

# California Public Utilities Commission



## **Guidelines for Preparing Operation and Maintenance Plan, Emergency Plan, Operator Qualification Program, and Distribution Integrity Management Program for Propane Gas Systems**

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# INTRODUCTION

The purpose of these guidelines is to help operators of propane gas distribution systems (Operator) establish a written plan that is in compliance with the requirements of Title 49, Code of Federal Regulation (Title 49, CFR) Section 192.603: Operation and Maintenance Plan, Section 192.615: Emergency Plan, Section 192.805: Operator Qualification Program, and Section 192.1015: Distribution Integrity Management Program of the Pipeline Safety Regulations. The numbers appearing in the parenthesis throughout these guidelines represent the applicable code number in the *Pipeline Safety Regulations, California Public Utilities Code*, or *General Order 112-F*. For example, the numbers [Title 49, CFR §192.605(a)] refer to the Pipeline Safety Regulations – Title 49 of the Code of Federal Regulations (Title 49, CFR), Section 192.605(a).

The information contained in this booklet was prepared by the staff of the Gas Safety and Reliability Branch (GSRB) of the California Public Utilities Commission as an aid to operators of small LPG distribution systems to prepare written Operations and Maintenance Plan, Emergency Plan, Operator Qualification Program, and Distribution Integrity Management Program.

This is not a complete or definitive outline. Additional information may be required by federal or state regulations. Please refer to Title 49, CFR Parts 190, 191, 192, 193, and 199, NFPA 58 (2004), NFPA 59 (2004), Public Utilities Code, and California Public Utilities Commission General Order 112-F for the complete regulations.

Title 49, CFR Parts 190, 191, 192, 193, and 199 is available at:

<https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D>

The Public Utilities Code is available at:

<https://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=PUC&tocTitle=+Public+Utilities+Code+-+PUC>

CPUC General Order 112-F is available at:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M163/K327/163327660.PDF>

This document will be updated as necessary.

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## PROPANE DISTRIBUTION SYSTEMS

Operators of propane distribution systems that meet the definition of Public Utilities (PU) Code §4451(b) are required to have an Operation and Maintenance Plan, an Emergency Plan, an Operator Qualification Program, and a Distribution Integrity Management Program.

Generally, a jurisdictional distribution system is a system of pipes:

- serving 10 or more customers from a single tank or manifolded propane source, or
- serving 2 or more customers by a single tank or manifolded propane source within a mobilehome park, or
- where any portion of a system that serves 2 or more customers is located in a public place.

The operator is responsible for the safety of its employees, residents, and property. The operator should remind its employee that:

- 1) Propane is heavier than air and will accumulate in low lying areas or migrate downward. The operator and its employees should be especially diligent in checking gas leaks and to be extremely aware of propane odor.
- 2) Propane reaches its explosive concentration at lower ranges than other combustible gases. The operator should respond to propane gas leaks promptly before dangerous concentrations of propane are reached.

# **OPERATION AND MAINTENANCE PLAN GUIDELINES**

Your Operation and Maintenance (O&M) Plan should have instructions for employees performing normal operations and making repairs. Include instructions and record keeping procedures in your Operation and Maintenance Manual for topics A-K described below.

## **A. Normal Operations and Repairs**

Identify employees who have a working knowledge of the system and identify persons responsible for maintaining the system and correcting any unsafe condition. [49 Title 49, CFR §192.605(a)].

## **B. Line Markers**

NOTE: This section only applies to systems that have above-ground distribution mains. Distribution mains are pipelines that are a common source of gas supply for an individual customer, or two adjacent or adjoining residential customers. Line markers are not necessary for above ground services lines.

A line marker is a warning sign for the public. It must be placed and maintained along each section of a main that is located above ground and accessible to the public [Title 49, CFR §192.707(c)]. The line marker must contain the word “Warning”, “Caution”, or “Danger” followed by the words “Gas pipeline”. Additional specifications for a line marker are listed in Title 49, CFR §192.707.

## **C. Patrolling**

Patrolling is a routine inspection of the distribution system. It can be done by walking along the pipeline and observing factors affecting safety of operation (e.g., missing or ineffective meter supports, excessive load on any pipeline component, use of the gas piping for electrical grounding, obstructions in regulator vent, etc.). Any gas distribution system must be patrolled in accordance with Title 49, CFR §192.721. The gas distribution mains in places or structures where anticipated physical movement or external loading could cause failure or leakage must be patrolled at least two times each calendar year, but at intervals not exceeding 7-1/2 months. Distribution mains within a business district must be patrolled at intervals not exceeding 4-1/2 months, but at least four times each calendar year. Records of patrolling must be maintained.

## **D. Leak Surveys**

A gas leak survey of the distribution system must be in accordance with Title 49, CFR §192.723. The type and scope of the leakage control program must be determined by the nature of the operations and the local conditions. The gas leak survey must be made by a qualified individual using “leak detector equipment” as frequently as necessary, but at least

every 5 years, not to exceed 63 months. The leak survey equipment used must be able to detect possible underground leaks.

If any portion of the distribution system is in a business district, leak surveys must be performed at least once each calendar year, not exceeding 15 months. The leak survey must include tests of the atmosphere in gas, electric, telephone, sewer, and water system manholes, at cracks in pavement and sidewalks, and at other locations providing an opportunity for finding gas leaks [Title 49, CFR §192.723(b)(1)].

NOTE: If leak surveys are performed in lieu of an electrical survey for steel systems without cathodic protection, the interval for gas leak surveys must be every 3 years, not to exceed 39 months [Title 49, CFR §192.465(e)].

Annual leak surveys are recommended when any of the following conditions exist:

1. The system is constructed of materials that have a higher tendency to leak (e.g., unprotected bare steel, PVC plastic pipe, and cast iron).
2. The pipeline is over twenty years old, and a corrosive soil environment exists.
3. There is an excessive leak history, the causes of which have not been addressed.
4. Portions of the pipeline are located under mobilehomes.

The operator must maintain gas leak survey records [Title 49, CFR §192.603(b)]. The records for any survey related to Title 49, CFR §192.465(e), must be kept for the life of the system.

## E. Leak Repairs

Provisions must be made for repair of hazardous or potentially hazardous leaks. The operator must maintain all such repair records [Title 49, CFR §192.603(b)]. Leak repair records should include the following information:

1. Probable cause of the gas leak (corrosion, outside force, etc.)
2. Method of repair (replaced pipe, clamped, etc.)
3. Type of materials used in the repair (stainless steel clamp, steel pipe, etc.)
4. The date of the repair and the person who made the repair

The plans should include the leak repair timeline requirements outlined in General Order 112-F:

Leak Grade	Definition	Examples	Repair Requirement
1	A leak that represents an existing or probable hazard to persons or property and requiring prompt action, immediate repair, or continuous action until the conditions are no longer hazardous	<ul style="list-style-type: none"> <li>• Escaping gas that has ignited unintentionally.</li> <li>• Any indication of gas that has migrated into or under a building</li> <li>• Any reading at or close to the outside wall of a building.</li> </ul>	Grade 1 leaks require prompt action, immediate repair, or continuous action until the conditions are no longer hazardous. This may include: <ul style="list-style-type: none"> <li>• Implementing the Operator’s Emergency</li> </ul>

		<ul style="list-style-type: none"> <li>• Any reading of 80% of the gas' lower explosive limit (LEL) or greater in an enclosed space.</li> <li>• Any leak that can be seen, heard, or felt and which is in a location that may endanger the people or property.</li> </ul>	<p>Plan</p> <ul style="list-style-type: none"> <li>• Evacuating the premises.</li> <li>• Blocking off an area.</li> <li>• Rerouting traffic.</li> <li>• Eliminating sources of ignition.</li> <li>• Stopping the flow of gas by closing valves or other means.</li> <li>• Notifying police and fire departments.</li> </ul>
2	A leak that is recognized as being not hazardous at the time of detection but justifies scheduled repair based on the potential for creating a future hazard.	<ul style="list-style-type: none"> <li>• 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 and where gas could potentially migrate to the outside wall of a building.</li> <li>• Any reading of 100% LEL or greater under a street in a wall-to-wall paved area that does not qualify as a Grade 1 leak and where gas could potentially migrate to the outside wall of a building.</li> <li>• Any reading less than 80% LEL in small substructures not associated with gas facilities and where gas could potentially migrate creating a probable future hazard.</li> <li>• Any reading between 20% and 80% LEL in an enclosed space.</li> </ul>	Operators must repair or clear Grade 2 leaks within fifteen months from the date the leak is reported. If a Grade 2 leak occurs in a segment of pipeline that is under consideration for replacement, an additional six months may be added to the fifteen months maximum time. Each Operator must reevaluate Grade 2 leaks at least once every six months until cleared.
3	a leak that is not hazardous at the time of detection and can reasonably be expected to remain not hazardous.	<ul style="list-style-type: none"> <li>• Any reading of less than 80% LEL in small gas associated substructures, such as small meter boxes or gas valve boxes; or</li> <li>• 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.</li> </ul>	Operators must reevaluate Grade 3 leaks during the next scheduled survey, or within fifteen months of the reporting date, whichever occurs first. Thereafter, the leak must be reevaluated every calendar year, not to exceed 15 months until the leak is repaired, regraded or no longer results in a reading.

## **F. Abandonment or Discontinued Service Facilities**

Abandonment of a pipeline requires it to be cut at the main (1 foot stub), purged if necessary, and capped at both ends [Title 49, CFR §192.727(b)]. This renders the line non-jurisdictional.

Whenever service to a customer is discontinued, one of the following must be done [Title 49, CFR §192.727(d)]:

1. Lock the valve in closed position.
2. Install a device or fitting in the service line or meter assembly to prevent the flow of gas (i.e. a threaded cap).
3. Physically disconnect customer piping and seal open ends.

## **G. Prevention of Accidental Ignition**

Provisions must be made to prevent the accidental ignition of gas when a potentially hazardous amount of gas may be released, such as when maintenance is being performed or repairs are made [Title 49, CFR §192.751]. The following provisions should be included:

1. When a hazardous amount of gas is vented, each potential source of ignition must be removed, and a fire extinguisher must be readily available.
2. Gas or electric welding or cutting may not be performed on pipe components that contain a combustible mixture of gas and air in the work area.

## **H. Key Valve Maintenance**

A key valve is a valve that can isolate a section of the system or shut down service to the entire system in an emergency situation and is necessary for the safe operation of the distribution system. The operator must determine the key valves and identify it/them on the system map. Key valves must be inspected, serviced, lubricated (where required), and partially operated at intervals not exceeding 15 months, but at least once each calendar year [CPUC GO 112-F §143.3]. Key valve maintenance records must be maintained [Title 49, CFR §192.603(b)].

## **I. Measuring the Odorization of Gas**

The operator must conduct a periodic sampling of the gas to assure the proper concentration of odorant. This is done by using an instrument capable of determining the percent of gas in air at which the odor becomes readily detectable [Title 49, CFR §192.625(f)]. The test should be done on the pipeline system (not at the propane plant), and preferably be performed at a location farthest from the propane source. The frequency of the sampling is to be determined by the operator (Note: GSRB suggests this activity be performed at least every six months). Records must be kept and maintained [Title 49, CFR §192.603(b)].

## **J. Corrosion Control Monitoring**

For metallic pipes, the operator must maintain records or maps to show the location of

cathodically protected piping and related facilities, such as the rectifier and anode beds [Title 49, CFR §192.491(a)]. (*Note: Plastic pipe does not require cathodic protection.*)

The cathodic protection system must be tested at least once each calendar year, with intervals not exceeding 15 months, to assure an adequate level of protection [Title 49, CFR §192.465(a)]. For impressed systems, the rectifier must also be inspected six times annually with intervals not exceeding 2-1/2 months [Title 49, CFR §192.465(b)].

If any part of the pipeline system has buried unprotected metallic pipe installed before August 1, 1971, the operator must evaluate the unprotected pipeline at intervals not exceeding 3 years to determine the necessity of installing cathodic protection. For distribution systems, especially those with pipelines in a common trench with other facilities, electrical surveys are often impractical and can be cost prohibitive. In such cases, operators can use corrosion, leak repair, and/or gas leak survey records to perform the 3-year evaluation of their system [Title 49, CFR §192.465(e)].

Corrosion control monitoring also entails performing the following two items:

1. Examining underground pipe when exposed. Whenever buried pipe is exposed, the operator must examine the exposed portion for evidence of corrosion and coating deterioration. If corrosion or deteriorated coating is found on the exposed section, the operator must excavate and determine the full extent of the corrosion and coating damage. A record of this examination must be maintained [Title 49, CFR §192.459].
2. Checking for atmospheric corrosion on aboveground pipe. All aboveground pipes other than service lines must be inspected for atmospheric corrosion once every three years, not to exceed 39 months; service lines must be inspected for atmospheric corrosion once every five years, not to exceed 63 months [Title 49, CFR §192.459]. A record of this examination and corrective work must be maintained [Title 49, CFR §192.491(c)].

The operator must keep records of each test, survey, or inspection, in sufficient detail to demonstrate adequacy of protection [Title 49, CFR §192.491(c)].

## **K. Inspection of Regulating Stations**

If a propane distribution system has one or more regulating stations that lower or control the gas pressure to the distribution mains, the operations and maintenance plan must include provisions for their inspection and testing. The regulators and relief devices must be inspected once a year not to exceed 15 months [Title 49, CFR §192.739 and §192.743].

The pressure regulating station must be inspected to determine that they are:

- In good mechanical condition;
- Adequate in capacity and reliability of operation;
- Set to function at the correct pressure;
- Properly installed and protected from vehicular traffic, dirt, liquids, icing, and other conditions that might prevent proper operation



## ***Relief Valves***

If a propane distribution system has relief valves, the operations and maintenance plan must include procedures for the inspection of relief devices. The operator must ensure that the relief devices have sufficient capacity to protect the facilities to which they are connected. This can be done by bench testing, testing the relief devices in place, or by review and calculations [Title 49, CFR §192.743].

Every year, the operator must verify that there had been no changes to upstream regulators, such as adjusting the set pressure, changing the orifice, or changing the type of regulator. If there had been no changes, the operator only needs to review and initial the capacity calculation. If a change is made, the new relief valve capacity calculations must be made and kept on file.

**NOTE:** Only relief valves installed on distribution mains are subject to the requirements of Title 49, CFR §192.739 and §192.743. These requirements do not apply to internal relief valves on service regulators.

Anyone performing inspections related to Title 49, CFR §192.739 or §192.743 must be operator qualified. The operator should seek technical assistance from qualified individuals (e.g., contractors) in order to comply with this requirement, especially if regulator disassembly or station re-design is necessary. Any documentation provided by a manufacturer related to each type of regulator used on the system must be retained for as long the equipment is in use.

**THE OPERATOR IS CAUTIONED NOT TO OPERATE, MAINTAIN, OR DISASSEMBLE REGULATORS OR RELIEF VALVES WITHOUT BEING PROPERLY TRAINED ON SUCH EQUIPMENT BY THE REGULATOR MANUFACTURER OR A QUALIFIED INDEPENDENT CONSULTANT.**

A record of this annual inspection must be kept [Title 49, CFR §192.603(b)]. A sample form is provided below.

# REGULATOR INSPECTION REPORT

Name of Operator: \_\_\_\_\_

Location of Regulating Station: \_\_\_\_\_

## Regulator Information

Make: \_\_\_\_\_ Type: \_\_\_\_\_

Size: \_\_\_\_\_ Orifice Size: \_\_\_\_\_

Pressure Rating: Inlet: \_\_\_\_\_ Outlet: \_\_\_\_\_

M.A.O.P. of System to which it is connected: \_\_\_\_\_

Operating Pressure: Inlet: \_\_\_\_\_ Outlet: \_\_\_\_\_

Lock Up Pressure: \_\_\_\_\_

Monitoring Regulator or Relief Setting: \_\_\_\_\_

Was the Regulator Stroked (to fully open)?      Yes    No

## General Condition of the Station

Atmospheric Corrosion:    Yes    No

Support Piping Rigid:      Yes    No

Station Guards:          Yes    No

Area Clean of Weeds and Grass:    Yes    No

Capacity at Inlet and Outlet pressure: \_\_\_\_\_

Corrections Made: \_\_\_\_\_

Remarks: \_\_\_\_\_

Inspector: \_\_\_\_\_

Signature: \_\_\_\_\_                      Date: \_\_\_\_\_

# Record Keeping Requirements

Below is a list of items for which records must be maintained:

Maintenance Item:	Maximum Maintenance Interval:
1. Leak survey	Once every 5 years <sup>*1</sup> , or every year in a business district
2. Patrolling	Two times a year, or every 6 months in a business district
3. Key valve maintenance	Once a year
4. Odorant check	"Periodic" <sup>*2</sup>
5. Cathodic protection (CP) system evaluation (pipe to soil potential)	Once a year
6. CP rectifier voltage and amperage readings (for impressed systems only)	Six times a year
7. Leak repair reports (for underground leaks)	As necessary
8. Examination of exposed buried pipe	As necessary
9. Atmospheric corrosion	Once every three years
10. Regulating station inspection and testing	Once a year
11. O&M plan review	Once a year

\*1 Note: For non-cathodically protected steel pipelines the interval is once every 3 years if a leak survey is used in lieu of an electrical survey. If, however, one of the following conditions exist the **recommended** interval is once every year:

- a. The system is constructed of materials which have a tendency to leak, such as unprotected bare steel, PVC, and cast iron.
- b. The pipeline is over twenty years old and a corrosive soil environment exists.
- c. There is an excessive leak history, and the causes of which have not been addressed.
- d. Portions of the pipeline are located under mobilehomes.

\*2 The operator must determine the interval at which odorant checks will be performed. This interval should be stated in the O&M plan. (Note: GSRB highly suggests it is prudent to perform this activity at least every six months).

## Sample Maintenance & Record Keeping Schedule

YEAR:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Leak Survey (1yr-5yr)												
Patrolling (2/yr)												
Key Valve Maintenance (1/yr)												
Odorant Check (2/yr)												
Cathodic Protection (CP) Evaluation (1/yr)												
CP – Rectifier Readings (6/yr)												
Atmospheric Corrosion (every 3 years)												
Regulating Station inspection and testing (1/yr)												
O&M and Emergency Plan Review (1/yr)												
Public Awareness Msg (2/year)												
Operator Qualification (every 3 yrs)												
Annual Report (1/yr)												

NOTE: Write the date and initial in the appropriate cells when the activity is performed.

# EMERGENCY PLAN GUIDELINES

Gas Operators must establish written procedures to minimize hazards resulting from a gas pipeline emergency [Title 49, CFR §192.615(a)]. The operator's written emergency plan must contain, at a minimum, the following items :

## A. Emergency Notification List

The telephone number of the pipeline operator, fire department, propane supplier, and anyone else whose service may be necessary in an emergency must be posted in a public area within the distribution system [Public Utilities Code §4460(a)]. A sample *Emergency Notification List* is included with these guidelines. For residential or business customers within jurisdictional systems, the customers must be provided with an emergency contact number in case of emergency involving the distribution system.

For better coordination of emergency procedures, it is recommended that you instruct all residents to notify the operator immediately in the event of an emergency (earthquake, fire, or gas leak), even if they have called an emergency service.

## B. Map of the Gas Distribution System

A map of the gas pipeline, including the location of the tanks, gas mains, service lines, regulators, key valves, and other pipeline facilities must be included in the Emergency Plan [Public Utilities Code §4454.5(a)(1)]. If cathodic protection facilities are not indicated on the map, the operator must have another one that indicates the location of those cathodic protection facilities [Title 49, CFR §192.491(a)].

## C. Emergency Equipment

Proper equipment, in particular wrenches or valve keys of sufficient size to operate key valves, must be readily available in the event of an emergency. The equipment and its location must be specified within the Emergency Plan [Title 49, CFR §192.615(a)(4)].

## D. Emergency Response Procedures

At a minimum, written procedures for prompt and effective response to the following emergencies must be provided [Title 49, CFR §192.615(a)(3)]:

1. Potentially hazardous gas leaks
2. Possible Natural Disasters such as earthquakes, floods, wildfires, landslides, etc...  
(Note: Provide procedures for disasters that are applicable to your system.)
3. Fires or explosions near or directly involving a pipeline facility

It is suggested that the operator have an evacuation plan that addresses the following items:

1. A safe evacuation location identified on a map, with evacuation routes clearly shown.
2. The method for informing residents in the event of an evacuation and methods of securing their homes for various types of disasters.
3. Residents with special needs are identified and are accounted for in the evacuation

- procedure.
4. A method for verifying that all residents have secured and evacuated their homes.

## **E. Incident Reporting Procedures**

Should a reportable incident occur, an operator must report the incident, at the earliest practical moment but no longer than 2 hours within normal working hours and 4 hours outside of normal working hours, to the U.S. Department of Transportation at (800) 424-8802, and to the California Public Utilities Commission via their website <https://ia.cpuc.ca.gov/safetysafetyevents/>. Alternatively, the operator can report an incident to the CPUC via telephone to (800) 235-1076.

A reportable incident is an event involving release of gas from a pipeline and any of the following:

1. Death
2. Injury requiring in-patient hospitalization
3. Estimated property damage of \$50,000<sup>1</sup> or more, or
4. Media attention

The following events are reportable, even without a release of gas:

5. Gas pressure exceeding the maximum allowed operating pressure (MAOP) of the pipeline caused by the failure of a pressure regulating device, or any other unplanned event
6. Any under pressure condition in which the pipeline loses service or must be shut down due to the failure of a pressure control device, or any other planned event

Any event that is significant in the judgment of the operator, even though it may not meet the aforementioned criteria, may be reported [Title 49 CFR §§191.3, 191.5, and GO112-F §122.2].

## **F. Restoration of Gas Service (or Relighting)**

If gas service to residents needs to be restored due to an outage or disruption, a qualified person must follow the proper procedures to restore the service. A relighting procedure and qualified persons must be specified [Title 49, CFR §192.615(a)(9)]. It is suggested that the operator check with the propane supplier to determine what services they can assist with and their associated costs.

## **G. Training**

Appropriate personnel must be trained to assure that they know the emergency procedures outlined in the emergency plan [Title 49, CFR §192.615(b)(2)]. Any individual who transfers liquid propane, or who performs maintenance on propane gas systems must complete refresher training at least every 3 years (NFPA 58 §4.4). Operators must maintain training records.

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<sup>1</sup> \$50,000 in damage is the minimum requirement for a CPUC report. U.S. Department of Transportation requires a report for Estimated property damage of \$122,000 or more.

## H. Public Awareness Program

Operators who transport gas as a primary activity of their business must develop and implement a written continuing public education program that follows the guidance in the American Petroleum Institute's (API) Recommended Practices (RP) 1162 [Title 49, CFR §192.616(a)].

This program must specifically include provisions to educate the public, appropriate government organizations, and persons engaged in excavation related activities regarding:

- the use of the one call system (811) prior to excavation
- possible hazards associated with unintended releases from the pipeline
- physical indications of product release
- procedures for reporting excavation damage or a close call

This program must also include activities to advise affected municipalities, school districts, businesses, and residents of pipeline facilities locations. Communication of the program must be as comprehensive as necessary to reach all areas in which the operator transports gas, and must be conducted in English and any other language commonly understood by a significant number of non-English speakers in the operator's area [Title 49, CFR §192.616(d-g)].

Each operator of a propane distribution system must develop and implement a written procedure to provide its customers, and persons controlling any property on which the system is located which is not controlled by the operator, with a Public Awareness Message (PAM) twice annually (every six months). The operator shall maintain records indicating how, when, and to whom the PAM was distributed. The public awareness message must include [Title 49, CFR §192.616(j)]:

- (1) A description of the purpose and reliability of the pipeline;
- (2) An overview of the hazards of the pipeline and prevention measures used;
- (3) Information about damage prevention;
- (4) How to recognize and respond to a leak; and
- (5) How to get additional information.

Examples of Public Awareness Messages are provided below. Please note that the examples are merely a guideline. It is the pipeline operator's responsibility to ensure that all requirements are properly addressed in the PAM.

<b>PUBLIC AWARENESS MESSAGE EXAMPLES</b>	
<b>1. A description of the purpose and reliability of the pipeline</b>	
Requirement	Example
Describe the purpose of the propane pipeline system.	<p>The propane pipeline system in the "Name of Entity" is owned, operated and maintained by the owner of the property. The pipeline system is designed to distribute propane to the customers, which is commonly used for heating and cooking.</p> <p>Note: If there are public facilities such as a pool, laundry room, or business on the property, the PAM should also identify these and other facilities that utilize the propane pipeline system.</p>

Describe the reliability of the propane pipeline.	The propane pipeline system is operated and maintained in accordance with the owner’s Operations and Maintenance Plan, which contains procedures for safely operating, maintaining, and monitoring the system. The California Public Utilities Commission inspects the propane pipeline system for compliance with the Federal rules and regulations.
<b>2. An overview of the hazards of the pipeline and prevention measures used</b>	
Requirement	Example
Describe the hazards associated with the pipeline.	Propane can leak from pipeline facilities damaged due to corrosion, outside force, natural events, or equipment failure, etc. Because propane is a flammable commodity, propane leaks, under certain circumstances, have the potential to cause harm.
Describe preventive measures used.	The propane system is leak surveyed annually. All hazardous leaks are repaired. All main valves are inspected to ensure that they are operable. The propane system is patrolled on a routine basis to ensure that hazardous conditions such as atmospheric corrosion, improper care of discontinued services and customer lines, inadequate support of meters and pipeline components, etc., are noted and corrected.  Note: If the propane pipeline system is cathodically protected, briefly explain that the system has a cathodic protection system that protects the pipeline from corroding and that the system is monitored on a routine basis to ensure its effectiveness.
<b>3. Information about damage prevention</b>	
Requirement	Example
Describe how the pipeline can be damaged.	The propane pipeline system is susceptible to damage due to outside forces such as those caused by excavation, vehicular traffic, or excessive loads placed on meter set assemblies. In addition, restricted access to main valves and meter set assemblies could result in severe consequences in the event of an emergency.
Describe measures to prevent damage	The greatest risk to underground propane pipelines is damage caused during excavation. Even a minor impact with the pipeline could cause a dent or damage to its coating, resulting in a leak. <b>Notify the property owner/manager before you dig.</b> Do not park vehicles near propane meters or pipelines that are not protected by barriers. Do not remove meter supports or place heavy items on top of meter set assemblies. Do not restrict access to main valve or meter set assemblies.  Note: Request residents to inform the owner/manager of propane meters that are vulnerable to vehicular damage or need support. Residents should also notify the owner/manager of other potential hazards they notice.
<b>4. How to recognize and respond to a leak</b>	
Requirement	Example
List ways to recognize gas leaks	<u>Odor:</u> Propane is colorless, odorless, tasteless and non-toxic. An additive (Mercaptan) in the propane gives it a distinctive odor (similar to rotting eggs or sulfur). <u>Vegetation:</u> Propane leaking from an underground pipeline can destroy vegetation by starving the roots of air and water. An unusual dry patch



	<p>of vegetation, within an otherwise green area, could indicate a below ground propane leak.</p> <p><u>Sound</u>: A blowing, or hissing sound could indicate the presence of a propane leak.</p> <p><u>Fungus-like growth</u>: Propane leaks in valve boxes, manholes, etc., may develop a fungus-like growth that is generally white in color.</p>
Describe how to respond to a gas leak	<p>Do not light items such as matches or cigarettes, or use any device that may generate a spark such as electrical switches, telephones (cell and land line phones), doorbells, automobiles or other engines, etc. Extinguish all flames, evacuate the building to a safe distance, and turn off propane if feasible. To report a propane leak, call (Emergency Phone Number) and inform appropriate qualified personnel of the situation and the location of the leak. Do not make the phone call from the area where the propane leak is present.</p> <p><b>For propane emergencies, an emergency telephone number should be provided where the appropriate qualified personnel can be reached 24 hours a day.</b></p>
<b>5. How to get additional information</b>	
<b>Requirement</b>	<b>Example</b>
Provide the phone number of the owner or manager, and other potential resources to learn more about propane safety.	For additional information, contact the owner/manager. Also, visit the websites of the U. S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration ( <a href="http://www.phmsa.dot.gov">http://www.phmsa.dot.gov</a> ) or the California Public Utilities Commission ( <a href="http://www.cpuc.ca.gov/puc/">http://www.cpuc.ca.gov/puc/</a> ).

## I. Accident Investigation

Each operator needs procedures for an investigation of all accidents and failures for the purpose of determining the cause of the failure and minimizing the possibility of reoccurrence [Title 49, CFR §192.617].

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# ***EMERGENCY NOTIFICATION LIST***

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Name of Entity: \_\_\_\_\_

Manager \_\_\_\_\_ Telephone \_\_\_\_\_

Asst. Manager \_\_\_\_\_ Telephone \_\_\_\_\_

## **Emergency Numbers**

Fire Department \_\_\_\_\_

Police/Sheriff Department \_\_\_\_\_

Ambulance \_\_\_\_\_

Propane Supplier \_\_\_\_\_

Electric Company \_\_\_\_\_

Phone Company \_\_\_\_\_

## **Incident Reporting:**

**California Public Utilities Commission** (800) 235-1076

**U.S. Department of Transportation** (800) 424-8802

Nearest fire alarm box \_\_\_\_\_

Nearest Public Telephone \_\_\_\_\_

Nearest Hospital \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_



**CALIFORNIA PUBLIC UTILITIES COMMISSION  
GAS SAFETY AND RELIABILITY BRANCH**

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**GAS INCIDENT REPORTING PROCEDURE FOR  
JURISDICTIONAL PROPANE DISTRIBUTION SYSTEMS**

Pursuant to General Order No. 112-F, any jurisdictional operator of a propane distribution system is required to give notice of certain incidents to the federal government as well as to the California Public Utilities Commission (CPUC).

At the earliest practicable moment, **day** or **night**, following discovery of any of the incidents listed below, a report of the incident must be made to the U.S. Department of Transportation at **1-800-424-8802**, and to the CPUC via the website <https://ia.cpuc.ca.gov/safetysafetyevents/>. Alternatively, the operator can report an incident to the CPUC via telephone to **(800) 235-1076**. If, when calling the CPUC, there is no response, leave a message on the recorder.

**Incidents requiring a telephone report.**

1. An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in a death, or personal injury necessitating in-patient hospitalization.
2. An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in estimated property damage of \$50,000 or more, excluding cost of gas lost<sup>2</sup>
3. An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in unintentional estimated gas loss of three million cubic feet or more
4. Incidents which have either attracted public attention or have been given significant news media coverage, that are suspected to involve natural gas and/or propane (LPG) gas, which occur in the vicinity of the Operator's facilities; regardless of whether or not the Operator's facilities are involved.
5. Incidents where the failure of a pressure relieving and limiting stations, or any other unplanned event, results in pipeline system pressure exceeding its established Maximum Allowable Operating Pressure (MAOP) plus the allowable build up set forth in Title 49, CFR § 192.201.
6. Incidents in which an under-pressure condition, caused by the failure of any pressure controlling device, or any other unplanned event other than excavation related damage, results in any part of the gas pipeline system losing service or being shut down.

**Information that must be provided when reporting an incident.**

1. Names of operator and person making the report along with telephone numbers.
2. The location of the incident.
3. The time of the incident.

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<sup>2</sup> \$50,000 in damage is the minimum requirement for a CPUC report. U.S. Department of Transportation requires a report for Estimated property damage of \$122,000 or more

4. The number of fatalities and personal injuries, if any.
5. A description of the incident including all significant facts that are known by the operator to bear relevance to the cause of the incident and extent of the damages.

NOTE: Failure to provide notice of an incident, in accordance with General Order No. 112-F, may subject the owner/operator to regulatory action and penalties.

# **OPERATOR QUALIFICATION (OQ) PROGRAM GUIDELINES**

Title 49, CFR Part 192 Subpart N- Qualification of Pipeline Personnel became effective on October 26, 1999. It requires pipeline operators to develop and maintain a written qualification program for individuals performing covered tasks on pipeline facilities. The intent of this qualification rule is to ensure a qualified work force and to reduce the probability and consequences of incidents caused by human error [Title 49 CFR §192.805].

## **What it requires**

The regulations require that you prepare and follow a written OQ program that, at a minimum, includes the following eight provisions:

1. Identify covered tasks (operation and maintenance activities affecting the integrity of the pipeline and required by the safety code);

“Covered tasks” are those tasks performed on the pipeline that meet the four-part test specified on Title 49, CFR §192.801(b). Covered tasks include, but are not limited to:

- Leakage survey - Use of proper techniques and equipment.
- Regulator station maintenance
- Patrolling and surveillance procedures.
- Cathodic protection monitoring or maintenance (Note: The corrosion control procedures required by §192.605(b)(2), including those for the design, installation, operation, and maintenance of cathodic protection systems, must be carried out by, or under the direction of, a person qualified in pipeline corrosion control methods.)
- Odorant level testing.
- Valve testing and maintenance.
- Pipeline mapping/locating techniques.
- Responding to unsafe conditions and using the Emergency Plan
- Meter change-out and/or service regulator work

2. Evaluate individuals performing covered tasks to prove that they are qualified. This includes the operator’s own employees as well as contractor employees who perform a covered task on the operator’s system.

Evaluating means testing a person through written tests, oral exams, observing employees while performing the task on the job, in a classroom, simulated setting, or any other documented method that can prove the individual possesses the necessary knowledge, skills and abilities to perform the covered task and recognize and react to Abnormal Operating Conditions (AOCs) (Note: Observation of on-the-job performance may not be used as the sole method of evaluation).

An operator may review and accept a contractor’s OQ Program for evaluating the contractor’s employees performing any task which is a covered task within the operator’s OQ Program. However, the review of the contractor OQ Program must be performed before the contractor’s employee begins the covered task. Records confirming the qualification of the contractor

employees must also be obtained and reviewed by the operator before the particular employees begin the covered task on the operator's system.

“Abnormal operating condition (AOC)” means a condition that may indicate a malfunction of a component or deviation from normal operations that may:

- a. Indicate a condition exceeding design limits; or
- b. Result in a hazard to persons, property, or the environment [Title 49 CFR §192.803].

For example, a leaking gas pipe is a malfunction of the pipe and can result in a hazard to persons and property.

3. Allow individuals who are not qualified to perform a covered task if directed and observed by an individual who is qualified;

The written OQ program must spell out the conditions under which individuals who have not met the qualifications to perform a covered task may perform task under direct observation and supervision of a qualified individual. Supervising from a remote location is not acceptable.

4. Evaluate an individual if there is reason to believe that the individual's performance of a covered task contributed to an incident;

The written OQ program must specify that the operator will re-evaluate individuals whose performance of a covered task may have contributed to an accident. Additionally, the OQ program must specify the process used to re-evaluate the individual.

5. Evaluate an individual if there is reason to believe that the individual is no longer qualified to perform a covered task;

The written OQ program must include provisions on how to re-evaluate individuals for whom there are some reasons to believe that they are no longer qualified to perform a covered task. The plan should also include some guidance for supervisors to recognize and react to behavior that would trigger these provisions. These could include observation of individuals not following procedures or those with injury/illness that reduces motor skills.

6. Communicate changes that affect covered tasks to individuals performing those covered tasks;

The OQ program must specify how changes to plans, policies, procedures, regulations, or equipment are communicated to individuals performing covered tasks.

7. Establish re-evaluation intervals;

Individuals performing covered tasks must be periodically re-evaluated. Re-evaluation intervals should be based on factors such as:

- How frequently the covered task is performed. More frequent performance may justify longer re-evaluation intervals;
- How complex the covered task is. More complex tasks may require shorter reevaluation intervals; and

- What the consequences might be if the task is performed improperly. If the consequences of ill performance are catastrophic, then it justifies shorter re-evaluation intervals.

Re-evaluation intervals must be clearly identified in the OQ program. Re-evaluation methods do not need to be the same as the initial qualification.

8. Describe how training will be used in the OQ program where appropriate (new hires, refresher training for existing employees who transfer to new jobs or fail revaluations, etc.).

In addition to these minimum requirements, the written OQ program should:

1. Name the person who will be responsible for ensuring that the requirements of the plan are carried out;
2. Identify records necessary to carry out the program and where those records will be kept.

### **What types of records are required**

An operator must maintain records to prove that the written OQ program is being followed. For each individual who performs a covered task on your system, an operator must be able to produce a record of the date the individual passed each evaluation required for each covered task the individual performs, the tasks for which the individual is qualified, and the method used to qualify the individual. Records of re-evaluations for cause, post incident, and when required by re-evaluation intervals must also be maintained.

### **How to get more information**

A guideline for preparing an Operator Qualification Program for smaller distribution systems is available on the Department of Transportation website:

<https://www.phmsa.dot.gov/training/pipeline/small-lp-gas-operator-oq-guide-august-2016>

The Gas Safety and Reliability Branch will continue to include Operator Qualification requirements in its workshops held in conjunction with the U.S. Department of Transportation. If you have questions, you may contact the Gas Safety and Reliability Branch by mail at:

California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Attention: GSRB - Gas Safety Program

# DISTRIBUTION INTEGRITY MANAGEMENT PROGRAM (DIMP) GUIDELINES

Pursuant to Title 49, Code of Federal Regulations (Title 49, CFR) Part 192, § 192.1015, no later than August 2, 2011, each California operator of a jurisdictional propane system must develop and implement a Distribution Integrity Management (DIMP) Program that includes a written plan (Plan).

To assist operators in developing a written Plan, the Gas Safety and Reliability Branch of the Commission has prepared the following guidelines that emphasize the required elements which, at a minimum, must be addressed in the Plan. The examples provided herein should not be interpreted as being the only information that must be addressed in a Plan. It is the responsibility of the pipeline owner/operator to ensure that each element, to the operation of a particular propane distribution system, is properly addressed in the Plan.

## REQUIRED ELEMENTS OF AN INTEGRITY MANAGEMENT PLAN

1. **Knowledge:** The operator must demonstrate knowledge of the pipeline system which, to the extent known when the Plan is first developed, should include the approximate location of assets, types of material (bare or coated steel, polyethylene (PE), polyvinyl chloride (PVC), etc.), and size (length and diameter) of the pipelines, along with the type of equipment on the system. It is essential that the operator include the following information in the Plan:
  - a. An explanation on the methods the operator will use to demonstrate knowledge of the pipeline system. For example, the plan needs to specify how information regarding the size, material, and location were obtained, including electronic records, photos, drawings, maps, and other methods.
  - b. The Plan needs to identify the missing information. Indicate to the extent possible the portions of the pipeline system (length, locations) with missing information.
  - c. An explanation on the methods the operator will use to identify and gather additional data (i.e., to assist with incomplete or missing records) to fill gaps in the Plan when it is first developed. The Plan needs to provide a method for gaining knowledge of the system over time through normal activities conducted on the pipeline system. For example, if a section of an unknown buried pipeline is exposed, pipeline data (i.e., size, material type, coating condition, etc.) must be documented and maintained for as long as the pipeline system remains in operation. (Photographs or video documentation can be of great assistance.)
  - d. The Plan must include provisions for recording new pipeline installations, including material, location, and pipeline dimensions (i.e., length, diameter, material type, manufacturer, etc.).
  - e. The operator must update the Plan and the pipeline system map as more information becomes available.
2. **Identify threats:** A threat is a condition that could result in the damage or loss of integrity of the pipeline system if not properly mitigated or prevented. The operator must consider, at a minimum, the following categories of threats (existing and potential), as defined in Table 1 with examples of related concerns:



THREATS	CONCERNS
<b>Corrosion (Internal, external, and atmospheric)</b>	Does the system include steel piping that is not protected from corrosion by cathodic protection (CP)?
	Has the system experienced leaks from corroded pipe?
	Does the system have isolated metallic sections (i.e., valves or risers) that do not have CP?
	Is the system located in an environment prone to atmospheric corrosion?
<b>Natural Forces</b>	Are portions of the system highly susceptible to earthquakes / erosion?
	Are portions of the system susceptible to snow or ice loading?
	Are portions of the system located in areas that are subject to flooding?
	Are there large trees, near the pipeline system, which have roots that could damage the system?
<b>Excavation Damage</b>	Are portions of the system buried where excavation, which could damage your system, can occur without your knowledge?
<b>Other Outside Force Damage</b>	Are portions of the system (aboveground pipelines, meters, valves, regulators) located in areas that are close to roads or driveways, and may be subject to vehicular damage?
	Are the above-ground sections (pipeline, meters) of the system adequately supported and protected from potential damage?
<b>Material / Weld Failure</b>	Does the system experience frequent leakage as a result of defective pipeline material or fittings?
	Has the operator been contacted by the pipeline manufacturer regarding defects in the pipeline material or fittings?
	Is any portion of the pipeline composed of material subject to degradation and premature failure, such as PVC or Aldyl-A?
<b>Equipment</b>	Are rectifiers properly working and providing adequate protection?
	Are pressure regulators in good mechanical condition and have the proper pressure setting? This does not apply to service regulators
	Are idle sections of service line properly maintained and equipped with a device to prevent the flow of gas?
<b>Operations</b>	Does the pipeline system require the operation of any device, other than valves, such as a pressure regulator that serves more than one customer? Are all valves, including service valves, working and accessible?

Table 1

3. **Rank Risks:** The operator must evaluate the risks to the pipeline system and estimate the relative importance of each identified threat. Consider both the relative likelihood of an accident occurring and the consequences that would result if it did.
  - a. Rank the risks, from most to least likely, by determining the relative likelihood that the identified threats will cause a leak or incident. Review of maintenance and repair records (i.e., leak surveys, repairs, CP, and others) will be essential towards determining the most common and frequent cause of leaks on your pipeline system.

b. Consider the consequences of a leak or incident that occurred as a result of one of the identified threats. The following are examples of high consequence areas that the pipeline operator should consider:

- Pipelines buried under mobile homes, trailers, or buildings
- Pipelines located in close proximity to areas where people congregate such as a clubhouse or laundry room
- Locations where an incident on the gas pipeline system could block entrances or exits, which could then hinder agencies responding to an emergency or evacuation efforts
- Pipelines in proximity to schools or commercial buildings. (This usually applies to propane systems.)

If the consequences are generally the same throughout the pipeline system, then your ranked list of threats becomes your ranked list of risks.

If you identify areas within your pipeline system that pose a greater risk than others due to the possible consequences of failure, rank the identified risks into groups based on the consequence. For example, if there is an area within your pipeline system where the pipelines run beneath mobile homes, and an incident there would also block an entrance or exit, then that area could be classified as, “Group 1,” or a high risk. All other areas where the likelihood is the same, but the consequences less severe, could be classified as Group 2, 3, and so on, or lower risk groups. Operators should document the locations of the high and low consequence areas in the Plan or on the map of the gas distribution system by means of color coding.

4. **Identify and implement measures to mitigate risks:** The operator must determine and implement measures designed to reduce the risks from failure of the pipeline system. For all the risks they rank, verify that actions are being taken or requirements are in place to protect against those risks. This should include, at a minimum, the actions required by Title 49, CFR Part 192. The operator must also include the relative monitoring actions and additional measures that they determine are necessary to maintain the integrity of the system. Examples of these measures are provided in Table 2. If the operator has grouped certain risks, then additional monitoring and related actions should be conducted in the manner the risks are grouped and ranked.

THREATS	EXAMPLES OF ACTIONS TO MITIGATE RISKS
<b>Corrosion</b>	Cathodically protect all areas of steel pipe experiencing active corrosion as indicated by leak history
	Monitor and test cathodic protection more frequently than required
	Inspect rectifiers more frequently than required
	Inspect above-ground pipe more frequently for atmospheric corrosion and leaks
	Inspect exposed buried pipe for corrosion
<b>Natural Forces</b>	Inspect more than 10% of isolated sections of steel pipeline each year or increase the frequency of inspections
	Conduct more frequent patrols to identify conditions that adversely affect the system, especially following, earthquakes, storms, or flooding
	Protect above-ground piping and meters from snow loading
<b>Excavation Damage</b>	Take immediate action to eliminate hazards or reduce threats
	Be aware of excavation activities

	Implement a damage prevention program
	Patrol entire pipeline system to check for signs of excavation
<b>Other Outside Force Damage</b>	Install vehicle barriers where appropriate
	Conduct more frequent patrols to identify areas susceptible to damage
	If pipelines are located in areas where they are potentially subject to damage, install warning signs or mark the pipelines with distinctive colors
	Ensure customer meters are adequately supported and not used for other purposes
	Patrol sections of pipeline that have experienced problems to look for signs of damage
<b>Material / Weld Failures</b>	Implement recommended actions from any notice received by pipeline or fitting manufacturer
	Replace pipeline or fittings in areas where the system has a history of pipeline failure due to leakage
<b>Equipment</b>	Ensure all personnel who operate equipment are qualified in accordance with Title 49, TITLE 49, CFR, Subpart N
	Ensure that emergency equipment is readily available
<b>Operations</b>	Ensure all personnel who operate equipment are qualified in accordance with Title 49, CFR, Subpart N
	Ensure personnel are aware of the precautions to take to prevent over-pressuring, stopping the flow of gas, preventing unsafe gas-air mixtures, and restoring gas

Table 2

5. **Measure performance, monitor results, and evaluate effectiveness:** The Plan shall include provisions for monitoring, as a performance measure, the number of leaks eliminated or repaired on the pipeline system and their causes.
6. **Periodic evaluation and improvement:** The Plan must contain provisions to determine the appropriate period for conducting DIMP evaluations based on the complexity of the pipeline system and changes in factors affecting the risk of failure. An operator must re-evaluate the entire program at least once every five years. The operator must consider the results of the performance monitoring in these evaluations.

The operator needs to assess the integrity of the gas system whenever changes are made to the system or significant changes occur in the environment to determine if the threats of concern have been eliminated or if new risks have been introduced. For example, if a new commercial center is constructed within or near the pipeline system, the operator will need to consider the increased risk associated with the increase in population density.

### WHAT RECORDS MUST AN OPERATOR KEEP?

Each operator must maintain, for a period of at least 10 years, the following records:

1. A Plan in accordance with Title 49, CFR § 192.1015, including superseded Plans
2. Documents supporting threat identification
3. Documents showing the location and material of all piping and appurtenances that are installed after the effective date of the operator's DIMP and to the extent known, when the DIMP is first developed, the location and material of all pipe and appurtenances that were existing on the

effective date of the operator's program. Pipeline materials include polyethylene (PE), polyvinyl chloride (PVC), bare steel, coated steel, copper, anodeless risers, and any combination thereof. Appurtenances include valves, regulator stations, cathodic protection facilities (rectifiers, anodes), meter supports, etc.

4. Documents showing the number of Grade 1 and Grade 2 leaks either eliminated or repaired including the date and the cause of the leaks along with copies of repair records supporting actions taken to address the leaks.
5. Keep a record of all instances in which the system is damaged by operations, excavation, natural forces (flooding, earthquake, landslide etc.), or vehicular damage.
6. Document DIMP evaluations and changes made to the risk factors or other parts of the Plan.

Note: The record keeping requirements noted here supplement, but do not replace, other record keeping requirements of Title 49, CFR, Part 192.