remember are that, welding must be performed in accordance with established written welding procedures that have been qualified and tested to produce sound ductile welds, and welding must be performed by welders who are qualified for the welding procedure to be used.

PLASTIC PIPE INSTALLATION

Plastic pipe is now commonly used for distribution mains and services by the gas industry. The most common type of plastic pipe presently installed is polyethylene (PE). PE plastic Pipe is the only acceptable plastic for LP-Gas piping and is recommended as the most suitable plastic pipe for natural gas piping. PE plastic pipe is manufactured according to ASTM D2513 and is marked with that number.

Plastic pipe may be buried directly in the ground. It may also be used to replace a deteriorated buried metal pipe. In these cases, a slightly smaller plastic pipe is generally inserted into the existing metal pipe. The installation of plastic pipe in the gas system must be done by qualified personnel. Each joint must be made in accordance with written procedures that have been proven by test or experience to produce strong gas tight joints. Plastic pipe joining procedures must be qualified according to the requirements contained in 49 CFR 192.283. The personnel who make the joints must meet the requirements contained in 49 CFR 192.285.

WCG personnel may not need to run the tests described in 49 CFR 192.283 themselves because most pipe and fitting manufacturers develop and qualify joining procedures for each specific product. Purchased products must include a certification from the manufacturer or supplier of the pipe or fitting that its product and joining procedures meet the requirements of 49 CFR 192.283.

Manufacturers of both pipe and fittings have installation manuals which describe the specific joining procedure required to make a strong gas-tight joint. The manufacturers' procedures for

each of the pipeline components that are used in the system should be incorporated by reference into the O&M plan.

If a contractor installs PE plastic pipe, WCG personnel are responsible for seeing that only PE pipe manufactured according to ASTM D2513 is installed. In addition, WCG must verify that the contractor follows written joining procedures which meet the manufacturers' recommended joining procedures for the specific pipe and fitting used.

According to the safety standards (49 CFR 192.285), a person making joints must be qualified. The regulations state:

§192.285 Plastic pipe; qualifying persons to make joints.

- (a) No person may make a plastic pipe joint unless that person has been qualified under the applicable joining procedure by:
 - (1) Appropriate training or experience in the use of the procedure; and
 - (2) Making a specimen joint from pipe sections joined according to the procedure that passes the inspection and test set forth in paragraph (b) of this section.
- (b) The specimen joint must be:
 - Visually examined during and after assembly or joining and found to have the same appearance as a joint or photographs of a joint that is acceptable under the procedure; and
 - (2) In the case of a heat fusion, solvent cement, or adhesive joint:
 - (i) Tested under any one of the test methods listed under §192.283(a) applicable to the type of joint and material being tested;
 - (ii) Cut into at least 3 longitudinal straps, each of which is:
 - (A) Visually examined and found not to contain voids or discontinuities on the cut surfaces of the joint area; and
 - (B) Deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area.
 - (C) A person must be re-qualified under an applicable procedure, if during any 12-month period that person:
 - (1) Does not make any joints under that procedure; or
 - (2) Has 3 joints or 3 percent of the joints made, whichever, is greater, under that procedure that are found unacceptable by testing under §192.513.

WCG's approved method to determine that each person making joints in plastic pipelines in its system is qualified, is to conduct an annual certification class conducted by WCG.

The general rules to follow when installing plastic pipe are listed below:

Rule 1: Install plastic pipe manufactured under the ASTM D2513 specification. The pipe must have ASTM D2513 marked on it.

Rule 2: Make each joint in accordance with written procedures that have been by pipe manufacturer to produce strong gas-tight joints.

The manufacturer of the pipe or fitting will supply WCG with the written procedures to be followed for their specific product. When installing the pipe, WCG personnel will make certain that these procedures are followed (49 CFR 192.283). All joints must be made by a person qualified under 49 CFR 192.285.

- Rule 3: Install properly designed valves in a manner which will protect the plastic material. Protect the pipe from excessive torsional (twisting) or shearing (cutting) loads when the valve is operated. Protect from any secondary stresses which might be induced through the valve or its enclosure.
- Rule 4: Prevent pullout and joint separation. Plastic pipe must be installed in such a manner that expansion and contraction of the pipe will not cause pullout or separation of the joint.
- Rule 5: When inserting plastic pipe in a metal pipe, make a sufficient allowance for thermal expansion and contraction. Make an allowance at lateral and end connections on inserted plastic pipes, particularly those over 50 feet in length. End connections must be designed to prevent pullout caused by thermal contraction. It is desirable that fittings used should be able to restrain a force equal to or greater than the strength of the pipe. If not, the pipe should be restrained by anchoring, bracing, offset connection, or straps across the fitting. To minimize the stresses caused by thermal contraction, pipes inserted in the summer should be allowed to cool to ground temperature before tie-ins are made. Inserted pipes, especially those pulled in, should be relaxed, mechanically compressed, or cooled to avoid initial tensile stress.
- Rule 6: Repair or replace imperfections or damages before placing the pipe in service.
- Rule 7: Install all plastic mains below ground level (buried) where the pipe is installed in a vault or other below-grade enclosure, it must be completely encased in gas-tight metal pipe with fittings that are protected from corrosion. (For service line, see Rule 8.) The plastic pipe installation must minimize shear and other stresses. Thermoplastic (PE) pipe for direct burial must have a minimum wall thickness of 0.090 inch. Exception: pipe with an outside diameter of 0.875 inch (7/8") or less may have a minimum wall thickness of 0.062 inch.] A plastic main that is not encased must have an electrically conductive wire or other means of locating the pipe while it is underground.
- Rule 8: Install all plastic service lines below ground. A portion of the plastic service line may terminate above ground if it is protected against deterioration and external damage by a casing. The plastic must not be used to support external loads.
- There are many different manufacturers of anodeless risers. The primary advantage of an anodeless riser is that it does not have to be cathodically protected because the outside steel casing is not the gas carrier. The plastic inside the steel casing is the gas carrier. In the case of anodeless risers, make sure that they meet all DOT requirements. In the case of steel risers connected to plastic pipe by a transition fitting, WCG personnel must coat the steel riser and cathodically protect it
- Rule 9: Test installed plastic pipe at least at a level 150 percent of the maximum operating pressure. However, the test pressure may not be more than three times the design pressure of the pipe.
- Rule 10: Take special care to ensure that plastic pipe is continually supported along its entire length by properly tamped and compacted soil.

- Rule 11: If plastic pipe is laid where there has been digging and backfilling below the pipe, reinforce the pipe. To prevent any shear or other stress concentrations, use external stiffeners at connections to main, valves, meter risers, and other places where compression fittings might be used.
- Rule 12: In the laying of plastic pipe, ensure adequate slack (snaking) in the pipe to prevent pullout due to thermal contraction.
- Rule 13: Lay plastic pipe and backfill with material that does not contain any large or sharp rocks, broken glass, or other objects which could cut or puncture the pipe. Where such conditions exist, suitable bedding (sand) and backfill must be provided.
- Rule 14: Take special care to prevent coal tar type coatings or petroleum base tape from contacting the plastic pipe; it can cause plastic pipe to deteriorate.
- Rule 15: Static electricity can ignite a flammable gas-air atmosphere. When working with plastic pipe of any kind where there is (or there may be) the possibility of a flammable gas-air atmosphere, take the following precautions:
- Use a grounded wet tape conductor wound around, or laid in contact with, the entire section of the exposed piping.
 - If gas is already present, wet the pipe starting from the ground end with a very dilute water and detergent solution. Apply tape immediately and leave it in place.
 - Wet the tape occasionally with water. Where temperatures are below freezing (0°C/32°F), add glycol to the water to maintain tape flexibility. Ground the tape with a metal pin driven into the ground.
 - Do not vent gas using an ungrounded plastic pipe or tubing. Even with grounded metal piping, venting gas with high scale or dust content could generate an electric charge in the gas itself and an arc could result from the dusty gas cloud back to the pipe and ignite the gas. Vent gas only at a downwind location remote from people or flammable material.
 - NOTE: Dissipating the static charge buildup with wet rags, a bare copper wire, or other similar techniques may not be as effective as the above procedure. In all cases, use appropriate safety equipment such as flame resistant and static free clothing, breathing apparatus, etc.

**PART G
ABANDONMENT
OF
FACILITIES**

This Section of the WCG O&M Plan includes provisions for shut down, abandonment, or inactivation of facilities (49 CFR 192.727). When a gas main or service line is abandoned, it must be physically disconnected from the piping system and the open ends effectively sealed. In addition, WCG distribution system service personnel must determine the necessity of purging

the line. Note: Take into consideration the location and size of the main or service. As a minimum, pipe 4 inches and larger should be purged.

In cases where the main and all the service lines connected to it are abandoned, the service line(s) must be capped at the customer's end. Also, the abandoned main must be sealed at both ends.

Records will be kept on all facilities abandoned. This includes location, date, and method of discontinuing service (abandoning the facility).

When service to a customer is temporarily or permanently discontinued, one of the following must be done:

1. The valve must be closed to prevent the flow of gas to the customer. This valve must be secured with a lock or some other device to prevent opening of the valve by unauthorized people. There are numerous locking devices designed for this purpose.
2. A mechanical device or fitting that will prevent the flow of gas must be installed in the service line or in the meter assembly.
3. The customer's piping must be physically disconnected from the gas supply and the open ends sealed (49 CFR 192.727).

The following general procedures are established for use by all WCG personnel performing work on the natural gas distribution system.

1. ABANDONMENT OF DISTRIBUTION MAINS

1.1 Check prior to abandonment

Office records should be checked and necessary field checks should be made to insure the pipelines or mains scheduled for abandonment are disconnected from all sources and supplies of gas (such as other pipelines, mains, crossover piping, meter stations, customer piping, control lines and other appurtenances).

1.2 Residual gas or hydrocarbons.

Abandonment should not be completed until it has been determined that the volume of natural gas or liquid hydrocarbons contained within the abandoned section poses no potential hazard. Generally, it is advisable to purge 4-inch and larger pipe and long segments of smaller diameter pipe.

1.3 Purging.

Pipelines or mains may be purged using air, inert gas or water. If air is used as the purging agent, precautions should be taken to insure that no liquid hydrocarbons are present. See 192.629 and the "Purging Principles and Practice" manual of the American Gas Association for purging of natural gas and liquid hydrocarbons.

1.4 Sealing.

Acceptable methods of sealing pipeline or main openings include, as applicable, the following.

- (a) Using normal end closures (such as welded or screwed caps, screwed plugs, blind flanges, mechanical joint caps and plugs).

- (b) Welding steel plate to pipe ends.
 - (c) Filling ends with a suitable plug material.
 - (d) Pinching the ends closed with a squeeze tool.
- 1.5 Additional considerations in addition to purging and sealing.
In addition to purging and sealing, consideration should be given to the following.
- (a) Filling the abandoned segment with water or an inert gas to prevent potential combustion hazard; or
 - (b) Other action designed to prevent hazardous cave-ins resulting from pipe collapse caused by corrosion or external loading.
- 1.6 Segmenting the abandoned sections.
All valves left in the abandoned segment should be closed. If the segment is long and there are few line valves, consideration should be given to plugging the segment at intervals.
- 1.7 Removal of above-grade facilities and filling voids.
All above-grade valves, risers, and vault and valve box covers should be removed; Vault and valve box voids should be filled with suitable compacted backfill material.
2. ABANDONMENT OF DISTRIBUTION SERVICE LINES IN CONJUNCTION WITH MAIN ABANDONMENT
- 2.1 Curb valves and curb boxes.
All curb valves should be closed. The top section of curb boxes located in dirt areas should be removed and the void filled with suitable compacted backfill material. If boxes are set in concrete or asphalt, they should be filled with suitable compacted backfill material to an appropriate distance from the top of the box and the fill completed with suitable paving material.
- 2.2 Meter risers and headers.
Meter risers and headers should be dismantled and removed from the premises.
- 2.3 Service lines below grade through a basement wall.
Where a service line enters below grade through a basement wall, the end of the service line should be plugged and a cap should be installed as close to the face of the wall as practical. It is not necessary to remove pipe from the wall unless required by particular circumstances.
- 2.4 Outside meter set and above-grade entrances.
Service lines terminating at an outside meter set or an above-grade entrance should be cut and capped at an appropriate depth below grade.
3. ABANDONMENT OF SERVICE LINES FROM ACTIVE MAINS
- 3.1 Disconnecting.
Service lines abandoned from active mains should be disconnected as close to the main as practicable.
- 3.2 Sealing.
The end of the abandoned portion of the service line nearest the main should be plated, capped, plugged, pinched or otherwise effectively sealed.

3.3 Other actions.

The remainder of the service line should be abandoned as recommended in 2 above.

4. INACTIVE PIPELINES

The WCG Field Operations Supervisor will be responsible for the continuing maintenance of inactive pipeline provision.

**PART H
ACCIDENTAL IGNITION
OF GAS**

This part of the WCG Operating & Maintenance Plan sets forth the provisions that must be made in order to prevent accidental ignition of gas. Gas alone is not explosive but when it is mixed with air, it can ignite or explode with tremendous force. Every precaution must be taken to prevent unintentional ignition of gas. When venting gas into air, a fire extinguisher must be available (49 CFR 192.751). The provisions of the Federal Standard are set forth here in its entirety:

§192.751 Prevention of accidental ignition

Each operator shall take steps to minimize the danger of accidental ignition of gas in any structure or area where the presence of gas constitutes a hazard of fire or explosion, including the following:

- (a) When a hazardous amount of gas is being vented into open air, each potential source of ignition must be removed from the area and a fire extinguisher must be provided.
- (b) Gas or electric welding or cutting may not be performed on pipe or on pipe components that contain a combustible mixture of gas and air in the area of work.
- (c) Post warning signs, where appropriate.

1. GENERAL

1.1. Smoking and open flames.

Smoking and open flames should be prohibited

- (a) In structures or areas containing gas facilities where possible leakage or presence of gas constitutes a hazard of fire or explosion.
- (b) In the open when accidental ignition of gas-air mixture might cause personal injury or property damage.

1.2 Accidental electric arcing.

To prevent accidental ignition by electric arcing, the following procedures are recommended.

- (a) Flashlights should be of a type approved for hazardous atmospheres. WCG has approved flashlights in its emergency response kits.
- (b) Bonding to provide electrical continuity should be considered around all cuts separating metallic pipes which may have natural gas present. This bond should be installed prior to cutting and maintained until all reconnections are completed or a gas free environment exists. Bond cables should be installed in such a manner to assure:
 - (1) They do not become dislodged during construction.
 - (2) They provide minimal electrical resistance between pipe sections.
- (c) A ground or bond should be installed to prevent static electricity arcing.
- (d) The potential hazard that can be caused by static electric charges induced on the outside surface of plastic piping should be eliminated. Acceptable methods of accomplishing this include covering the pipe surfaces with wet rags or spraying the pipe with a compatible electrically conductive liquid such as water.
- (e) Static electric charges induced on the inside surfaces of plastic piping by gas flow cannot be eliminated by the methods outlined in 1.2(d) above. Appropriate steps should be taken to minimize the escape of gas and to protect personnel from the potential hazards.
- (f) Care should be taken in handling tools in a gas-air atmosphere to reduce the potential of a spark. The potential to cause sparks should be considered when selecting tools.

2. WELDING, CUTTING AND OTHER HOT WORK

2.1 General.

Prior to welding, cutting, or other hot work in or around a structure or area containing gas facilities, a thorough check should be made with a gas detector for the presence of a combustible gas mixture. Welding should begin only when safe conditions are indicated.

2.2 Pipelines filled with gas.

When a pipeline or main is to be kept full of gas during welding or cutting operations, the following are recommended.

- (a) A slight flow of gas should be kept moving toward the cutting or welding operation.
- (b) The gas pressure at the site of the work should be controlled by suitable means.
- (c) All slots or open ends should be closed with tape, tightly fitted canvas, or other suitable material immediately after a cut is made.
- (d) Two openings should not be uncovered at the same time.

2.3 Pipelines containing air.

- (a) Before the work is started, and at intervals as the work progresses, the atmosphere in the vicinity of the zone to be heated should be tested with a combustible gas indicator or by other suitable means.
- (b) Unless a suitable means (such as an air blower) is used to prevent a combustible mixture in the work area, welding, cutting or other operations that could be a source of ignition should not be performed on a pipeline, main or auxiliary apparatus that contains air and is connected to a source of gas.
- (c) When the means noted in 2.3 (b) above are not used, one or more of the following precautions (depending upon circumstances at the job) are suggested.
 - (1) The pipe or other equipment upon which the welding or cutting is to be done should be purged with an inert gas.
 - (2) The pipe or other equipment upon which the welding or cutting is to be done should be continuously purged with air in such a manner that a combustible mixture does not form in the facility at the work area.

PART I KEY VALVES MAINTENANCE

Provisions in this Section of the WCG O&M plan outline the procedures that must be made to assure that key valves are operable in the Natural Gas distribution system. The key valves must be checked and serviced at intervals not exceeding 15 months but at least once each calendar year. Records of this inspection must be maintained (49 CFR 192.747).

The valves in the Natural Gas distribution system that are considered key valves are the valves needed to shut down the system, or part of the system, in case of an emergency. WCG does not consider service line valves as key valves that require an annual maintenance check. The following steps were taken in initially determining the Key Valves of the Natural Gas distribution system are as follows:

1. The location of all the valves on mains were determined and plotted on the system map, with references and dimensions to other permanent structures.
2. Designation of key valves by the degree of importance to system operation:
 - Control valve(s) at each pressure regulator station
 - Primary feed(s) to industrial districts
 - Primary feed(s) to housing districts
 - Valves on mains within an industrial district

Valves were considered key, depending on the following criteria:

- Number of customers
- System pressure
- Volume of gas which could escape
- Environment (near school, soil condition, construction activity, etc.)
- Response time/valve accessibility

- Excessive leakage
- Corrosion problem
- Pipe breakage problem
- Pressure problem

PART J MEASURING THE ODORIZATION OF GAS

This part of the Utilities O&M Plan details the procedure used to measure the odorization of gas at the Natural Gas distribution system. At the present time, odorizing equipment is not available within the Natural Gas distribution system; however, the following procedure is set forth for the information and guidance of WCG distribution system personnel. It is essential a person with a normal sense of smell can detect the gas in air at one-fifth the lower explosive limit. The lower explosive limit for natural gas is approximately 4 percent natural gas-in-air by volume. Therefore, you must verify that the gas odor can be detected at approximately 1 percent gas-in-air (i.e., $1/5 \times 4$ percent = approximately 1 percent.)

How to comply:

- PG&E, the local provider of transportation to the WCG at Mather and Castle, can certify that the gas being delivered to WCG's distribution system, at the point of interconnection, meets the above criteria (see PG&E Cert letter).
- WCG will conduct periodic "sniff tests" to insure that odorization levels are adequate. To conduct "sniff tests" WCG personnel, at various locations will smell the gas at an open valve or gas oven burner. If you cannot detect its odor, you must immediately take corrective action. This sniff test can also be accomplished during meter change outs or other maintenance work. Make sure to keep records of these tests, including dates, names, and locations.

NOTE: These tests should be conducted at the ends of the system, whenever possible.

PART K CATHODIC PROTECTION

This part of the WCG Operating & Maintenance Plan contains provisions for the monitoring and maintenance of the cathodic protection system for metallic pipes in the Natural Gas Distribution System at Mather and Castle. WCG has installed two new modern impressed current CP systems (ground beds/rectifiers) at Mather and one at Castle. Periodic readings are taken to insure that these two CP systems are operating to meet the -0.85 requirement of 49 CFR § 192.457.

1. General - Natural Gas Distribution System

The Mather and Castle gas distribution steel pipeline varies in size from 1 to 8 inches. There can be little question that a natural gas system presents a potential hazard especially when improperly maintained. Without inadequate maintenance or failure to control corrosion on steel piping, leaks will develop. A leak can fill buildings, sewers and manholes with a combustible mix of air and gas that can cause devastating or even fatal results.

External Corrosion Control refers to the cathodic protection of the external surface of the buried steel pipelines at Mather and Castle. Buried steel pipelines must have an external protective coating meeting the standards of §192.461. It must have a cathodic protection system designed to produce a cathodic potential of at least -0.85.

Internal Corrosion Control refers to the protection of the internal surfaces of the piping system. WCG complies with the requirements of §192.475 through §192.477 by inspecting the internal surface of any pipe that is removed from its gas distribution systems.

Atmospheric Corrosion Control refers to steel piping that is above ground and exposed to the atmosphere. WCG complies with the requirements of §192.479 through §192.481 through periodic inspections of its above-ground steel distribution pipeline.

The most fundamental action WCG can take to control gas leaks is to conduct an annual gas leak survey which, when properly accomplished, will identify and classify leaks according to severity. Hazardous leaks can then be repaired on an emergency basis and all others eliminated during scheduled maintenance. Another benefit of well-documented leak surveys is the identification of leak trends which allows engineering and maintenance personnel to project replacement of underground piping based on its leak history. Since leak surveys only locate and do not prevent gas leaks, WCG must also aggressively pursue the monitoring and maintenance of an effective corrosion control program on the metallic portion of the gas distribution system.

Specific Procedures for:

- Ensuring cathodic protection and coating of a new and/or replacement steel pipe
Utilizing WCG's inspection Form as a guide, complete this form each time a distribution main or service line is replaced by a new steel pipe segment or when new steel pipe segments are added by planned expansion.
- Examining exposed pipe:
Complete the WCG form each time a distribution main or service line is uncovered for inspection or for any other reason such as making service connections, main extensions, replacements or leak repair is performed.
- WCG tests the effectiveness-of the cathodic protection monthly. Completes the WCG form at each scheduled interval to determine the effective of the cathodic protection system in each area of the natural Gas distribution system. Make sure that the specialized equipment utilized to obtain the readings is in operational condition and that the calibration period has not expired.
- Inspect rectifiers at least 6 times a year, but with intervals not exceeding 2 1/2 months Complete the appropriate WCG form at each scheduled interval to determine the effective of the impressed current cathodic protection system. Make sure that the specialized equipment utilized to obtain the readings is in operational condition and that the calibration period has not expired. In addition, WCG will perform an instantaneous on/off IR Drop test at least once each year.
- Checking atmospheric corrosion.

Complete the appropriate WCG form when above ground piping is inspected for corrosion from atmospheric conditions or corrosive conditions that can not be controlled by cathodic protection. Inspect all exposed piping every three years for atmospheric corrosion. (192.479, 192.481, 192.491)

- Maintaining records of all tests, surveys, or inspections.

These requirements and "how-to-comply" are discussed in more detail in Cathodic Protection books and other printed materials in the WCG Technical Library.

PART L LEAK REPAIRS - CONSTRUCTION

Provisions for leak repair and construction are contained in this part of the WCG Operating & Maintenance Plan.

Procedures

I. General.

These procedures outline construction, pipe handling, and pressure testing requirements when installing or performing repairs on the Natural Gas distribution system.

- Specific Repair/Construction Procedure Number 1.
 - A. It is essential that the WCG person in charge of the repair team know the type of material and all of the parts that make up the present gas distribution system.
 - B. Before digging, you must notify USA Underground. You must clearly mark the location of the dig. You must locate the distribution pipe network and other underground utility lines on the property. This may be done by one or all of the following ways.
 - Locate all underground utility lines on "as built" or "corrected-for-construction" drawings. Maps or drawings of the location of the underground gas lines are very important. They can provide information to other utilities that must dig to repair or replace their utility lines.
 - Locate underground metallic utility lines with pipe locating instruments. Plastic pipe which was installed with an electrically conductive wire can also be located by this method. Chapter II (of the Technical Reference Section) shows instruments typically used for location of underground-pipes.
 - Locate or verify locations of other underground utility lines by communication with other utility providers (electric, water, sewer, telephone).

CAUTION--A word on safety: service lines and mains built prior to the enactment of minimum depth requirements may be very shallow. Therefore, digging to expose gas lines for repair or replacement purposes should be carried out with hand tools until the gas lines are located. Afterwards, power tools may be used.

When working on a leaking pipe, a stand-by worker should be ready to assist his partner in escaping from the hole in the event of an emergency. A fire extinguisher with an A B C rating must be present at the job site.

- C. Federal Safety regulations allow gas service lines to be installed with as little as 12 inches of earth cover on private property and 18 inches of cover under streets and roads. Gas mains must have at least 24 inches of cover.
- D. Underground structures may prevent the installation of gas services or mains at minimum depths. The Federal safety regulations allow a more shallow depth of cover if adequate protection (i.e., sufficient to withstand the anticipated external loads) is provided (e.g., heavier pipe, casing, concrete, etc.) If necessary, specialized underground pipe location equipment should be utilized to properly locate and verify the depth of the gas line or underground structure. Mark all locations above ground.
- E. Metallic Pipe (Omit if installing plastic pipe. See Paragraph F below.)

All of the procedures listed below must be met when installing metallic pipe:

- Make each joint in accordance with written procedures that have been proven by test or experience to produce strong gas tight joints.
- Obtain and follow the manufacturer's recommendations for each specific fitting used. The manufacturer's procedures will be retained in this part of the WCG O&M plan.
- Handle pipe properly without damaging the outside coating. Any gouges or scratches should be covered with an appropriate coating. If coating damage is not corrected, accelerated corrosion can occur in that area.
- Coat or wrap steel pipe at all welded and mechanical joints before backfilling. Pressure test new pipe for leaks before backfilling. Mains to be operated at less than 1-psig should be tested to at least 10 psig. Mains to be operated at or above 1 psig but less than 100 psig must be tested to at least 90 psig. Service lines to be operated at 1 psig but not more than 40 psig must be given a leak test at a pressure of not less than 50 psig.
- Support the pipe along its length with proper backfill.
- Make certain that backfill material does not contain stones, cinders, bottles, or cans that may damage or scratch pipe coating.
- Cathodically protect steel pipes.
- Electrically insulate dissimilar metals.
- Make certain that compression type fittings that are intended to be electrically conductive have armored gaskets. Bond over insulating fittings to maintain electrical continuity for cathodic protection and for locating steel pipe.
- Review welding procedures if any welding is necessary by WCG or by qualified subcontractors.

- F. Plastic Pipe (Omit if installing metallic pipe. See Paragraph E above)

All of the procedural rules listed below must be met when installing plastic pipe. The general rules to follow when installing plastic pipe are listed below:

- Rule 1: Install plastic pipe manufactured under the ASTM D2513 specification. The pipe must have ASTM D2513 marked on it.
- Rule 2: Make each joint in accordance with written procedures that have been proven by test or experience to produce strong gas tight joints.

The manufacturer of the pipe or fitting should supply WCG with the procedures for his specific product in the manufacturer's manual. When installing the pipe, WCG personnel will make certain that these procedures are followed (49 CFR 192.283). All joints must be made by a person qualified under 49 CFR 192.285.

- Rule 3: Install property designed valves in a manner which will protect the plastic material. Protect the pipe from excessive torsional (twisting) or shearing (cutting) loads when the valve is operated. Protect from any secondary stresses which might be induced through the valve or its enclosure.
- Rule 4: Prevent pullout and joint separation. Plastic pipe must be installed in such a manner that expansion and contraction of the pipe will not cause pullout or separation of the joint.
- Rule 5: When inserting plastic pipe in a metal pipe, make a sufficient allowance for thermal expansion and contraction. Make an allowance at lateral and end connections on inserted plastic pipes, particularly those over 50 feet in length. End connections must be designed to prevent pullout caused by thermal contraction. It is desirable that fittings used should be able to restrain a force equal to or greater than the strength of the pipe. If not, the pipe should be restrained by anchoring, bracing, offset connection, or straps across the fitting. To minimize the stresses caused by thermal contraction, pipes inserted in the summer should be allowed to cool to ground temperature before tie-ins are made. Inserted pipes, especially those pulled in, should be relaxed, mechanically compressed, or cooled to avoid initial tensile stress.
- Rule 6: Repair or replace imperfections or damages before placing the pipe in service.
- Rule 7: Install all plastic mains below ground level (buried) where the pipe is installed in a vault or other below-grade enclosure, it must be completely encased in gas-tight metal pipe with fittings that are protected from corrosion. (For service line, see Rule 8.) The plastic pipe installation must minimize shear and other stresses. Thermoplastic (PE) pipe for direct burial must have a minimum wall thickness of 0.090 inch. Exception: pipe with an outside diameter of 0.875 inch (7/8") or less may have a minimum wall thickness of 0.062 inch.] A plastic main that is not

encased must have an electrically conductive wire or other means of locating the pipe while it is underground.

- Rule 8: Install all plastic service lines below ground. A portion of the plastic service line may terminate above ground if it is protected against deterioration and external damage by a casing. The plastic must not be used to support external loads.

There are many different manufacturers of anodeless risers. The primary advantage of an anodeless riser is that it does not have to be cathodically protected because the outside steel casing is not the gas carrier. The plastic inside the steel casing is the gas carrier. In the case of anodeless risers, make sure that they meet all DOT requirements. In the case of steel risers connected to plastic pipe by a transition fitting, WCG personnel must coat the steel riser and cathodically protect it

- Rule 9: Test installed plastic pipe at least at a level 150 percent of the maximum operating pressure or 80 psig, whichever is greater. However, the test pressure may not be more than three times the design pressure of the pipe.
- Rule 10: Take special care to ensure that plastic pipe is continually supported along its entire length by properly tamped and compacted soil.
- Rule 11: If plastic pipe is laid where there has been digging and backfilling below the pipe, reinforce the pipe. To prevent any shear or other stress concentrations, use external stiffeners at connections to main, valves, meter risers, and other places where compression fittings might be used.
- Rule 12: In the laying of plastic pipe, ensure adequate slack (snaking) in the pipe to prevent pullout due to thermal contraction.
- Rule 13: Lay plastic pipe and backfill with material that does not contain any large or sharp rocks, broken glass, or other objects which could cut or puncture the pipe. Where such conditions exist, suitable bedding (sand) and backfill must be provided.
- Rule 14: Take special care to prevent coal tar type coatings or petroleum base tape from contacting the plastic pipe; it can cause plastic pipe to deteriorate.
- Rule 15: Static electricity can ignite a flammable gas-air atmosphere. When working with plastic pipe of any kind where there is (or there may be) the possibility of a flammable gas-air atmosphere, take the following precautions:
 - Use a grounded wet tape conductor wound around, or laid in contact with, the entire section of the exposed piping.

- If gas is already present, wet the pipe starting from the ground end with a very dilute water and detergent solution. Apply tape immediately and leave it in place.
 - Wet the tape occasionally with water. Where temperatures are below freezing (0°C/32°F), add glycol to the water to maintain tape flexibility. Ground the tape with a metal pin driven into the ground.
 - Do not vent gas using an ungrounded plastic pipe or tubing. Even with grounded metal piping, venting gas with high scale or dust content could generate an electric charge in the gas itself and an arc could result from the dusty gas cloud back to the pipe and ignite the gas. Vent gas only at a downwind location remote from people or flammable material.
 - NOTE: Dissipating the static charge buildup with wet rags, a bare copper wire, or other similar techniques may not be as effective as the above procedure. In all cases, use appropriate safety equipment such as flame resistant and static free clothing, breathing apparatus, etc.
- G. After a leak has been repaired, a soap-bubble test must be conducted. Replaced main and services must be pressure tested for leaks.

CAUTION: Again, it should be emphasized that all sources of ignition should be kept away from the leak repair area. MATCHES SHOULD NEVER BE USED TO DETECT A GAS LEAK or to test the adequacy of a repair job.

3. Specific Repair/Construction Procedure Number 2 - Location, Design or Repair of Customer Meter and Regulator Sets (49 CFR 192.353)
 - A. Install meters and service regulators in a readily accessible location. Protect the meters and regulators from corrosion and other damage. Meters **must** be installed outside wherever possible.
 - B. If a service regulator is installed in a building, put it as close as practical to the point of service entering the building. The regulator **must** be vented to the outside.
 - C. If a meter is installed inside a building, it must be located in a ventilated place. It must be more than 3 feet from any source of ignition or any source of heat which might damage the meter.
 - D. It is best to locate the upstream regulator (in a series) outside the building. However, regulators may be located in a separate metering or regulating building.
4. Specific Repair/Construction Procedure Number 3 - Customer Meters and Regulators: Protection From Damage (49 CFR 192.355)

- A. Protection from vacuum or back pressure. If any of WCG's customer's equipment might create either a vacuum or a back pressure, then a device must be installed to protect the gas system.
- B. Service regulator vents and relief vents. The outside terminal of each service regulator vent and relief vent must be:
 - rain and insect resistant;
 - located where gas from the vent can escape freely into the atmosphere. Vent it 3 feet or more away from any opening into the building; and
 - protected from water damage in areas where flooding may occur. (Put it where it will not be under water in a flood.)
 - Meters and regulators must be installed in order to minimize stresses upon connecting piping.
 - Each pit or vault in a road, driveway, or parking area that houses a customer's meter or regulator must be able to support the vehicle traffic that could use that road, driveway, or parking area.

5. Specific Repair/Construction Procedure Number 4 - Customer Meter Installations: Operating Pressure (49 CFR 192.359)

WCG personnel shall not install a meter unless its nameplate data bears the following information or a certificate to that effect is on file with WCG:

- C. A meter may not be used at a pressure that is more than 67 percent of the manufacturer's shell test pressure (0.67 x shell test pressure).
 - D. Each newly installed meter manufactured after November 12, 1970, must have been tested to a minimum of 10 psig.
- Specific Repair/Construction Procedure Number 5 - Service Lines: Location of Valves (49 CFR 192.365)
 - A. Relation to regulator or meter. Each service-line valve must be installed upstream of the regulator. If there is no regulator, install the valve upstream of the meter.
 - B. Outside valves. Each service line must have a shut-off valve in a readily accessible location that, if feasible, is outside of the building.
 - C. Underground valves. Each underground service-line valve must be located in a covered durable curb box or standpipe that allows ready operation of the valve. The box or standpipe must not put stress on the service line.
 - D. Services should not be installed under buildings or mobile homes. If a service is installed under a building, it must be encased in a gas-tight conduit. This conduit must vent to the outside to a point where gas would not be a hazard and extend above ground, terminating in a rain and insect resistant fitting.

PART M

UPRATING

WCG, will follow established written procedures (located in WCG Technical Library) for uprating whenever an increase in the previously established Maximum Allowable Operating Pressure (MAOP) or conversion (changing from a lower pressure distribution system to a high pressure distribution system (49CFR 192.605(d)) is contemplated.

Each time WCG increases the MOAP for any part of the distribution system, it will prepare a written plan, execute the uprate in strict accordance with the written plan and keep records of the uprate.

Co-ordination with PG&E is critically important. Identify PG&E personnel in charge (phone #) of the WCG uprate to absolutely insure gas pressure is not increased until WCG gives okay. Also review CPUC GO No, 112-E.

PART N INSPECTION OF PRESSURE REGULATION STATIONS

At the present time, WCG operates a single pressure regulation station at Mather. This pressure regulation station is located on Excelsior Road in the Housing Area. The purpose of the regulation station is to reduce the distribution pressure from 50 psig to 9 to 12 psig for distribution to the Capehart housing area. New regulators (worker/monitor) were installed during the November 2002 uprate. WCG has created an inspection form and written instructions for the periodic changing of the worker/monitor configuration. §192.739 requires that this pressure regulation station be inspected at intervals not exceeding 15 months, but at least once each calendar year. The annual inspection and testing by WCG shall insure that:

- The components are in good mechanical condition.
- The station is adequate from the standpoint of capacity and reliability of operation for the service in which it is employed.
- Set to operate at the correct operating pressure.
- Properly installed and protected from any condition that might prevent its proper operation.

In addition to the above, Appendix A contains expansive descriptions of regulators and pressure relief devices.

PART O TESTING OF RELIEF DEVICES AT REGULATOR STATIONS

Section §192.743 of 49 CFR requires, if feasible, that pressure relief valves, located in regulation stations, be tested. WCG has installed a “worker – monitor” regulator system at the Capehart regulation station to insure that outlet pressure to the Capehart system does not exceed the MAOP established in the 2002 uprate (15 psig). The Capehart regulation station is inspected on a regular basis to insure that the outlet pressure is holding at the assigned operating pressure of 12 psig. Appendix B contains a general discussion on the operation of pressure regulators and pressure relief values.

**PART P
CAST IRON PIPE**

WCG does not have any cast iron pipe within the Natural Gas distribution system at Mather or Castle.

**PART Q
COVERED EMPLOYEE QUALIFICATION PROGRAM**

WCG Qualifications of Individuals Performing Covered Functions and Required Training Definitions:

Abnormal Operating Condition means a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may;

- (a) Indicate a condition exceeding the systems design limits; or
- (b) Result in a hazard(s) to persons, property, or the environment.

To be qualified, an individual must be able to properly perform assigned covered tasks and be able to recognize and react appropriately to an abnormal operating condition (AOC) that may reasonably be expected to be encountered while performing the covered task. This is true whether the condition arises as a direct result of his/her work performance (e.g. be specific to the covered task being performed) or not (e.g. be generic in nature, but still observable because the individual is present on site). WCG's Operator Qualifications Program is maintained in a separate document in a separate binder. It is an integral part of WCG overall O&M Plan.

**PART R
COVERED EMPLOYEE DRUG AND ALCOHOL TESTING PROGRAM**

Part 199 of 49 CFR requires that WCG have a drug and alcohol testing program for persons who perform the following on WCG's gas distribution systems:

- 1. Operating
- 2. Maintenance, or
- 3. Emergency Response Functions.

WCG employees, who perform all or any the functions listed above are, for the purposes of this program, "covered-employees".

A. Definitions:

1. "**Prohibited Drug**" means any of the following substances specified in Schedule I or Schedule II of the Controlled Substances Act:

- a. Marijuana
- b. Cocaine
- c. Opiates
- d. Amphetamines

2. **“Pass a Drug Test”** means that initial testing under DOT procedures does not show evidence of the presence of a prohibited drug in the employee’s system.
3. **“Fail a Drug Test”** means that the confirmation test results shows positive evidence, under DOT procedures, of the presence of a prohibited drug in an employee’s system.
4. **“Accident”** or **“Event”** means any situation that involves a release of gas from a pipeline and (a) a death or personal injury requiring hospitalization or (b) estimated property damage, including the cost of gas lost to WCG or others or both of \$50,000 or more.

B. Required Types of Drug Tests

WCG is required to perform the following types of drug tests on covered-employees:

1. **Pre-employment Testing.** All new covered-employees must receive a pre-employment drug test. All candidate covered-employees will be told of this requirement during their first interview and they will also be told that failure to pass the test will disqualify them from employment at WCG.
2. **Post Accident or Event Testing.** Testing of covered-employees will be performed as soon as possible, but not less than 12 hours after an accident of any kind involving the WCG gas distribution system when the covered-employees performance either contributed to an accident or cannot be completely discounted as the cause or a contributing factor to the accident. An event that is considered significant, in the judgment of WCG, even though it did not meet the definition of an “Accident” may also result in post accident or post event drug testing.

WCG is required to take all reasonable steps to obtain a urine sample from an employee after an accident. WCG will instruct the hospital to obtain a urine sample from an employee transported to a hospital for medical treatment. If a covered-employee, who is capable of providing a urine sample after an accident, refuses to provide the sample that WCG employee will be removed from duty as an employee.

3. **Random Testing.** All covered-employees are subject to random drug-testing. WCG is required to test 50% of all covered employees each year. All covered employees will be randomly tested. Failure of a drug test or failure to submit to a drug test by a covered employee will result in that employee’s removal from duties at WCG
4. **Reasonable Cause Testing.** WCG is required to drug test a covered-employee when there is reasonable cause to believe the employee is using a prohibited drug. WCG will only perform reasonable cause drug test when physical, behavioral, or performance indicates the probable use of drugs. The WCG maintenance supervisor will inform an officer of WCG that a reasonable cause drug test is warranted. The WCG officer must concur with finding of the maintenance supervisor, in writing, before the drug test is administered. Failure of a drug test or failure to submit to a drug test by a covered employee will result in that employee’s removal from duties at WCG.
5. **Return to Duty Testing.** Covered-employees who, based on the recommendation of WCG’s medical officer, return to duty after the completion of a rehabilitation program must be given unannounced drug tests as scheduled by the medical officer. The period of testing will not be more than 60 months and not less than 12 months from the date the covered employee returns

to work at WCG. Failure of a drug test or failure to submit to a drug test by a covered employee will result in that employee's removal from duties at WCG.

C. WCG's Drug Testing Clinic. WCG has an agreement with Healthsouth Medical Occupational Clinic to perform alcohol and drug testing. Healthsouth Clinic has six offices in the Sacramento area and is qualified to perform all drug testing under DOT rules.

D. Employee Assistance Program. WCG will provide covered employees with an employee assistance program (EAP). The purpose of the EAP is to provide education and training on drug use. In addition, WCG will provide rehabilitation assistance to any covered employee who seeks help for drug related problems.

WCG will conduct at least 1 one-hour training session each year on drug abuse issues. All covered employees are required to attend these training sessions.

E. Confidentiality. The purpose of WCG's Anti Drug Program is to provide a safe working environment for its employees, customers and public we serve. In addition, our Anti Drug Program is designed to help our employees overcome substance abuse problems. Therefore, WCG will maintain the confidentiality of program results and no information will be released to any other party, except a government agency as part of an accident investigation or during safety audits, without the employee's written consent.

WCG's Anti-Alcohol Program

WCG is required to have a program designed to help prevent accidents and injuries resulting from the misuse of alcohol by employee who perform covered functions.

A. Definitions:

1. **Alcohol** means the intoxicating agent in beverage alcohol, ethyl alcohol or other low molecular weight alcohols.
2. **Alcohol Concentration** means the alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by an evidential breath test.
3. **Confirmation Test** means a second test, following a screening test with a result of 0.020 or greater, that provides quantitative data of alcohol concentration.
4. **Refuse to Submit (to an alcohol test)** means that a covered employee fails to provide adequate breath for testing without a valid medical explanation after he or she has received notice of the requirement to be tested in accordance with provisions of Subpart B.
5. **Screening Test** means an analytical procedure to determine whether a covered employee may have a prohibited concentration of alcohol in his or her system.

B. WCG's Responsibilities:

Alcohol Concentration.

WCG will not permit a covered employee to report to work or remain on duty while having an alcohol concentration of 0.04 or greater. For most people, the drinking of two beers will produce a 0.04 blood alcohol concentration. By comparison, the State of California's criteria for "DUI" (Drunk Driving) is 0.08. In other words, you could easily pass a drunk driving test, but you would still be in violation of the 0.04 standard that WCG must operate under.

On Duty Use.

WCG will not permit a covered employee to use alcohol within four hours prior to performing covered functions, or, if an employee is called to duty to respond to an emergency, within the time period after the employee has been notified to report for duty. What this means is that a covered employee cannot and will not be allowed to work if he or she has consumed alcohol within 4 hours before reporting for duty - regular hours, or has consumed any alcohol after receiving an emergency call to duty. A covered employee is prohibited from consuming any alcohol while you are on duty - including during break and meal times. If a covered employee is on the weekend Emergency Call List, he or she is prohibited from reporting for duty if he or she consumes alcohol after receiving an Emergency Call. If a covered employee believes that they have consumed too much alcohol before receiving the Emergency Call they must inform the Emergency Call person that they cannot report for duty and inform the Emergency Call person that the next person on the list is to be called.

There are minor penalties (possible loss of a day's pay or use of sick leave hours) for not reporting to work when a covered employee has used alcohol within 4 hours of reporting for duty. There are major penalties for reporting for duty under the influence or for use of any alcohol during duty hours including termination.

Alcohol Tests Required.

WCG will conduct the following types of alcohol tests for the presence of alcohol. In the case where a covered employee is suspected of reporting for duty in an impaired state due to alcohol use, or if the covered employee is suspected of using alcohol during working hours, including break and meal times, the employee is to be immediately sent or taken to Healthsouth for a test. Healthsouth's testing facilities are located at 9261 Folsom Blvd., Suite 200 and the phone number is 916-364-1733. In a post accident situation, the test may be administered by Healthsouth or by the medical facility where the covered employee has been taken for medical treatment by informing the hospital that the person being treated is a DOT covered employee and the a drug and alcohol is mandated by Federal Laws.

Post Accident.

- (1) As soon as practicable following an accident, WCG will test each surviving employee for alcohol if that employee's performance of a covered function either contributed to the accident or cannot be completely ruled out as a contributing factor in the accident.
- (2) A covered employee who is subject to post-accident testing who fails to remain available for testing, including informing WCG of their location if they leave the scene of the accident, will be deemed by WCG to have failed the test. Nothing in this section requires that a covered employee not be allowed to go and seek medical attention.

Reasonable Suspicion Testing.

(1) WCG will require a covered employee to submit to an alcohol test when WCG has reasonable suspicion to believe that the employee has violated the use of alcohol rules laid-out by WCG in this section.

(2) Reasonable suspicion is based on specific, observable conditions that can be articulated by the supervisor including physical behavior, slurred speech, and body odors including alcohol on the breath.

If a covered-employee fails two alcohol tests within a six month period, he or she is subject to termination. If a covered employee is observed using any alcohol during while on duty, including break and meals times, that employee is subject to termination.

PART S WCG's Covered Staff Duties and Qualification

1. Operations and Maintenance Supervisor.

Duties and Responsibilities:

- Overall responsibility for the safe and reliable operation and maintenance of the gas system.
- Supervision of gas system employees.
- Scheduling of O&M and construction projects.
- Compliance with DOT and CPUC requirements for safe operation of the gas system, safety of workers and record keeping. Lead person during CPUC G.O. 112-E Audits.
- Insures on-call staffing levels adequate for 24/365 emergency response.
- Conducts and arranges for periodic employee training programs.
- Insures adequacy of material and supply inventory.
- Initial contact person for all emergency, urgent and routine service requests.

Experience and Qualification Requirements:

- Minimum 5 years experience directly related to the construction and operations and maintenance of a natural gas distribution systems.
- Minimum 2 years experience as an O&M supervisor.
- Current PE Fusion Certificate and USA Locate Training Certificate.
- Ability to operate heavy equipment including backhoe.
- Ability to operate and train others in the use of leak detection, pipe location and cathodic protection testing equipment.

2. Senior Operations and Maintenance Technician.

Duties and Responsibilities:

- Assistant to the O&M Supervisor.
- Directs field crew in normal operations and maintenance activities and can perform duties of O&M Supervisor during an emergency situation.
- Performs leak detection surveys, pipe location, valve maintenance and patrolling.

- Installs and removes Meter Set Assemblies and house regulators. Installs service lines and risers.
- Performs pressure tests, Cathodic Protection test, line purging and operates pipe location, leak detection, Cathodic Protection testing equipment.
- Performs all other required normal Operations and Maintenance functions as needed.

B. Experience Requirements:

- Minimum 3 years experience in the operations and maintenance of natural gas distribution systems.
- Minimum one year experience supervising entry level O&M technicians.
- Current PE Fusion and USA Locate Training Certificate.
- Ability to operate heavy equipment including backhoe.
- Ability to operate and train others in the use of leak detection, pipe location and cathodic protection testing equipment.

3. Operations and Maintenance Technician II.

Duties and Responsibilities:

- Under the direction of the O&M Supervisor and/or Senior O&M Technician:
- Directs field crew in normal operations and maintenance activities and can perform duties of O&M Supervisor during an emergency situation.
- Performs leak detection surveys, pipe location, valve maintenance and patrolling.
- Installs and removes Meter Set Assemblies and house regulators. Installs service lines and risers.
- Performs pressure tests, Cathodic Protection test, line purging and operates pipe location, leak detection, Cathodic Protection testing equipment.
- Performs all other required normal Operations and Maintenance functions as needed.

B. Experience Requirements:

- Minimum 1 year experience in the natural gas or related industry performing operations and maintenance functions or 6 months experience as an entry level O&M Technician in the employment of WCG.
- Current PE Fusion and USA Locate Training Certificate.
- Ability to operate gas department equipment but not including heavy equipment.

4. Operations and Maintenance Technician I.

Entry Level Technician:

Duties and Responsibilities:

Under the direction of the O&M Supervisor and/or Senior O&M Technician, will receive training and be supervised in performing covered tasks.

APPENDIX A

GAS INCIDENT REPORTS REQUIRED BY CPUC UNDER G.O.112-E

122 GAS INCIDENT REPORTS

122.1 Each operator shall comply with the requirements of 49 CFR Part 191, for the reporting of incidents to the United States Department of Transportation (DOT). The operator shall submit such reports directly to the DOT, with a copy to the California Public Utilities Commission (CPUC).

122.2 Requirements for reporting to the CPUC.

(a) Each operator shall report incidents to the CPUC that meet the following criteria:

1. Incidents which require DOT notification.
 - i. An event that involves a release of gas from a pipeline or of liquefied natural gas (LNG) or gas from an LNG facility and
 - A death, or personal injury necessitating in-patient hospitalization; or
 - Estimated property damage, including cost of gas lost, of the operator or others, or both, of \$50,000 or more.
 - ii. An event that results in an emergency shutdown of an LNG facility.

2. Incidents which have either attracted public attention or have been given significant news media coverage, that are suspected to involve natural gas, which occur in the vicinity of the operator's facilities; regardless of whether or not the operator's facilities are involved.
- (b) In the event of an incident listed in 122.2(a) above, an operator shall go to the Commission's website, select the link to the page for reporting emergencies and follow the instructions thereon. If internet access is unavailable, the Operator may report using the backup telephone system.
1. If the utility is notified of the incident during its normal working hours, the report should be made as soon as practicable but no longer than 2 hours after the utility is aware of the incident and its personnel are on the scene.
 2. If the utility is notified of the incident outside of its normal working hours, the report should be made as soon as practicable but no longer than 4 hours after the utility is aware of the incident and its personnel are on the scene.
 3. All reports required by this section shall be followed by the end of the next working day by an email or telefacsimile (fax) of the standard reporting form, "Report of Gas Leak or Interruption," CPUC File No. 420 (see attachment).

(c) Written Incident Reports.

1. The operator shall submit to the CPUC on DOT Form PHMSA_F7100.1 (<http://ops.dot.gov/library/forms/forms.htm#7100.1>) for distribution systems and on DOT Form PHMSA F7100.2 (<http://ops.dot.gov/library/forms/forms.htm#7100.2>) for transmission and gathering systems a report describing any incident that required notice under Items 122.2(a)(1) or (2).
2. Together with the form required by (c)(1) above, the operator shall furnish a letter of explanation giving a more detailed account of the incident unless such letter is deemed not necessary by the CPUC staff. The operator may confirm the necessity of a letter of explanation by telephone. If, subsequent to the initial report or letter, the operator discovers significant additional information related to the incident, the operator shall furnish a supplemental report to the CPUC as soon as practicable, with a clear reference by date and subject to the original report. These letters, forms, and reports shall be held confidential under the provisions of Paragraph 2, Exclusions, of General Order 66-C and Public Utilities Code Section 315.
3. The operator of a distribution system serving less than 100,000 customers need not submit the DOT forms required by paragraph (1) above; however, such operator must submit the letter of explanation required by (2) above, subsequent to any initial report to the CPUC, unless such letter is deemed unnecessary by the CPUC staff.

(d) Quarterly Summary Reports. Each operator shall submit to the CPUC quarterly, not later than the end of the month following the quarter, a

summary of all CPUC reportable and non-reportable gas leak related incidents which occurred in the preceding quarter as follows:

1. Incidents that were reported through the Commission's Emergency Reporting website.
2. Incidents for which either a DOT Form PHMSA F7100.1 or F7100.2 was submitted.
3. Incidents which involved escaping gas from the operator's facilities and property damage including loss of gas in excess of \$1,000.
4. Incidents which included property damage between \$0 and \$1,000, and involved fire, explosion, or underground dig-ins.

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 - Estimated property damage, including cost of gas lost, of the operator or others, or both, of \$50,000 or more.
 - ii. An event that results in an emergency shutdown of an LNG facility.
2. Incidents which have either attracted public attention or have been given significant news media coverage, that are suspected to involve natural gas, which occur in the vicinity of the operator's facilities; regardless of whether or not the operator's facilities are involved.

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4. Incidents which included property damage between \$0 and \$1,000, and involved fire, explosion, or underground dig-ins.

APPENDIX B

REGULATORS AND RELIEF DEVICES: BASIC CONCEPTS

In Understanding the equipment used to regulate the pressure of natural gas it is helpful to be familiar with some fundamental physical units and concepts. Four are particularly important to regulators. Taken in pairs they are:

PRESSURE and FORCE

FLOW and THROTTLING
PRESSURE

In the gas business the commonly used pressure units are:

psi.....pounds per square inch
osi.....ounces per square inch
in.w.c.....inches water column
in.hg.....inches mercury column

For convenience, the four units are usually shortened to pounds, ounces, and inches.

It is important to remember that "pounds," "ounces," and "inches" is the short form of expressing pressure units. There really is no such thing as a pound of pressure or an ounce of pressure. They are incomplete terms. Pressure is defined as force per unit areas. Pounds and ounces express only the "force" portion of that definition. The unit of "area" is missing. Thus, the complete terminology should be "pounds per square inch" and "ounces per square inch."

Where gas is under pressure, it exerts a given force against each unit. of exposed area. For ex-ample, gas at a pressure of 10 psi pushes with a force of 10 pounds against each square inch of surface exposed to the gas. Gas at a pressure of 5 ounces (remember; ounces per square inch) pushes with a force of 5 ounces against each square inch of surface exposed to the gas.

Such units as pounds or ounces per square foot, per square yard, or other unit area are quite correct. However, for the gas business the unit area used is the square inch. And, to repeat, the complete expressions are pounds per square inch (psi), and ounces per square inch (psi).

Returning to psi, there are some other forms to note as follows:

psia.... pounds per square inch absolute
psig.... pounds per square inch gauge

The relationship between the two is simple:

psia = psig + atmospheric pressure

Absolute pressure (psia) uses a perfect vacuum as the zero point. A perfect vacuum is 0 psia Gauge pressure (psig) uses the actual atmospheric pressure as the zero point. In Miami sea level atmospheric pressure is 14.7 psia. Thus, 0 psig is 14.7 psia in Miami. In Denver (5,280 feet elevation) atmospheric pressure is 12.1 psia. And 0 psig for Denver is 12.1 psia.

Inches of water column or inches of mercury is often used to express the pressure being delivered to domestic customers. Pressure measurement in inches is usually done with an instrument called a manometer. The important relationships to remember are these:

For inches water column
1 psig = 2.71 in w.c.

For inches of mercury column
1 psig = 2.036 in Hg.

Note the physical limitations to pressure measurement with the manometer. The highest pressure that could be measured with a "U" type manometer 5-feet high would be only a little over 2 psig (56 in. w.c.). However, note also that it offers a very precise way of measuring very low pressures.

Mercury offers somewhat more range. A 5-foot high manometer would have a maximum of around 30 psig (61.08 in. hg). It too offers accuracy. In comparison, however, compact dial type gauges are readily and economically available for a wide variety of ranges as high as 1,000 psig and even more.

When expressing pressure in inches, it is necessary to identify the liquid. To put it another way, there really is no such thing as an inch of pressure. Instead, it is inches of some kind of liquid, and in the gas business it is generally water or mercury. Thus, the correct expressions are inches water column (in. w.c., or in. H₂O) and inches mercury column (in. hg or Hg).

PRESSURE AND FORCE

Force is simply a push or a pull. It is measured in pounds alone.

Note that pounds of pressure is incomplete (it should be pounds per square inch) whereas pounds of force is complete. Thus, it would be "X" pounds of pushing force or pulling force.

Note that pressure is used to create a total force. Also note particularly how much force (200 pounds) can be created with only a small amount of pressure (2 psig.) It is all a matter of diaphragm area or piston area. A diaphragm, of course, is simply a low friction, tightly sealed, short stroke piston (just the thing for regulators.)

Applying 2 psig pressure to the 100 in. area gives an upward pulling force of 200 pounds (100 in.² x 2 lbs/in.² = 200 pounds.)

Note that the pressure above both diaphragm and the piston is atmospheric (0 psig.) The differential pressure across the diaphragm and across the piston is 2 psi (2 psig - 0 psig = 2 Psi.)

Note also that the effective diameter of the diaphragm and the piston is only about 11 inches. An 11 inch diaphragm is not very large. This is quite a common size for regulators, particularly on (commercial and industrial applications. But an 11 inch diaphragm has a large area (100 in.²). It does not take much pressure (2 psig, for example) to develop quite a large total force (200 pounds.)

FLOW AND THROTTLING

To throttle the flow of a fluid is to allow only a certain amount to flow and hold the remainder back. A faucet provides a good example. How much water is wanted determines how far the faucet is opened. The faucet, (a valve) is a throttling device. Depending on how far it is opened, it allows only a certain amount of water to flow and holds the rest back. It restricts flow to a certain amount.

Throttling is a basic function in a regulator. The part that throttles is a valve. It allows only a certain amount of gas to flow while holding all else back. The valve part of a regulator is a variable restrictor.

Not all valves can be used for throttling (i.e., used as a variable restrictor.) Some (like many gate valves) are fine if either wide open or closed. But if used in an intermediate position (one-third open, half open, three-fourths open, etc.), they become unstable. They do such things as chatter, rattle, hammer, etc. They are unsatisfactory.

For a regulator the valve must be mechanically stable from wide open to as small a flow as possible. In addition, it must change flow smoothly as it is opened or closed.

Probably the most widely used valve for regulators is the single-port, unbalanced, globe economical in construction yet provides good throttling. In addition, they stroke freely, have little friction, and have good shut-off (lock-up.)

Standard spring regulator. For most small master meter Operators this will be the only type of regulator in system.

1. Spring compression works to open the valve.

The rule is: The PRIMARY VALVE OPENING FORCE in a spring regulator comes from the spring (usually, spring compression.)

2. The diaphragm works to close the valve.

The rule is: The PRIMARY VALVE CLOSING FORCE in a spring regulator comes from other pressure acting against the effective area of the diaphragm.

3. An increase in outlet pressure creates valve closing action. Conversely, a decrease creates opening action.
4. Set-point (the outlet pressure a regulator is adjusted to deliver) is determined by spring compression. Turning the set-point adjustment clockwise increases spring compression which increases set-point, and vice versa.

Pilot type regulators are used at city gate stations or for large industrial customers. These regulators are somewhat more complicated than spring regulators. These types of regulators will not be discussed in this manual. A consultant should be used to select the type and proper size regulator for most situations, the exception being house regulators.

SOME BASIC NAMES AND TERMS

The inlet is the opening through which gas enters a regulator. The pressure of the entering gas is usually called the inlet pressure, although it could also be called the upstream or supply pressure.

The outlet is the opening by which gas leaves a regulator. The pressure of the existing gas is usually called outlet pressure, although it could also be called downstream pressure.

In general, the more the inlet pressure exceeds the outlet pressure, the greater the amount of gas that can flow through the regulator, or to put it another way, the greater the capacity of the regulator. The difference between inlet and outlet pressures is sometimes called the differential across the regulator.

Piping on the inlet side is upstream and piping on the outlet side is downstream. As stated previously, a regulator takes higher pressure gas from the supply and reduces it to the pressure required by the load. To do this, something is needed on the regulator to adjust it for the specific pressure required. This adjustment is called the set-point adjustment and on most of today's regulators it is a screw-type device of some kind, usually simply an adjustment screw. Set-point then is the pressure a regulator is adjusted to deliver. It is the pressure required by the load and, in general, is the same as the outlet pressure.

The control line is also called a sensing line, impulse line, equalizing line or static line. The control line along with the sensing point are a vital part of a regulator installation. They must be carefully planned and correctly installed if the regulator is to operate satisfactorily and safely.

Many regulators, particularly smaller ones, do not have the control line externally as shown in. Instead, it is internal. Called internal control, it is built into the inside in some

form of open throat construction or venturi tube. However, one way or the other (externally or internally), every regulator has a control line or the equivalent.

Control lines must be adequately protected against breakage. If they are broken, the regulator opens wide and this could result in the full upstream line pressure (that is high) being dumped into the low pressure system you are trying to protect. This can lead to a catastrophic situation.

Next, the vent, while often appearing insignificant, the vent is important to a regulator. Regulators breathe. As the internals move in the work of controlling pressure, a regulator will inhale or exhale through the vent. Therefore, the vent must be adequately protected from obstructions such as dirt, insects, ice, etc. If an obstructed vent prevents a regulator from breathing, there is trouble.

Also, water can get inside a regulator through an improperly positioned and unprotected vent. Water inside a regulator can cause problems. Therefore, vents must be positioned and protected to keep the water out. This is particularly important on outdoor installations.

The last item is the stop. It is a necessary convenience. There may be one or more. A simple installation such as a house usually has only one, the stop cock. A more involved installation such as a regulator station would have several stop valves (inlet stop valve, outlet stop valve, control line valve, by-pass valve, and perhaps others.)

The most important of all is the inlet stop valve. All should be used carefully. The inlet stop valve should be used with extra care, particularly when being opened. Do not open it until you are sure everything is correct and ready. Then open it slowly. Allow the inlet gas to enter slowly, and the pressure to build up slowly.

Stop valves make it possible to put a regulator into service or take it out of service. They make it possible to isolate a regulator for servicing and to conduct certain tests. Correct opening and closing sequences should be adequately understood (these are often specified in- gas company standards and procedures.) Usage in case of an emergency should also be understood.

In most cases small operators need to rely on a consultant if a regulator station needs any major work. In the O&M plan, name the person who is responsible for determining when a regulator needs to be serviced. The operator should list the consultants in the O&M plan who is capable of working on regulator stations.

OVER PRESSURE PROTECTION

There are three basic methods of providing over pressure protection:

- Pressure Relief
- Monitoring

- Automatic Shutoff

Pressure relief is simply a dumping of excess gas safely into the atmosphere. The excess gas is that which would cause pressure to exceed the safety limit. The relief valve is the most widely used piece of equipment in this category. However, liquid seals and rupture discs may also be used.

In general, relief valves can be classified in a way similar to regulators. There are two basic kinds of operation: self operation and relay operation. These can be subdivided in the same way as regulators. The spring type relief valve is the most widely used. The pilot operated type probably is the next most frequently used, and it offers more precise operation. The pilot operated type becomes more and more frequently used as pressures become higher and capacities greater.

Monitoring involves a standby regulator. The standby prevents pressure from exceeding the safety limit.

The most widely used form of monitoring for the gas business is standby monitoring. It is also called passive monitoring. Such installations consist of two regulators in series, one of which is operating to control pressure while the other is a standby. The standby unit is normally further open than necessary, usually wide open. It takes that position because it is adjusted for a higher set-point than the operating regulator. If a failure with the operating regulator causes outlet pressure to rise, the monitor takes over at this set-point and holds pressure at that value.

There are two other forms of monitoring which are sometimes used. One simply consists of two stage regulation which, when designed for the purpose, can provide monitoring protection. The other is called override monitoring or working monitoring. With it, the upstream regulator must be pilot operated and have an extra pilot. During normal operation, the set provides two stage regulation. In an over pressure emergency it protects in the same way as standby monitoring.

Automatic shutoff involves a valve that normally remains in the wide open position and allows the gas to flow freely. It is located in series with the regulator, either upstream or downstream, depending on whether it uses a control line or internal control.

If a failure with the regulator results in a rising outlet pressure, the shutoff closes automatically when pressure reaches its set-point. It protects by shutting off the gas and remains closed until manually opened and reset.

In general, there are three primary things to consider in choosing which kind of over pressure protection to use:

1. Continuity of service (does the user, the load, continue to be supplied with gas?)

2. Containment (is gas released into the atmosphere or does it remain contained within the gas system?)
3. Alerting (is there good notification or warning that an emergency has occurred and that the over pressure protection equipment has gone into operation?)

The following is a comparison of the three basic over pressure protection methods (based on the foregoing three considerations):

Pressure Relief Method

- Continuity of Service. In general, pressure relief valves do not interrupt gas service. They protect, while allowing gas to flow at a safe pressure. Customers continue to get gas.
- Containment. Relief valves do not contain the gas. They protect by dumping the excess gas into atmosphere.
- Alerting. Relief valves are usually good in this respect. For one thing they are noisy, particularly at full or near full blow. In addition, because the gas is odorized, the smell usually attracts attention.

Another indication of over pressure is the rise in outlet pressure above normal, but this is probably the least effective notification of all.

Monitoring

- Continuity of Service. Monitoring does not interrupt service. Like the relief valve, the monitor protects while allowing gas to continue to flow.
- Containment. Monitoring contains the gas. It prevents the gas from blowing into the atmosphere. It keeps it inside the piping.
- Alerting. This is probably the main disadvantage of monitoring. Generally speaking, the only warning or notification is the rise in outlet pressure to monitor set-point.

Automatic Shutoff

- Continuity of Service. Automatic shutoff, of course, stops the flow of gas. It protects because it interrupts gas service by fully shutting off the gas.
- Containment. Automatic shutoff contains the gas. Like monitoring, it does not allow gas to blow into the atmosphere. It contains the gas within the piping.
- Alerting. In general, shutting the gas off results in good notification. Usually it is quickly noticed. However, there could be situations where it is not detected immediately and the intervening lack of gas has undesirable or even serious results.

The next sections cover the three basic methods of over pressure protection in more detail.

PRESSURE RELIEF

The purpose of the relief valve is to prevent outlet pressure from rising to an unsafe level when there is a regulator failure.

In general, a failure with the regulator would result in either too much or too little pressure downstream. The failure would leave the regulator in what could be called a "fail-open" condition (regulator too far open, even fully open too much gas flow) or a "failed-closed" condition (regulator too far closed, even fully closed not enough gas flow.) A relief valve, of course, is only useful in a "fail-open" regulator condition: too much gas flow, hence a rising above normal of the downstream pressure. Relief valves do nothing for a "failed-closed" regulator condition: too little gas.

A relief valve protects by discharging the excess gas into the atmosphere. As long as a regulator operates correctly and downstream pressure is normal, a relief valve remains closed. If the regulator fails, and allows too much gas to flow (a "fail-open" condition for the regulator), downstream pressure will increase. The relief valve will remain closed until pressure reaches its set-point. At that point it will begin opening and will continue to do so, as the pressure continues to rise. It will open far enough to discharge all of the excess gas into the atmosphere. When it reaches that point, there will be no further rise in the downstream pressure and, if the relief valve and its installation are correctly sized, the pressure downstream will not be high enough to be unsafe.

Keep in mind that the relief valve does not discharge all of the gas into the atmosphere. It only discharges the excess. There is still a normal flow for the load. Customers continue to get gas.

RELIEF VALVE SIZING

Sizing is vitally important. This applies not only to the relief valve itself, but to the piping of the entire installation. A relief valve must be big enough to handle the maximum emergency. When properly installed and maintained, relief valves are very dependable. The question is not so much whether or not one will work, but rather whether or not it is large enough to provide full protection during a maximum emergency.

When a relief valve is in full operation, it can discharge an enormous volume of gas into the atmosphere. For that reason they cannot be used everywhere, and this must be carefully considered when a relief valve installation is being planned and engineered. The vital questions are these: What happens with the gas after it leaves the relief valve? Will it disperse harmlessly? Or, could it create another emergency? This matter is addressed in 49 CFR 192.199(e).

MONITORING

This section will deal with the most widely used form of monitoring, standby or passive monitoring.

- The downstream regulator can have either a control line or internal control.
- The upstream regulator must have a control line.
- Either the upstream or the downstream regulator can be the monitor.

Standby monitoring is sometimes confused with two-stage or double-cut regulation. The big difference, of course is in the control line for the upstream regulator. In standby monitoring, the control line for the upstream regulator goes all the way downstream. It does not connect between the regulators as in two-stage regulation. To repeat, the control line for the upstream regulator in standby monitoring goes on beyond the downstream regulator to a point somewhere in the outlet piping. That is the reason the upstream regulator in standby monitoring must have a control line, whereas in two-stage regulation the upstream as well as the downstream regulator can have either a control line or internal control.

Two-stage regulation can be used as a form of monitoring provided the two following conditions are met:

- The system downstream of the second stage regulator (including the regulator) must have an MAOP equal to or less than the outlet pressure of the first stage regulator.
- The second stage regulator must be safely treated for an inlet pressure as high as the maximum inlet pressure to the first stage regulator.

The set-point for the operating regulator is the normal outlet pressure, that is, the pressure normally required for the load.

The set-point for the monitor is higher. Because it is higher, the monitor is further open than the operating regulator (usually the monitor is wide open) and allows the gas to flow normally.

If the operating regulator "fails-open," the outlet pressure will rise. It will rise until the pressure reaches the set-point of the monitor. Then, the monitor will become the operating regulator to hold outlet pressure at its set-point.

The monitor set-point, of course, must not exceed the MAOP of the downstream piping system.

The difference between the set-points of the monitor and the operating regulator is not critical. However, the two should not be so close as to cause the monitor to interfere with the other. Other than this, monitor set-point is largely determined by the requirements of the installation and applicable practices and standards.

AUTOMATIC SHUTOFF

In automatic shutoff a special valve is used to shut off the gas completely if pressure reaches a preset level. During normal operation, the valve remains fully open and allows gas to flow freely.

If a regulator failure ("fail-open" failure), or something else, causes outlet pressure to rise, the automatic shutoff valve closes when pressure reaches its set-point.

The normal outlet pressure is the regulator's set-point. The set-point of the automatic shutoff valve will, of course, be higher. How much higher must be decided when planning and Engineering the installation. It must not exceed the MAOP, that is, the maximum safe limit of the downstream piping.

Automatic shutoff valves close automatically, but must be manually reset. This has the advantage of preventing an emergency from passing unnoticed. It also has an economic advantage because automatic reopening would greatly increase the cost of this pressure regulating device.

Being able to automatically shut the gas off at times of emergency certainly is desirable. However, in the gas business, continuity of service is also important. This is probably the reason automatic shutoff has found only limited use in the gas industry. Pressure relief and monitoring are much preferred because they offer full protection while allowing a safe flow of gas to continue.

Automatic shutoff valves are available with control lines or with, internal control. Note the following difference:

Internal Control

This offers a simpler installation because there is no control Line. However, due to its internal control, it must be located downstream of the regulator. Therefore, upon closure everything upstream of the shutoff valve will be pressured to full inlet pressure.

This means that if the regulator has internal control, its main diaphragm will be exposed to full inlet pressure. This could result in severe damage, even to the extent of a burst regulator. The same applies to a regulator with a control line if the control line is connected (the sensing point) between the regulator and the automatic shutoff valve. In sum, if an automatic shutoff valve with internal control is used, everything between it and the regulator, including the regulator itself, must be carefully checked for exposure to full maximum inlet pressure.

Moreover, if the piping for the regulator is a larger size than the inlet piping, an internal control type automatic shutoff valve will, accordingly, be a larger size than one with a control .Line.

Control Line

Because an automatic shutoff valve with a control line is located upstream of the regulator, the foregoing hazards from exposure to inlet pressure are eliminated. The entire regulator, as well as everything downstream, is isolated from exposure to inlet pressure.

Care should be used in installing the control line. It should be strong, and be protected and routed to minimize any possibilities of breakage. If broken, the automatic shutoff valve becomes inoperative. If an emergency occurs, it will not close as it should.

Some automatic shutoff valves are available with a temperature option. They close not only from excess pressure, but also excess temperature. If properly located, they can be a help in case of fire. Automatic shutoff is also available for closure in case of under pressuring (a "failed-closed" regulator failure.)

Relief valves, monitors and automatic shutoff valves have all proven to be effective, dependable devices for protection against the hazard of excess pressure. However, to be sure of this projection, all three must be correctly engineered, installed, and maintained. They must be used in conformance with manufacturer's ratings and recommendations. Whenever any doubts or questions arise, it is always a good idea to ask the manufacturer.

West Coast Gas Company, Inc.

General Maintenance Schedule

MATHER

ATTACHMENT 1

Maintenance Functions	Fed Std.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Patrol Distribution Lines: Business Areas (A,B,C, and D)	192.721												
Residential Areas (F and G)													
2. Gas Leak Detection Surveys Business Areas (A,B,C, and D)	192.723												
Residential Areas (F and G)													
3. Valve Maintenance	192.747												
4. Ground Bed Watering													
5. Corrosion Control - Atmospheric	192.481												
6. Corrosion Control - Examination (Testing of pipe as exposed)	192.459												
7. Corrosion Control, Monitoring & Testing - Rectifiers Business Areas (A,B,C, and D)	192.465												
Residential Areas (F and G)													
8. New Pipe Testing (80 psi)	192.517	Pipe tested when received into warehouse.											
9. Vault Maintenance	192.749												
10. PSIG @ WCG Reg Station	192.739												
11. Odorization "Sniff Test"	192.625												
12. Emergency Exercises & Safety Meetings	192.615												
13. PE Qualifying													

West Coast Gas Company, Inc.

General Maintenance Schedule

CASTLE

ATTACHMENT 1

Maintenance Functions	Fed Std.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Patrol Distribution Lines: Business Areas	192.721												
2. Gas Leak Detection Surveys Distribution Mains and Services	192.723												
3. Valve Maintenance	192.747												
4. Corrosion Control - External Monitoring and Testing	192.465												
5. Corrosion Control - Atmospheric	192.481												
6. Corrosion Control - Examination (Testing of pipe as exposed)	192.459												
7. Odorization "Sniff Test"	192.625												
8. Emergency Exercises & Safety Meetings	192.615												
9. Ground Bed Watering													

West Coast Gas Company, Inc.

PE Fusion Qualification Record

QUALIFYING TEST

LINE TEST

NAME OF QUALIFYING PERSON: _____

QUALIFYING DATE: _____

TESTED BY: _____

DESCRIPTION	BUTT FUSION	BUTT FUSION	SOCKET FUSION	SOCKET FUSION	SOCKET FUSION	ELECTRO FUSION	
DIA. OD (IN)							

VISUAL TEST

JOINT APPEARANCE

- GOOD
- FAIR

ALIGNMENT

- GOOD
- FAIR

MELT BEAD/PATTERN

- GOOD
- FAIR

COMPLETE BOND

- YES
- NO

VOIDS OR GAPS

- YES
- NO

DESTRUCTIVE TEST

- PASS
- FAIL

QUALIFIED

DISQUALIFIED

REMARKS: _____

West Coast Gas Company, Inc.

Atmospheric Corrosion Control - Castle

Above Ground Inspection of Meter Set Assemblies (MSA) CPP = Clean, Primer and Paint

ATTACHMENT 3

CUSTOMER	ACCT	METER #	MO/YR	CPP	INT	COMMENTS
Merced Union High School 3430 A Street	34	6361363				
Merced Union High School 3400 A Street	35	766638				
Castle Air Museum 3040 A Street	51	766593				
Merced County - Caretaker	59	98Z465659				
Hoffman Electronics 2301 Aviation Drive	115	86M355141				
Open	175	5663626				
Merced County Sheriff 2290 Heritage Drive	262	855974				
Open 3420 C Street	265	276502				
Sierra Academy 2305 Jetlift Drive	315	8917378				
Merced County Education 2245 Jet Stream	325	06H185701				
Merced County Fire Dept 2120 Spacecraft	340	167019				
Sierra Academy	362	05F072042				
Merced County Karate 2100 Academy Drive	395	97Y695040				
Merced County Head Start 2050 Academy Drive	465	694925				
Merced County Caretaker	508	242653				
Merced Union High School 2133 Shuttle Drive	535	570077				
Atwater City Park	680	877199				

West Coast Gas Company, Inc.

Atmospheric Corrosion Control - Housing

Above Ground Inspection of Meter Set Assemblies (MSA) CPP = Clean, Primer and Paint

ARNOLD WAY

ATTACHMENT 3

ADDRESS	ACCT	METER #	DATE MO/YR	CPP	INT	COMMENTS
4215 Arnold Way	F001	166108				
4223 Arnold Way	F002	704616				
4224 Arnold Way	F008	166102				
4231 Arnold Way	F003	346493				
4232 Arnold Way	F009	166101				
4239 Arnold Way	F004	865706				
4240 Arnold Way	F010	166096				
4247 Arnold Way	F005	865707				
4248 Arnold Way	F011	865691				
4255 Arnold Way	F006	865699				
4256 Arnold Way	F012	865662				
4263 Arnold Way	F007	865698				
4264 Arnold Way	F013	865663				
4272 Arnold Way	F014	865577				
4280 Arnold Way	F015	867017				

AUBERGINE WAY

ADDRESS	ACCT	METER #	DATE MO/YR	CPP	INT	COMMENTS
4200 Aubergine Way	A034	398714				
4201 Aubergine Way	A035	121933				
4204 Aubergine Way	A033	121921				
4205 Aubergine Way	A036	121934				
4208 Aubergine Way	A032	121842				
4209 Aubergine Way	A037	121927				
4212 Aubergine Way	A031	446124				
4213 Aubergine Way	A038	121928				
4216 Aubergine Way	A030	121901				
4219 Aubergine Way	A039	121849				
4220 Aubergine Way	A029	446127				
4223 Aubergine Way	A040	121936				
4224 Aubergine Way	A028	121902				
4227 Aubergine Way	A041	121918				
4228 Aubergine Way	A027	121850				

West Coast Gas Company, Inc.

Atmospheric Corrosion Control - Mather Industrial

Above Ground Inspection of Meter Set Assemblies (MSA)

CPP = Clean, Primer and Paint

ATTACHMENT 3

CUSTOMER	ACCT	METER #	MO/YR	CPP	INT	COMMENTS
SETA Headstart 10546 Peter McCuen Blvd.	651	L932902				
FAA 11375 Douglas	1000	9849644				
PFC 10555 Norden	1001	560431				
PFC 10555 Norden	1002	B121922				
Cordova Rec & Park Sports Center	1460	4874				
VOA 10566 Lower Placerville	1701	602298				
Mather Campus 10594 Lower Placerville	1703	187502				
Mather Campus 3587 Bleckley	1705	9648988				
Co. of Sacto / DHA 3550 Femoyer Street	1706	96S6814681				
Co. of Sacto / DHA 3584 Femoyer Street	1707	185703				
Mather Campus 10635 Schirra	1708	6343635				
Sutter Health Info (TASA) 10481 Armstrong	2500	976832366				
MWH 10503 Armstrong	2527	9646376				
Heritage Credit Union 10528 Armstrong	2675	9865661				
Mather Campus 10626 Schirra	2802	001205				
Mather Campus 10636 Schirra	2804	5697441				
Mather Campus 10618 Schirra	2820	S5081285				

West Coast Gas Company, Inc.

LEAK CLASSIFICATION & ACTION CRITERIA - Grade 1

DEFINITION

A leak that represents an existing or probable hazard to persons or property, and requires immediate repair or continuous action until the conditions are no longer hazardous.

ACTION CRITERIA

Requires *prompt action** to protect life and property and continuous action until the conditions are no longer hazardous.

*The prompt action in some instances may require one or more of the following:

- a. Implementation of company emergency plan (192.615).
- b. Evacuating premises.
- c. Blocking of an area.
- d. Rerouting traffic.
- e. Eliminating sources of ignition.
- f. Venting the area.
- g. Stopping the flow of gas by closing valves or other means.
- h. Notifying police and fire departments.

EXAMPLES

1. Any leak which, in the judgment of operating personnel at the scene, is regarded as an immediate hazard.
2. Escaping gas that has ignited.
3. Any indication of gas which has migrated into or under a building or into a tunnel.
4. Any reading at the outside wall of a building, or where gas would likely migrate to an outside wall of a building.
5. Any reading of 80% LEL, or greater, in a confined space
6. Any reading of 80% LEL, or greater in small sub-structures (other than gas associated substructures) from which gas would likely migrate to the outside wall of a building.
7. Any leak that can be seen, heard, or felt, and which is in a location that may endanger the general public or property.

West Coast Gas Company, Inc.

LEAK CLASSIFICATION & ACTION CRITERIA - Grade 2

DEFINITION

A leak that is recognized as being non hazardous at the time of detection, but justifies scheduled repair based on probable future hazard.

ACTION CRITERIA

Leaks should be repaired or cleared within one calendar year, but no later than 15 months from the date the leak was reported. In determining the repair priority, criteria such as the following should be considered:

- a. Amount and migration of gas
- b. Proximity of gas to buildings and subsurface structures.
- c. Extent of pavement.
- d. Soil type and soil conditions (such as frost cap, moisture and natural venting).

Grade 2 leaks should be reevaluated at least once every six months until cleared. The frequency of reevaluation should be determined by the location and magnitude of the leakage condition.

Grade 2 leaks may vary greatly in degree of potential hazard. Some Grade 2 leaks, when evaluated by the above criteria, may justify scheduled repair within the next 5 working days. Others will justify repair within 30 working days. During the working day on which the leak is discovered, these situations should be brought to the attention of the individual responsible for scheduling leak repair.

On the other hand, many Grade 2 leaks, because of their location and magnitude, can be scheduled for repair on a normal routine basis with periodic reinspection as necessary.

EXAMPLES

A. Leaks requiring action ahead of ground freezing or other adverse changes in venting conditions.

Any leak which, under frozen or other adverse soil conditions, would likely migrate to the outside wall of a building.

B. Leaks Requiring Action Within Six Months.

1. Any reading of 40% LEL, or greater, under a sidewalk in a wall to wall paved area that does not qualify as a Grade 1 leak.

2. Any reading of 100% LEL, or greater, under a street in a wall to wall paved area that has significant gas migration and does not qualify as a Grade 1 leak.

3. Any reading less the 80% LEL is small substructures (other than gas associated substructures) from which gas would likely migrate creating a probable future hazard.

4. Any reading between 20% LEL and 80% LEL in a confined space.

5. Any reading on a pipeline operating at 30% SMYS or greater, in a class 3 or 4 location, which does not qualify as a Grade 1 leak.

6. Any reading of 80% LEL, or greater, in gas associated substructures.

7. Any leak which, in the judgment of operating personnel at the scene, is of sufficient magnitude to justify scheduled repair.

West Coast Gas Company, Inc.

LEAK CLASSIFICATION & ACTION CRITERIA - Grade 3

DEFINITION

A leak that is non hazardous at the time of detection and can be reasonably expected to remain non hazardous.

ACTION CRITERIA

These leaks should be reevaluated during the next scheduled survey, or within 15 months of the date reported, whichever occurs first, until the leak is regraded or no longer results in a reading.

EXAMPLES

Leaks requiring reevaluation at periodic intervals.

1. Any reading of less than 80% LEL in small gas associated substructures.
2. Any reading under a street in areas without wall to wall paving where it is unlikely the gas could migrate to the outside wall of a building.
3. Any reading of less than 20% LEL in a confined space.

West Coast Gas Company Inc.

Appendix B

Distribution Integrity Management Program

DISTRIBUTION INTEGRITY MANAGEMENT PLAN

WEST COAST GAS COMPANY, INC.

U-910-G

**9203 BEATTY DRIVE
SACRAMENTO, CA 95826**

Effective Date: March 27, 2012

Introduction:

PHMSA has implemented a Distribution Integrity Management Program (DIMP). The DIMP is outlined in 49 CFR 192.1007. There are seven program elements:

- a. Knowledge
- b. Identify Threats
- c. Evaluate and Rank Risks
- d. Identify and Implement Measures to Address Risk
- e. Measure Performance, Monitor Results and Evaluate Effectiveness
- f. Periodically Evaluate and Improve Program
- g. Report Results

West Coast Gas Company (WCG) must design a DIMP program by August 2011. The WCG DIMP program will be based on WCG's unique distribution system and WCG's operating history over the last 16 years.

WCG's Natural Gas Distribution Systems:

MATHER

The Mather Field Natural Gas Distribution System consists of two separate distribution systems with two separate points of interconnection with PG&E: the Industrial Area and the Housing Area. The Castle Natural Gas Distribution System consists of a single distribution system with a single point of interconnection with PG&E. A brief description of each system is set forth below:

Industrial Area:

Service Area: Approximately 1,200 acres.

PG&E Points of Interconnection: 1 Regulation and Metering Station

PG&E delivers transmission level service to the Mather Industrial area at 240 PSIG. The delivery pressure is reduced to 7 PSIG; current distribution MAOP for the Industrial Area. There are currently 74 commercial customers in the Industrial Area of Mather. The operating pressure of 7 PSIG was established by the USAF during the 40 years it operated the system.

Housing Area:

Service Area: Approximately 1,000 acres.

PG&E Points of Connection: 1 Metering Station

Currently, PG&E delivers distribution level service to the Mather Housing Area at 50 PSIG.

MAOP Distribution Pressure is 50 PSIG in the Wherry Section and 15 PSIG in the Capehart Section. WCG operates and maintains a regulation station that reduces pressure from 50 PSIG to 12.5 PSIG for gas supplied to the Capehart Section. The operating pressure of 50 PSIG for the Wherry Section was established by the USAF during the 40 years it operated the system. The original MAOP for the Capehart Section was 7 PSIG, again established by the USAF. In November 2002, WCG increased the MAOP for the Capehart Section to 15 PSIG.

There are 1272 residential services in the Housing Area. There are 5 commercial customers including the FAA Building.

CASTLE

The Service Area is all the area within the boundary of the former Castle Air Force Base.

PG&E Points of Interconnection: 1 Regulation and Metering Station

PG&E delivers distribution level service (50 PSIG) to Castle. The delivery pressure is reduced to 20 PSIG at the PG&E metering and regulation station; the current distribution MAOP for Castle. There are currently 50 commercial customers including the Federal Correctional Facility. The MAOP and operating pressure of the Castle distribution system is 20 PSIG.

Chapter 1 - SCOPE

This document is the distribution integrity management plan (Plan) for WEST COAST GAS CO INC. I (WCG) it is intended to meet the requirements of 49 CFR Part 192, Subpart P Distribution Integrity Management Programs (DIMP).

This Plan covers the Entire System of WEST COAST GAS CO INC.

This Plan is effective on July 15, 2011. Since this is the first DIMP prepared by WCG, it is, in our opinion only the start of a process that will lead to fully meeting the requirements of 49 CFR Part 192, Subpart P. The next step is to improve upon this DIMP by updating the program and issuing a second DIMP in mid-February, 2012. One of the important changes we hope to incorporate in the next DIMP is to geographically segregate WCG's gas distribution systems into three distinct pieces – Mather Industrial, Mather Residential and Castle.

WCG's DIMP was prepared with the assistance of the SHRIMP computer model which uses an interactive interview process to elicit information on system recorded operations for a 5 year historical period.

Chapter 2 - DEFINITIONS

Excavation damage	Any impact that results in the need to repair or replace an underground facility due to a weakening, or the partial or complete destruction, of the facility, including, but not limited to, the protective coating, lateral support, cathodic protection or the housing for the line device or facility.
Excavation ticket	All receipts of information by the operator from the ONE-CALL notification center requesting marking of the location of gas pipeline facilities.
Hazardous Leak	<p>A leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous. Examples include:</p> <ul style="list-style-type: none">• Escaping gas that has ignited.• Any indication of gas which has migrated into or under a building, or into a tunnel,• Any reading at the outside wall of a building, or where gas would likely migrate to an outside wall of a building,• Any reading of 80% LEL, or greater, in a confined space,• Any reading of 80% LEL, or greater in small substructures (other than gas associated substructures) from which gas would likely migrate to the outside wall of a building,• Any leak that can be seen, heard, or felt, and which is in a location that may endanger the general public or property, or• Any leak which, in the judgment of operating personnel at the scene, is regarded as an immediate hazard.

Chapter 3 - KNOWLEDGE OF THE DISTRIBUTION SYSTEM

This Plan was developed based on the design, construction, operation and maintenance records of WCG, including: incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience, as well as the judgment and knowledge of WCG's employees. The specific elements of knowledge of the infrastructure used to evaluate each threat and prioritize risks are listed in Chapter 4, *THREAT ASSESSMENT*, Chapter 5, *RISK EVALUATION AND PRIORITIZATION* and Section 11.2, "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS" of this Plan. Section 11.2, "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS" also lists the data sources used to answer each question.

Any additional information needed and the plan for gaining this currently unknown information over time through normal activities is described in Section 11.1, "IMPLEMENTATION PLAN".

The processes used for Threat Evaluation and Risk Prioritization are the processes found in the Simple, Handy, Risk-based Integrity Management Plan™ (SHRIMP™) software package developed by the APGA Security and Integrity Foundation (SIF). SHRIMP™ uses an index model developed by the consultants and advisors of the SIF. Threat assessment is performed using questions developed by the Gas Piping Technology Committee (GPTC) as modified and added to by the SHRIMP™ advisors. A description of the process followed is included in Section 11.3, "DESCRIPTION OF THE PROCESS FOLLOWED TO DEVELOP THIS PLAN".

After the second DIMP is completed in mid-February 2012, this Plan will be reviewed at least every year to continually refine and improve this Plan. Reviews may be performed more frequently as described in Chapter 8, *PERIODIC EVALUATION AND IMPROVEMENT* of this Plan.

Records for all piping system installed after the effective date of this Plan will be captured and retained by WEST COAST GAS CO INC. This will include the location where new piping and appurtenances are installed and the material of which they are constructed. The manner in which this will be accomplished is described in Section 11.1, "IMPLEMENTATION PLAN".

Chapter 4 - THREAT ASSESSMENT

4.1. Overview

The following threats were evaluated on the distribution piping covered under the scope of this Plan: corrosion, natural forces, excavation damage, other outside force damage, material, weld or joint failure (including compression coupling), equipment malfunction, incorrect operation, and any other concerns that could threaten the integrity of the pipeline. The results of these threat assessments are discussed in the following sections. Answers to all questions asked by SHRIMP and the data sources for those answers are found in Section 11.2, "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS".

4.2. WCG THREAT ASSESSMENT

4.2.1. Corrosion

Atmospheric Corrosion On The Entire System

Atmospheric corrosion on the entire system was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Inspections have not found metal loss due to atmospheric corrosion over the past 5 years.
- Leaks caused by atmospheric corrosion have not required repair over the past 5 years.
- Inspections have not found problems with above ground pipe coatings that could not be fixed by routine maintenance

External Corrosion On Coated, Cathodically Protected, Steel Mains And Services

External corrosion on coated, cathodically protected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per service are increasing.
- Confirmed corrosion leaks have occurred on this section.
- Cathodic protection test point readings that meet or exceed acceptable cathodic protection criteria; at least 75% of readings exceed -0.85 v.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the WCG system in general because:

- The pipe is predominately located within business districts.

External Corrosion On Bare, Cathodically Protected, Steel Mains And Services

External corrosion on bare, cathodically protected, steel mains and services was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- bare, cathodically protected, steel mains and services are not present.

External Corrosion On Coated, Unprotected, Steel Mains And Services

External corrosion on coated, unprotected, steel mains and services was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- coated, unprotected, steel mains and services are not present.

External Corrosion On Bare, Unprotected, Steel Mains And Services

External corrosion on bare, unprotected, steel mains and services was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- bare, unprotected, steel mains and services are not present.

External Corrosion On Cast, Wrought, Ductile Iron Mains And Services (8" Or Smaller)

WCG has no Cast, Wrought or Ductile Iron Mains or Services in its system. Therefore, external corrosion on cast, wrought, ductile iron mains and services (8" or smaller) was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- cast, wrought, ductile iron mains and services (8" or smaller) are not present.

External Corrosion On Plastic Mains And Services With Metal Fittings

External corrosion on plastic mains and services with metal fittings was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- plastic mains and services with metal fittings are not present.

External Corrosion On Other Metal

External corrosion on other metal was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- other metal is not present.

External Corrosion On Cast, Wrought, Ductile Iron Mains And Services (larger Than 8")

External corrosion on cast, wrought, ductile iron mains and services (larger than 8") was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- cast, wrought, ductile iron mains and services (larger than 8") are not present.

Internal Corrosion On The Entire System

Internal corrosion on the entire system was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- WCG inspections of the inside of metal pipe or coupons removed from metal pipe do not show signs of internal corrosion.
- Leaks caused by internal corrosion have not occurred in WCG gas distribution system to date.
- Gas received in WCG system from PG&E is pipeline quality.
- Liquids have not been found in WCG's piping.

4.2.2. Equipment Malfunctions

Equipment Malfunctions On The Entire System

Equipment malfunctions on the entire system was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks are occurring or inspections indicate potential equipment malfunctions.

The possible consequences of a failure of this portion due to the indicated threat are:

- Low since the leaks are cured by flushing and greasing valves.

Equipment Malfunctions Due To Failing Valves

Equipment malfunctions due to leaking valves was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failing valves are not present.

Equipment Malfunctions Due To Failing Regulators/relief Valves

Equipment malfunctions due to failing regulators/relief valves was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failing regulators/relief valves are not present.

Equipment Malfunctions Due To Failing Other Equipment

Equipment malfunctions due to failing other equipment was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failing other equipment are not present.

Equipment Malfunctions Due To Valves Prone To Failure

Equipment malfunctions due to valves prone to failure was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- valves prone to failure are not present.

Equipment Malfunctions Due To Regulators / Relief Valves Prone To Failure

Equipment malfunctions due to regulators / relief valves prone to failure was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- regulators / relief valves prone to failure are not present.

Equipment Malfunctions Due To Other Equipment Prone To Failure

Equipment malfunctions due to other equipment prone to failure was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- other equipment prone to failure are not present.

4.2.3. Excavation Damage

Excavation Damage Due To Concentrated Damages Or Tickets

Excavation damage due to concentrated damages or tickets was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- assessment is not applicable.

Excavation Damage Due To Your Crew Or Contractor Damages

Excavation damage due to your crew or contractor damages was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- assessment is not applicable.

Excavation Damage Due To Third Party Damages

Excavation damage due to third party damages was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- assessment is not applicable.

Excavation Damage Due To Blasting Damage

Excavation damage due to blasting damage was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- assessment is not applicable.

4.2.4. Incorrect Operations

Incorrect Operations Due To Inadequate Procedures

Incorrect operations due to inadequate procedures was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failures due to inadequate procedures have not been experienced during the period examined.

Incorrect Operations Due To Failure To Follow Procedures

Incorrect operations due to failure to follow procedures was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failures due to a failure to follow procedures have not been experienced.

Incorrect Operations Due To Operator Qualification Revocation

Incorrect operations due to operator qualification revocation was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- no employees or contractors have had operator qualification credentials revoked due to poor performance of any covered task.

Incorrect Operations Due To Drugs And Alcohol

Incorrect operations due to drugs and alcohol was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- no employees or contractors tested positive for drugs or alcohol (other than pre-hire tests).

4.2.5. Materials, Welds and Joints

Material, Weld Or Joint On The Entire System

Material, weld or joint on the entire system was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Manufacturing defects on pipe or non-pipe components have not been experienced.
- Failures due to workmanship defects have not been experienced.
- Materials with known problems are not in use.
- Improper welds on service lines in Castle have been replaced.

Material, Weld Or Joint Due To Manufacturing Defects

Material, weld or joint due to manufacturing defects was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- manufacturing defects on pipe or non-pipe components have not been experienced.

Material, Weld Or Joint Due To Workmanship Defects

Material, weld or joint due to workmanship defects was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failures due to workmanship defects have not been experienced.

Material, Weld Or Joint Due To Known Problem Materials

Material, weld or joint due to known problem materials was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- none of the known problem materials exist in the system.

4.2.6. Natural forces

Natural Forces On The Entire System

Natural forces on the entire system was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- No know natural forces of consequence have been incurred on WCG's system.

4.2.7. Other outside forces

Other Outside Forces On The Entire System

Other outside forces on the entire system was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- No known outside forces exist.

4.2.8. Other threats

Other Threats On The Entire System

Other threats on the entire system was determined to not be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- No other threats to the system were identified.

Chapter 5 - RISK EVALUATION AND PRIORITIZATION

5.1. Overview

Of the sections identified during the Threat Assessment as requiring further consideration for additional actions, WEST COAST GAS CO INC has determined that the relative risk of these threats to the integrity of these lines ranks in the following priority, beginning with the highest relative risk.

RANK indicates the final relative risk rank after review and validation by WEST COAST GAS CO INC.

USER RANK indicates if the threat-segment was re-ranked by WEST COAST GAS CO INC. A zero indicates it was left where SHRIMP's risk model ranked it – any other number indicates it was moved higher or lower by WEST COAST GAS CO INC. Where a threat-segment was re-ranked an explanation for the reason is included in the discussion for that segment.

SHRIMP Rank is where SHRIMP's risk ranking model originally ranked the threat-segment. Segments under Other Threats were not ranked by SHRIMP so are initially placed at the bottom of the segment list. WEST COAST GAS CO INC has placed these segments in the risk ranking list based in its knowledge and judgment.

Relative Risk score is a numeric score from 0-30 based on the four factors listed – Probability, Consequence, Leak Cause Factor and Incident Probability Factor. The risk model is described in detail in Section 11.3.2, "Relative Risk Model".

The risk ranking is based on relative risk, not absolute risk. It should not be construed to suggest that the highest ranked segment is unsafe or that additional actions are required to maintain public safety. It is merely a tool to assist WEST COAST GAS CO INC to prioritize its inspection and maintenance programs.

5.2. WEST COAST GAS CO INC Section Risk Ranking

- a. **Section: Cathodic Protected, Coated Steel** portion of WEST COAST GAS CO INC

Threat: Corrosion -> External Corrosion

Description: Entire System

Table 5.1.

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
1	1	2	4.83	2.8	1.15	1.5	1.00
	Explanation						

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:
- Repaired leaks per service are increasing.
- Confirmed corrosion leaks have occurred on this section.
- Cathodic protection test point readings that meet or exceed acceptable cathodic protection criteria; at least 100% of readings exceed -.85 v. West Coast Gas Company Inc. works with Corpro to maintain an above industry standard cathodic protection system.

b. **Section: WEST COAST GAS CO INC** portion of WEST COAST GAS CO INC

Threat: Excavation Damage -> Third Party Damages

Description: Entire System

Table 5.2.

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
2	0	1	5.96	4.19	1.1	1.034	1.25

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are about the same when compared to all other excavation caused damages

c. **Section: Failing Equipment** portion of WEST COAST GAS CO INC

Threat: Equipment Malfunction -> Valves Experiencing Failure

Description: Valves

Table 5.3.

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
3	0	3	1.67	1	1.15	1.448	1.00

Ranked here, in part, for the following reasons:

- The likelihood of any valves failing in residential or commercial areas is low due to the regularity of West Coast Gas Company Inc.'s valve maintenance program.

Chapter 6 - ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS

6.1. MANDATORY ADDITIONAL ACTIONS

The following are mandatory additional actions required by DIMP regulations.

6.2. RISK BASED ADDITIONAL ACTIONS

The following lists the additional/accelerated actions that will be taken and describes the part of WEST COAST GAS CO INC to which each applies to address the priority risks described in the previous section of this Plan. Further details can be found in Section 11.1, "IMPLEMENTATION PLAN".

- a. **Section: Cathodic Protected, Coated Steel** portion of WEST COAST GAS CO INC

Threat: Corrosion -> External Corrosion

Description: Entire System

For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, WEST COAST GAS CO INC will:

- The relative risk posed by this threat on this section of WEST COAST GAS CO INC does not warrant additional actions.

- b. **Section: WEST COAST GAS CO INC** portion of WEST COAST GAS CO INC

Threat: Excavation Damage -> Third Party Damages

Description: Entire System

For **excavation damage due to third party damages** on the **WEST COAST GAS CO INC** section, WEST COAST GAS CO INC will:

- The relative risk posed by this threat on this section of WEST COAST GAS CO INC does not warrant additional actions.

- c. **Section: Failing Equipment** portion of WEST COAST GAS CO INC

Threat: Equipment Malfunction -> Valves Experiencing Failure

Description: Valves

For **equipment malfunctions due to failing valves** on the **Failing Equipment** section, WEST COAST GAS CO INC will:

- repair or replace problem materials.

Chapter 7 - MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS

7.1. MANDATORY PERFORMANCE MEASURES

WEST COAST GAS CO INC will keep records of the following performance measures:

1. The number of hazardous leaks either eliminated or repaired, categorized by cause;
2. The number of excavation damages;
3. The number of excavation tickets received;
4. The number of leaks either eliminated or repaired, categorized by cause; and
5. The number of hazardous leaks either eliminated or repaired, categorized by material.

7.2. RISK BASED PERFORMANCE MEASURES

The following lists the performance measures that will be tracked and describes the part of WEST COAST GAS CO INC to which each applies to evaluate the effectiveness of the additional measures taken to address risks as described in the previous section of this Plan.

- a. **Section: Cathodic Protected, Coated Steel** portion of WEST COAST GAS CO INC

Threat: Corrosion -> External Corrosion

Description: Entire System

For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, WEST COAST GAS CO INC will:

- The relative risk posed by this threat on this section of WEST COAST GAS CO INC does not warrant additional actions. Since no additional actions are called for there is no need for action-specific performance measures.

- b. **Section: WEST COAST GAS CO INC** portion of WEST COAST GAS CO INC

Threat: Excavation Damage -> Third Party Damages

Description: Entire System

For **excavation damage due to third party damages** on the **WEST COAST GAS CO INC** section, WEST COAST GAS CO INC will:

- The relative risk posed by this threat on this section of WEST COAST GAS CO INC does not warrant additional actions. Since no additional actions are called for there is no need for action-specific performance measures.

c. **Section: Failing Equipment** portion of WEST COAST GAS CO INC

Threat: Equipment Malfunction -> Valves Experiencing Failure

Description: Valves

For **equipment malfunctions due to failing valves** on the **Failing Equipment** section, WEST COAST GAS CO INC will:

- track the frequency of these failures and repair or replace.

7.3. MONITOR RESULTS AND EVALUATE EFFECTIVENESS

Monitoring results and evaluating effectiveness is addressed in Chapter 8, *PERIODIC EVALUATION AND IMPROVEMENT* of this Plan.

Chapter 8 - PERIODIC EVALUATION AND IMPROVEMENT

WEST COAST GAS CO INC will conduct a complete re-evaluation of this Plan no less than every 1 year. We intend to revise this version by February 15, 2012. Trends in each of the performance measures listed in Chapter 7, *MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS* will be reviewed during the re-evaluation. If any performance measure indicates that any of the additional action taken is not effective in reducing the risk it is intended to address, WEST COAST GAS CO INC will consider implementing additional actions to address that risk.

Re-evaluation of the Plan will also occur when changes occur on the system that may significantly change the risk of failure, including but not limited to:

- Completion of any additional actions listed in Chapter 6, *ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS* of this Plan,
- A review of performance measures concludes that a change of approach is warranted.

Section 11.4, "PLAN RE-EVALUATION LOG" contains a detailed log of the re-evaluation including differences between this Plan and previous Plans, the date the re-evaluations were performed and the persons who were involved in the re-evaluation process.

Chapter 9 - REPORTING

The following will be submitted annually to the Pipeline And Hazardous Materials Safety Administration (PHMSA) as part of the Distribution Annual Report (Form F7100.1-1) and California Public Utilities Commission along with the distribution annual report.

PERFORMANCE MEASURES WEST COAST GAS CO INC will track and report the following performance measures:

- Number of hazardous leaks either eliminated or repaired, categorized by cause;
- Number of excavation damages;
- Number of excavation tickets;;
- Total number of leaks either eliminated or repaired, categorized by cause;

EXCESS FLOW VALVES WEST COAST GAS CO INC. does not have any excess flow valves.

MECHANICAL FITTING FAILURES WEST COAST GAS CO INC. will track and report information relating to each hazardous leak resulting from the failure of a mechanical fitting. This information will include, at a minimum:

- location of the failure in the system,
- nominal pipe size,
- material type,
- nature of failure including any contribution of local pipeline environment,
- fitting manufacturer,
- lot number,
- date of manufacture, and
- any other information that can be found in markings on the failed fitting

Mechanical fitting failures will be will be sent to the PHMSA Information Resource Manager on the mechanical fitting failure report (Form 7100.1-2) either periodically as these failures occur or aggregated into one or more submissions made no later than March 31 of the following calendar year after the fitting failure(s).

Form 7100.1-1 and Form 7100.1-2 will be sent to the PHMSA Information Resource Manager via the online electronic reporting system available at PHMSA's home page at <http://phmsa.dot.gov>.

These data will also be sent to the California Public Utilities Commission at:

Chapter 10 - RECORD KEEPING

The following records must be maintained for ten years.

1. This Plan,
2. Copies of previous written DIMP Plans,
3. Records of data required to be collected to calculate performance measures listed in Chapter 7, *MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS*,
4. Records of mechanical fitting failures

Chapter 11 - ATTACHMENTS

11.1. IMPLEMENTATION PLAN

This Attachment lists all the action items that are included in this written Distribution Integrity Management Plan.

Section A describes how WEST COAST GAS CO INC will modify procedures, policies and/or recordkeeping systems to implement:

1. mandatory data collection and recordkeeping requirements in the regulation as listed in Section 7.1, "MANDATORY PERFORMANCE MEASURES" of this Plan, and
2. performance measures specific to Additional/Accelerated Actions as listed in Section 7.2, "RISK BASED PERFORMANCE MEASURES" of this Plan.

Section B describes how WEST COAST GAS CO INC will implement Additional/Accelerated Actions, if any, listed in Chapter 6, *ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS* of this Plan.

Section C describes how WEST COAST GAS CO INC will implement procedures to collect additional information needed to fill gaps, if any, found during the development of this Plan.

A. Procedures, policies and/or recordkeeping systems will be modified as follows to collect and retain information required to be collected and retained under the DIMP plan, including:

1. The following Recordkeeping tasks:
 - a. Records for all piping system installed after the effective date of this Plan, including, at minimum, the location where new piping and appurtenances are installed and the material of which they are constructed.

WEST COAST GAS CO INC will implement as follows:

This is the July 2011 first DIMP effort. We will need to update this DIMP by mid February 2012. Mark Williams has overall responsibility assisted by Brandon Sharp-Roberts and Raymond Czahar.

- b. Mechanical fitting failure data, including:
 - i. location of the failure in the system,
 - ii. nominal pipe size,

- iii. material type,
- iv. nature of failure including any contribution of local pipeline environment,
- v. fitting manufacturer,
- vi. lot number and date of manufacture, and
- vii. other information that can be found in markings on the failed fitting

WEST COAST GAS CO INC will implement as follows:

The only mechanical fitting that is an issue are leaking valves. WCG has 140 key, in-line and curb valves in the Mather Industrial area, 92 valves in the residential area and 36 at Castle. All of the leaks have occurred on steel valves. The valve leaks occur in the Industrial area of Mather with only a few occurring in the Castle system. We need to correlate our leak survey data with individual valves to determine if they should be replaced. Mark Williams responsible, Brandon Sharp-Roberts to assist. Should have this done by end of January 2012 to include in February 2012 update.

2. The following mandatory Performance Measures:

- a. Number of hazardous leaks either eliminated or repaired as required by 49 CFR 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by cause.

WEST COAST GAS CO INC will implement as follows:

Will analyze MSA leaks to insure material used and installation or change out procedures are correct. Mark Williams or Brandon Sharp-Roberts. To be completed by next DIMP update due in February 2012.

- b. Number of excavation damages.

WEST COAST GAS CO INC will implement as follows:

Rewrite Operations and Maintenance Manuel to include specific instructions on monitoring an excavation on our distribution system. Mark Williams assisted by Raymond Czahar. To be completed by DIMPS update in February, 2012.

- c. Number of excavation tickets (receipt of information by the underground facility operator from the notification center).

WEST COAST GAS CO INC will implement as follows:

Keep close eye on locates and identify any excavation near WCG underground rectifiers. M. Williams. Include in O&M Manuel.

- d. Total number of leaks either eliminated or repaired, categorized by cause.

WEST COAST GAS CO INC will implement as follows:

We already vigorously leak survey Mather and Castle and will take greater care in documentation. Mark Williams to create procedure by next DIMP and before next Safety Audit.

- e. Number of hazardous leaks either eliminated or repaired as required by Sec. 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material;

WEST COAST GAS CO INC will implement as follows:

Will add material involved (coating, wrapping or corrosion, when identifying cause of leak.

3. The following threat specific Performance Measures (presented by section in risk rank order):

- a. For **equipment malfunctions due to failing valves** on the **Failing Equipment** section, WEST COAST GAS CO INC will:

- track the frequency of these failures.

WEST COAST GAS CO INC will implement as follows:

Identify manufacture, location and cause of valve leaks. Mark Williams and Brandon Sharp-Roberts by February 2012.

- B. Additional/Accelerated Actions included in this DIMP plan:

1. The following mandatory Accelerated/Additional Actions:

- a. Leak classification and action criteria as chosen and described in Section 6.1, "MANDATORY ADDITIONAL ACTIONS" of this Plan.

WEST COAST GAS CO INC will implement as follows:

WCG will, in next DIMP update, attempt to geographically identify areas of increased leak detection.

2. The following threat specific Additional/Accelerated Actions (presented by section in risk rank order):

a. For **equipment malfunctions due to failing valves** on the **Failing Equipment** section, WEST COAST GAS CO INC will:

- repair or replace problem materials.

WEST COAST GAS CO INC will implement as follows:

unset

c. The following Procedures to collect additional information needed to fill gaps:

a. The following gaps identified by WEST COAST GAS CO INC.

WEST COAST GAS CO INC will implement as follows:

All gaps in data and any improvements in data collection should be implemented by February 2012.

11.2. LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS

The following lists the interview responses and data sources entered during the threat assessments.

Corrosion Threat

- **Corrosion (CORR) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (CORR)

Data Source:

Leak Survey, Leak Repair Data, and exposed pipe inspections

Your Choice (weight: 0) – Continue

- How many leak repairs resulting from corrosion occurred by year for the last 5 years? (CORR-Leak)

Your Choice (weight: 0) --

Table 11.1. Leak Repairs From PHMSA 7100.1-1

End of Year	Corrosion		Totals	
	Mains	Services	Mains	Services
In 2004	5	0	5	0
In 2005	0	0	0	0
In 2006	0	0	0	0
In 2007	5	1	5	1
In 2008	4	5	4	5

End of Year	Corrosion		Totals	
	Mains	Services	Mains	Services
In 2009	0	0	0	0
In 2010	4	5	4	5

- Review the guidance. (ECMETALYES)

Your Choice (weight: 0) –Continue

- General System Description (EC101)

Data Source:

WCG Records for 16 years of operations

Your Choice (weight: 0) --

Table 11.2. Material

	Mains	Services
Plastic	12.000	1297
Unprotected, Bare	0.000	0
Cathodically Protected, Bare	0.000	0
Unprotected, Coated	0.000	0
Cathodically Protected, Coated	26.000	120
Cast Iron, Wrought Iron	0.000	0
Ductile Iron	0.000	0
Copper	0.000	0
Other(1)	0.000	0
Other(2)	0.000	0

- Mains By Size (EC101sm)

Data Source:

PHMSA 7100.0

Your Choice (weight: 0) --

Table 11.3. Material

	Unknown	2" or less	Over 2" thru 4"	Over 4" thru 8"	Over 8" thru 12"	Over 12"	Total
PVC	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PE	0.000	0.000	12.000	0.000	0.000	0.000	12.000
ABS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Steel	0.000	6.000	15.000	5.000	0.000	0.000	26.000
Cast Iron, Wrought Iron	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ductile Iron	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Copper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other(2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

- Services By Size (EC101ss)

Data Source:

PHSMA 7100.0

Your Choice (weight: 0) --

Table 11.4. Material

	Unknown	1" or less	Over 1" thru 2"	Over 2" thru 4"	Over 4" thru 8"	Over 8"	Total
PVC	0	0	0	0	0	0	0
PE	0	1042	255	0	0	0	1297
ABS	0	0	0	0	0	0	0
Steel	0	0	120	0	0	0	120
Cast Iron, Wrought Iron	0	0	0	0	0	0	0
Ductile Iron	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0
Other(1)	0	0	0	0	0	0	0
Other(2)	0	0	0	0	0	0	0

- Does your plastic system contain isolated metallic fittings? (EC110)

Your Choice (weight: 0) -- No

- Provide Additional Information (EC101b)

Your Choice (weight: 0) --

- **Atmospheric Corrosion (CORRAC) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (CORRAC)
Data Source:
WCG Maintenance Records - Binder on Atmospheric Corrosion
Your Choice (weight: 0) -- Continue
- Does WEST COAST GAS CO INC have any facilities that require atmospheric corrosion inspections? (CORRAC101)
Data Source:
WCG Maintenance Records
Your Choice (weight: 0) -- Yes
- Over the past 5 years, have any atmospheric corrosion inspections found metal loss due to atmospheric corrosion? (CORRAC103)
Data Source:
WCG Maintenance Records
Your Choice (weight: 0) -- No
- Over the past 5 years, have leaks caused by atmospheric corrosion required repair? (CORRAC104)
Data Source:
WCG Maintenance Records
Your Choice (weight: 0) -- No
- Have inspections found problems with above ground pipe coatings that could not be fixed by routine maintenance? (CORRAC105)
Data Source:
WCG Maintenance Records
Your Choice (weight: 0) -- No
- Confirm that no other atmospheric corrosion problems are known. (CORRAC204b)
Your Choice (weight: 0) -- Accept
- **External Corrosion (CORRECSTL-PC) (Cathodic Protected, Coated Steel - Entire System)**
- Interview Start (CORRECSTL-PC)
Your Choice (weight: 0) -- Continue

- Are repaired corrosion leaks per mile increasing? (EC102)

Your Choice (weight: 0) --

Table 11.5. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/Mile
In 2006	0.000	0	0.000
In 2007	0.000	0	0.000
In 2008	0.000	0	0.000
In 2009	0.000	0	0.000
In 2010	0.000	0	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing. (**see guidance**).

Do you accept this determination? (EC252ok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that repaired leaks per mile of mains are not increasing. (EC252)

Your Choice (weight: 0) -- Continue

- Are repaired corrosion leaks per service increasing? (EC201)

Data Source:

WCG Maintenance Records

Your Choice (weight: '0) --

Table 11.6. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/Service
In 2006	120	0	0.000
In 2007	120	1	0.008
In 2008	120	5	0.042
In 2009	120	3	0.025
In 2010	120	1	0.008

- SHRIMP has determined that leaks, failures or damages are increasing. (**see guidance**).

Do you accept this determination? (EC253ok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that repaired leaks per service are increasing. (EC253)

Your Choice (weight: 2) -- Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

Data Source:

WCG Maintenance Records

Your Choice (weight: 0) -- No

- Is cathodic protection of the section adequate? (EC203)

Data Source:

Cathodic Reads Records WCG Maintenance Records

Your Choice (weight: 0) -- Yes

- Are repaired corrosion leaks, areas of known corrosion or low CP levels system-wide/uniform or concentrated in local areas? (EC301)

Your Choice (weight: 0) -- Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

Data Source:

WCG Maintenance Records

Your Choice (weight: 1) -- Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

Data Source:

Class I and Class II leaks are repaired when discovered. MSA leaks, all leak Class I, II, and III are repaired when discovered.

Your Choice (weight: 0) -- No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

Data Source:

WCG maintenance records

Your Choice (weight: 0) -- System-wide

- What percent of your cathodic protection test point readings meet or exceed acceptable cathodic protection criteria? (EC704)

Data Source:

WCG Cathodic Protection Records. In 2011 WCG replaced a rectifier in the Mather Industrial Area because some readings were below - 0.85. Since replacement all readings at or above 0.85

Your Choice (weight: 1) -- At least 100% of readings exceed -.85 V

- Are there known sources of stray electrical current in the area? (EC705)

Data Source:

There are no stray electrical currents at Mather or Castle.

Your Choice (weight: 0) -- No

- What is the condition of the pipeline coating? (EC710)

Data Source:

WCG's inspection of pipe always shows that the coating is in good condition and firmly attached. The only exception is when a third party contractor has damaged the coating.

Your Choice (weight: 0) -- Good

- Is the section cathodic protection provided by rectifier(s) only, anode(s) only, or a combination? (EC720)

Data Source:

WCG has only 2 anodes in the industrial area of Mather and 5 at Castle. The vast majority of CP is provided by new modern rectifiers at Mather and Castle

Your Choice (weight: 0) -- Anode(s) Only

- Review the guidance. (ECCSQ0)

Your Choice (weight: 0) -- Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

Data Source:

WCG maintenance records

Your Choice (weight: 0) -- About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

Data Source:

WCG Maintenance Records

Your Choice (weight: 0.15) -- Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

Data Source:

WCG has crew ready trucks and crews available at all times to respond to any leak or other gas emergency.

Your Choice (weight: 0) -- Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

Data Source:

In the entire WCG system at Mather and Castle there is no manufacturing or other processes that use Natural Gas. Therefore, gas is used for lighting, hot water, space heating and chillers for cooling.

Your Choice (weight: 0) -- Low

- **Internal Corrosion (CORRIC) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (CORRIC)

Your Choice (weight: 0) -- Continue

- Do inspections of the inside of metal pipe or coupons removed from metal pipe show signs of internal corrosion? (CORRIC101)

Data Source:

WCG Maintenance Records. When pipe is exposed due to excavation, WCG inspects outside of pipe for condition of wrap. When any section of pipe is removed from the system a coupon is taken and inspected.

Your Choice (weight: 0) -- No

- Have leaks caused by internal corrosion occurred? (CORRIC102)

Data Source:

WCG has not recorded a single leak that can be attributed to internal corrosion.

Your Choice (weight: 0) -- No

- Do you receive any gas that is not of transmission pipeline quality? (CORRIC103)

Data Source:

Never. WCG gas is supplied via Pacific Gas and Electric Company pipelines from Shell North America. WCG gas must meet PG&E's specifications.

Your Choice (weight: 0) -- No

- Have liquids been found in your distribution piping? (CORRIC104)

Data Source:

WCG Maintenance records

Your Choice (weight: 0) -- No

- Confirm that no other internal corrosion problems are known. (CORRIC204a)

Your Choice (weight: 0) -- Accept

Equipment Malfunction Threat

- **Equipment Malfunction (EQIP) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (EQIP)

Data Source:

WCG Maintenance Records

Your Choice (weight: 0) --Continue

- How many leak repairs resulting from equipment problems occurred by year for the last 5 years? (EQIP-Leak)

Data Source:

WCG Leak Survey. These equipment malfunctions are leaking valves. We cleaned, greased and exercised each leaking valve and if corrected no further action taken. If no corrected the valve was replaced.

Your Choice (weight: 0) --

Table 11.7. Leak Repairs From PHMSA 7100.1-1

End of Year	Equipment Malfunction		Totals	
	Mains	Services	Mains	Services
In 2004	1	1	1	1
In 2005	5	1	5	1
In 2006	2	0	2	0

End of Year	Equipment Malfunction		Totals	
	Mains	Services	Mains	Services
In 2007	4	1	4	1
In 2008	5	0	5	0
In 2009	4	1	4	1
In 2010	0	1	0	1

- Are leaks occurring or do inspections indicate potential equipment malfunctions? (EQ101a)

Data Source:

As indicated all malfunctions were associated with leaking valves.

Your Choice (weight: 1) -- Valves

- Does system contain equipment known/prone to malfunction (Industry wide)? (EQ102a)

Your Choice (weight: 0) -- None of These

- Provide Additional Information (EQ105)

Your Choice (weight: 0) --

- **Valves Experiencing Failure (EQ-FailV) (Failing Equipment - Valves)**

- Interview Start (EQ-FailV)

Data Source:

WCG maintenance records. Valve inspections and leak reports.

Your Choice (weight: 0) -- Continue

- Would you like to identify specific makes/models/sizes of failing equipment? (EQ101a)

Your Choice (weight: 0) -- No

- Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

Data Source:

We have not had a leak problem on Key valves. Only leaks appear to be on in-line and curb valves.

Your Choice (weight: 0) -- No

- What is the inspection/maintenance frequency for this type of equipment? (EQ302)

Data Source:

Every valve inspected every year. Key valves flushed, greased and exercised every year. Secondary valves inspected every year and exercised each year if hard to turn. Flushed and greased every two years.

Your Choice (weight: 0) -- Annual

- Do valves stick open or closed? (EQ303)

Your Choice (weight: 0) -- No

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

Data Source:

Most valve leaks are cured with flushing and greasing and changing broken zerc fittings.

Your Choice (weight: 0) -- Yes

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

Data Source:

WCG Maintenance Records.

Your Choice (weight: 0) -- Yes

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

Data Source:

We re-test every leaking valve after maintenance to insure that there are no leaks.

Your Choice (weight: 0) -- Yes

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

Your Choice (weight: 0) -- Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

Your Choice (weight: 0) -- No

- What is the likelihood of this valve failing? (EQ309)

Your Choice (weight: 1) -- Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

Data Source:

WCG has never experienced a Grade I leak in a valve.

Your Choice (weight: 0) -- Low

- Review the guidance. (EQCSQ0)

Your Choice (weight: 0) -- Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

Your Choice (weight: 0) -- About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

Your Choice (weight: 0.15) -- Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

Your Choice (weight: 0) -- Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

Data Source:

With over 250 valves in WCG distribution system, small segments of the system can be isolated and only a few customers would be affected if a value failed.

Your Choice (weight: 0) -- Low

Incorrect Operations Threat

- **Incorrect Operations (IOP) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (IOP)

Your Choice (weight: 0) -- Continue

- How many leak repairs resulting from incorrect operations occurred by year for the last 5 years? (IOP-Leak)

Data Source:

No leaks were due to incorrect operations.

Your Choice (weight: 0) --

Table 11.8. Leak Repairs From PHMSA 7100.1-1

End of Year	Incorrect Operations		Totals	
	Mains	Services	Mains	Services
In 2004	0	0	0	0
In 2005	0	0	0	0
In 2006	0	0	0	0
In 2007	0	0	0	0
In 2008	0	0	0	0
In 2009	0	0	0	0
In 2010	0	0	0	0

- Have failures due to inadequate procedures been experienced during the past 5 years? (IOP101)

Your Choice (weight: 0) -- No

- Have failures due to a failure to follow procedures been experienced? (IOP104)

Your Choice (weight: 0) -- No

- Have any employees or contractors had operator qualification credentials revoked due to poor performance of any covered task? (IOP105)

Data Source:

Never

Your Choice (weight: 0) -- No

- Have employees or contractors tested positive for drugs or alcohol (other than pre-hire tests)? (IOP106)

Data Source:

WCG confidential drug test records.

Your Choice (weight: 1) -- Yes

- Provide Additional Information (IOPSet2)

Your Choice (weight: 0) --

- **Drugs and Alcohol (IOP-Drug) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (IOP-Drug)

Your Choice (weight: 0) -- Continue

- Is the number of positive drug or alcohol tests/employee increasing? (IOP-Proc101)

Data Source:

WCG drug testing records. There is only one case of a "covered employee failing a drug test. That occurred in 2001. The individual was terminated.

Your Choice (weight: 0) --

Table 11.9. End of Year

	Positive Drug or Alcohol Tests	Total Employees	Tests/ Employee
In 2006	0	0	0.000
In 2007	0	0	0.000
In 2008	0	0	0.000
In 2009	0	0	0.000
In 2010	0	0	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing. (**see guidance**).

Do you accept this determination? (IOP-Proc102dok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that failures due to drugs and alcohol are not increasing per year. (IOP-Proc102d)

Your Choice (weight: 0) -- Continue

- Confirm that no other incorrect operations problems are known. (IOP-Proc204)

Your Choice (weight: 0) -- Accept

Material, Weld or Joint Failure Threat

- **Material, Weld or Joint Failure (MW) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (MW)

Data Source:

WCG Maintenance Records.

Your Choice (weight: 0) -- Continue

- How many leak repairs resulting from material, weld or joint problems occurred by year for the last 5 years? (MW-Leak)

Your Choice (weight: 0) --

Table 11.10. Leak Repairs From PHMSA 7100.1-1

End of Year	Material, Weld or Joint Failure		Totals	
	Mains	Services	Mains	Services
In 2004	0	0	0	0
In 2005	0	0	0	0
In 2006	0	0	0	0
In 2007	0	0	0	0
In 2008	0	0	0	0
In 2009	0	0	0	0
In 2010	0	0	0	0

- Have manufacturing defects on pipe or non-pipe components been experienced? (MW101)

Data Source:

WCG Maintenance Records. We inspect a pressure test all PE pipe before its installed and leak test after installation.

Your Choice (weight: 0) -- No

- Have failures due to workmanship defects been experienced? (MW102)

Your Choice (weight: 0) -- No

- Do any of the following materials exist on the system? (MW103)

Your Choice (weight: 0) -- None of These

- Confirm that no other material, weld or joint problems are known. (MW204)

Your Choice (weight: 0) -- Accept

Excavation Damage Threat

- **Excavation Damage (OFEXC) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (OFEXC)

Your Choice (weight: 0) -- Continue

- Does your system participate in a qualified one-call system (see 192.614)? (OFEXC101)

Data Source:

WCG Maintenance Records and USA Underground records.

Your Choice (weight: 0) -- Yes

- Which system do you do you use? (OFEXC102)

Your Choice (weight: 0) -- California-Underground Service Alert North

- Are you a Master Meter Operator? (OFEXC103)

Your Choice (weight: 0) -- No

- Do you physically control access to your pipeline location? (OFEXC104)

Your Choice (weight: 0) -- No

- How many excavation leak repairs occurred by year for the last 5 years? (OFEXC105)

Your Choice (weight: 0) --

Table 11.11. Leak Repairs From PHMSA 7100.1-1

End of Year	Excavation Damage		Totals	
	Mains	Services	Mains	Services
In 2004	1	1	1	1
In 2005	0	0	0	0
In 2006	0	0	0	0
In 2007	0	0	0	0
In 2008	0	0	0	0
In 2009	0	0	0	0
In 2010	0	0	0	0

- How many excavations caused damages not resulting in leaks reported on the PHMSA 7100.1-1 form have occurred during the past 5 years? (OFEXC105a)

Data Source:

WCG Maintenance Records

Your Choice (weight: 0) --

Table 11.12. End of Year

	Mains	Services
In 2006	2	0
In 2007	1	1

	Mains	Services
In 2008	0	0
In 2009	0	1
In 2010	0	0

- How many excavation tickets (receipt of information by the underground facility operator from the one-call system) were received by year for the last 5 years? (OFEXC106)

Data Source:

On average WCG receives approximately 60 to 70 locates at Mather and 25 to 30 at Castle.

Your Choice (weight: 0) --

Table 11.13. End of Year

	Damages Previously Entered	Excavation Tickets	Damages Per 1000 Tickets
In 2006	2	100	20
In 2007	2	100	20
In 2008	0	100	0
In 2009	1	100	10
In 2010	0	100	0

- SHRIMP has determined that leaks, failures or damages are not increasing. (**see guidance**).

Do you accept this determination? (OFEXC106bok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that excavation damages per 1000 tickets are not increasing. (OFEXC106b)

Your Choice (weight: 0) -- Continue

- Provide Additional Information (OFEXC106e)

Your Choice (weight: 0) --

- **Blasting Damage (OFEXC-Blast) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (OFEXC-Blast)

Your Choice (weight: 0) -- Continue

- Has damage occurred due to blasting? (OFEXC137)

Data Source:

No blasting allowed within our service territory.

Your Choice (weight: 0) -- No

- Are there portions of the system located where excavation in the area of pipeline would require the use of explosives? (OFEXC135)

Your Choice (weight: 0) -- No

- Are there portions of the system in known areas of blasting or demolition activity, such as rock quarries or coal mining? (OFEXC136)

Your Choice (weight: 0) -- No

- Confirm that no other excavation problems are known. (OFEXC204)

Your Choice (weight: 0) -- Accept

- **Concentrated Damages (OFEXC-Conc) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (OFEXC-Conc)

Your Choice (weight: 0) -- Continue

- You previously entered this information regarding excavation damages and tickets for the last 5 years.

Click Next to proceed. (OFEXC206)

Your Choice (weight: 0) --

Table 11.14. End of Year

	Damages Previously Entered	Excavation Tickets Previously Entered	Damages Per 1000 Tickets
In 2006	2	100	20
In 2007	2	100	20
In 2008	0	100	0
In 2009	1	100	10
In 2010	0	100	0

- Are these excavation damages concentrated in certain locations or distributed across the entire system? (OFEXC207)

Your Choice (weight: 0) -- Distributed across the entire system

- Are these locate tickets concentrated in certain locations or distributed across the entire system? (OFEXC208)
Your Choice (weight: 0) -- Distributed across the entire system
- Confirm that no other excavation problems are known. (OFEXC204)
Your Choice (weight: 0) -- Accept
- **Crew or Contractor Damages (OFEXC-Crew) (WEST COAST GAS CO INC - Entire System)**
 - Interview Start (OFEXC-Crew)
Your Choice (weight: 0) -- Continue
 - Has excavation damage been caused by your crews or your contractors? (OFEXC115)
Data Source:
Never has WCG damaged other underground or above ground facilities of other utilities.
Your Choice (weight: 0) -- No
 - Confirm that no other excavation problems are known. (OFEXC204)
Your Choice (weight: 0) -- Accept
- **Third Party Damages (OFEXC-Third) (WEST COAST GAS CO INC - Entire System)**
 - Interview Start (OFEXC-Third)
Your Choice (weight: 0) -- Continue
 - During the past few years, have excavation damages occurred due to third parties? (OFEXC127)
Data Source:
We warn third parties that we must inspect our pipe before the refill the excavation.
Your Choice (weight: 0) -- Yes
 - How many excavation damages were caused by third parties over the last 5 years? (OFEXC128)
Your Choice (weight: 0) --

Table 11.15. End of Year

	Third Party Damages
In 2006	4
In 2007	3
In 2008	2
In 2009	1
In 2010	3

- SHRIMP has determined that leaks, failures or damages are not increasing. (**see guidance**).

Do you accept this determination? (OFEXC128bok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that excavation damages due to third parties are not increasing. (OFEXC128b)

Your Choice (weight: 0) -- Continue

- Are excavation damages being caused by third-party excavators not following one call laws? (OFEXC131)

Your Choice (weight: 10) -- Yes

- Have any excavation damages caused by third-party excavators due to mis-located lines been caused by poorly performing locating equipment? (OFEXC132)

Your Choice (weight: 0) -- No

- Are excavation damages caused by third-party excavators due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC133)

Your Choice (weight: 0) -- No

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC134)

Your Choice (weight: 1) -- Steel

- Are there specific third parties that cause a greater number of damages compared to other third parties? (OFEXC129)

Your Choice (weight: 0) -- No

- Review the guidance. (OFEXCCSQ0)

Your Choice (weight: 0) -- Continue

- Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident? (OFEXCCSQ1)

Your Choice (weight: 0) -- No

- Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages? (OFEXCCSQ2)

Your Choice (weight: 0.1) -- About the same

Natural Forces Threat

- **Natural Forces (OFNF) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (OFNF)

Your Choice (weight: 0) -- Continue

- Do leaks repaired per year average one (1) or more? (OFNF101rp)

Your Choice (weight: 0) --

Table 11.16. Leak Repairs From PHMSA 7100.1-1

End of Year	Natural Forces		Totals	
	Mains	Services	Mains	Services
In 2004	0	0	0	0
In 2005	0	0	0	0
In 2006	0	0	0	0
In 2007	0	0	0	0
In 2008	0	0	0	0
In 2009	0	0	0	0
In 2010	0	0	0	0

- How many natural forces damages not resulting in leaks reported on the PHMSA 7100.1-1 form have occurred during the past 5 years? (OFNF101nr)

Your Choice (weight: 0) --

Table 11.17. End of Year

	Mains	Services
In 2006	0	0
In 2007	0	0
In 2008	0	0
In 2009	0	0

	Mains Services	
In 2010	0	0

- Here is a summary of your natural forces damages for the last 5 years.

Click Next to Continue. (OFNF101)

Your Choice (weight: 0) --

Table 11.18. End of Year

	Leak Repairs	Damages Not Reported	Total
In 2006	0	0	0
In 2007	0	0	0
In 2008	0	0	0
In 2009	0	0	0
In 2010	0	0	0

- SHRIMP has determined that leaks, failures or damages are not averaging one (1) or more per year. **(see guidance)**.

Do you accept this determination? (OFNF101bok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that leaks, failures or damages are not averaging one (1) or more per year. (OFNF101b)

Your Choice (weight: 0) -- Continue

- Confirm that no natural force problems are known. (OFNF204)

Your Choice (weight: 0) -- Accept

Other Outside Forces Threat

- **Other Outside Forces (OFOTHR) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (OFOTHR)

Your Choice (weight: 0) -- Continue

- Do leaks repaired per year average one (1) or more? (OFOTHR101rp)

Your Choice (weight: 0) --

Table 11.19. Leak Repairs From PHMSA 7100.1-1

End of Year	Other Outside Forces		Totals	
	Mains	Services	Mains	Services
In 2004	0	0	0	0
In 2005	0	0	0	0
In 2006	0	0	0	0
In 2007	0	0	0	0
In 2008	0	0	0	0
In 2009	0	0	0	0
In 2010	0	0	0	0

- How many other outside forces damages not resulting in leaks reported on the PHMSA 7100.1-1 form have occurred during the past 5 years? (OFOTHR101nr)

Your Choice (weight: 0) --

Table 11.20. End of Year

	Mains	Services
In 2006	0	0
In 2007	0	0
In 2008	0	0
In 2009	0	0
In 2010	0	0

- Here is a summary of your other outside forces damages for the last 5 years.

Click Next to Continue. (OFOTHR101)

Your Choice (weight: 0) --

Table 11.21. End of Year

	Leak Repairs	Damages Not Reported	Total
In 2006	0	0	0
In 2007	0	0	0
In 2008	0	0	0
In 2009	0	0	0
In 2010	0	0	0

- SHRIMP has determined that leaks, failures or damages are not averaging one (1) or more per year. **(see guidance)**.

Do you accept this determination? (OFOTHR101bok)

Your Choice (weight: 0) -- Accept

- Your data and choices indicate that leaks, failures or damages are not averaging one (1) or more per year. (OFOTHR101b)

Your Choice (weight: 0) -- Continue

- Confirm that no other outside force problems are known. (OFOTHR204)

Your Choice (weight: 0) -- Accept

Other Threats Threat

- **Other Threats (OTHR) (WEST COAST GAS CO INC - Entire System)**

- Interview Start (OTHR)

Your Choice (weight: 0) -- Continue

- Has this system experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other threats? (OTHR101)

Data Source:

WCG Maintenance Records

Your Choice (weight: 0) -- No

- You have indicated that there are no other issues to be considered. (OTHR204)

Your Choice (weight: 0) -- Continue

11.3. DESCRIPTION OF THE PROCESS FOLLOWED TO DEVELOP THIS PLAN

11.3.1. Process Description

Procedures for developing and implementing DIMP elements using SHRIMP

Creating a written DIMP Plan using SHRIMP should follow the steps shown in the SHRIMP process diagram. Each step should be completed before moving on to the next step.

Figure 11.1. SHRIMP Process Diagram

SHRIMP PROCESS DIAGRAM



1. Enter/confirm system information

If your system filed a Distribution Annual Report (Form 7100.1-1) you should find your system data already entered into SHRIMP. Note, this may not be the most current data – at the time SHRIMP was created only the annual reports for 2009 were available. This information is shown only to allow you to confirm that this is your system – it is not used for any other purpose in SHRIMP.

If your annual report data is not already entered in SHRIMP, e.g. you are a master meter or LP piping system operator that is not required to file annual reports, or your annual report is missing from PHMSA's database, you must enter the data manually.

2. **Select settings**

The next step is to enter settings for your plan. These include:

- The name of your system as you want it to appear in the plan,
- A description of what part of your system this plan covers (default is entire system),
- The effective date of the plan (for your first plan this should be no later than August 2, 2011 as required by the DIMP rule),
- The effective date of the DIMP Plan replaced by this Plan – SHRIMP automatically generates this,
- The History Period – this is how many years back you will enter inspection and maintenance data such as leak repairs, line locate tickets, etc. in the threat interviews. The default and minimum is 5 years and but you can change this to up to 10 years if you have the data. More years data = better DIMP plans.
- A LEAK management policy – Either select one of the two pre-written options in SHRIMP or if you already have a leak management plan that meets the rule's requirements enter a cross reference to that policy, and
- A program re-evaluation period, anywhere from 1 to 5 years.

You can go back and change these at any time by clicking on the Required Settings link in the menu bar on the left side of SHRIMP screens

3. **Complete threat interviews**

SHRIMP uses an interview process to assess each of the eight threats required by the DIMP rule. The 8 threats are:

1. Corrosion
2. Equipment Malfunction
3. Incorrect Operations
4. Material, Weld or Joint Failure
5. Excavation Damage
6. Natural forces
7. Other outside forces
8. Other Threats

Some of the threats are broken down into two or more subthreats. You must complete each threat and subthreat interview before going to Steps 4 and beyond. You can go back and change any of the information you provide in the threat interviews by clicking on the System Overview link on the menu then clicking on the blue "Review" link next to the threat interview in which you wish to make changes. Select the blue question number link by the question and the interview form will open. Make changes, but you may have to re-complete all of the interview questions after that question if your change affects answers to later questions. This is described in more detail later in this users guide.

Note

You can complete the first seven threat interviews in any order, however you **MUST** complete the first seven interviews before attempting to complete the "Other Threats" interview. The answers you provide in the Other Threats interview depend on the answers you provided in the other 7 threat interviews.

The threat interviews are intended to satisfy the following two requirements of the DIMP rule: Section 192.1007 (a) Knowledge and (b) Identify Threats. These requirements and the procedure followed by SHRIMP are further described in an attachment to this document.

4. **Validate Risk Rankings**

After all 8 threat interviews have been completed SHRIMP will rank each threat and section by relative risk, from highest to lowest, based on a numerical model that considers the likelihood and consequences were a segment of your system to fail due to the threat. A complete description of this risk ranking model is found in an appendix to this user's guide and an attachment to your written DIMP Plan created by SHRIMP.

Click on Risk Ranking in the left menu to open the risk ranking screen. If you entered any threats in the "Other Threats" interview those threats will be listed first with no assigned rank. These threats **MUST** be manually placed by the user where the user feels these threats belong in the list of threats. The process for that is described in further detail in the risk ranking section of the user's guide. You should not automatically accept SHRIMP's order of risk ranking. Review it, consider the summary description of why SHRIMP ranked each threat and, if you disagree with the order, rearrange the order of threats as you believe it should be, and be sure to enter a description of what factors you considered that led you to change the order. **This is a very important step!**

The risk ranking validation process is intended to satisfy the following requirement of the DIMP rule: Section 192.1007 (c) Evaluate and rank risk.

5. **Select Additional Actions***

After you are satisfied that all threat-sections are ranked in the correct order, the next step is to select additional actions you will undertake to reduce those threats. Additional actions means actions above and beyond what is required by pipeline safety regulations. Other than implementing a leak management program, the DIMP rule does not presume that any further additional actions are necessary. You must decide whether any of the threats pose a level of risk that warrants additional action. SHRIMP cannot make that determination. There is additional guidance on selecting additional actions in the additional actions section of this user's guide.

SHRIMP offers at least one additional action for each threat. Click on the blue Choose AAs link in the Risk Ranking screen to display a list of possible additional actions for that threat. If you decide additional actions are warranted you can select one or more of SHRIMP's additional actions or you can create your own by clicking on the Manage AAs link in the left-side menu in SHRIMP.

This step is intended to satisfy the following requirement of the DIMP rule: Section 192.1007 (d) Identify and implement measures to address risks.

6. Select Performance Measures

The next step is to select performance measures for each of the additional actions you selected in Step 5. If you didn't feel any threats warranted additional actions you can skip this step.

The process of selecting performance measures is identical to selecting additional actions in the prior step. Click on the Choose PMs link then select one or more of the displayed, threat-specific performance measures. You can create your own performance measures by clicking on Manage PMs in the left-side menu.

This step is intended to satisfy the following requirement of the DIMP rule: Section 192.1007 (e) Measure performance, monitor results and evaluate effectiveness.

7. Create Implementation Plan

Now you are ready to review the actions required to implement your written DIMP plan. All of the actions required by the rule or selected by you in the additional actions and performance measures steps can be displayed by clicking on "Implementation Plan" in the left-side menu. The Implementation Plan should answer the questions of Who, What, When, Where and How each required action will be accomplished. Action items in your written DIMP Plan can be summarized in the following areas:

1. Describing how you will modify your procedures, policies and recordkeeping system(s) as necessary to collect and retain information required to be collected and retained under the DIMP plan, including mandatory performance measures and performance measures you selected in the previous step, and
2. Describing how you will implement any Additional/Accelerated Actions that you included in your written DIMP plan.

Each action item will be listed separately with a text box in which you must enter a description of how you will accomplish this action.

8. Download your written DIMP Plan

When you are satisfied that Steps 1-7 are complete you should download your written DIMP plan to your computer. Click on Written Plan in the left-side menu and a list of download options will be displayed.

Review the Required Settings one more time to ensure your system name appears as you want it to appear in your Plan and that the other information is correct.

Click on Web Page Format to display the written plan on your web browser. You can do this at any time during the process of creating your plan to see how selections you have made up to that point affect what is written into your plan. It is recommended that you look at the Plan in the Web Page Format frequently as you work on Steps 1-7 to see how data you enter appears in your Plan – it may affect how you write some text that will go into your Plan.

You may save your plan to your computer as a Web Page using the Save command on your web browser.

Click on Microsoft WORD Document to download your plan as a WORD file that you can edit using Microsoft WORD or other word processing software. (Note that the translator that creates this file may lose some formatting of the Table of Contents and other portions of the Plan. We apologize for any inconvenience this may cause you. We are evaluating other options for creating WORD files.)

Click on Adobe PDF Format to download you written Plan as an Adobe PDF file.

SHRIMP Procedures Compared To DIMP Rule Requirements

This section describes the procedures to be followed to develop and implement the 7 required elements of the Distribution Integrity Management Programs (DIMP) written Plan. For each required element the text of the DIMP rule is provided, followed by a description of the procedure to develop and implement that element.

a. Knowledge

The Rule: An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.

1. Identify the characteristics of the pipeline's design and operations and the environmental factors that are necessary to assess the applicable threats and risks to its gas distribution pipeline.
2. Consider the information gained from past design, operations, and maintenance.
3. Identify additional information needed and provide a plan for gaining that information over time through normal activities conducted on the pipeline (for example, design, construction, operations or maintenance activities).
4. Develop and implement a process by which the IM program will be reviewed periodically and refined and improved as needed.
5. Provide for the capture and retention of data on any new pipeline installed. The data must include, at a minimum, the location where the new pipeline is installed and the material of which it is constructed.

The Procedure: (Numbers in parenthesis refer to the requirements shown above)

(1 & 2) During the 8 threat assessments SHRIMP asks questions about the user's system design, operations and environmental factors necessary to assess the applicable threats and risks to distribution pipeline integrity. The user should refer to current and past design, construction, operation, inspection and maintenance records, as well as the knowledge of utility personnel to accurately answer questions posed by SHRIMP. SHRIMP includes a Data Source field with each question for the user to record the source of information used to answer each question. Information entered into this field will be included in an attachment to the written DIMP plan along with a complete list of questions answered during the SHRIMP process. Where past data is requested by SHRIMP, a minimum of the previous 5 years' data is requested, however if more than 5 years' data is readily available the user is encouraged to use that data as well.

In addition, during the Risk Ranking Validation step, the user should consider any additional factors that may affect the probability and/or consequences of a failure of a particular section of distribution piping but that were not asked about by SHRIMP. Examples could include pipe located near hospitals, schools, nursing homes or other difficult to evacuate facilities; environmental factors such as soil corrosivity; and more. During the Risk Ranking Validation step, any additional knowledge considered by the user to change the relative risk ranking of any section should be described in the text box provided by SHRIMP. This description will be written into the written DIMP Plan in the Risk Ranking section.

(3) If any of the design, construction or environmental factors requested by SHRIMP are not readily available the user should answer "I don't know." SHRIMP will then offer pre-written text describing how the user will gain that information over time through normal activities conducted on the pipeline. The user can accept SHRIMP's plan or enter their own

description of how that knowledge will be gained. The SHRIMP text or the user's text will be included in the written DIMP plan.

(4) A process by which the IM program will be reviewed periodically and refined and improved as needed using SHRIMP is under development. This procedure will require the user to revisit each question answered in SHRIMP and either confirm the answer provided is still accurate or update the information. SHRIMP will generate a log of differences between the old plan to the new plan. SHRIMP will save a copy of the old plan for 10 years. The user is also encouraged to download the new and old plans for their records.

(5) SHRIMP includes an attachment that is the implementation plan. This attachment summarizes all the actions required to follow the DIMP plan, including capture and retention of data on any new pipeline installed. Since each user may have a unique recordkeeping system SHRIMP cannot advise the best way to track this data and instead provides a text box for the user to describe how these records will be captured and retained.

b. Identify threats

The Rule: The operator must consider the following categories of threats to each gas distribution pipeline: Corrosion, natural forces, excavation damage, other outside force damage, material, weld or joint failure (including compression coupling), equipment failure, incorrect operation, and other concerns that could threaten the integrity of its pipeline. An operator must consider reasonably available information to identify existing and potential threats. Sources of data may include, but are not limited to, incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience.

The Procedure: SHRIMP uses an interview process to identify threats. The user must go through interviews for each of the eight threats listed above. In many cases there are two or more subthreat interviews within each threat interview. For example, the corrosion threat interview includes separate interviews for external, internal and atmospheric corrosion, and the external corrosion interview includes further separate interviews for different materials of construction (bare/coated, protected/unprotected steel, cast/wrought iron, etc.). These interviews ask for reasonably available information to identify existing and potential threats. All of the sources of data listed in the rule are directly asked for by SHRIMP except for continuing surveillance – continuing surveillance is the periodic review of other inspection and maintenance data to determine the continued serviceability of the pipe. If prior continuing surveillance reviews resulted in additional inspections or maintenance, the results of those actions should be entered into SHRIMP where SHRIMP asks for the results of such inspection and maintenance, therefore indirectly SHRIMP considers continuing surveillance records.

c. Evaluate and rank risk

The Rule: An operator must evaluate the risks associated with its distribution pipeline. In this evaluation, the operator must determine the relative importance of each threat and estimate and rank the risks posed to its pipeline. This evaluation must consider each applicable current and potential threat, the likelihood of failure associated with each threat, and the potential consequences of such a failure. An operator may subdivide its pipeline into regions with similar characteristics (e.g., contiguous areas within a distribution pipeline consisting of mains, services and other appurtenances; areas with common materials or environmental factors), and for which similar actions likely would be effective in reducing risk.

The Procedure: The SHRIMP Advisory Group developed a risk ranking model that assigns a numeric weighting to answers provided by the user. The risk ranking model is described in an attachment to this document.

Subdividing is not required by SHRIMP but encouraged where answers to SHRIMP threat assessment questions are different for different parts of the system. Many of the questions asked by SHRIMP during the threat assessment process are intended to assess the likelihood and consequences of a failure due to the threat being assessed. SHRIMP also asks questions to help determine if certain regions of the pipeline have similar characteristics and for which similar actions would be effective in reducing risk. If actual or potential threats identified during the threat assessment process are concentrated in certain areas, the user is encouraged to subdivide the system for that threat, separating the areas that have an actual or potential threat from those areas that don't. Subsections can be geographic, by material, by type of equipment (for equipment threat), by excavator crews or contractors (for excavation threat) or any other way of subdividing that makes sense for the user's situation.

If the user decides to subsection for any threat those subsections continue through the risk-ranking, implementing additional measures and performance measures steps. The system may be subdivided differently for each threat, since it is unlikely that an area at risk for one threat (e.g. external corrosion) would also be entirely at risk from another threat (e.g. natural forces).

d. Identify and implement measures to address risks

The Rule: Determine and implement measures designed to reduce the risks from failure of its gas distribution pipeline. These measures must include an effective leak management program (unless all leaks are repaired when found).

The Procedure: SHRIMP offers the user at least one option to reduce the risk from failure for each threat except "Other." In the risk ranking screen, clicking on "A/A's" brings up a list of potential additional/accelerated actions ("A/A Actions") that the SHRIMP Advisors have determined could be effective in addressing the actual or potential threat. Some A/A Actions may be listed first because answers provided by the user during the threat assessment process suggests these A/A Actions are likely to be effective, whereas other A/A Actions that aren't expected to be effective are listed separately.

The user can select one or more of the A/A Actions included in SHRIMP, which will result in pre-written text being inserted into the "Implement Measures" section of written DIMP plan for the particular subsection of the system and threat. If the user has a better idea, or has already implemented action addressing this threat, the user should create a user-defined A/A Action and select that A/A Action for this threat and subsection. What the user writes when defining the A/A Action will be written into the written DIMP plan.

For some threats SHRIMP will recommend that the user initiate some A/A Action to reduce risk. For most threats the SHRIMP advisors could not agree on any relative risk score or combination of threat interview answers that should automatically require the user to specify an A/A Action. It is therefore up to the user to use his/her best judgment as to which threat-segments merit additional actions to reduce risk. The DIMP rule does not presume that every operator needs to implement additional measures.

If a user elects to include additional measures to reduce risk for any of the threats and/or subdivisions of the distribution system, SHRIMP will offer one or more options for performance measures specific to that threat and subdivision. The user may select pre-written text offered by SHRIMP or substitute a user-defined performance measure. The user is required to select at least one threat and subdivision-specific performance measure for every additional action selected in the previous step.

At the end of the SHRIMP process, SHRIMP displays a list of action items, including mandatory performance measures [(i) through (v) in the next section] and any threat-specific additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat. The user is asked to describe

in a text box how each action will be implemented and that information is included in the Implementation Plan included as an attachment to the written DIMP plan.

e. Measure performance, monitor results and evaluate effectiveness

The Rule: Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

- i. Number of hazardous leaks either eliminated or repaired as required by Sec. 192.703(c) of this subchapter (or total number of leaks if all leaks are repaired when found), categorized by cause;
- ii. Number of excavation damages;
- iii. Number of excavation tickets (receipt of information by the underground facility operator from the notification center);
- iv. Total number of leaks either eliminated or repaired, categorized by cause;
- v. Number of hazardous leaks either eliminated or repaired as required by Sec. 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material; and
- vi. Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

The Procedure: The written plan created using SHRIMP includes a section stating that the operator will keep records necessary to report performance measures (i) through (v). These performance measures must be captured and recorded outside of SHRIMP – SHRIMP does not currently include a recordkeeping or performance measure tracking mechanism, although those enhancements are contemplated in future upgrades.

Where a performance measure requires data that has not previously been collected and retained by the operator, the baseline for such performance measures will be the first year such data is collected and retained. Where the operator does have past data for any performance measure, the user must establish a baseline based on that historical data. The baseline should be included in the implementation plan text for that performance measure.

At the end of the SHRIMP process, SHRIMP displays a list of action items, including mandatory performance measures (i) through (v) above and any threat-specific additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat. The user is asked to describe in a text box how each action will be implemented and that information is included in the Implementation Plan included as an attachment to the written DIMP plan.

f. Periodic Evaluation and Improvement

The Rule: An operator must re-evaluate threats and risks on its entire pipeline and consider the relevance of threats in one location to other areas. Each operator must determine the appropriate period for conducting complete program evaluations based on the complexity of its system and changes in factors affecting the risk of failure. An operator must conduct a complete program re-evaluation at least every five years. The operator must consider the results of the performance monitoring in these evaluations.

The Procedure: The SIF is currently working on a procedure to use SHRIMP to automate the re-evaluation process. SHRIMP includes in the written plan a requirement for periodic complete program re-evaluations at least once every 5 years and more often if certain

conditions are met. The user should consider additional events that might trigger a complete program re-evaluation.

A re-evaluation using SHRIMP is essentially revisiting each SHRIMP interview screen to verify the answer is still valid or updating information as necessary. The risk ranking screen must be reviewed to ensure it is still accurate. The user must review each of the 5 mandatory performance measures described above and any threat-specific performance measures included in the written plan and compare results to the baseline [Note: Where a performance measure requires data that has not previously been collected and retained by the operator, the baseline for such performance measures will be the first year such data is collected and retained.] Particular attention should be given to the threat-specific performance measures that measure the effectiveness of specific A/A Actions. If one or more of these performance measures indicates that the A/A Action is not effective, the user should consider modifying the A/A Action and/or implementing additional A/A Actions.

g. Report results

The Rule: Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by Sec. 191.11. An operator also must report the four measures to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.

The Procedure: The SHRIMP written DIMP Plan includes a Section on reporting results, listing procedures for reporting to both the federal and state pipeline safety agencies. Currently data to report these performance measures must be collected and retained outside of SHRIMP, however the APGA Security and Integrity Foundation (SIF) may modify SHRIMP to enable it to retain and submit these performance measures as well as mechanical fitting failure data and other data required by Distribution Annual Report Form 7100.1-1.

11.3.2. Relative Risk Model

The centerpiece of the Simple, Handy, Risk-based Integrity Management Plan (SHRIMP) is the risk ranking model. SHRIMP uses an index model in which numeric scores are assigned based on answers provided by the user to questions asked by SHRIMP. The index model was developed by the APGA Security and Integrity Foundation (SIF) with guidance by an advisory group comprised of industry and federal and state pipeline safety regulators.

Risk is the product of the probability of a failure times the consequences of a failure. The SHRIMP relative risk model considers both the probability and consequences of a failure for each of the eight threats. The equation is as follows:

Table 11.22.

Relative Risk Score	=	Probability Score (Normalized to 1 - 10)	x	Consequence Score (1.0 - 1.5)	x	Leak History Factor (% of Lks)	x	Incident Probability Factor (1.0 or 1.25)
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Each of the four components that go into the relative risk score are described in the following sections.

Probability Score is the sum of points assigned by answers to threat interview questions. Each segment receives a relative probability score for each threat based on the answers to a series of questions. The probability questions are based on the GPTC DIMP guidance, as modified and added to by the SIF SHRIMP Advisors. The weighting given to each possible answer are based on the knowledge and experience of the SHRIMP Development Team and

the SHRIMP Advisors.. The questions for each of the eight threats and the scores assigned to each possible answer are shown in Appendix A.

Table 11.23. Probability Scores

Threat	Subthreat category	Maximum Score	Minimum Score	Incident Probability Factor
Natural Forces	No subthreats	19	0	1
Other Forces	Outside No subthreats	12	0	1.0
Excavation Damage	Grouping by concentration of damages or tickets	39	0	1.25
	Grouping by operator crew or operator contractor damage	34	0	1.25
	Grouping by Third Party Damage	31	0	1.25
	Blasting	15	0	1.25
Corrosion	External Corrosion	16	1	1
	Internal Corrosion	30	1	1
	Atmospheric Corrosion	25	1	1
Incorrect Operations	Failure to Follow Procedures	5	1	1.25
	Inadequate Procedures	5	1	1.25
	Operator Qualification	5	1	1.25
	Drug & Alcohol	5	1	1.25
Equipment	No subthreats	5	1	1
Material, or Joints	Welds No subthreats	5	1	1
Other	No subthreats	None (User assigns rank)		1

Because there are different numbers of questions for each threat and subthreat, the maximum possible score for each threat and subthreat are different, therefore the probability score for each threat-segment is normalized to a scale of 1 - 10 using this equation:

$$\text{Normalized probability score} = 1 + (9 \times (\text{subthreat score} - \text{subthreat minimum score}) / (\text{subthreat maximum score} - \text{subthreat minimum score}))$$

For example, if a segment received a score of 9 for external corrosion the normalized probability score would be $1 + (9 \times (9-1) / (16-1)) = 1 + 9 \times 8/15 = 5.8$

Incident Probability Factor

The normalized probability factor described above is useful to rank various sections by the probability of a failure occurring within each of the eight threats, but SHRIMP also must rank sections across the eight threats. Failures due to some threats are more likely to cause death, injury or significant property loss than other threats. DOT Distribution Annual and Incident Report data shown below provide an indication of how likely it is that a failure (e.g. leak) due to one of the 8 threats will result in death, injury or significant property loss.

Table 11.24. Incident Probability Factor

Reported Cause of Incidents and Failures 2005-2007	# of Incidents	# of Failures	of Incidents/1000 Failures	Normalized Corrosion	to
Corrosion	6	293,933	0.02	1	
Excavation Damage	73	338,666	0.22	11	
Incorrect Operations	8	30,145	0.27	13	
Material, Weld or Joint Failure	8	147,384	0.05	3	
Equipment Failure	6	140,442	0.04	2	
Natural Force Damage	22	77,229	0.28	14	
Other Outside Force Damage	39	37,426	1.04	51	
All Other Causes *	NA	NA	NA		
* Excluding Fire First Incidents					

The results of this analysis find that failures due to three threats (corrosion, material failure and equipment failure) are least likely to result in reportable incidents, that failures due to excavation damage, incorrect operations and natural force damage are moderately likely to result in reportable incidents and that other outside force damage failures are most likely to result in reportable incidents.

The advisors agreed to assign an Incident Probability Factor of 1.0 (no increase in relative risk score) for Corrosion, Materials/Welds, Equipment, and Other Outside Force Threats where it is relatively unlikely a failure will result in a reportable incident. For Excavation, Incorrect Operations, and Natural Force Threats where it is relatively more likely that a failure will result in a reportable incident the advisors agreed on an Incident Probability Factor of 1.25 (e.g. a 25% increase in relative risk score for these threats).

Further investigation of the "other outside force" category revealed that virtually all the incidents involved vehicles striking above ground facilities, usually meter sets. The SHRIMP advisors agreed with the PHMSA Phase 1 report conclusions that there was not enough information to conclude that vehicular damage could have been anticipated at the location of these incidents or whether meter protection existed, therefore no additional weighting is provided for this threat. SHRIMP does, however, include assessment of vehicle damage in the threat assessment and offer additional/accelerated actions if vehicular damage is found to be a significant threat.

If the user sections the system by geographic area, the Consequence Score is determined by points assigned based answers to threat interview questions as follows:

Table 11.25. Consequence Score (Geographic Area Sections)

Question	Possible Answers	Weighting
CSQ-1 Are the pressure and/or diameter of this section greater than or about the same as the system as a whole?	Yes	0.3
	No	0
CSQ-2 Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)?	Within Business Districts	0.15
	Outside Business Districts	0
CSQ-3 How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure?	Less than one (1) hour	0
	Between one (1) and two (2) hours	0.025
	More than two (2) hours	0.05
CSQ-4 What would be the impact on the utility and its customers if this equipment were to fail?	Low	0
	Moderate	0.05
	High	0.1

The base consequence factor is 1.0

1. Greater pressure and/or diameter can increase the consequence factor by up to 20% (1.0 to 1.2)
2. Sections predominantly within business districts get an additional 15% increase in the consequence factor
3. The time to respond to a failure results in an increase in consequence factor of up to 5% (1.0 to 1.05)
4. The significance of the facility can result in an increase in consequence factor of up to 10% (1.0 to 1.1)

These weightings are based on the knowledge of the subject matter experts on the SHRIMP Advisory Group. These increases are added together to calculate the consequence factor for the section. If all four questions were answered so that maximum scores were assigned, the consequences factor would be 1.50 (1.2 + 1.15 + 1.05 + 1.1). The overall relative risk score would be increased by 50%.

If all four questions are answered so the minimum scores are assigned, then the consequence factor will be 1.0 and the relative risk score would be unchanged by this factor.

If the user does not create subsections for a threat, then these consequence questions are not asked.

For the threats shown below where the geography based threat questions do not apply the following threat specific consequence questions are asked:

Table 11.26. Consequence Score (Non-Geographic Area Sections)

	Question	Possible Answers	Weighting
CSQ-EXC1	Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident?	Yes	0.3
		No	0
CSQ-EXC2	Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages?	More serious	0.3
		Less serious	0
		About the same	0.1
CSQ-GEN1	What would be the potential consequences (injuries and/or property loss) if a failure were to occur because of this problem?	High likelihood of serious injury and/or property loss	0.5
		Moderate likelihood of injury and/or property loss.	0.25
		Not likely to result in injury and/or property loss.	0
EQIPCSQ-1	Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole?	Substantially greater	0.2
		Somewhat greater	0.1
		About the same	0
EQIPCSQ-2	Does the equipment primarily affect the system located in the business district?	Within Business Districts	0.15
		Outside Business Districts	0
EQIPCSQ-3	How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure?	Less than one (1) hour	0
		Between one (1) and two (2) hours	0.025
		More than two (2) hours	0.05
EQIPCSQ-4	What would be the impact on the utility and its customers if this equipment were to fail?	Low	0
		Moderate	0.05

Question	Possible Answers	Weighting
	High	0.1

Leak Cause Factor

While most leaks are repaired without incident, the SHRIMP advisors felt that the users integrity management plan should consider the relative percentage of leaks by cause.

The Leak Cause Factor equals 1 + the percentage of leaks associated with threat to the total number of leaks for the system.

If the number of total leaks over a five year period are less than 50, the national average is used rather than the user's leak history data because with fewer than 50 leak repairs the relative percentages of leaks by cause may be skewed by a handful of leak repairs that are not representative of the system. The national average is shown below, taken from leak repair data reported to PHMSA by all distribution operators on Annual Report Form 7100.1-1..

Table 11.27. Reported Cause Of Failures (2005-2009)

Threat	Failures	Percent	Leak Factor	History
Corrosion	399,378	26	1.26	
Excavation Damage	161,079	11	1.11	
Incorrect Operations	38,416	3	1.03	
Material, Weld or Joint Failure	155,255	10	1.10	
Equipment Malfunction	326,793	21	1.21	
Natural Force Damage	82,565	5	1.05	
Other Outside Force Damage	40,529	3	1.03	
All Other Causes	329,401	21	NA *	
Totals	1,533,416	100		

* Since the threat category "Other" is not assigned a relative risk score by SHRIMP the leak history factor is not used for that threat.

11.4. PLAN RE-EVALUATION LOG

Original 02.24.2011

Revised 03.27.2012

West Coast Gas Company Inc.

Appendix C

Public Awareness Program

West Coast Gas Company, Inc.

PUBLIC AWARENESS PROGRAM

Revised October 2012

A. Introduction

49 CFR § 192.616 requires West Coast Gas Company Inc. (WCG) to establish a written continuing public education program and states that pipeline and gas distribution companies refer to API 1162 in preparing their programs. WCG does not transport gas at transmission level pressures (above 60 psig), does not operate compression stations and has a relatively small customer base (200 Commercial and 1,271 Residential Customers) in a relatively small geographic area. Therefore, WCG's Public Awareness Program is designed for its primary function; natural gas distribution and is tailored to its unique operating characteristics.

49 CFR § 192.616 requires rigorous documentation of the Public Awareness Program (PAP). Therefore, WCG will keep accurate records of the notices sent to customers and annual notifications to emergency responders.

B. Management's Support And Employee Involvement. (Sec.2.5A,7A,7B)

West Coast Gas Company Inc.'s management team will give its full support to the WCG Public Awareness Program. WCG will fully fund the program, conduct office and field personnel training and maintain detailed records of Program activities.

The following WCG employees will have primary responsibility for Program administration and implementation:

Ray Czahar, C.F.O. - Program Development and Overall Administration.

Mark Williams, Operations Manager, - Manages the "call before you dig" program, liaison with emergency responders, construction personnel and contractors operating within WCG service territory.

Cynthia Morris, Office Manager - disseminates Program information to new and existing customers and documents Program activities.

C. Program Elements.

There are seven (7) program elements that WCG's Public Awareness Program must address:

1. General information on the Natural Gas Distribution System – Purpose and Reliability.

2. Use of the One-Call notification system prior to excavation and other damage prevention activities.
3. The possible hazards associated with the unintended release of gas from a pipeline.
4. Physical indications that a release of gas has occurred.
5. Steps that should be taken for public safety in the event of a gas leak.
6. Procedures for the public to report a gas leak to WCG.
7. Establishing and maintaining lines of communication with emergency responders and construction personnel.

D. The “Public”.

WCG’s “Public” is the “Affected Public” which includes WCG’s customers, commercial and residential, and entities that are located near WCG’s natural gas distribution lines but are not WCG customers; **contractors excavating within the boundaries of WCG’s service territories, government officials and emergency response agencies.**

The following table summarizes WCG’s stakeholder audience, baseline PAP message, the frequency of the baseline message and the baseline message activity or delivery method of the PAP message(s).

TABLE 1
WCG’s PAP Program

<u>Stakeholder Audience</u>	<u>Baseline Message</u>	<u>Baseline Frequency</u>	<u>Baseline Activity</u>
2-2.1 <u>Affected Public</u>	A. Pipeline Purpose & Reliability B. Awareness of Hazards & Prevention Measures Undertaken	Twice Annually	Billing Comments/ Notifications
WCG Customers	C. Damage Prevention Awareness D. Leak Recognition and Response E. How to Get Additional Information		
2-2.2 <u>Emergency Officials</u>	A. Pipeline Purpose & Reliability B. Awareness of Hazards & Prevention Measures Undertaken C. Damage Prevention Awareness D. Leak Recognition and Response E. How to Get Additional Information	Annually	Mailing

2-2.3			
<u>Local Public Officials</u>	A. Pipeline Purpose & Reliability B. Awareness of Hazards & Prevention Measures Undertaken C. Damage Prevention Awareness D. Leak Recognition and Response E. How to Get Additional Information	Annually	Mailing
2-2.4			
<u>Excavators/ Contractors</u>	One-Call System (See Note 2-2.4)	Constant	Daily Monitoring

Notes to Table 1

2-2.1 Affected Public includes WCG Customers and entities at Mather or Castle that are not customers of WCG but may be located near WCG pipelines or facilities. WCG has identified only one such entity, the terminal and office building at the airport runway. WCG will separately mail information to the Mather Airport manager.

2-2.2 Emergency Officials and 2-2.3 Public Officials. WCG will emphasize to these stakeholders that WCG’s area of responsibility is limited to Mather Field and Castle Airport. Since PG&E surrounds Mather and Castle, we want our PAP efforts to add clarity as to the delineation of responsibilities between WCG and PG&E.

2-2.4 Excavators and Contractors. Since excavators are a real daily threat to the integrity of WCG’s distribution system, they receive special treatment in WCG PAP program as the baseline message on the need to “Call Before You Dig” is stressed throughout WCG’s baseline communications. While most excavators perform work at Mather and Castle on a “short-time” and “one-time” basis there have been exceptions where the excavator’s project lasts for more than one year. WCG does not believe it would be effective to engage in a mass mailing to all contractors/excavators in the region. Constant monitoring of contractor activities and direct contact between the excavator and WCG staff is the most appropriate method of communications for excavation projects.

Also note that WCG will include its contact information, 24 hour emergency response phone number as well as its local business number in every baseline message.

WCG will include a “how to get additional information” message in all baseline communications.

Section J, below contains information to be included in the baseline message to the fire stations at Mather and Castle.

Section K, below describes additional methods used to communicate with excavators/contractors at Mather and Castle.

INFORMATION TO BE INCLUDED IN WCG's PAP Message

The following written information forms the basis for WCG's Baseline Message to be disseminated to Stakeholder Audience via the Baseline Activity indicated in Table 1 above:

A. Pipeline Purpose and Reliability.

The Role of Natural Gas in Supplying U.S. Energy Requirements

Natural gas utilities safely and reliably supply more than 69 million natural gas customers in the U.S. Natural gas provides more than 25% of all the energy consumed in the U.S. Natural gas is the cleanest burning fossil fuel.

Pipeline Safety and Reliability Record

Between 1986 and 2004, the amount of natural gas transported through distribution pipelines has increased by one-third. Yet the number of reportable incidents on distribution pipelines decreased by 28 percent. Natural gas pipelines have an outstanding safety record especially when compared to other modes of transportation such as highways, railways and maritime transport. Federal and state pipeline safety codes require that natural gas utilities and pipeline companies comply with tough requirements for design, construction, testing, inspection, operations and maintenance from the production field to the customer's meter.

WCG is responsible for operating and maintaining the natural gas distribution systems at Mather Field in Sacramento County and at Castle Airport in Merced County. Therefore, WCG is responsible for safe operations and natural gas emergency response to Mather Field and Castle Airport. Pacific Gas and Electric Company is responsible for safe operations and natural gas emergencies in all other areas within the counties of Sacramento and Merced.

While there are risks in transporting natural gas in underground piping, WCG has implemented damage prevention programs that, to a large extent, mitigate that risk. These safety and reliability programs include leak surveys, leaks repairs, protecting the system's metal components through the use of modern cathodic protection technology, patrolling and inspecting its natural gas distribution systems and working closely with contractors and excavators to prevent damage to the gas distribution system. In addition, WCG has installed barricades at-risk gas facilities such as those located near roadways and in parking lots, frequent patrolling of the entire system, above ground line markers that identify the location of subsurface WCG pipelines, and providing information to all of

WCG's customers on measures they can take to prevent damage to the gas distribution system.

WCG has instituted a damage prevention program that includes measures aimed at stopping the unintended release of gas from its system. Since the vast majority of unintended gas releases from a pipeline result from the failure of excavators to notify one-call centers prior to beginning excavation activity, WCG requires excavators, contractors and homeowners to notify USA North, the one-call center for northern California, before excavating.

Since beginning operations in 1996, WCG has not experienced a single natural gas emergency that has resulted in injury, loss of life or damage to property. As an integral part of WCG's ongoing efforts to maintain our record of safety and reliability, WCG has developed a Public Awareness Program (PAP). The objective of WCG's PAP is to increase the public's awareness of the presence of natural gas pipelines at Mather and Castle and to inform the public of the role it can play in preventing natural gas emergencies. In addition, WCG will be providing information on the appropriate steps to be taken to in the event of a natural gas pipeline leak or emergency.

B. Awareness of Hazards and Preventative Measures.

Natural gas is naturally colorless, odorless, non-toxic and lighter than air. It can be a danger to persons and property if released into the atmosphere. The unintended release of natural gas can result in fire, asphyxiation, and/or an explosive condition. Leaks in the gas distribution system at Mather or Castle Airport can be the result of a traffic accident that damages above ground gas distribution facilities, excavation activity, corrosion, a gas appliance failure, or an earthquake.

In most circumstances, the first sign that gas is being released from the pipeline is the smell of gas. As a safety precaution, natural gas provided by West Coast Gas contains a sulfur-like odor to help people identify gas leaks.

WCG has instituted a damage prevention program that includes measures aimed at stopping the unintended release of gas from its system. Since the vast majority of unintended gas releases from a pipeline result from the failure of excavators to notify one-call centers prior to beginning excavation activity, WCG requires excavators, contractors and homeowners to notify Underground Service Alert North (USAN), the one-call center for Northern California, before excavating.

WCG is a participating member of USAN. Excavators are required to notify USAN of their intended excavation activity. USAN then informs WCG of the intended excavation activity. WCG must locate and mark its facilities, or otherwise inform the excavator about the presence or absence of its subsurface facilities within two business days (not counting weekends and holidays) of receiving notice from USA North.

Other damage prevention activities undertaken by WCG include a cathodic protection system that prevents corrosion, barricading at-risk gas facilities such as those located near roadways and in parking lots, constant patrolling of the entire system, leak surveys, line markers that identify WCG pipelines and providing information to all of WCG's customers on measures they can take to prevent damage to the gas distribution system.

Additional information provided to Emergency Officials and First Responders:

WCG's gas distribution system contains over 100 in-line valves that can isolate a small section of the system. In addition, WCG had installed "curb values" at many of the offices and high occupancy buildings. In case of an emergency, WCG has the ability to isolate a section of its system via the in-line valves and, in the case of an emergency at an office building or high occupancy facility it can shut-off gas supply to an individual building or facility. In case of a catastrophic failure of the gas distribution system, as would be the case in a major earthquake, the entire system can be shut-down via a primary valve(s) that connects WCG to Pacific Gas and Electric system. In addition, gas service to any residence or commercial building can be stopped by turning the shut-off valve which is located on the riser at the meter.

C. Damage Prevention Awareness.

Every WCG customer, including business and residential customers, all contractors and excavators, and those individuals and entities that hire excavators to perform excavations at Mather and Castle Airport will be aware of the requirement to use the one call system USA, before any excavation can begin. State and Federal law requires prior notification through a one-call system. Failure to follow this rule can lead to a dangerous situation that threatens persons and property and the violator is subject to criminal penalties as well as liability for all damages resulting from their failure to follow this rule.

Every customer is cautioned not to stack any objects on or near an above ground gas facility including the gas riser, meter and regulator. Obstructing access to the meter can create a dangerous condition if, in an

emergency, access the shut-off valve (located on the riser which connects to the gas regulator and gas meter) is restricted. No one is allowed to attach an electrical ground to the gas riser (the pipe that comes up from the ground to the regulator and meter). Doing so can cause rapid corrosion of the gas pipeline.

D. Leak Recognition and Response.

A leak in WCG's gas distribution system that is located in the street, under unpaved outdoor areas or in your home or business, can be detected by smell, sound and sight. While natural gas is odorless and colorless WCG adds a chemical odorant (mercaptan) that gives natural its distinctive sulfur-like smell. Most leaks are detected by smell. Since natural gas is under pressure, leaks will make a hissing sound if the leak is located close to the surface or if the leak is large enough. A pipeline leak can sometimes be detected on the soil, grass or shrubbery by the appearance of a dark oily spot. This oily accumulation will attract insects.

If you suspect that a gas leak has occurred in any area of Mather, Castle Airport, outside of the interior of your home or business, move away from the leak and please call West Coast Gas Company's emergency response number. Do not investigate the suspected gas leak on you own. Never "test" for a leak with a lighter or match.

If you think you smell gas inside your home or you may investigate minor gas odors with a flashlight. Never use matches or candles to look for gas leaks. Never turn any electrical switches on or off if you suspect a gas leak. Keep a flashlight handy to check pilot lights to see if they are lit. If the smell continues or if you have any doubts, open windows and doors and get everyone out of the building. Do not use the phone in your home or business where the gas leak is suspected. Please call West Cost Gas Company's emergency number from a location where the gas leak is not suspected.

Emergency Preparedness Communication for Emergency Officials/First Responders and Local Government Officials.

The following information will be communicated annually, via written communications to Sacramento County and the City of Rancho Cordova (Mather), and to Merced County and the City of Atwater (Castle Airport) emergency officials/first responders and local government officials:

West Coast Gas Company (WCG) is responsible for operating and maintaining the natural gas distribution systems at Mather Field in Sacramento County and Castle Airport in Merced County. Therefore, WCG is responsible for responding to all natural gas emergencies at

Mather Field, and Castle Airport. Pacific Gas and Electric Company is responsible for safe operations and natural gas emergencies in all other areas within the county of Sacramento and Merced Counties.

The purpose of this communication is to insure that, in the case of an emergency involving the natural gas system at Mather and Castle Airport, the lines of communication between West Coast Gas Company and your fire station, agency, or department are current and accurate. Enclosed are placards, for distribution within your fire station, agency, or department that includes WCG's 24 hour emergency number and our local business office number.

WCG provides gas service to nearly every structure and has gas distribution lines running throughout (Mather, Castle Airport). Therefore, if your fire station, agency, or department receives a report of a fire at Mather, or Castle Airport, WCG must be informed immediately.

WCG is required to prepare and maintain an Emergency Response Plan to meet any gas emergency at Mather, and Castle Airport and a copy can be obtained by calling WCG during business hours. This plan includes instructions to our personnel on coordinating with your agency. We invite you to review our Emergency Response Plan and any provide comments.

EXAMPLES OF WCG CUSTOMER BILL STUFFERS AND BASELINE MESSAGE TO FACILITY MANAGERS AT MATHER AND CASTLE AIRPORT

A. Call Before You Dig.

The vast majority of unintended gas releases from a pipeline are caused by excavation. WCG's responsibility is to continuously remind its customers that gas lines are located on their property and even limited excavation can cause damage to the pipeline. WCG is a participating member of Underground Service Alert (USA), a one-call notification system. WCG will continuously inform customers and contractors excavating within WCG's service territory of the need to call USA before any excavation is undertaken. Information on the one-call system is disseminated to customers at the time the customer receives an application for service and through a semi-annual bill insert (**May and December**). The notice to customers reads as follows:

**Be Safe!
Call Before You Dig!
Know What's Underground Before You Dig!
1 (800) 227-2600 or 811**

A damaged gas pipeline or service line to a house or building can create an explosion hazard that could endanger both people and property. Natural gas pipelines and other underground utilities (water and sewer line, electrical conduit) could be within a few feet of the grounds surface.

At least 2 business days before you dig or grade or have a contractor excavate or grade on your property, please notify your utility providers by calling USA and also confirm that any contractor excavating on your property notifies USA.

USA is a free service for homeowners, excavators and professional contractors who are digging, blasting, trenching, drilling, grading or excavating. USA business hours are from 6 a.m. to 7 p.m., Monday through Friday, except for holidays.

When you call USA, an operator will ask you a few questions such as your planned excavation location, date and time of excavation, your name, city/county and whether or not you marked-out your excavation site in white paint. West Coast Gas Company and other affected utilities will be at your location within 2 business days to locate their underground lines (if any). **It's easy to use and it's free!**

Call 1-800 227-2600 or 811

B. How to Detect a Gas Leak

Information on how to detect a gas leak inside a residence or building is disseminated to customers at the time the customer receives an application for service and through a bill insert **two times per year (February and September)**.

Be Safe!

Gas Odors and Appliance Leaks

Natural Gas is colorless and odorless. As a safety precaution, West Coast Gas adds a sulfur-like odor to natural gas to help people identify gas leaks.

Many gas appliances and most water heaters have a small, continuously burning gas flame – the pilot light – that ignites the main burner. Most new models of gas ranges, ovens and central forced air heating systems have electronic ignition systems and no pilot light. All homes in the Mather residential area were originally equipped with gas ranges, ovens and central heating units that are ignited electronically – no pilot light. However, the gas water heater does have a pilot light.

If you think you smell gas do the following:

- Do not attempt to locate the gas leak.
- Do not use lighters, matches, or some other source of open flames.
- Do not turn lights on or off, unplug electrical appliances, use telephones (including cell phones), or do anything that may create a spark.
- Leave the area immediately and call WCG or 9-1-1 from a location where gas leaks are not suspected.

Mather 916-364-4102

Castle (Toll Free) 877-924-4411

Information on how to detect a gas leak outside of a residence or building is disseminated to customers at the time the customer receives an application for service and through bill insert **included in the March and July billing statement.**

Be Safe!

Indicators of a Gas Leak Outside Your Home or Business

The natural gas distribution system is composed of gas mains that are located under the roadway, underground service lines and above ground gas regulators and meters that connect your home or business to the gas supply. West Coast Gas Company continuously monitors the mains, services, regulators and meters checking for leaks in the gas distribution system. However, the general public can assist in detecting gas leaks.

Indicators of a gas leak.

Smell - Natural Gas is colorless and odorless. As a safety precaution, West Coast Gas adds a sulfur-like order (mercaptan) to natural gas to help identify and locate gas leaks.

Sound – The gas system is under pressure and if a leak should occur you may hear a “hissing” sound.

Sight – If gas is leaking from an underground pipe it may discolor the surrounding vegetation leaving a dark oily residue. Blowing dirt, bubbling water, or an unusual area of dead vegetation may indicate a natural gas leak.

If you believe there maybe a gas leak, please call West Cost Gas Company's emergency number:

Mather 916-364-4102

Castle (Toll Free) 877-924-4411

C. Gas Appliance Safety

Information on Gas Appliance Safety is disseminated to customers at the time the customer receives an application for service and through a bill insert **two times per year (June and November).**

Twice each year WCG will include the following notice as a bill insert:

Be Safe!

Gas Appliance Safety

All Gas Appliances: Do not store flammable materials – mops, brooms, laundry, newspaper or any combustible material (paint, solvents, etc.), – near any gas appliance!

Water Heater: Make sure your water heater is securely anchored to a wall. This will help prevent the heater from shifting and possible falling in an earthquake. Your gas water heater has a pilot light. Do not store flammable

material or combustible materials – paints, solvents, gasoline in the same room as your water heater.

Gas Furnace: Your gas furnace should be serviced and furnace ducts checked once each year to help maximize its life and performance. Follow the instructions in the owner's manual, or call a qualified professional.

D. Carbon Monoxide

Information on Carbon Monoxide is disseminated to customers at the time the customer receives an application for service and through a bill insert.

Twice each year (**April and August**) WCG will include the following notice as a bill insert:

Be Safe! Carbon Monoxide

What is Carbon Monoxide? Carbon monoxide (CO) is a deadly, colorless poisonous gas which is undetectable to human senses. It is produced as an incomplete burning of fossil fuels such as natural gas, gasoline, kerosene, propane and wood. Most fuel burning appliances, if properly installed, vented, used in the proper location and maintained, pose little or no danger.

Danger! If you inhale carbon monoxide it enters your blood stream and robs oxygen from your blood cells. Low levels of carbon monoxide exposure can cause shortness of breath, mild nausea, fatigue, dizziness and mild headaches. Moderate levels of exposure can cause severe headaches, drowsiness, vomiting, loss of muscular coordination and mental confusion. Severe exposure can result in unconsciousness and death.

How Can You Prevent Exposure to Carbon Monoxide? Follow these simple rules:

1. Make sure appliances are installed and operated according to the manufacturer's instructions and local building codes.
2. Never service fuel-burning equipment appliances without proper knowledge, skill and tools. Always refer to the owners manual when performing minor adjustments or servicing fuel-burning equipment.
3. Never operate a portable generator or any other gasoline engine-powered tool either in or near an enclosed space such as a garage, house, or other building. Even with an open doors and windows, these spaces can trap CO and allow it to quickly build to lethal levels.
4. Do not cover the bottom of natural gas or propane ovens with aluminum foil. Doing so blocks the combustion air flow through the appliance and can produce CO.

5. Have a qualified professional routinely inspect appliance vents and chimney flues annually for blockages, corrosion, cracks or leakage.
6. Never run your car or any non-vented fuel burning equipment in any enclosed space.
7. Consider installing and maintaining a CO alarm that meets current safety standards (UL 2034 or CSA 6.19) and make sure the alarm cannot be covered up by furniture or draperies.

What do you do if you suspect the presence of carbon monoxide?

1. Immediately move outside to fresh air. Get everyone out of the building and make sure no one goes back in until you are sure it's safe.
2. Call your emergency services; fire department or 911 and seek medical attention for anyone who exhibits the symptoms of carbon dioxide poisoning.
3. Call WCG's emergency number from a safe location.
4. If the source of CO is determined to be a malfunctioning appliance, DO NOT operate that appliance until it has been properly serviced by trained personnel.

E. Other Resources for Information.

Information disseminated to WCG's "public" will include a notice that additional information can be obtained from the California Public Utilities Commission's Safety and Reliability Branch and from the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA). Call WCG for details at (916) 364-4100 during business hours.

F. Additional Information for First Responders

A manned 24/7 fire station is located at Mather and Castle. In case of a gas emergency, these two fire stations may be involved. On an annual basis WCG's supervisor of gas operations will conduct a briefing session with the fire/rescue personnel. The briefing session will address the following points:

1. Introduction to WCG – Service Area Responsibilities.
2. General information on the natural gas supply and distribution system.
3. Description of the Natural Gas Distribution System: Interconnection with PG&E - Mains – Main Line and Curb Valves - Services – Meters – Regulators.
4. Primary causes of a gas emergency.
5. Overview of WCG's emergency response plans.
6. WCG's emergency contacts and emergency phone numbers.
7. Field demonstration – turning-off the gas supply to buildings and residences.

8. Review of gas safety notices and safety information disseminated to WCG customers.
9. Review of WCG primary prevention program, "Call Before You Dig".
10. Review of the measures WCG takes to prevent the hazardous the release of gas.
11. Othersources of information (CPUC and DOT).

G. Additional Information for Excavators

WCG is well aware of the potential threat to the gas distribution system posed by excavators within its service territory. In addition to the information provided in Section E, above, WCG will provide a WCG Contact Card for contractors conducting relatively small excavation projects. The Contact Card will contain emergency contact names and contact numbers.

In the case of large or long-term major excavation projects within its service territory, WCG will provide Public Awareness materials and hold meetings for contractor/excavators.

H. Annual Internal Audit

WCG will maintain detailed records of its Public Awareness Program. Files will be maintained on each bill stuffer mailing, meeting with emergency response agencies and contacts with contractor/excavators within WCG's service territory. On an annual basis (February of the following year), WCG will prepare an internal audit of it Public Awareness Program activities. The audit will summarize and verify that the activities listed in the WCG PAP have been carried out.

In addition, the audit report will include feedback from the public on the effectiveness of WCG program and any changes in the program for the upcoming year. The primary method to gain insight on the effectiveness of the WCG PAP will be a sample set of written and oral interviews of WCG customers, facility managers at Mather and Castle Airport, emergency officials first responders and local government officials.

The objective of the survey is to determine if the baseline message was understood, that it included information that was relevant and useful to the target audience, and to gain insights on how the baseline message can be improved. WCG will conduct oral interviews with stakeholders primarily by phone and the internet. Based on the results of those interviews, WCG will adjust its message and means of communication to insure that it's PAP accomplishes the stated goal of increased public awareness.

West Coast Gas Company Inc.

Appendix D

Operator Qualifications Plan

West Coast Gas Company, Inc.

OPERATOR QUALIFICATIONS PLAN

2012 Revision

49CFR Subpart N

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Minimum Requirements for WCG Qualifications of Individuals Performing Covered Functions and Required Training 2012 Revision

Sec 192.803 Definitions:

Abnormal Operating Condition means a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may;

- (a) Indicate a condition exceeding the systems design limits; or
- (b) Result in a hazard (s) to persons, property, or the environment.

Evaluation means a process, established and documented the operator, to determine an individual's ability to perform a covered task by any of the following:

- (a) Written Examination;
- (b) Oral Examination;
- (c) Work performance history review;
- (d) Observation while task is performed;
- (e) Performance on the Job;
- (f) On the Job Training, or;
- (g) Simulations; or;
- (h) Other forms of assessment;

Qualified means that an individual has been evaluated and can;

- (a) Perform assigned covered tasks; and
- (b) Recognize and react to abnormal operating conditions.

Sec 192.805 Qualification Program:

Each operator shall have and follow a written qualifications program. The program shall include provisions to:

- (a) Identify Covered Tasks;
- (b) Ensure through evaluation that individuals performing covered tasks are qualified;
- (c) Allow individuals that are not qualified pursuant to this subpart to perform a

covered task if directed and observed by an individual that is qualified;

(d) Evaluate an individual if the operator has reason to believe that the individual's performance of a covered task contributed to an incident as defined in Part 191;

(e) Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task;

(f) Communicate changes that affect covered tasks to individuals performing those covered tasks;

(g) Identify those covered tasks and the intervals at which evaluation of the individual's qualifications is needed.

Sec 192.807 Record Keeping:

Each operator shall maintain records that demonstrate compliance with the subpart.

(a) Qualification records shall include:

- (1) Identification of qualified individual (s);
- (2) Identification of the covered tasks the individual is qualified to perform;
- (3) Date (s) of current qualification;
- (4) Qualifications method (s).

(b) Records supporting an individual's current qualifications shall be maintained while the individual is performing the covered task. Records of prior qualification and records of individual no longer performing covered tasks shall be retained for a period of five years.

Sec 192.809 General:

(a) Operators must have a written qualifications program by April 27, 2001;

(b) Operators must complete the qualifications of individuals performing covered tasks by October 28, 2002.

(c) Work performance history review may be used as a sole evaluation method for individuals who were performing a covered task prior to August 27, 1999.

(d) After October 28, 2002, work performance history may not be used as a sole evaluation method.

Qualification Program for Covered Tasks **Distribution System O&M Functions**

West Coast Gas (WCG) operates and maintains natural gas distribution systems. Therefore, the primary focus of WCG's Qualifications of Individuals Performing Covered Functions and Required Training will be covered distributions system Operations, Maintenance and Construction functions. WCG uses the US DOT, 49 CFR Part 192 Subpart E through M as the basic guide to developing its list of covered tasks and as the starting point for its qualifications program. Given the relatively small size of WCG, certain covered functions are only performed infrequently. In addition, certain covered functions in CFR Part 192 are not performed by WCG employees but are subcontracted to qualified firms.

As of May 31 2010, WCG has two qualified individuals who have successfully performed all the covered listed under Subpart F through M. - Mark Williams and Brandon Sharp-Robe. Mark Williams is also a certified welder. M. Williams, who has worked for WCG since May 1998 is the WCG field operations supervisor and Brandon Sharp-Robe, who has worked for WCG since December 1, 2005 is the assistant field operations supervisor. Evan Rahily, who lives near WCG's Castle service territory in Merced County, is a part time contracted employee who will provide a quick response to an emergency situation at Castle after business hours and until WCG emergency response personnel from Mather can arrive at the scene. Mark Williams was trained in performing covered tasks by Mike Decker the former field operations supervisor of WCG who had over 25 years experience in gas distribution operations and maintenance with Avista (formerly Washington Water and Power). Mr. Decker retired from WCG in December 2001.

New field employees will not be allowed to perform any covered task without direct supervision from qualified field personnel unless:

1. The individual receives instruction on performing the covered task from either WCG qualified field personnel or from the formal training provided by outside entities, and;
2. The individual is directed and observed by WCG qualified field personnel in performing the covered task, with appropriate repetition, and;
3. The appropriate WCG field supervisor formally sign off that the individual is

qualified. In addition, each new filed employee hired after March 1, 2001 must be re-tested (pass written test and field test) each year on a segment of the covered functions contained in this part.

Abnormal Operating Condition means a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may;

- (a) Indicate a condition exceeding the systems design limits; or
- (b) Result in a hazard(s) to persons, property, or the environment.

To be qualified, an individual must be able to properly perform assigned covered tasks and be able to recognize and react appropriately to an abnormal operating condition (AOC) that may reasonably be expected to be encountered while performing the covered task. This is true whether the condition arises as a direct result of his/her work performance (e.g. be specific to the covered task being performed) or not (e.g. be generic in nature, but still observable because the individual is present on site).

Throughout this document we will use examples of Abnormal Operating Conditions (AOC), followed by a brief statement on the Potential Damage that could be caused by an AOC and the Corrective Action that may be taken to remedy the situation. As an example, assume the covered employee has been tasked with inspecting an exposed section of gas pipe that will be soon be buried:

AOC - While inspecting exposed gas pipe the employee observes that on a section of the exposed pipe the pipe wrap is damaged.

Potential Damage – Pipe wrap on steel pipe helps to prevent corrosion which is one of the primary causes of system leaks.

Corrective Action – Re-wrap pipe. Never allow gas pipe with damaged pipe wrap to be reburied.

Tools and Equipment - Use Qual Form 1

The purpose here is to instruct and qualify the employee of the proper use of each tool so as to effectively perform the covered task and eliminate possible damage to the gas facilities. The employee must be instructed in the use of each tool, the applications for its use and be given formal instruction such as in the case of the valve grease and flush gun and the fusion iron.

1. Pipe Wrench To be used on black steel pipe and fittings to tighten and loosen. Do not use adjustable wrench, pliers or vice grips as they may damage pipe.
2. Adjustable Wrench To be used on fittings with square edges to tighten and loosen.
3. Cad Welder To be used when attaching tracer wire from a plastic pipeline or service line to a steel pipe. Tracer wire allows operator to locate plastic pipe.
4. Pipe Locator Electronic device used to locate steel or plastic mains and services.
5. Steel Pipe Squeezer Used on 3/4" to 2" steel pipe to quickly stop gas flow.
6. Plastic Pipe Squeezer Used on 3/4" to 2" steel pipe to quickly stop gas flow.
7. Manometer Used to measure gas pressure in inches of water column. Used to set outlet pressure of regulator less than one or two pounds psig.
8. Fluke Cathodic Protection measuring device.
9. FI Unit Flame Ionization Unit is used to detect gas leaks continuous sampling of the ambient air over pipelines, rises and MSAs.
10. CGI Unit Combustible Gas Indicator is used to pinpoint underground leaks via a bar hole or leaks in confined spaces.
11. Tiff A Tiff is a portable hand-held combustible gas detector that is used to detect gas in confined spaces such a vaults and buildings.
12. Pressure Used to measure gas pressure usually in pounds per square

- | | | |
|-----|----------------------------|--|
| | <u>Gauge</u> | inch. |
| 13. | <u>Pressure Recorder</u> | Used to measure gas pressure over a period of time. |
| 14. | <u>Pipe Threader</u> | Applies threads to steel pipe. |
| 15. | <u>Fusion Iron</u> | Used to join plastic pipe and plastic pipe fittings. |
| 16. | <u>Pipe Wrench</u> | Special long handled wrench used to open and close gas valves. |
| 17. | <u>Valve and Flush Gun</u> | Inserts valve flush and valve grease into gas valves. |
| 18. | <u>Generator</u> | Electrical supply for field operations and emergency response. |
| 19. | <u>Probe Bar</u> | Tool to open a small vertical hole from top of pipe to ground level. |

Commonly Used O&M and Construction Materials - Use Qual Form 2

1. Yellow Marking Paint Used to identify gas lines and gas valves in locate procedures.
2. Pipe Primer Used on bare steel pipe to protect from oxidation.
3. Green Line Tape Applied to steel pipe after primer to protect from corrosion.
4. R28 Mastic Applied to steel pipe after primer and tape for additional protection.
5. Rectoseal Soft set thread compound to seal treaded connection on steel pipe.
6. Rectoseek Liquid spray used to check for leaks in above ground piping.

7. Tracer Wire Yellow plastic coated wire attached to P.E. pipe.
8. Zerc Fitting Grease fitting on top of gas valve.
9. Valve Grease Special valve grease applied through Zerc with grease gun.
10. Valve Flush Special valve flushing material used to clean-out gas valves.
11. MSA Fitting Fitting and bushings specially designed for MSAs.
12. Lock Cock Shut-off valves used in MSAs.
Valves

Subpart E - Welding of Steel Pipelines:

WCG is thoroughly familiar with the requirements under Subpart E and API Standard 1104. WCG maintains a permanent historical file on qualifications and certifications of each WCG welder and contract welder and the inspection of welds. No WCG employee is allowed to perform welding on any part of the distribution system without a current welding certificate on file. In addition, the welding certificate must cover the type of welding to be performed and M. Williams must observe and qualify the individual. **(Welding Certificates on file)**.

Subpart F - Joining of Materials Other Than by Welding:

The only material that WCG Joins is P.E. pipe. WCG does not permit the installation of cast iron, ductile iron or copper pipe in the gas distribution system. No WCG employee will be allowed to perform any joining of P.E. pipe, unless the employee successfully completes the P.E. joining course (currently provided by Allied Utility) and a current joining certificate is on file. **(MW, LT and BR certificates on file)**. For any new employee who will be joining P.E. pipe, they must 1) complete course and 2) be tested by WCG O&M supervisor who holds current cert and in accord with '192.285 and 3) observed in field joining P.E. pipe and inspected in accordance with '192.287.

Subpart G - General Construction Requirements for Transmission Lines and

Mains. (Qual Form 3)

192.307 Inspection of materials.

All materials to be used in the gas distribution system will be inspected before installation. Employees will be instructed that any imperfection in steel or plastic pipe will be removed or the length of pipe cannot be used. No repairs of dents, arc burns, grooves or gouges) of piping is allowed. Damaged pipe is to be discarded or if possible returned to vendor.

192.317 Protection from hazards.

Protection of pipe during installation. Each covered employee will be instructed and tested on the correct method of installing pipe in a ditch or service trench, so as to minimize stress and damage, including requirements for sanding of base, conduit requirement (under sidewalks and driveways), support during backfilling.

AOC – It is observed that a new PE service is laying on ground that is contains sharp rocks and that there is no slack in the line.

Potential Damage – Rocks can damage pipelines lines as the earth settles and the rocks shift. A taught PE service could separate from the riser as the earth around it settles or shift.

Corrective Action – Remove as many rocks as possible and place a bed of sand to protect the pipeline. Leave some slack in the PE service line so as to reduce tension. Always insure that the pipeline is supported below the pipe.

192.321 Installation of Plastic Pipe.

Each employee will be instructed and tested on the correct method of installing P.E. pipe including joining, applying tracer wire and connecting tracer wire to steel pipe via CAD Welding.

AOC – It is observed that before backfilling a trench that contains a P.E. main that the pipe locator can locate the pipe.

Potential Damage – Not being able to locate pipe after covered.

Corrective Action – WCG would have to dig up pipe and replace tracer wire.

192.325(7) Clearance and Cover.

Each employee will be instructed and tested on the required Clearance and Cover requirements for mains and service lines in WCG's distribution system.

192.461- Protective Coating and Wrapping of Steel Pipe.

Each employee will be instructed and tested on the correct priming, wrapping and coating of steel piping.

AOC - While inspecting exposed gas pipe the employee observes that on a section of the exposed pipe the pipe wrap is damaged.

Potential Damage – Pipe wrap on steel pipe helps to prevent corrosion which is one of the primary causes of system leaks.

Corrective Action – Re-wrap pipe. Never allow gas pipe with damaged pipe wrap to be reburied.

Subpart H - Customer Meters, Service Regulators and Service Lines. (Qual Form 4)

192.353 Location of Meters and Regulators

Each covered employee will be instructed and tested on 1) determining the proper location of meters and regulators. 2) the requirements for accessibility of meters and regulators for reading and maintenance, 3) protecting the Meter Set Assembly (MSA) from hazards, and not having the MSA located in an areas that poses a danger to people.

AOC – While reading a meter the WCG covered employee observes that the customer has stored steel pipes on top of the meter.

Potential Damage – There are two potential problems 1) the weight of the materials on top of the meter could cause a leak and the steel coming into contact with the meter, fittings and pipe will cause corrosion.

Corrective Action – Immediately contact the customer and request that situation be remedied. Inform customer of the risk posed. If contact cannot be made, remove materials from the MSA and leave the customer a note to call WCG regarding safety issues.

192.355 Meters and regulators - Protection from Damage.

Instruction and testing on when to install MSA given the progress of construction of a new building. Determining the need to barricade the MSA. Requirement that regulator must vent to the outdoors and if vented outdoors, never under a window or other opening to a residence or dwelling.

AOC - While patrolling the covered employee discovers that a new parking lot has been installed at a building that exposes a MSA to traffic within a few feet of the MSA.

Potential Damage – Even a low impact collision between an auto or MSA could cause a major release of gas to the atmosphere.

Corrective Action – Immediately cone off the MSA from the parking lot. Inform the appropriate personnel in the building that a potential hazard exists and that WCG will be installing barricades. Start the process that will result in the erection of barricades to protect the MSA in the shortest time possible..

192.357 Meters and Regulators - Installation.

Covered employees will receive instruction and testing on how to properly support the MSA so that stress on supporting piping and meter is minimized. Instruction and testing on how to use the proper materials for all meter and regulator threaded piping, joints and nipple connections. Never use unauthorized fittings. Use the manometer to set the regulator pressure (7 inches of Water Column unless instructed to allow a higher outlet pressure). How to properly leak-test the MSA (riser to house-line connection)

192.359 Meters and Regulators - Installation - Operating Pressure.

Instructing and testing on requirement that the meter may not be used at a pressure that is more than 67% of manufacture's shell pressure.

A rebuilt or repaired tinned steel case meter may not be used at a pressure that is more than 50 percent of the pressure used to test the meter after rebuilding or repair. WCG only installs aluminum case meters.

192.361 Service Lines: Installation

Provide instruction and testing on the following:

Depth of Buried Pipe - Service line 12" cover on private property and 18 " cover in public roads and sidewalks.

Support and Backfill - each service line must be properly supported on undisturbed or well compacted soil and or sand and covered with backfill free of material that

might damage pipe or pipe wrap.

Minimize Stress. Install so as to minimize stress. Install, if practical so that condensate will flow back to main.

If service line will lie under side-walk or driveway, it must be placed in conduit of sufficient diameter (at least 3x nominal size of service line).

WCG never installs a service below grade into a building.

AOC – A WCG covered employee observes that metallic house line appears to be buried under a customer's building.

Potential Damage – WCG does not provide cathodic protection beyond the regulator (or meter if the regulator is located after the meter). Insulators provide separation between the MSA and the customer's house lines. Without cathodic protection, the buried house line will corrode.

Corrective Action – Make contact with the customer and inform that person of the danger of unprotected metallic pipe corroding and the resulting possible leak.

192.363 (5)Service Line Valve.

Instruction and testing on requirement that each MSA will have a Lock-Cock valve installed upstream of regulator and or meter.

192.367 Connection of Service Line to Main.

Instruction and testing on optimum connection, i.e., if practical, each service line will be connected to the top of the main. If not practical, it will be connect to the side of the main and never below the main.

WCG - Use of Anodeless Riser in P.E. service line installations.

WCG - Insuring that the MSA is insulated from the customer house-line.

Subpart J - Test Requirements. (Qual Form 5)

Instruction and testing of each new employee on the testing of each segment of main, service line and meter set assembly in conformity with Subpart J.

192.501 Leak Testing.

No one may operate a new segment or return to service a segment of pipeline unless its leak-tested in accordance with this subpart and each potentially

hazardous leak has been located and eliminated.

Test medium can be liquid, air, natural gas or inert gas that is compatible with the material being tested, free from sediment and, except for natural gas, be nonflammable.

Useful Definitions:

Maximum Actual Operating Pressure (MAOP).

Maximum Actual Operating Pressure is the maximum pressure that occurs during normal operations over a period of 1 year.

Hoop Stress is the stress in a pipe wall, acting circumferentially in a plane perpendicular to the longitudinal axis of the pipe.

Leak Test is a pressure test to prove the mechanical strength of the system.

Design Factor is the percentage of SMYS (Specified Minimum Yield Strength) to which operating stress must be limited to.

Design Pressure is the maximum operating pressure permitted under CFR 49 as determined by the design procedures applicable to the pipe size, wall thickness material, and location involved.

192.509 Leak Testing Steel Mains.

Test with air at 90 psig.

192.511 Leak testing of Steel Service Lines.

If operating line pressure is less than 40 psig, then test with air at 50 psig. If operating line pressure is greater than 40 psig, test with air at 90 psig.

192.513 Leak Testing Plastic Mains and Service Lines.

Test with air at least 150% of MAOP or 50 psig whichever is greater but no greater than 3 times that allowed under 192.121 (design of plastic pipe).

192.626 Purging of Pipelines.

When being purged of air by gas, gas must be released in a moderately rapid and continuous flow so as not to allow the formation of an air/gas mixture. If gas supply not adequate, then one must insert a slug of inert gas in front of the gas.

When being purged of gas by air, air must be released in a moderately rapid and continuous flow so as not to allow the formation of an air/gas mixture. If air supply not adequate, then one must insert a slug of inert gas before the air.

Subpart I - Corrosion Control. (Qual Form 6)

WCG has installed new state-of-the-art impressed current Cathodic Protection (CP) systems to protect its metallic piping. In 1998 a new CP system was installed at Mather's Industrial area. A new CP system was installed in the Wherry Housing area in 2001, and at Castle in 2002. Periodic pipe-to-soil readings and inspections of rectifiers are conducted in conformance with Subpart I and complete records are kept (manual and computer).

WCG Training:

1. CP Terminology
2. Correct Use of CP measurement tools.
3. Data Recording Requirements.

192.455 CP Requirements.

Buried Steel pipelines must be protected against external corrosion including;

1. It must have an external protective coating meeting the requirements of 192.461:
 - a. applied on properly prepared surface;
 - b sufficient adhesion to the metal surface to resist underfilm migration of moisture;
 - c sufficiently ductile to prevent cracking;
 - d sufficient strength to resist damage from handling and soil stress;
 - e compatible with supplemental CP;
 - f electrically insulating type tape must have low moisture absorption and high electrical resistance;
 - g coating must be inspected before lowering into trench;
 - h pipe coating must be protected from damage if installed via boring or trenching.

WCG employees receive detailed field instructions in proper application of pipe coating and wrapping.

2. The installed steel pipe must have a cathodic protection system designed to protect the pipeline installed within 1 year after completion of installation of pipeline.

192.459 Examination of buried pipeline when exposed.

The operator must insure that whenever any portion of buried pipeline is exposed, the exposed section of pipe must be examined for evidence of external corrosion if the pipe is bare or if the coating has deteriorated or been damaged.

WCG practice is to assign a person to inspect any known construction site is near or that requires the crossing of a gas line. Before the pipe is recovered, it must be inspected and, if necessary, the pipe will be re-coated and re-wrapped.

192.463 Cathodic Protection.

WCG maintains a minimum CP reading of -0.850 at all times. The industrial area of Mather is protected by 5 impressed current CP systems (ground-bed and rectifier) installed in 1998. A defective rectifier was replaced in its entirety in 2010. The entire housing area at Mather is protected by a new impressed current system installed in 2001. Castle is protected by a new impressed current system installed in 2002.

AOC - Not receiving a pass reading.

Potential Damage – No cathodic protection on pipe could result in corrosion.

Corrective Action – Inspect rectifier, check all functionality.

192.465 Monitoring.

WCG has no short-sections and therefore no 10% per annum issue. WCG steel pipelines are protected by impressed current systems - ground-beds and rectifiers. The primary monitoring task is to inspect the rectifier, take CP readings at selected test sites, recorded the reads and let management know if there are any low reads or damaged equipment. The inspections and readings must be taken at least ever two months.

AOC – Volt or Amp meter not reading.

Potential Damage – Not knowing the correct procedure and/or the rectifier is not working.

Corrective Action – Test with a fluke multi meter to test volts and amp.

192.475 Internal corrosion control.

Whenever any part of the steel system is removed from the system, the internal surface must be inspected for internal corrosion.

192.481 Atmospheric corrosion control.

WCG is required to monitor above ground pipe for signs of atmospheric corrosion. WCG inspects each segment of pipe and MSA on an annual basis. In addition, WCG has an aggressive program to control atmospheric corrosion on MSA and risers by painting the MSA on the first sign of atmospheric corrosion.

AOC – Signs of rust on pipe and MSA.

Potential Damage – Deterioration of pipe.

Corrective Action – Clean, primer and paint pipe.

Subpart L - Operations. (Qual Form 7)

192.605 Procedural Manual for Operations, Maintenance, and Emergencies.

WCG had created and maintains a Procedural Manual for Operations, Maintenance and Emergencies for each of its service territories. This Manual contains specific procedures and protocols to be followed in performing the O&M function and the records that must be kept to be in compliance. Each new employee will be required to read and understand the WCG O&M Manual. Each covered employee will be given an annual test on certain areas covered in the WCG O&M Manual.

192.614 - Damage Prevention Program.

WCG is a participating member USA Underground one-call system. WCG field personnel undergo USA Underground training in Vacaville CA and are thoroughly familiar with locate procedures. After USA training and in-house instruction each new employee will be filed tested on locating and marking gas pipe.

192.615 - Emergency Plans.

WCG has established emergency response plans for its service territories. Each

WCG covered employee receives initial and annual training in emergency response including a live-fire simulated field training to include:

Map reading. Emergency location exercise. Emergency valve shutoff.

Subpart M - Maintenance. (Qual Form 8)

192.721 - Patrolling.

WCG performs patrolling on a continuous basis. Each new employee will be given class room and field instruction on proper patrolling techniques and the identification of unsafe conditions.

AOC – During the patrol, the covered employee observes that insects are gathering around a greasy dark colored substance on the ground.

Potential Damage – Insects, especially flies, are attracted to residual hydrocarbons left after natural gas passes through the soil. There may be a gas leak.

Corrective Action – Immediately investigate the area with a CGI Unit, FI Unit and if necessary bar hole to determine if a gas leak exists.

192.723 - Leakage Surveys.

WCG has trained personnel, leak survey equipment, and surveys 100% of the gas system each year or a shorter intervals if there is a material discrepancy between gas purchased and gas billing. WCG also utilizes an outside leak detection firm every third year to assure that each and every leak has been detected. As required by this subpart, WCG maintains a permanent record of each leak survey, the classification of each detected leak and actions taken by WCG to repair or monitor each detected leak. New employee performing covered tasks will be given instruction on the classification of leaks, use of gas detecting equipment (tiff, CGI, and FI Unit).

192.747 - Valve Maintenance.

It is WCG practice to inspect and maintain each and every valve every year. All valve boxes are cleared of debris and all steel valves are flushed and greased and zerc fittings are replaced if necessary. Each valve is then tested to insure that it can be turned off in an emergency. New WCG will be given classroom instruction (Val-Tex Video) and field instruction and field testing.

AOC – Grease cannot be injected into the valve.

Potential Damage – The valve must be turned sufficiently to stop the flow of gas.

Corrective Action – Confirm valve is in open position then replace the zerc fitting. If the valve will not accept grease or if the valve cannot be turned or exercised, report the situation to the Supervisor of Maintenance. In general, key valves will be replaced and secondary valves may be abandoned.

Other Maintenance Training.

192.749 - Vault Maintenance.

192.739 - Inspection of Pressure Regulation Stations.

192.625 - Odorization A Sniff Test@.

Pressure Regulation. (Qual Form 9)

Each employee will be given annual training and testing on all aspects of the regulation of pressure and regulator maintenance.

General Safety Procedures and Unsafe Conditions. (Qual Form 10)

Each employee will be given training and testing on all aspects field, shop and the identification of unsafe gas system conditions. In addition, each employee will be tested on the requirements in filing out incident reports, and the procedures to be followed in case of a failure in any component of the gas distribution system.

Covered Staff Job Descriptions

1. Operations and Maintenance Supervisor.

a. Duties:

1. Overall responsibility for the safe and reliable operation and maintenance of the gas system.
2. Supervision of gas system employees.
3. Scheduling of O&M and construction projects.

4. Compliance with DOT and CPUC requirements for safe operation of the gas system, safety of workers and record keeping. Lead person during CPUC G.O. 112-E Audits.
5. Insures on-call staffing levels adequate for 24/365 emergency response.
6. Conducts and arranges for periodic employee training programs.
7. Insures adequacy of material and supply inventory.

b. Experience Requirements:

1. Minimum 5 years experience in construction related to natural gas systems, and operations and maintenance of a natural gas distribution systems.
2. Minimum 2 years experience as an O&M supervisor.
3. Current Welding and PE Fusion Certificate.
4. Ability to operate heavy equipment including backhoe.
5. Ability to operate and train others in the use of leak detection, pipe location and cathodic protection testing equipment.

2. Senior Operations and Maintenance Technician.

a. Duties:

1. Assistant to the O&M Supervisor.
2. Directs field crew in operations and maintenance activities.
3. Performs leak detection surveys, pipe location, valve maintenance and patrolling.
4. Installs and removes MSAs. Installs service lines and risers.
5. Performs pressure tests, Cathodic Protection test, line purging and operates pipe location, leak detection, Cathodic Protection testing equipment.

b. Experience Requirements:

1. Minimum 3 years experience in, operations and maintenance of natural gas distribution systems.
2. Minimum 2 years experience as O&M Technician II.
3. Current PE Fusion and USA Locate Training Certificate.
4. Ability to operate heavy equipment including backhoe.
5. Ability to operate and train others in the use of leak detection, pipe location and cathodic protection testing equipment.

2. Operations and Maintenance Technician II.

a. Duties:

1. Under the direction of the Manager or Senior Technician:
 - a. Performs leak detection surveys, pipe location, valve maintenance and patrolling.
 - b. Installs and removes MSAs. Installs service lines and risers.
 - c. Performs pressure tests, Cathodic Protection test, line purging and operates pipe location, leak detection, Cathodic Protection testing equipment.

b. Experience Requirements:

1. Minimum 2 years experience in, operations and maintenance of natural gas distribution systems.
2. Minimum 1 years experience as O&M apprentice.
3. Current PE Fusion and USA Locate Training Certificate.
4. Ability to operate various construction equipment including jackhammer and compacting equipment.
5. Ability to operate leak detection, pipe location and cathodic protection testing equipment.

2. Operations and Maintenance Apprentice.

a. Duties:

1. Under the direct supervision of the Senior Technician or Technician II, assists in all O&M activities.

b. Requirements:

1. Minimum 2 years experience in industrial work setting.
2. California drivers license and good driving record..
3. Ability to pass WCG=s written and oral test.
4. Ability to be trained in all areas of natural gas Operations and Maintenance activities.

c. Residency Requirement:

Resides within 1 hour driving radius of district headquarters

In addition to the requirements listed above, all WCG covered employees must continuously pass WCG's random drug testing program and alcohol abuse (Specified by US DOT, 49 CFR Part 199).

West Coast Gas Company Inc.

Appendix E

Drug and Alcohol Plan

West Coast Gas Company, Inc.

DRUG AND ALCOHOL PLAN

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COVERED EMPLOYEE DRUG AND ALCOHOL TESTING PROGRAM

Part 199 of 49 CFR requires that WCG have a drug and alcohol testing program for persons who perform the following on WCG's gas distribution systems:

1. Operating
2. Maintenance, or
3. Emergency Response Functions.

WCG employees, who perform all or any the functions listed above are, for the purposes of this program, "covered-employees".

A. Definitions:

1. "**Prohibited Drug**" means any of the following substances specified in Schedule I or Schedule II of the Controlled Substances Act:

- a. Marijuana
- b. Cocaine
- c. Opiates
- d. Amphetamines

2. "**Pass a Drug Test**" means that initial testing under DOT procedures does not show evidence of the presence of a prohibited drug in the employee's system.

3. "**Fail a Drug Test**" means that the confirmation test results shows positive evidence, under DOT procedures, of the presence of a prohibited drug in an employee's system.

4. "**Accident**" or "**Event**" means any situation that involves a release of gas from a pipeline and (a) a death or personal injury requiring hospitalization or (b) estimated property damage, including the cost of gas lost to WCG or others or both of \$50,000 or more.

B. Required Types of Drug Tests

WCG is required to perform the following types of drug tests on covered-employees:

1. **Pre-employment Testing.** All new covered-employees must receive a pre-employment drug test. All candidate covered-employees will be told of this requirement during their first interview and they will also be told that failure to pass the test will disqualify them from employment at WCG.

2. **Post Accident or Event Testing.** Testing of covered-employees will be performed as soon as possible, but not less than 12 hours after an accident of any kind involving the WCG gas distribution system when the covered-employees performance either contributed to an accident or cannot be completely discounted as the cause or a contributing factor to the accident. An event that is considered significant, in the judgment of WCG, even though it did not meet the definition of an "Accident" may also result in post accident or post event drug testing.

WCG is required to take all reasonable steps to obtain a urine sample from an employee after an accident. WCG will instruct the hospital to obtain a urine sample from an employee

transported to a hospital for medical treatment. If a covered-employee, who is capable of providing a urine sample after an accident, refuses to provide the sample that WCG employee will be removed from duty as an employee.

3. Random Testing. All covered-employees are subject to random drug-testing. WCG is required to test 50% of all covered employees each year. All covered employees will be randomly tested. Failure of a drug test or failure to submit to a drug test by a covered employee will result in that employee's removal from duties at WCG

4. Reasonable Cause Testing. WCG is required to drug test a covered-employee when there is reasonable cause to believe the employee is using a prohibited drug. WCG will only perform reasonable cause drug test when physical, behavioral, or performance indicates the probable use of drugs. The WCG maintenance supervisor will inform an officer of WCG that a reasonable cause drug test is warranted. The WCG officer must concur with finding of the maintenance supervisor, in writing, before the drug test is administered. Failure of a drug test or failure to submit to a drug test by a covered employee will result in that employee's removal from duties at WCG.

5. Return to Duty Testing. Covered-employees who, based on the recommendation of WCG's medical officer, return to duty after the completion of a rehabilitation program must be given unannounced drug tests as scheduled by the medical officer. The period of testing will not be more than 60 months and not less than 12 months from the date the covered employee returns to work at WCG. Failure of a drug test or failure to submit to a drug test by a covered employee will result in that employee's removal from duties at WCG.

C. WCG's Drug Testing Clinic

WCG has an agreement with Healthsouth Medical Occupational Clinic to perform alcohol and drug testing. Healthsouth Clinic has six offices in the Sacramento area and is qualified to perform all drug testing under DOT rules.

D. Employee Assistance Program

WCG will provide covered employees with an employee assistance program (EAP). The purpose of the EAP is to provide education and training on drug use. In addition, WCG will provide rehabilitation assistance to any covered employee who seeks help for drug related problems.

WCG will conduct at least 1 one-hour training session each year on drug abuse issues. All covered employees are required to attend these training sessions.

E. Confidentiality

The purpose of WCG's Anti Drug Program is to provide a safe working environment for its employees, customers and public we serve. In addition, our Anti Drug Program is designed to help our employees overcome substance abuse problems. Therefore, WCG will maintain the confidentiality of program results and no information will be released to any other party, except a government agency as part of an accident investigation or during safety audits, without the employee's written consent.

ANTI-ALCOHOL PROGRAM

WCG is required to have a program designed to help prevent accidents and injuries resulting from the misuse of alcohol by employee who perform covered functions.

A. Definitions:

1. "**Alcohol**" means the intoxicating agent in beverage alcohol, ethyl alcohol or other low molecular weight alcohols.
2. "**Alcohol Concentration**" means the alcohol in a volume of breath expressed in terms so of grams of alcohol per 210 liters of breath as indicated by an evidential breath test.
3. "**Confirmation Test**" means a second test, following a screening test with a result of 0.020 or greater, that provides quantitative data of alcohol concentration.
4. "**Refuse to Submit (to an alcohol test)**" means that a covered employee fails to provide adequate breath for testing without a valid medical explanation after he or she has receive notice of the requirement to be tested in accordance with provisions of Subpart B.
5. "**Screening Test**" means an analytical procedure to determine whether a covered employee may have a prohibited concentration of alcohol in his or her system.

B. WCG's Responsibilities:

1. **Alcohol Concentration.** WCG will not permit a covered employee to report to work or remain on duty while having an alcohol concentration of 0.04 or greater. For most people, the drinking of two beers will produce a 0.04 blood alcohol concentration. By comparison, the State of California's criteria for "DUI" (Drunk Driving) is 0.08. In other words, you could easily pass a drunk driving test, but you would still be in violation of the 0.04 standard that WCG must operate under.

2. **On Duty Use.** WCG will not permit a covered employee to use alcohol within four hours prior to performing covered functions, or, if an employee is called to duty to respond to an emergency, within the time period after the employee has been notified to report for duty. What this means is that a covered employee cannot and will not be allowed to work if he or she has consumed alcohol within 4 hours before reporting for duty - regular hours, or has consumed any alcohol after receiving an emergency call to duty. A covered employee is prohibited from consuming any alcohol while you are on duty - including during break and meal times. If a covered employee is on the weekend Emergency Call List, he or she is prohibited from reporting for duty if he or she consumes alcohol after receiving an Emergency Call. If a covered employee believes that they have consumed too much alcohol before receiving the Emergency Call they must inform the Emergency Call person that they cannot report for duty and inform the Emergency Call person that the next person on the list is to be called.

There are minor penalties (possible loss of a day's pay or use of sick leave hours) for not reporting to work when a covered employee has used alcohol within 4 hours of reporting for duty. There are major penalties for reporting for duty under the influence or for use of any alcohol during duty hours including termination.

3. **Alcohol Tests Required.** WCG will conduct the following types of alcohol tests for the presence of alcohol. In the case where a covered employee is suspected of reporting for duty

in an impaired state due to alcohol use, or if the covered employee is suspected of using alcohol during working hours, including break and meal times, the employee is to be immediately sent or taken to Healthsouth for a test. Healthsouth's testing facilities are located at 9261 Folsom Blvd., Suite 200 and the phone number is 916-364-1733. In a post accident situation, the test may be administered by Healthsouth or by the medical facility where the covered employee has been taken for medical treatment by informing the hospital that the person being treated is a DOT covered employee and the a drug and alcohol is mandated by Federal Laws.

4. Post Accident. As soon as practicable following an accident, WCG will test each surviving employee for alcohol if that employee's performance of a covered function either contributed to the accident or cannot be completely ruled out as a contributing factor in the accident.

A covered employee who is subject to post-accident testing who fails to remain available for testing, including informing WCG of their location if they leave the scene of the accident, will be deemed by WCG to have failed the test. Nothing in this section requires that a covered employee not be allowed to go and seek medical attention.

5. Reasonable Suspicion Testing. WCG will require a covered employee to submit to an alcohol test when WCG has reasonable suspicion to believe that the employee has violated the use of alcohol rules laid-out by WCG in this section.

Reasonable suspicion is based on specific, observable conditions that can be articulated by the supervisor including physical behavior, slurred speech, and body odors including alcohol on the breath.

If a covered-employee fails two alcohol tests within a six month period, he or she is subject to termination. If a covered employee is observed using any alcohol during while on duty, including break and meals times, that employee is subject to termination.

West Coast Gas Company Inc.

Appendix F

Employee Safety Plan

West Coast Gas Company Inc.

Employee Safety Plan

Originally Issued April 1997

Updated
September 2012

THE TEN COMMANDMENTS OF SAFETY

LEARN the safe way to do your job before you start.

THINK safety and ACT safely at all times.

OBEY safety rules and regulations - they are for your protection.

WEAR proper clothing and protective equipment.

CONDUCT yourself properly at all times; horseplay is prohibited.

OPERATE only the equipment you are trained and authorized to use.

INSPECT tools and equipment for safe conditions before starting work.

ADVISE your supervisor promptly of any unsafe condition or practice.

REPORT any injury immediately to your supervisor.

SUPPORT the safety program, take an active part in the program and encourage fellow employees to work safely.

FIELD SAFETY INSTRUCTIONS

The following rules are provided to help you do your job safely. Since it is not possible to include specific instructions for every operation, common sense must be used as a guiding factor.

General

1. All employees must be instructed regarding hazards and necessary precautions required for the job assigned.
2. First aid kits shall be available and maintained on all job sites and vehicles.
3. A listing of emergency services such as hospitals and ambulances shall be posted in all WCG vehicles and at each job site.
4. At least one person, trained in basic first aid procedures will be posted to each job site.
5. A copy of OSHA's "Safety and Health Protection on the Job" poster shall be posted or available on every job site and shall be read by all new employees.
6. All injuries shall be reported promptly to the foreman or supervisor.
7. Tailgate safety meetings shall be held weekly.

8. All employees are to study, understand and observe the specific rules that apply to their job assignment.
9. Fresh potable drinking water shall be provided on all job sites.
10. Drinking of any intoxicating beverages, or working while under the influence of drugs or intoxicating beverages, will not be permitted under any circumstances.
11. The WCG supervisor shall insist on all employees observing every rule, regulation and order as is necessary to insure a safe working environment. The supervisor will take all actions necessary to immediately correct any unsafe condition or conduct.
12. No employee shall enter manholes, vaults or other confined spaces where gas can be present without first testing the ambient air conditions with the appropriate testing devices. If required, ventilation-augmentation equipment will be used before a worker is allowed to enter or work in any confined space when gas can be present.
13. Buddy Rule - No WCG employee shall enter a manhole, vault or other confined spaces where there is a possibility of gas being present unless a second WCG employee is standing by to assist in case of emergency. This rule applies even after testing and/or ventilation mitigation measures have been implemented.
14. For any excavation deeper than 4 feet, or when an alternative method of shoring, sloping or benching is used other than those shown in the Construction Safety Orders, a plan must be prepared by a civil engineer. A copy of the plan shall be available at all times.

HOUSEKEEPING

Tools, equipment, vehicles and working areas shall be kept clean and orderly.

Keep the job site well illuminated.

Barricade openings, excavations and hazard areas.

Use red traffic cones any time a WCG vehicle is stopped for the purpose of performing an inspection or maintenance or meter reading task.

Do not block traffic lanes or fire lanes.

FIRE PREVENTION

All employees are required to know the locations of fire equipment and its correct use.

The refueling of any vehicle or equipment is not permitted while the engine is running.

Flammable liquids shall be used only in approved metal safety containers.

Never use an air hose for pressurizing a gas drum in order to empty its contents.

A fire extinguisher shall be available at each job site. In a multi-story building, at least one fire extinguisher (ABC type) shall be located adjacent to the stairway at each floor level.

A multi-purpose dry chemical fire extinguisher (ABC type) shall be used unless otherwise approved by the WCG safety officer.

PERSONAL PROTECTIVE DEVICES

Prior to exposure to any hazardous substance, employees shall be informed by the immediate supervisor of any health hazards by means of labels and other forms of warning such as MSDS sheets (Material Safety Data Sheets) and employee training.

Appropriate clothing, given the work being done, shall be worn at all times. For construction work, this usually means long sleeved shirts and full length trousers to help protect against scrapes, cuts and burns. Tank tops, shorts and tennis shoes are not appropriate.

Approved hard hats must be worn by all employees and visitors on the job site at all times.

Eye protection is required whenever there is exposure to flying objects, materials or chemicals.

Employees shall be required to wear hearing protectors when subjected to sound levels exceeding those listed in the General Industry Safety Orders. For example, if job site noise prevents hearing normal conversation - ear protection is needed. It is absolutely required when operating pneumatic tools and equipment.

Gloves shall be worn whenever the job involves possible exposure to cuts or abrasions or exposure to chemicals.

Foot protection shall be required for employees exposed to hot surfaces, injurious substances, falling objects, crushing or penetrating equipment or activities. For example, foot protectors or safety toe footwear must be worn when operating a jack hammer, tamper or clay spade.

Use respiratory protective devices when spray painting a MSA or pipe and when applying protective coating to a pipe.

Use the protective equipment provided and always leave the maintenance facility with the protective equipment you need for the day's tasks. If the required protective equipment is not available at the job site; **DO NOT BEGIN WORK UNTIL THE PROTECTIVE EQUIPMENT ARRIVES!**

HAND AND POWER TOOLS

All hand tools and power tools must be maintained, stored and handled so that they are kept in a safe operating condition. Inspection of each tool should be made before use.

Electric power tools must be grounded, the ground conductor must be checked frequently.

Check all power tool electric cords and extension cords for cuts and abrasions. Do not use any electric powered tool or extension cord if the electric cord is damaged; even if the cord has been taped!

Hammers, picks, shovels etc. with split or defective handles or loose heads should never be used.

Pneumatic tools must have positive locks on hoses and attachments.

COMPRESSED AIR AND GAS CYLINDERS

Compressed air is very dangerous and careless use can cause severe injury or death. Always observe the following rules:

Do not use the air nozzle to clean hands or clothes.

Close the control valve before turning on the air compressor.

Turn the air off at the control valve before changing tools.

Never kink the supply hose to stop the flow of air.

Make certain air hose and couplings are in safe working condition before starting the air compressor.

Always wear protective eye gear.

Horse play with compressed air can be fatal!

Release pressure on the system before removing or adjusting any compressor part.

Do not remove or alter safety devices.

Be sure that the compressor has an approved safety valve at the source of the air supply to reduce pressure if the hose fails.

Oxygen cylinders shall never be stored near combustible material especially oil and grease, near fuel gas cylinders or near carbide or acetylene unless separated by a suitable wall.

All gas cylinders must be capped when not in use.

All gas cylinders must be stored in an upright position with caps on.

Do not transport any type of gas cylinder without removing the gauges and capping the cylinder. Always secure the gas cylinder to the vehicle bed before moving the vehicle.

WELDING AND CUTTING

Wear clothing which will protect all of your body from the rays of the arc and from sparks and hot metal.

See that sufficient ventilation is provided, or wear an airline type respirator when welding in confined spaces.

Be sure your hood is in place before striking an arc and at all times while welding. Wear hardened filter lens goggles under the hood or shield.

Prior to commencing operations thoroughly inspect the area to make sure that there are no combustible materials nearby. Keep fire extinguishers on hand on all welding jobs.

Always put rod subs in a container. If they are thrown loosely around, they present a slipping hazard.

Use fully insulated electrode holder. Do not dip hot electrode holders in water for cooling purposes.

Before welding or cutting on any drum or container which has contained gasoline, oils or other flammable materials, make sure that proper cleaning methods have been used.

Frames of all electric welding machines operated from power circuits should be effectively grounded with No. 8 gauge wire or better.

Shut off welding machine when not in use for long periods of time or if moving a machine a significant distance.

The tee wrench should be attached to the equipment so that it is always available for quick turn off in the event of an emergency.

Valve protecting caps should always be in place when cylinder is not in use.

When raising or lowering cylinders, use suitable slings, boats, cradles or platforms. Do not lift with electric powered machines.

Do not allow grease, oil or other solvents to accumulate on or come in contact with the cylinder gauges.

Keep cylinders away from sources of heat. If stored in buildings, keep away from highly combustible materials, stoves, radiators etc. Cylinders of oxygen should not be stored close to cylinders of acetylene or other fueled gases.

Compressed gas cylinders are to be upright at all times.

check oxygen and acetylene hose lines before use and check cylinders for valve leaks.

Back-flow check valves shall be mounted on the torch, on the hoses or in the regulator outlet for both fuel gas and oxygen.

GARAGE AND REPAIR SHOPS

Garages and repair shops should be well ventilated to guard against carbon monoxide gas from running engines. If the shop is not well ventilated, the vehicle should be driven outside as soon as the engine is started.

Gasoline should not be used for cleaning purposes. Stoddard solvents or other high flash point solvents should be used for cleaning purposes.

Rags, waste or trash should not be allowed to accumulate anywhere except in fireproof containers designed for that specific purpose.

Aisles or open spaces should be kept free of tools and parts.

Eye protection should be worn at all times when operating a grinding wheel and the wheel should be inspected for cracks before starting.

Tires should be inflated in a restraining device which will contain flying parts should a blow off occur.

Grease pits will be covered or guarded with a chain or rail guards when not in use.

LOCATING UNDERGROUND UTILITIES BEFORE EXCAVATING

Always locate buried utilities and other structures before digging.

WCG is responsible for all damage to underground facilities.

Prior to excavating, all known owners of underground facilities in the area shall be notified by calling the USA UNDERGROUND HOTLINE at 811 or 800-227-2600, The USA Underground Hotline shall be posted in the maintenance building and in all WCG vehicles.

Check the entire job site for visual signs of substructures. This includes such items as manholes, water meter boxes, ditch lines, pavement patches, previous location markers, pipe risers and the absence of utility poles which indicates the presence of underground electric and phone cables.

Check the entire job site by "sweeping" back and forth with a pipe locator to verify both known sub service structures and to pick up any unknown sub service structures.

Expose substructures by hand after locations are made.

Be careful that no holes or cuts are knocked into the substructure by scraping or hammering. If damage occurs, the utility must be notified under all circumstances. No trench or excavation may be closed until the utility, whose structure was damaged, has inspected, repaired and approved the closing of the trench or excavation.

Be aware of possible joint use trenches - power, telephone, cable TV, gas.

EXCAVATING AND TRENCHING

Before starting any excavation, obtain all available information on existing utilities.

The walls and faces of all excavations, which expose a worker to danger from moving ground, shall be effectively guarded by a means of shoring, sloping of the ground, benching or an alternative method as provided in the Construction Safety Orders.

All excavations over 5 feet in depth shall be protected by means of shoring, sloping or benching prior to entry.

Prior to working in an excavation, make a daily inspection for evidence of possible cave ins or slides, check for changing ground conditions, particularly after a rainfall, check all shoring or sloping as the work progresses.

Be extra alert when excavating near older excavations.

Excavated material shall in no case be placed closer than 2 feet from the edge of the excavation.

Excavations, trenches etc. 4 feet or more in depth shall be provided with a ladder for access. The ladder must protrude above the top of the trench by at least 3 feet.

Pipe and other materials strung along the trench must be positioned so they cannot roll into the excavation.

TRAFFIC CONTROL

Where work sites encroach upon public streets or highways, a system of traffic control, in conformation with the "Manual of Traffic Control", published by the State Department of Transportation, shall be required.

Specifications for the size and design of signs, lights and devices shall be those that are described in the "Manual of Traffic Control".

Barricades shall be erected to detour vehicles and people from hazardous areas.

Place signs to warn of hazardous conditions.

FLAGGING (SIGNALING)

Flag workers shall be trained in the proper fundamentals of flagging and signaling traffic before being assigned as a flagger.

The flagger must be protected and the motorist forewarned of his or her presence by the use of advance warning signs and cones.

Use cones before the flagman's position to mark traffic lanes.

The use of orange vests, jackets or shirts shall be required for all flaggers. WCG requires that all field personnel wear orange vests on the job site.

During hours of darkness, the flagger shall be outfitted with a reflectorized garment and the flagger's station shall be illuminated.

To Stop Traffic, the flagger shall face the traffic and hold the stop paddle in a vertical position at arm's length.

When it is safe for the traffic to proceed, the flagger shall stand parallel to the traffic movement, and with the slow paddle held in a vertical position at arm's length.

Flags should be a minimum of 18" x 18" in size and orange in color.

Flagmen shall not be used to direct traffic intersections that are signalized.

HEAVY EQUIPMENT

Machines should be maintained in good working order. All vital parts such as motors, chassis, blades, blade holders, tacks, drives, hydraulic and pneumatic mechanisms and transmissions should be thoroughly inspected before starting any job.

Before starting a job, the operator should be given detailed instructions regarding the work to be done.

Before using the starter motor the operator should check to make sure that all operating controls are in the neutral position.

Machines should be operated at speeds and in a manner consistent with conditions on the particular job site.

At no time should a piece of equipment be left unattended while the motor is running, especially if the machine is on an inclined surface or on loose material.

If possible, equipment should be driven entirely off the road at night. When a portion of the machine projects into the road, it should be adequately marked with red lights or flares. Red flags should be used in the day time.

Personnel should stop motors and refrain from smoking during any refueling operations.

The operator should keep deck plates or step on equipment free from grease, oil and mud.

PIPE HANDLING SAFETY

Check conditions of pipe slings. Each synthetic web sling shall be marked or coded to show:

- a. Name or trademark of manufacturer.
- b. Rated capacity for the type of hitch used and type of material used.

Watch for overhead obstructions when pipe is raised or lowered.

Do not go under pipe being loaded, lifted or stacked.

Be sure you do not get between the pipe and any equipment.

Stand clear when pipe is rolling.

Always insure pipe is balanced in the sling.

Pipe shall be piled, stacked or racked in a manner designed to prevent it from tipping, falling, collapsing, rolling or spreading. Racks, bins, planks, sleepers, bars, stops, blocks or sheets shall be used to make the pipe stable.

INJURY AND ACCIDENT REPORTS

All injuries and all cases of damage to property must be reported to your immediate supervisor.

Do not attempt medical treatment for any non-employee injuries beyond first aid treatment and an immediate call for aid.

Obtain names and address of any non-employee involved in an accident and obtain names, phone number and address of witnesses.

West Coast Gas Company Inc.

Appendix G

Customer Service Manual

West Coast Gas Company Inc.

Customer Service Manual

SECTION 1 - GENERAL REQUIREMENTS

1.1 Purpose

This manual is a guide for West Coast Gas Company Inc. (WCG) employees and WCG customers on establishing gas service to new or remodeled buildings.

This information is presented by WCG in an effort to deliver safe, uniform service to customers.

1.2 Permits and Inspections

It is necessary that the construction of new or remodeled buildings conform to the provisions of city and county ordinances, rules on file with, or issued by, the California Public Utilities Commission (CPUC) and applicable rules and laws of the state of California.

WCG will establish gas service only after the gas piping facilities are satisfactorily installed. Local and State ordinances require that permits and final inspection be obtained before WCG can establish service.

In areas where there are no ordinances governing gas, piping should meet the requirements of the state of California Plumbing Code, Mechanical Code and all applicable state of California Rules, Laws and Regulations, including, but not limited to those promulgated by the CPUC.

In addition to local or state inspection, WCG will inspect service equipment installed by the customer. WCG's inspection general involves service requirements that are not governed by local or state codes. Certain parts of the customer's installation may require approval by state, local and WCG inspectors.

1.3 Application for Service

Requests for service require considerable advance planning by WCG in order to serve the connected load. Large capacity gas meters or other special equipment, often require several months of lead time for delivery from the manufacturer. It is important that the local WCG office be provided as early as possible with accurate load information and the predicted date the customer will require service so that all necessary arrangements for the service may be completed.

For commercial, industrial, subdivision and apartment complex applications, customers must include certain plans and maps as part of their request for service. Three sets of plans and maps are normally required.

The customer must provide a site plan showing the proposed service and meter location that comply with the requirements of this manual. Additional drawings and information such as exterior building elevations, landscape, off site improvements, gas loads etc. may be required to determine actual field conditions and help select the proper size and location of the service facilities. All gas meter locations are subject to WCG approval. Also, residential, commercial or industrial service requests should include a completed load data summary sheet. Customers obtain copies of the Load Summary Form from a local WCG office.

When approved construction plans are changed or conditions are encountered during construction that affect WCG's service arrangements, customers must consult WCG so that mutually satisfactory alternate arrangements may be made.

1.4 Additional Commercial and Industrial Service Information

Information concerning large commercial or industrial gas loads are not generally covered in this manual. Individual job design specifications will be provided after the customer applies for service.

1.5 Design

WCG is responsible for planning, designing and engineering its service facilities and service laterals using WCG's standards for design, materials and construction.

1.6 Service Connections and Sealing

Service to customers is normally established at one delivery point, through one meter. The service is designed to extend from the connection to the distribution facilities along the shortest, most practical and available route to the service termination facility or service delivery point. The service delivery point is the point of connection between the facilities of the serving utility and the customer's premises gas piping system.

Only authorized WCG employees may connect or disconnect WCG gas service to the building or structure. Seals placed by WCG on meters and associated service equipment must not be broken or tampered with. No un authorized person is permitted to remove, replace or interfere with WCG meters, seals or connections.

Call WCG if it is necessary to have the service disconnected or the meter removed because of remodeling, alterations or other activities.

Any unauthorized connection to WCG's gas facilities or to facilities used to provide utility services is a violation of California Penal Code Section 498 and 593c and the California Civil Code Section 1882, et. sequitur and may be considered a felony. These sections address connections to utility meters and facilities and diversion of utility services. They specifically prohibit any person to tamper with, make or cause to be made any connection or reconnection with property owned or used by the utility to provide utility service without the authorization or consent of the utility.

In areas where the nearest building is a considerable distance (200 feet or more) from the property line, or in WCG's judgment there is a potential hazard between the property line and service location, WCG may require a service location closed to the distribution facilities.

1.7 Changes in Requirements

Some of the information contained in this manual is based on governmental codes and ordinances which are subject to change as determined by the governmental authority.

WCG does not assume responsibility for keeping information in this manual current with these governmental codes, ordinances or other requirements. WCG should be consulted in case of doubt regarding the applicability of any item.

Periodically, WCG revises its construction documents that relate to customer service requirements. Except when required by law, new requirements of a revised WCG document will not be used to establish an absolute service requirement until the revised document or requirement has been issued to holders of this manual. Normally, the revised document or requirement will be incorporated into a new edition of the manual. An individually revised document or requirement may be provided by the WCG representative to the customer prior to its incorporation into a new edition.

1.8 Access to Premises

WCG must have the right to enter and leave the customer's premises at any time for any purpose connected with the furnishing of gas service.

1.9 Change of Customer's Load or Equipment

A customer or contractor must notify WCG of any plans to make an appreciable change either in the amount or character of the gas load or equipment installed on the customer's premises intended to be served by WCG. This information is required by WCG in order to make arrangements to provide properly sized service and metering facilities for the service load.

Contact with natural gas pipelines can cause serious injury or death. Penetration of an underground natural gas line by a back hoe or other tool can cause a violent explosion.

1.10 Underground Gas Pipelines

When planning underground work and before digging, state law requires customers to contact **Underground Service Alert (USA)** at 811 or 800-227-2600 at least 48 hours before excavation (weekends excluded) to determine the location of underground gas lines or equipment.

USA will arrange for participating companies to mark the location of their underground facilities at the job site at no charge. The customer must mark the area to be excavated with white paint.

USA should also inform the customer if a utility is not a participating member or does not mark its facilities.

1.11 Notice of Installation of Excess Flow Valves on Residential Services

An excess flow valve is a device installed in a gas service line to stop the flow of gas if the velocity of the gas passing through the valve is greater than a specified quantity. The valve usually operated when an excavator strikes the gas service line downstream of the valve, causing gas to be released to the atmosphere at a very high rate. Excess flow valves are installed as closely as possible to the location where the service and the main are connected to protect as much of the service as possible. The excess flow valve is not a valve which is activated by seismic movement.

Excess flow valves are installed as standard equipment on all new and replaced gas services which meet the following criteria:

- A. The system pressure does not drop below 10 pounds per square inch gauge (psig). The gas planning engineer will determine if the system meets this criteria.

- B. The service is to a residential customer with only one meter.
- C. The service is not a branch service or a service with a brand off of it.
- D. The entire service is to be replaced, not just a portion of the service.
- E. The service replacement is part of an engineered job.
- F. Excess flow valves are installed in compliance with US Department of Transportation requirements.

SECTION 2 - GENERAL REQUIREMENTS FOR RESIDENTIAL, COMMERCIAL AND INDUSTRIAL CUSTOMERS

2.1 Scope

This section covers general gas service requirements for residential, commercial and industrial installations.

2.2 Conditions for Establishing Gas Service

Authorization for gas service is provided by the inspection authority having jurisdiction.

Gas service **shall not** be established to any premise unless all outlets are properly and securely connected to gas appliances or capped or plugged with screw joint fittings.

Only qualified professionals should install customer owned equipment, material or appliances, including automatic gas shutoff valves. All customer owned equipment, material or appliances must be installed in a manner and at a location that does not interfere with WCG's service and metering equipment.

When establishing gas service, the custom is responsible for the following:

- A. Paying ECG the installation cost, including appurtenant facilities such as fittings, valves, service pipe, service regulators, metering equipment etc. in excess of the allowance as described in Gas Rule 15, Section B, "Installation Responsibilities".
- B. Providing all the required trenching for installing gas service pipe from the point of its connection at the main to the service termination location.
- C. Providing and paying for all paving services and permits associated with the trench excavation on both public and private property.
- D. Providing a clear route for installing the gas service facilities.
- E. Installing, owning and maintaining physical protection and/or enclosures, as may be required. (See section 2.4.6 and 2.5)
- F. Calling USA to locate and mark underground service lines and equipment.

When establishing gas service, WCG is responsible for the following:

- A. Installing, owning and maintaining the gas service pipe (service lateral) from the point of connection at the gas main along the shortest, most practical and most available route to the service location.

Customers are expected to begin using the requested gas service facilities within six months from the date WCG installs its facilities and is ready to supply service. A written gas service agreement may be required before the requested gas service is installed.

2.3 General Service Pipe

2.3.1. General

The term "gas service pipe" means that section of pipe between WCG's supply main in the street or easement and the gas meter set. Gas service pipe installations are constructed according to the provision of Gas Rule 16, "Gas Service Extensions", as authorized by the CPUC. A copy of this rule may be obtained from the local WCG office. WCG will install an extension without charge to a customer under the following conditions:

- A. WCG determines the loads to be served are bone fide.
- B. The extensions will be installed in a reasonable amount of time.
- C. The rule allowances for the loads do not exceed the WCG estimated installed cost of that extension.

The gas service pipe will be installed along the shortest and most practical route (as determined by WCG) from the existing or proposed gas main in the adjoining street, highway, alley, lane, road or easement to the nearest suitable meter location at the building or structure. If the building or structure is located on a corner lot, the gas service pipe may be extended, at WCG's option, to either side. WCG will install the gas service pipe from the gas main to an approved meter location. The installation and maintenance of all gas piping on the meter's load or house side is the customer's responsibility.

Gas service pipes will not be installed under or through buildings or embedded in concrete. Services should not be installed under paved areas or driveways. If there is no alternative to locating a gas service pipe under a driveway, walkway or other area to be paved, install the service pipe before area is paved. Notify WCG as early as possible of any planned paving. A sleeve for the gas service pipe installation may be required and must be furnished and installed by the customer before paving.

When paving around the gas service riser, the customer is to provide an opening or free space in the paving for the riser. The opening is to be a minimum of 3 inches in diameter, unless otherwise specified by WCG.

Excess flow valves will usually be installed as part of the new gas service. See Section 1.11 for more information on excess flow valves and when they are installed.

2.3.2 Branch Service Pipe

A branch service pipe is a pipe that is not connected to a gas distribution main and had another service pipe as its supply source. Two adjacent residential buildings that front on the same street are usually supplied by a branch service pipe, when practical. Meter locations for branched service are usually on the sides of the buildings that are adjacent to each other.

2.3.3 Joint Trenching

If the electric service is to be installed underground, the gas service pipe and the electric service lateral will normally be installed in a common joint trench. A joint trench *may* include telephone and cable television facilities. Water piping is not permitted in the trench. Exceptions for water may be considered by WCG only when the owner demonstrates a hardship and provides measures to mitigate the potential for undermining facilities, all of which are acceptable to WCG. Sewer, sanitary or storm drain piping or facilities are *not permitted* in a joint trench.

To request the installation of any other facilities in a joint trench, submit a written request, with justification, to WCG for review and approval before work begins.

Arrangements for joint trench installation involving telephone, cable television or other facilities require lead time. Make sure that WCG has reviewed and approved all trench details before trenching. Before installing house lines, discuss service arrangements with a WCG representative to coordinate the meter locations and joint trench requirements.

Notes in reference to joint trench.

1. Provide backfill (sand or native soil) containing not more than occasional rounded rocks less than 1/2 inch in diameter 4 inches above all facilities with in the trench area.
2. Ensure backfill and compaction meet any applicable WCG, federal, state or local requirements.
3. Remember that the depths and separation shown are minimums. Variances may be required if installing large diameter facilities. Gas facilities shall conform to the provision of General Order 112E and electric facilities to the provision of General Order 128.
4. Provide additional depth to maintain the required separation and cover if gas facilities cross electric, telephone or cable television facilities.
5. Although spacing between secondary, telephone and cable television is random, ensure a 4 inch clearance is maintained between the nearest of grouped facilities and gas service.
6. Provide clearance between grouped facilities to allow backfill material to flow between and underneath facilities.

2.3.4 Customer Owned and Installed Gas Service Piping

WCG does not maintain customer installed and owned gas service piping on any premises or in any building. This piping must conform to and the installation must comply with the requirements of applicable laws, codes and ordinances of all governmental authorities having jurisdiction. WCG also recommends that gas piping installed underground be protected from corrosion in the manner prescribed by the local authority having jurisdiction.

Yearly inspection of all buried gas piping is encouraged. Customers should contact a locally licensed plumbing contractor should they desire assistance in locating, inspecting or repair their buried gas service piping.

2.3.5 Gas Meter Location

The gas meter set includes the gas meter, service regulator, riser valve, all associated above-ground WCG piping and fittings, and overpressure protection devices. Some forms of physical protection include curbs (6 inches or higher), large trees, permanently installed planters, barrier posts, fences or other similar permanent structures.

For most residential installations, the gas meter is connected to the house line by means of a service tee. The service tee, which is attached to the outlet of a gas meter, must be connected to a horizontal section of house line, and that section of house line must be 26 inches in height from the ground. If the meter is installed in a meter cabinet the horizontal section of the house line must be 26 inches from the bottom of the meter cabinet.

2.3.6 Gas Meter Location Requirements

All meter locations are subject to WCG approval. A satisfactory meter location can best be determined if WCG is contacted during the planning stage of a new or remodeled building.

Contract WCG while planning your building construction or remodeling! Normally, only one meter location and service pipe will be provided for each building or dwelling unit, as applicable.

Gas meters will not be installed in curb meter boxes for new or remodeled buildings. See Section 3.3 for specific meter location requirements for residential and small commercial installation and Section 4.3 for specific meter location requirements for commercial and industrial installations.

2.3.7 Three or More Buildings On One Lot

When there are more than two buildings (either single family or multi family) on the same lot located in close proximity to each other, WCG will install a gas distribution main onto the customer's properties in accordance with its main extension and service pipe extension rules, provided a protected and accessible location and a satisfactory right of way is available at no cost to WCG. WCG will usually install a single gas service pipe to each building in accordance with its gas service extension rule.

Multi family residential complexes are subject to a CPUC mandate that each unit be metered individually (PUC section 780.5).

Exception: A single (master) gas meter may serve the entire complex when the gas is only used for central heating (i.e. space, water) systems that supply all tenants in common and when the tenants do not use gas appliances that require venting.

Where each dwelling unit includes ground floor space, each unit may have an individual service pipe and separate meter location if sufficient meter space is provided and there are no local ordinances that prohibit such arrangements.

Where practical, install the gas service pipe in a joint trench with the electric service.

A multi family residential complex consisting of individually metered spaces, where not all units have ground floor space, may have more than one service connection, provided that *all* following conditions are met:

- A. An unreasonable burden, in WCG's opinion, would be placed on the customer if restricted to one service connection.
- B. Service connection will be 150 feet or more apart.
- C. Each service connection will provide service to a group of four meters or more.
- D. The customer pays for the entire length of the second (and any additional) service connection.
- E. Local code or ordinance allows the multi service arrangement.

2.3.8 Prohibited Meter Locations

For a new or remodeled buildings, **do not locate** gas meter sets in the following areas:

- A. In living quarters, closets, toilet rooms or bathrooms.
- B. In garages.
- C. Behind fences or other barriers that the customer can lock.
- D. Within unventilated engine, boiler, heater or electrical equipment rooms.
- E. Under display platforms or show windows in commercial buildings, including any permanent elevated display floors or platforms associated with the window, where the purpose of the window is to present a display to the public.
- F. In contact with the soil, in a depression below general ground level, or where potentially corrosive materials are likely to contact the meter set.
- G. In poorly ventilated breezeways.
- H. In crawl spaces under buildings or decks, unless fully accessible for servicing and reading. The crawl space must be well vented and the service regulator vent must extend to an outside location.

- I. Near a driveway or other traveled areas, unless adequately protected from passing vehicles.
- J. In curb meter boxes.

Note: All meter locations are subject to WCG approval.

2.3.9 Locations Requiring Meter Rooms or Cabinets

A separate meter room or cabinet is required for a meter set or meter set components if any of the following conditions exists:

- A. Meters are within 3 feet of any potential ignition source or forced air intake. Exterior and well ventilated electric meters and the associated overcurrent protection devices and their mounting bases are not considered to be ignition sources.
- B. Meters are within 3 feet of any source of heat which might damage the gas meter set components.
- C. Meters are in an enclosed area under an exterior or interior stairway.
- D. Meters are in a room or space that is not well vented to prevent gas from migrating into other building interior areas.
- E. In the sole judgment of WCG, the location and meter set arrangement is not, or is not likely to remain, safe and otherwise acceptable.

2.3.10 Service Regulator Vent Requirements

Service regulator vents must terminate in a safe outside location. The gas service meter must be installed so that service regulator vents do not terminate in any of the following areas:

- A. Within a rectangular area extending 18 inches beyond either side of and 10 inches below any air vent or opening window that connects to a habitable space in a building or any space likely to contain a source of ignition.
- B. Within 3 feet of any source of ignition or forced air intake. Electric meters, and their associated overcurrent protection devices and mounting bases, are not considered to be sources of ignition when installed in exterior, well ventilated locations.
- C. Under display platforms or show windows in commercial buildings, including any permanent elevated display floors or platforms associated with the window, where the purpose of the window is to present a display to the public.
- D. Under building overhangs where the overhang is likely to direct venting gas to the building opening.

2.3.11 Electric Grounding

Electric bonding to or use of WCG gas service piping, gas risers or meter facilities for electric grounding is not permitted.

2.3.12 Meter Protection

Meter set locations that are subject to damage from vehicular traffic require protection which must be furnished by the applicant. WCG shall determine when such protection is required.

Physical protection must be provided for all gas meter sets located in the following areas:

- A. Within 3 feet of single family residential driveways or parking areas (including garage areas), commercial refuse container locations or thoroughfares or paved areas with curbs.
- B. Within 8 feet of multi family, commercial or industrial driveways or parking areas (see Exception below), loading docks or freight handling areas, or thoroughfares or paved areas without curbs.

Exception: Physical protection is not required for meter sets located within 8 feet of multi family, commercial or industrial driveways or parking areas **if the meter set is located 3 feet behind a barrier that is adjacent to the area and acceptable to WCG.**

If, in WCG's judgment, an unusually high risk of vehicular damage exists at a location, the customer must install a system of barrier posts that meets WCG specifications. Consult WCG for specific requirements.

Notes:

- 1. The custom's house lines must be stubbed out 3 inches to 6 inches from the finished wall at the locations shown.
- 2. Clearly mark each house line and meter position when hooked into multi meter installations.

2.3.13 Marking House Lines

The customer's house line, at the point of the service connection, must be clearly, permanently and prominently marked by the building owner to identify which building, dwelling, occupancy or other facility is being served. Marking must be legible and specific; it must include an authorized apartment or street number and use or location designation. Affixing an embossed metal tag (or other durable tag satisfactory to WCG) to each house line is one preferred means of marking.

To expedite locating gas meters when they are installed in interior locations or rooms, customers are encouraged to provide the notation "Gas Meters" on the room or location access doors. Meters will not be installed without a permanent address, location or when applicable, area served being marked at each meter location.

2.4 Gas Appliances: Service

WCG will provide re-light service for hot water heaters and other gas appliances.

2.5 Relocating Gas Service Facilities

Customers are responsible for the cost of relocating gas service facilities when they construct a building or add on to a building where WCG facilities are located.

Relocating gas service facilities will only be at WCG's expense for the following reasons:

- A. The new service needs to be enlarged to accommodate added load.
- B. The service piping has been exposed and/or damaged by an unknown third party.
- C. For minor, above ground alterations to the meter set.
- D. The service is scheduled for replacement.

Specific cases should be discussed with a WCG representative. To prevent unnecessary expense and inconvenience, the customer is encouraged to advise WCG well in advance of potential load increase and future plant/business expansions.

SECTION 3 - GAS SERVICE: RESIDENTIAL AND SMALL COMMERCIAL

3.1 Scope

This section provides requirements specific to providing gas service to residential and small commercial installations with a total connected gas load of 1,000,000 Btu per hour or less.

3.2 Gas Pressure

Gas for residential and small commercial loads is normally supplied at a nominal standard pressure of 7 inches of water column (approximately 1/4 pound per square inch) at the meter outlet.

3.3 Meter Location Requirements

3.3.1 General Requirements

See Section 2.3 for general meter location requirements.

3.3.2 Additional Meter Location Requirement for Residential and Small Commercial Applications

All meter location are subject to WCG approval.

Customers who consult with WCG early in a project lessen the possibility of future meter relocations at their expense.

Customers should contact WCG while planning their building construction or remodeling.

WCG prefers gas meters to be located outside and adjacent to the building. The distance from the finished grade as well as the clearances from the building corners and electric meter panels must be met to allow the gas meter and regulator to be properly installed.

The gas meter is usually installed at the side of the building closest to the gas main (or adjacent service, when new service is to be branched) that serves the building.

the meter location shall allow the gas meter to be accessible at all times for inspecting, repairing, reading and testing.

In most cases, when facing the metering facilities, the WCG service riser is to the left and the house line it to the right of the meter. Deviations to the left to right configuration require WCG approval. The plugged opening on the tee connected to the house line inlet downstream of the outlet side of the gas meter is only for WCG's use.

If the customer is to be provided with an electric underground service in a joint trench, the gas and electric meters must be at the same location, preferably on the outside of the building. The electric meter location must comply with the requirement specified by the local serving electric utility.

Service conditions may require that meters be located at the property line. Normally, property line meter installations will be required if 1) the building sets back a considerable distance (200 feet or more) from the property line or 2) there is a potential hazard to the service pipe between the property line and the building. Customers must provide satisfactory meter protection. See Section 2.3.12 for additional information.

SECTION 4 - GAS SERVICE: COMMERCIAL AND INDUSTRIAL

4.1 Scope

This section covered additional gas service requirements for commercial service with connected loads above 1,000,000 Btu and for industrial buildings.

Additional site specific requirements may apply to services with connected loads significantly above 1,000,000 Btu; requirements specific to each of these installation should be discussed with a WCG representative.

4.2 Gas Pressure

Gas is normally supplied at the meter outlet at a nominal standard pressure of 7 inches of water column (approximately 1/4 pound per square inch). Large commercial and industrial customers whose operations require higher pressure may be supplied in accordance with applicable WCG rules, if such pressure is available. When requesting higher pressure, customers must include written justification when submitting gas load information to WCG. The customer or contractor should contract WCG as early as possible to determine if the desired gas pressure is available and whether gas mains would have to be extended. WCG will need to know the date service is required and if there are any design considerations.

4.3 Meter Location Requirements

4.3.1 General Requirements

See Section 2.3 for general meter location requirements.

The size of gas metering and regulating facilities varies widely for the gas loads of different commercial and industrial establishments. To determine the most satisfactory meter location and the space required, consult WCG while the project is in the preliminary planning stage. Early consultation with WCG may eliminate the need for changes to the gas metering facilities and/or for additional gas main extensions at the customer's expense.

4.3.2 Special Metering and Regulating Facilities

There are special requirements when the premises to be served will normally be occupied by large numbers of people or when the quantity of gas necessitates special metering and regulating facilities. For example, special metering facilities require additional protection. In addition, WCG requires unrestricted access for service vehicles. WCG also requires adequate space for the meter.

4.3.3 Schools or Other Buildings Where Children Congregate

To protect the meter set from vandalism, install it in a wire cage or other suitable protective enclosure. The enclosure must be able to be secured with a WCG lock to prevent tampering, unless alternative protective means (satisfactory to WCG) are provided. The enclosure shall be used only for WCG metering and service equipment. Do not store other material within the enclosure. It may be necessary to provide an overhead wire cover on the enclosure so that debris or other materials cannot be thrown on top of the meter installation. The enclosure, slab, foundation and fencing shall be provided by the property owner and shall be a design and size approved by WCG. The enclosure may be constructed of materials appropriate to the surrounding architecture and landscaping.

4.3.4 Large Capacity Meter Sets

The meter set should be installed outside and away from the building. The meter location must be accessible to trucks and heavy equipment necessary for installing and maintaining the meters. If it is necessary to install a meter in a location where it could be damaged, suitable protection is required (see Section 2.3.12). WCG must approve the design of any necessary enclosure, foundation, protection and fencing. These facilities shall be furnished and installed by customers. Customers must furnish and install individual gas meter support pads. Meters shall not normally be installed in vaults.

4.4 Customer Equipment

Gas metering equipment can be adversely affected when a customer's equipment causes pulsations in the gas flow, sudden changes in flow rate or a back flow condition. Customers shall install, at their expense, any equipment necessary to mitigate or eliminate such detrimental effects. WCG must review and approve these installations before service is initiated.

Customers must add any necessary protective equipment when their operations change and the changes could create any of the adverse conditions described above. WCG may terminate

service and refuse to restore service to any customer who continues to operate without the proper protective equipment after receiving notification for WCG. Customers are responsible for damaged to WCG equipment caused by an absence of proper protective equipment.