

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Rulemaking on the)	
Commission's Own Motion to Adopt New Safety)	R.11-02-019
and Reliability Regulations for Natural Gas)	(Filed February 24, 2011)
Transmission and Distribution Pipelines and)	
<u>Related Ratemaking Mechanisms.</u>)	

**SUBMISSION BY SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) OF SAFETY
PLAN FOR THE CATALINA PETROLEUM GAS PIPELINE DISTRIBUTION SYSTEM**

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Dated: **June 29, 2012**

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Pursuant to Ordering Paragraph 5 of Decision No. 12-04-010 by the California Public Utilities Commission (“CPUC” or “Commission”),¹ Southern California Edison Company (“SCE”) submits the following Safety Plan for the Catalina Petroleum Gas Pipeline Distribution System. As indicated in SCE’s Safety Plan, SCE operates a gas pipeline distribution system serving the City of Avalon on Santa Catalina. Liquefied petroleum gas is stored and vaporized at SCE’s Catalina Utilities Center Facility, which is eventually distributed through approximately 6.5 miles of pipeline segment at a pressure of 6 pounds per square inch.

Rulemaking No. 11-02-019 was issued by the Commission in response to the September 9, 2010 tragic events in San Bruno, California. Among other things, this Rulemaking sought to develop and adopt safety related changes to ensure safe and reliable operation of gas facilities.² When the Rulemaking was issued in February 2011, the Commission identified the major gas corporations operating in California (i.e., Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Gas Company) as respondents in the proceeding.

¹ Decision No. 12-04-010, mimeo p. 27.

² Decision No. 12-04-010, mimeo p. 2.

In April 2012, pursuant to Ordering Paragraph 2 of Decision No. 12-04-010, the CPUC added Alpine Natural Gas Company, West Coast Gas Company, Wild Goose Storage LLC, Lodi Gas Storage, Gill Ranch Storage, and Central Valley Storage as respondents to this proceeding.³ Although SCE (Catalina Island) was not listed as a respondent in Ordering Paragraph 2, SCE (Catalina Island) was identified as a new respondent in Section 1 of the decision.⁴ In its discussion on the Pipeline and Hazardous Materials Safety Administration's requirements on Integrity Management Plans, the CPUC recognized that the requirements for small propane systems are simpler in recognition of the lower complexity of these pipeline systems.⁵ SCE thus submits the attached Safety Plan pursuant to Ordering Paragraph 5 of Decision No. 12-04-010, which requires respondents to submit a Safety Plan, with document of the workforce/comment processes described in the decision by June 29, 2012.⁶

Respectfully submitted,

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June 29, 2012

³ Decision No. 12-04-010, mimeo, p. 26. In Ordering Paragraph 2, the CPUC also stated that Sacramento Natural Gas Company would be added as a respondent if it is issued a Certificate of Public Convenience and Necessity in Application No. 07-04-013. Id.

⁴ Decision No. 12-04-010, mimeo p. 2.

⁵ "Operators of natural gas master-metered systems and small propane systems must also develop and implement an Integrity Management program that includes a written plan. However, the requirements for these operators are simpler in recognition of the lower complexity of these pipeline systems." Decision No. 12-04-010, mimeo p. 8.

⁶ Decision No. 12-04-010, mimeo p. 27.

Appendix A

Safety Plan for the Catalina Petroleum Gas Pipeline Distribution System



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JUNE 2012

Safety Plan for the
Catalina Petroleum Gas
Pipeline Distribution
System

**SAFETY PLAN
FOR THE SCE CATALINA
PETROLEUM GAS PIPELINE DISTRIBUTION SYSTEM
REVISION SHEET**

<u>DATE</u>	<u>DESCRIPTION</u>	<u>COMPLETED BY</u>
June 2012	Initial Release	Brice Babbitt

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Abbreviations and Acronyms

AGA	American Gas Association
APGA SIF	American Public Gas Association Security and Integrity Foundation
BTU	British Thermal Units
CFR	Code of Federal Regulations
CUC	Catalina Utilities Center
DIMP	Distribution Integrity Management Plan
DOT	U.S. Department of Transportation
EH&S	Environmental Health and Safety
GTDP	Gas Transmission and Distribution Piping
IDLH	Immediately Dangerous to Life and Health
LEL	Lower Explosive Limit
LPG	Liquefied Petroleum Gas
MAOP	Maximum Allowable Operating Pressure
NTSB	National Transportation Safety Board
O&M	Operations and Maintenance
O.S.H.A.	Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric Company
SB	Senate Bill
SCE	Southern California Edison Company
SES	Safety and Environmental Specialist
SHRIMP	Simple, Handy, Risk-based Integrity Management Plan
TBDU	Transmission and Distribution Business Unit
W&G	Water and Gas

Safety Plan for the Petroleum Gas Pipeline System Profile and Review

This Safety Plan for the Petroleum Gas Pipeline System has been developed, reviewed, and approved by the following individuals:

Developed by:

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Introduction

The SCE Catalina petroleum gas pipeline distribution system serves the City of Avalon on Santa Catalina Island, California. Liquefied petroleum gas (LPG) is stored and vaporized at its Catalina Utilities Center (CUC) Facility. A petroleum gas and air mixture (a surrogate for natural gas) is distributed through approximately 6.5 miles of pipeline segments. The petroleum gas/air mixture is supplied at a pressure of 6 pounds per square inch (psi) with a maximum heating value of 1,350 British thermal units (BTU's). The maximum allowable operating pressure (MAOP) is 10 psi. According to Title 49, Code of Federal Regulations, Part 192.3 (49 CFR 192.3), the pipeline system is a "low pressure distribution system." Other components of the distribution system include 87 gas valves, a corrosion protection system comprised of four rectifier's, a pressure-monitoring unit, and approximately 1,300 gas meters. The most commonly installed gas meter is the American Meter AC-250 (250 cubic/feet [ft³] capacity). Pipe sizes range from 0.5 to 8 inch diameter pipe. The pipeline was originally installed in 1965 and currently consists of both steel and polyethylene (plastic) pipe. The pipeline begins at CUC Valve #1, which is located within the perimeter boundary of the CUC Facility.

On September 9, 2010, a 30-inch diameter natural gas transmission pipeline owned and operated by Pacific Gas and Electric Company (PG&E) ruptured in the city of San Bruno, California, causing significant property damage, killing eight people, and injuring others. The information gathered in connection with the National Transportation Safety Board's (NTSB) investigation of the rupture suggests that it initiated at the long seam of one of the pipeline segments.

After the San Bruno gas explosion, Senate Bill (SB) 705 was promulgated to increase the safety of natural and petroleum gas transmission and distribution systems. SB 705, codified as Pub. Util. Code §§ 961 and 963, requires each gas corporation to develop a safety plan. The safety plan is to be filed no later than June 29, 2012, and is to show how the operator addresses each element of Public Utility Code §§ 961 and 963 for its gas transmission and distribution facilities.

Specifically, the Safety Plan is to address the directives codified in Public Utility Code § 961(c) and (d)(1-10) and § 963(b)(3). To organize the detailed legislative directives, the Public Utilities Commission has grouped the directives into five overall topics: (1) safety systems, (2) emergency response, (3) state and federal regulations, (4) continuing

operations, and (5) emerging issues. The SCE Catalina safety plan is organized according to these same topics, directives assigned to each topic, and topic numbering as presented by the Public Utilities Commission.

Safety Systems

This section discusses the policies, procedures and standards that are currently in place to protect public and worker safety for elements of Public Utility Code §§ 961 and 963 as grouped by the CPUC as Safety Systems. The specific section of the Public Utility Code is referenced after each subsection title.

1.1 Identify and Minimize Hazards and Systemic Risks. 961 (d)(1)

To identify and minimize hazards and systemic risks, SCE Catalina performs numerous work activities, which include the following:

- Distribution Integrity Management Plan (DIMP)
- Leak Surveys
- Pipeline Patrols
- Damage Prevention Programs
- Corrosion Control Measures
- Valve Maintenance Program
- Operator Qualification Program
- Operation & Maintenance Manual
- Surveillance of the Petroleum Distribution System

One goal of the Safety Plan is to ensure the regulatory and management systems in place effectively prevent or detect and correct safety lapses. The listed programs, plans, and work activities function to identify threats to overall gas system operations. The remedial and preventative work activities performed to minimize hazards and systemic risks, are scheduled, performed, and tracked through the Catalina Operations, Maintenance and Compliance System, which is described in Section 1.2.

On August 2, 2011 and in compliance with regulations, SCE Catalina implemented the first Distribution Integrity Management Plan (DIMP) for the Catalina Island Petroleum Gas Pipeline System. The DIMP (refer to Appendix A) was developed based on the design, construction, operations and maintenance records of Southern California Edison, 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 the SCE Catalina workforce.

Within the DIMP, 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).

Using the assessment conducted by the SHRIMP program as the foundation, SCE has evaluated and prioritized the system threats and deployed performance measures, accelerated and additional actions to minimize hazards. The following performance measures are being tracked:

- Hazardous leaks either eliminated or repaired, categorized by cause
- Excavation damages
- Excavation tickets received
- Leaks either eliminated or repaired, categorized by cause
- Hazardous leaks either eliminated or repaired, categorized by material
- Monitor backfill operation
- Monitor/audit excavation activity
- Correct cathodic protection deficiencies by locating and eliminating shorts (including shorted casings) in this portion of the distribution system
- Correct cathodic protection deficiencies by repairing or replacing or adding a rectifier or groundbed to the existing cathodic protection system in this portion of the distribution system
- Correct cathodic protection deficiencies by replacing anode beds or add anodes section-wide in this portion of the distribution system
- Monitor or trend material failures and
- Repair or replace problem materials

Hazards and systemic risks identified in DIMP, as well as all other policies, procedures, or standards, will be scheduled, performed, and tracked through the Catalina Operations, Maintenance and Compliance System, which is described in Section 1.2.

1.2 Identify the Safety Related Systems That Will Be Deployed to Minimize Hazards. 961(d)(2)

SCE Catalina has recently implemented the safety-related system referred to as SCE Catalina Operations, Maintenance and Compliance System. Work activities to identify and minimize hazards and systemic risks as required by regulations, policies, procedures, or standards are scheduled, performed, and processed through the Catalina Operations, Maintenance and Compliance System to ensure performance, provide tracking, and generate documentation.

Systems, Application, and Products (SAP) software is utilized to create automatic generating preventative maintenance work orders to perform all required activities to safely operate and maintain the distribution system. These work orders are distributed by the superintendent to the foreman for scheduling, staffing, and performance. When the work activity is completed, the work order is closed and documentation is filed.

For confirmation, the Catalina compliance analyst will generate a monthly report from SAP to ensure all compliance related work orders and notifications are completed on time. The Catalina compliance analyst will review work orders and notifications to ensure completion of all documentation, ensure review of documentation by the superintendent (as required by Standard Procedure 412 – Surveillance of the Petroleum Gas Distribution System), and the closing of work orders. The compliance analyst will report tracking information directly to the Catalina District Manager. In addition, as part of the bi-annual Environmental Health and Safety (EH&S) compliance facility assessment, the Transmission and Distribution Business Unit (TDBU) safety and environmental specialist (SES) will verify completion of the compliance analyst's reporting and tracking activities. This will provide a layer of independent review to ensure compliance. If supervisory review creates secondary work activities, work orders or notifications will be generated to track and complete secondary activities via the same procedure used to complete and track primary work orders and notifications.

The listed programs, plans, work activities listed in Section 1.1 function to identify threats to the overall gas system operations. The remedial and preventative work activities performed to minimize hazards and systemic risks, are scheduled, performed and tracked through the Catalina Operations, Maintenance and Compliance System. This management system effectively prevents or detects and corrects safety lapses. The Catalina Operations, Maintenance and Compliance System is an enhancement of existing methods using the elements promulgated by SB 705 and the lessons learned from the San Bruno incident. As such, SCE Catalina has a prudent management system in place to protect public and worker safety, which is the goal of the safety plan.

Emergency Response

This section discusses the policies, procedures, and standards that are currently in place to protect public and worker safety for elements of Public Utility Code §§ 961 and 963 as grouped by the CPUC as Emergency Response. The specific section of the Public Utility Code is referenced after each subsection title.

The SCE Catalina gas utility supplies a propane-air mixture as a surrogate for natural gas through the pipeline distribution system. The emergency response procedures discussed below are developed in accordance with 49 Code of Federal Regulations, 191-195 (Emergency Plans-Transportation of Natural and Other Gas), Article 82 of the California Fire Code- Liquefied Petroleum Gases, and General Orders (94-B) of the CPUC.

Gas incidents may include leaks, odors, outages, fires, or other incident types. Incidents reported to SCE Catalina Utilities Center will be classified by the following criteria:

- **Level 1 Incidents:** These are non-emergency service calls which will be scheduled for routine response or maintenance by SCE gas service representatives.
- **Level 2 Incidents:** These are urgent response issues which have the potential for escalation and potentially pose a threat to life and property. Included among these incidents is a smell of gas inside or immediately adjacent to occupied structures. It includes incidents of interruption of service to critical clients. While SCE staff may be assisted by public safety responders for some incidents, these situations will generally be handled by SCE gas service staff. The response by SCE staff shall be immediate to any Level 2 incident.
- **Level 3 Incidents:** The highest level of emergency response includes incidents posing catastrophic potential. These would include rupture of gas mains, fires and explosions involving gas accumulations or structures, high volume gas leaks, and similar incidents. Level 3 incidents will require public safety and may also involve specialized contractor response. Portions of the Catalina gas system may be subjected to extended outages while repairs are accomplished. The response by SCE staff shall be immediate to any Level 3 incident.

Availability of Pipeline Emergency Information

The Emergency Response Plan, including system maps (as referenced in Appendix B), has been made available to fire departments serving Catalina Island. This emergency

plan must be made available to the public upon request per state and federal law. The position of buried gas distribution lines in open areas shall be marked when possible by signage, and shall be made available to pipeline excavation warning services. Pipeline excavation warning services may contact representatives of the Catalina Gas Utility by dialing (800) 367-8851.

2.1 Equipment and Personnel Procedures to Limit the Damage from Accidents. 961(d)(5)

Incident Responsibilities

- SCE staff shall manage all routine incidents (Level 1) within SCE procedures.
- SCE staff shall establish a unified command post with public safety responders near the scene, when necessary or required, to coordinate significant incidents (Level 2 or 3) with public safety or contracted responders.
- On-scene emergency personnel from Avalon Fire Department shall coordinate emergency medical care when necessary.
- Los Angeles County Sheriff and the Avalon Fire Department shall conduct evacuations in gas incidents when necessary, as coordinated through Incident Commander.
- The Los Angeles County Sheriff's Department, in conjunction with other supporting agencies, shall establish and maintain incident perimeters as necessary to protect public safety and worker access, as coordinated through Incident Command.
- SCE gas utility staff shall isolate the incident area by shutting off the flow of any gas from feed lines into the impacted area.
- The Avalon Fire Department shall manage any fire suppression, combustible, or oxygen deficient atmospheres, and related risks, as coordinated through Incident Command.
- SCE staff shall monitor the atmospheric conditions in and around the site and determine gas concentrations. SCE staff shall not enter hazardous work environments limited in "prohibitive work environments" above.

Prohibitive Work Environments

SCE gas utility workforce shall not enter explosive atmospheres. If such conditions are suspected or determined, SCE staff should request fire department assistance in dealing with this condition. An example of this condition may include a residential structure with a high interior gas concentration due to a gas leak. Explosives atmospheres are any environment which meets or exceeds 10% of the Lower Explosive Limit (LEL). No entry should be made into suspect spaces until this risk has been mitigated. SCE staff may close exterior valves and shut off the gas flow, or shutoff electrical power to such spaces

from safe positions. As a precaution, use of electronic devices, smoking, or any hot work involving welding or cutting should be immediately suspended and restricted when a potential gas leak is reported.

SCE staff shall not enter confined spaces which may be either Immediately Dangerous to Life and Health (IDLH) or oxygen deficient. These environments require a self-contained breathing apparatus for respiratory protection and life safety, and are beyond the training and scope of SCE gas staff duties. If such conditions are encountered, immediate assistance may be sought from fire department or contract responders. SCE staff may not enter such spaces until they are ventilated and returned to normal atmospheric values that do not require respiratory protection. IDLH atmospheres include concentrations of 2100 ppm (or 10% LEL) of propane or less than 19.5% oxygen (O₂). SCE staff may cause such spaces to be ventilated from safe positions.

Welding, cutting, or other “hot work” on gas mains which are actively transporting propane mixtures is strictly prohibited. Unlike lines transporting natural gas, propane will accumulate in low spaces quickly and pose significant flash fire and explosion hazards. These lines must be blocked and drained completely of product and the workplace ventilated until free of propane (less than 10% of the lower explosive limit). This should be confirmed with gas detection equipment specifically calibrated to propane. Only then is it safe to weld or cut SCE gas mains. Welding is performed by a qualified contractor.

SCE Catalina Utilities Center Response Equipment Inventory

SCE maintains the following equipment for response to gas emergencies on Catalina Island:

- Response vehicles and equipment (W&G crew vehicles)
- Trained response staff (W&G crew members – Foremen, Operator/Mechanic, Apprentice, Utilitymen)
- Supervisory staff/emergency incident commanders (W&G Supervisor and CUC Supervisor)
- Gas concentration monitoring equipment
- Other equipment (materials and supplies to perform repairs)

2.2 Timely Response to Reports of Leaks, Hazardous Conditions, and Emergency Events. 961(d)(6)

Response Priorities

The priority of action for all incidents involving propane will be life safety first, property second, and environment third. Immediate care shall be given to any injured person(s). The fourth priority is corporate image and the intention that customers shall receive quality, timely, and professional service.

Hazard Zone - The area in which personnel are potentially in immediate danger from the hazardous situation. This zone shall be established by the incident commander. Access to this area will be rigidly controlled and only authorized personnel shall be allowed to enter the Hazard Zone. Members of the general public are excluded from this zone. Further zoning may be incorporated into the hazard zone for purposes of emergency response and O.S.H.A. compliance.

Emergency Notifications

Public safety emergency response may be required to support SCE gas staff in managing potentially flammable concentrations of leaking gas. Catalina Utilities Center staff shall dial 911 and access emergency services response to any report of a significant gas odor within or immediately adjacent to a structure (Level 2) or any major leak, fire, or report of rupture in a gas main (Level 3).

The public may notify SCE of a gas emergency by calling the SCE Customer Call Center at: (800) 367-8851.

SCE staff will report on gas emergencies by immediately contacting the Catalina Utilities Center via 900 mhz radio.

Before digging to avoid pipeline intrusion: call 811 or (800) 227-2600 at least 48 hours in advance.

Response Procedures to Incidents Affecting Mains and Services

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
Under-pressure in the gas system.	Contact customers and evacuate affected area with assistance from the Sheriff's Department, isolate gas by closing gas meter valves, plan and implement repair and restoration.	Investigate potentially affected customers for extinguished pilot lights prior to restoring gas to prevent fire and explosion risk. Conduct system repair. Restore pilot lights as needed.
Over-pressure in the gas system	Contact customers and evacuate affected area with assistance from the Sheriff's Department, isolate gas by closing gas meter valves, plan and implement repair and restoration.	Investigate affected customers for gas-flare caused fires. Investigate atmospheres for combustible concentrations. Eliminate sources of ignition. Conduct system repair as needed.
Uncontrolled escaping gas	Contact customers and evacuate affected area with assistance from the Sheriff's Department, isolate gas by closing gas meter valves, plan and implement repair and restoration.	Interact with customers and safety responders as needed. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition. Ventilate and protect against ignition as necessary. Conduct system repair as needed.
Escaping gas accumulates in low geographic area, tunnel, below grade structure, or confined space, including structures.	Contact customers and evacuate affected area with assistance from the Sheriff's Department, isolate gas by closing gas meter valves, plan and implement repair and restoration.	Assist fire and emergency services and contact customers as needed. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition. Check all piping and appliances for leaks, repair as needed.

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
Significant odor of gas in or near a 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.	Coordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. Check all piping and appliances 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.	Coordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. Check all piping and appliances for leaks.
Odor of gas emanating from single appliance.	Identify affected appliance and close appliance valves. Evacuate buildings as necessary.	Coordinate with customer as necessary. Monitor for gas accumulations. Ventilate as necessary. Repair leaks.
Suspected leaking gas meter.	Isolate meter by closing gas valves.	Coordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition.

2.3 Prepare for and Respond to Earthquakes and Other Major Events. 961(d)(8)

Evacuation, Site Worker, and Public Protection

Lawful responsibility for ordering public evacuation rests with public safety officials. However in case of major events, SCE gas staff also have responsibility to immediately notify public safety officials of gas risks, and in the absence of public safety officials, take immediate actions to notify and protect the public from gas risks. This will include the recommendations as follows:

Perimeter zone(s) around the affected area should be established as directed by the incident commander. These include:

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 Sheriff's Department when necessary. The area to be evacuated depends upon the nature and extent of the fire, explosion, or leak.

Response Procedures to Major Events like Fire, Earthquake, and Landslide.

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
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 500-1,000 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 and emergency services as requested. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition.
Danger to segment of gas main system due to natural hazard or human caused risk. (ex: earthquake, landslide, flood)	Identify affected area and close gas meter valves. Seek technical expertise as necessary to quantify hazards.	Coordinate with emergency services and other governmental entities to determine extent and consequences of emergency event. Interact with customers as needed. Monitor as necessary, eliminate sources of ignition.

State and Federal Regulations

This section discusses the policies, procedures, or standards that are currently in place to protect public and worker safety for elements of Public Utility Code §§ 961 and 963 as grouped by the CPUC as State and Federal Regulations. The specific section of the Public Utility Code is referenced after each subsection title.

3.1 Protocols for Determining Maximum Allowable Operating Pressure. 961(d)(7)

Federal regulations currently specify maximum allowable operating criteria. Since September 13, 2010, where warranted, the CPUC has been ordering reductions of MAOP on a line-by-line basis, and has set standards for any authorized resumptions. No such reduction has been specified for the SCE Petroleum Gas Pipeline Distribution System. The SCE Petroleum Gas Pipeline Distribution System and operates at 6 psi and the MAOP is 10 psi. Both the operating pressure and MAOP are uniform throughout the distribution system. Service regulators located at meters or meter manifolds reduce the pressure from 6 psi to 2 inches gas column. The pressure of the gas entering the distribution system is monitored and low and high alarms are set at 5 and 7 psi, respectively. Redundant pressure relief valves are set at 10 psi.

In 1970, Federal Regulation 49 CFR §192 (Part 192) went into effect. This regulation prescribes the minimum safety requirements for pipeline facilities and the transportation of gas. It also prescribes the pressure test records that are to be maintained for pipelines installed after 1970. Under 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 de-rate 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.

SCE Catalina 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, operator qualification program, and utilization of 46 standard procedures. 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, ensure integrity and security of facilities are scheduled, performed and, tracked through the Catalina Operations, Maintenance and Compliance System (as described in Section 1.2).

3.2 Meet or Exceed the Minimum Standards for Safe Design, Construction, Installation, Operation and Maintenance of Gas Transmission and Distribution Facilities Prescribed by Regulations. 961(d)(9)

Operation and Maintenance Manual

State and federal regulations prescribe minimum requirements for construction, maintenance, and repair of gas mains and service lines. These regulations require the operator to prepare and follow a manual of written procedures for conducting operations and maintenance activities and for emergency response. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted, and updated once every calendar year.

SCE has developed the operation and maintenance (O&M) manual according to the regulations prescribed above. The O&M manual consists of standard practices for construction, maintenance, and repair of gas mains and service lines.

The manual 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 FR 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.
- Taking adequate precautions in excavated trenches to protect personnel from the hazards of unsafe accumulations of vapor or gas, making available as needed at

the excavation, emergency rescue equipment, including a breathing apparatus and, a rescue harness and line.

- Responding promptly to a report of a gas odor inside or near a building.
- Implement control room management procedure required by 49 CFR 192.631.
- Instructions enabling personnel who perform operations and maintenance activities to recognize conditions that potentially may be safety-related conditions that are subjected to the reporting requirements of 49 CFR 191.23.
- The procedures required by 49 CFR 192.613(a), 192.615, and 192.617.

Manual Review and Update

The manual 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 manual.

Recordkeeping

All documents generated for petroleum gas mains and service lines are filed in the Catalina District compliance documentation system. SCE good management practices require that documentation be retained for a minimum of five years.

3.3 *Best Practices in the Gas Industry and with Federal Pipeline Safety Statutes. 961(c)*

As part of this safety plan and as operation, maintenance, and program manuals are reviewed and revised according to regulatory specified frequencies and/or operating conditions, SCE Catalina ensures both regulatory compliance and evaluation of best practices in the gas industry and federal and state pipeline safety statutes for a small low-pressure distribution system. Best practices will be collected and identified through ongoing consultancy with organizations like the American Gas Association (AGA) and Western Propane Gas Association as well as regulatory agencies such as the CPUC and PHMSA. SCE Catalina consults guidance documents such as the Guide for Gas Transmission and Distribution Piping systems by the Gas Piping Technology Committee (GPTC) to change, optimize, or enhance existing methods and work practices. Plans, programs, and work activities subject to best practice review include the following:

- Distribution Integrity Management Plan (DIMP)
- Leak Surveys
- Pipeline Patrols
- Damage Prevention Programs

- Corrosion Control Measures
- Valve Maintenance Program
- Operator Qualification Program
- Operation & Maintenance Manual
- Surveillance of the Petroleum Distribution System

One goal of the Safety Plan is to ensure the regulatory and management systems in place effectively prevent or detect and correct safety lapses. The listed programs, plans, work activities function to identify and address threats to overall gas system operations. At the same time, SCE Catalina cannot consider these safety plans in a cost vacuum. The incorporation of best practices must provide value to our rate base of approximately 1,300 customers of a distribution system that operates at 6 psi and a MAOP of 10 psi. SCE Catalina will carry out the safety priority policy of this Safety Plan consistent with the principle of just and reasonable cost-based rates.

Continuing Operations

This section discusses the policies, procedures, or standards that are currently in place to protect public and worker safety for elements of Public Utility Code §§ 961 and 963 as grouped by the CPUC as Continuing Operations. SCE Catalina has and continues to assess risk and implement required mitigation measures. The specific section of the Public Utility Code is referenced after each subsection title.

4.1 Safety of the Public and Gas Corporation Employees as the Top Priority, Take All Reasonable and Appropriate Actions Consistent with the Principle of Just and Reasonable Cost-Based Rates. 963(b)(3)

SCE's policy is to conduct business responsibly with a full appreciation and concern for employee safety, public safety, and the environment. Compliance with all applicable federal, state, and local safety and environmental laws is an integral part of all the organization's business activities. SCE is committed to strengthening its safety culture to achieve an injury-free workplace by creating and sustaining a work environment that values:

- Having every employee leave the workplace unhurt
- Using work behaviors and practices that uncompromisingly protect the safety of everyone
- Caring for the safety of each other
- Stopping work anytime unsafe conditions or behaviors are observed until the job can be completed safely

In any emergency situation involving the Catalina Petroleum Gas Distribution System or any other company asset, SCE's top priorities are to initiate response activities to protect life, mitigate damages, and preserve the environment. SCE is committed to assist those (both employees and the general public) who might experience loss, trauma, or inconvenience as a result of an incident involving our operations, facilities or personnel, regardless of responsibility or liability for the event in question.

As part of safety enhancement goals, SCE has developed various platforms and opportunities for meaningful, substantial, and ongoing participation by the gas operators' workforce in the development of the safety culture to minimize accidents, explosions, fires and dangerous conditions. SCE conducts weekly operator crew meetings, close call and monthly safety meetings. In the operator and close call meetings, operators share any incidents they came across while performing their daily tasks. The goal of the meetings is to conduct an After-Action Review (AAR) of incidents and responses with an emphasis

on response methods, strategies, management, and related information with the intent on strengthening team capability and performance.

In addition, SCE ensures the safety of the employees and the public by continuing surveillance of its facilities and gas pipelines to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintain conditions.

To comply with CPUC § 961(e), SCE Catalina presented this Safety Plan to the workforce. Comments and suggestions made from the meeting are presented in Appendix C. The character of the comment or suggestion and rationale for the disposition are also presented. During the meeting, SCE Catalina informed the employees that any employee who perceives a breach of safety requirements may inform the CPUC of the breach, and that the CPUC will keep the identity of the employee confidential. The address of the Director of the CPUC's Consumer Safety and Protection Division was shared. Also, for confidentiality, employees were informed to request designation as "Safety Breach Notification from Gas System Operator Employee – Confidentiality Requested" when the CPUC is contacted.

4.2 Provide Adequate Storage and Transportation Capacity to Reliably and Safely Deliver Gas to All Customers. 961(d)(3)

The Catalina Liquefied Petroleum Gas (LPG) System receives propane from tanker trucks, stores the propane and mixes the propane with air to meet distribution system demands. The system is divided into subsystems: propane delivery, propane storage, propane vaporization, propane direct sales and propane/air distribution.

There are no issues of storage or transportation capacity that affect reliable and safe distribution of gas to all customers. Tanker trucks are barged to Catalina Island and deliveries may be delayed due to bad weather. However, SCE has never depleted stored propane due to an adequate storage capacity that allows for delays caused by bad weather. Distribution pressure is uniform throughout the system and customers do not experience shortages due to low pressure during peak demand periods.

As previously mentioned, the distribution system operates at 6 psi. The distribution system does not utilize compressors or pressure reducing stations. The ability to provide reliable and safe distribution of gas has been achieved and maintained in part due to the relative lower complexity of the distribution system as compared to pipeline systems of larger gas utilities.

4.3 Provide for Effective Patrol and Inspection to Detect Leaks. 961(d)(4)

Whenever a pipeline route is travelled by employees qualified as Line Riders, the qualified Line Rider shall also perform a formal patrol and complete a Pipeline Patrol Report form. A Line Rider shall carry sufficient copies of both forms while conducting each patrol to allow multiple forms to be completed if necessary.

Federal regulations require that all mains within pipeline system, be patrolled as follows:

- In business districts, at intervals not exceeding 4½ months, but at least four times each calendar year (quarterly)
- Outside business districts, at intervals not exceeding 7½ months, but at least twice each calendar year (every six months)

The petroleum gas pipeline distribution system is within the City of Avalon area, which is geographically small (1.3 square miles), and there is little distinction between the business and non-business districts; therefore to avoid having two different patrol frequencies, all the mains will be patrolled at the more restrictive business district time-frame (quarterly). This frequency may be increased on any segment, at any time, due to increased activity or other special conditions.

Annually, SCE personnel will use a qualified contractor to conduct a leakage survey of the distribution system. The purpose of the leakage survey is to detect and locate propane leaks. If a propane leak is found, the procedure for initiating a response is presented in *SP-405 Notifying, Reporting, and Responding to Propane Releases or Threatened Releases*. The procedure for repairing a propane leak is presented in *SP-414 Repair of Propane Leaks*. Additionally, hazards and systemic risks identified during the leak survey will be processed through the Catalina Operations, Maintenance and Compliance System, as described in Section 1.2 of this safety plan.

4.4 Ensure an Adequately Sized, Qualified, and Properly Trained Gas Corporation Workforce. 961(d)(11)

Adequately Sized Workforce

The workforce consists of a superintendent, two foremen, three operator/mechanics, an apprentice, two utilitymen, two administrative clerks, and a compliance analyst. The workforce supports both the gas and water utilities on Catalina. Based on past operational experience, the workforce charges approximately 70 percent of its labor costs to the water utility and 30 percent to the gas utility. SCE Catalina also generates and distributes electrical power on the Island. Instrument, control, and electrical (ICE)

resources are assigned to the generation utility. ICE resources are available to support the gas utility when needed.

SCE Catalina has attempted to hire qualified operators/mechanics from both on and off Catalina Island. However, these efforts have been without success. On Catalina Island, there are no means of developing operator/mechanics and foremen outside of employment with SCE. Based on the cost of living on Catalina Island, success in finding a qualified operator/mechanic and/or foreman that currently live off of the island and are willing to move to Catalina Island in the near future has been, from our experience, unlikely.

The operator/mechanic position is the fundamental position for the successful operation of the gas utility. By 2014, it is anticipated that two foremen and one operator/mechanic will retire. Between these three employees there is a total of more than 65 years of work experience. Continuity of the gas and water utility cannot sustain the loss of these three experienced crew members without SCE putting measures in place to supplement the losses in advance. At a minimum, the same number of operator/mechanics must be added prior to 2014. As a result, SCE has developed and implemented an apprentice training program to prepare SCE employees to become operator/mechanics in an effort to establish a mechanism for recruiting and retaining qualified employees to this field of work.

Qualified and Properly Trained Workforce

SCE Catalina ensures the qualification and training of the workforce through the Operator Qualification Plan (OQ Plan) as presented in the Operator Qualification Plan Program Manual (2012 revision) and as required by 40 CFR Subpart N (801-809) Qualification of Pipeline Personnel. A qualified individual will possess the appropriate combination of information (knowledge), craftsmanship (skills), and proficiency (abilities or capabilities) that allows the individual to perform covered tasks in a competent manner. All qualified individuals have been evaluated and can perform assigned covered tasks; and recognize and react to abnormal operating conditions. The OQ Plan Program Manual requires each operator shall have and follow a written qualification program. The program shall include provisions to:

- Identify covered tasks;
- Ensure through evaluation that individuals performing covered tasks are qualified;
- 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;

- 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;
- Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task;
- Communicate changes that affect covered tasks to individuals performing those covered tasks;
- Identify those covered tasks and the intervals at which evaluation of the individual's qualifications is needed;
- After December 16, 2004, provide training, as appropriate, to ensure that individuals performing covered tasks have the necessary knowledge, skill and abilities to perform the tasks in a manner that ensures the safe operation of pipeline facilities; and
- After December 16, 2004, notify the Administrator or participating state agency participating under 49 U.S.C. Chapter 601 if the operator significantly modifies the program after the Administrator or state agency has verified that it complies with this section.

The written qualification program must be available for review by the CPUC under 49 U.S.C. Chapter 601. During the debrief meeting on May 5, 2012 for the triennial safety audit performed by the CPUC, no issues were raised on the OQ Plan or the Operator Qualification Plan Program.

Emerging Issues – Any Additional Matter that the Commission Determines Should be Included in the Plan. 961(d)(11)

As required to be incorporated, SCE Catalina will follow all applicable CPUC rulemaking activities and enforcement proceedings to identify and incorporate emerging issues affecting the activities and purpose of this Safety Plan. Any additional matter that the CPUC determines should be included in this Safety Plan will be incorporated as directed and performed as required. As of the date of this Safety Plan, SCE Catalina has addressed each element of Pub. Util. Code §§ 961 and 963 for the petroleum gas distribution system operated on Catalina Island.

Figure 1

SCE Petroleum Gas Pipeline System Location Map

Figure 1
SCE Petroleum Gas
Pipeline System
Location Map

Southern California Edison
 Security Plan for
 Petroleum Gas Pipelines

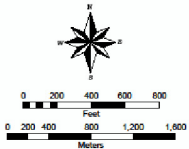
LEGEND

- Valve (Closed)
- Valve (Open)
- ▲ Rectifier
- 3/4" Petroleum Gas Line
- 1" Petroleum Gas Line
- 2" Petroleum Gas Line
- 4" Petroleum Gas Line
- 6" Petroleum Gas Line
- 8" Petroleum Gas Line

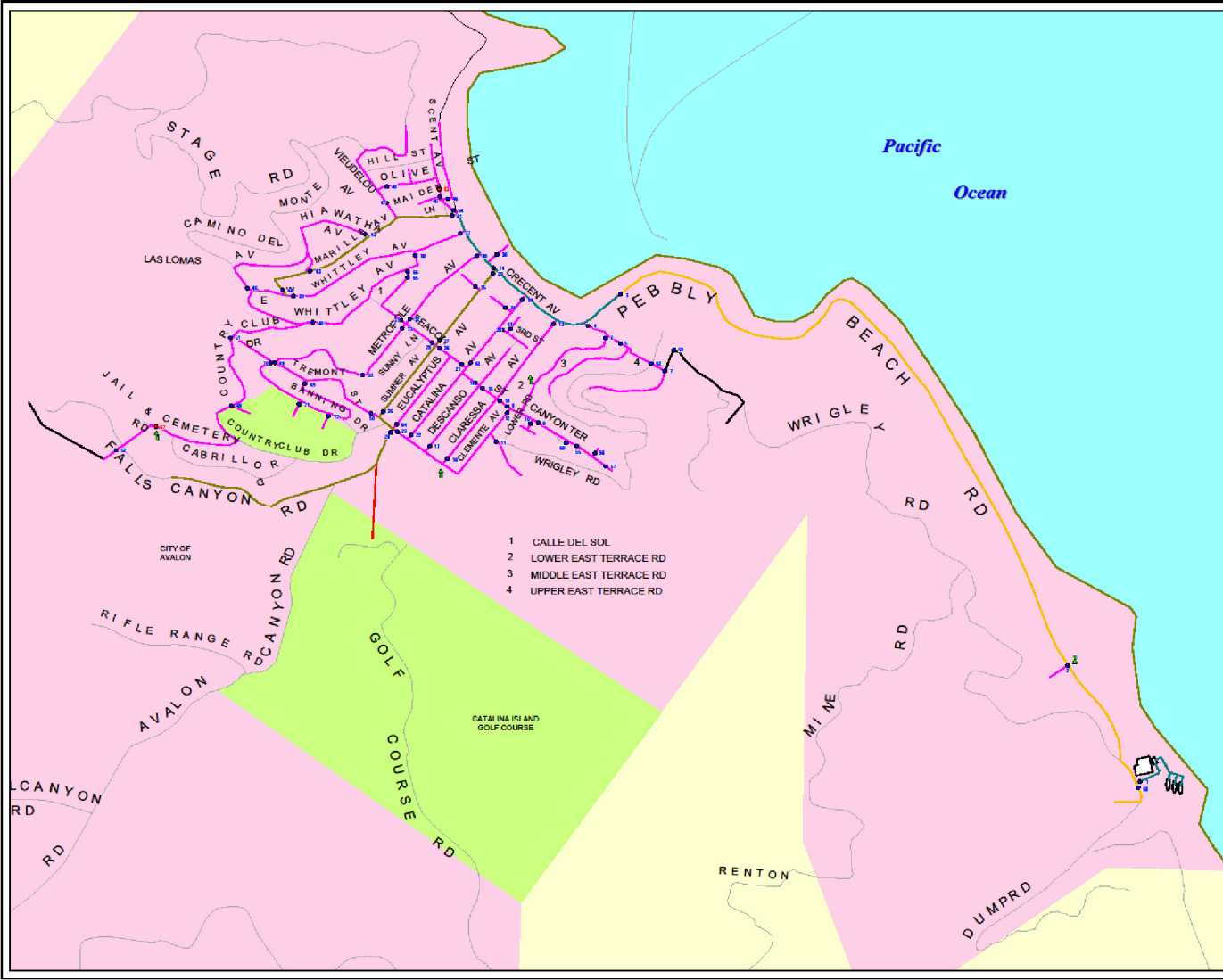
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Project ID : GIS-15349
 Custodian : Gary W. Talbot fax 54571
 Map Projection : UTM Zone 11 (NAD83)
 File Name : CatalinaGas15349.WOR
 Date : 6/30/2008



Mapping Prepared by:
 Corporate Real Estate Department
 Real Estate Sales & Service
 Mapping & GIS



Appendix A

Distribution Integrity Management Plan SCE

DISTRIBUTION INTEGRITY MANAGEMENT PLAN

For SOUTHERN CALIFORNIA EDISON CO

2244 WALNUT GROVE AVENUE
ROSEMEAD, California 91770

Effective Date: 2011-08-02
Replaces Plan Of: (No Prior Plan)

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Chapter 1. SCOPE

This document is the distribution integrity management plan (Plan) for SOUTHERN CALIFORNIA EDISON CO. It is intended to meet the requirements of 49 CFR Part 192, Subpart P Distribution Integrity Management Programs (DIMP).

This Plan covers the Catalina Gas of SOUTHERN CALIFORNIA EDISON CO.

This Plan is effective on 2011-08-02.

This Plan replaces the plan of (No Prior Plan).

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

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:

- 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 SOUTHERN CALIFORNIA EDISON CO, 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 SOUTHERN CALIFORNIA EDISON CO' employees. The specific elements of knowledge of the infrastructure used to evaluate each threat and prioritize risks are listed in the Threat Evaluation and Risk Prioritization sections of this Plan. These sections also list additional information needed and the plan for gaining this currently unknown information over time through normal activities.

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"](#).

This Plan will be reviewed at least every 5 years 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 SOUTHERN CALIFORNIA EDISON CO. This will include the location where new piping and appurtenances are installed and the material of which they are constructed.

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.

4.2. SOUTHERN CALIFORNIA EDISON CO Threat Assessment

4.2.1. Corrosion

Atmospheric Corrosion On The Entire System

Atmospheric corrosion on the entire system was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- SOUTHERN CALIFORNIA EDISON CO has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 5 years.
- Leaks caused by atmospheric corrosion leaks have required repair on any part of your system over the past 5 years.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the SOUTHERN CALIFORNIA EDISON CO system in general.

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

External corrosion on coated, 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:

- Repaired leaks per mile of mains are not increasing.
- Exposed pipe inspections do not indicate a corrosion problem.
- Cathodic protection of the section is adequate.

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

External corrosion on bare, 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.
- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the SOUTHERN CALIFORNIA EDISON CO system in general.

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)

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:

- SOUTHERN CALIFORNIA EDISON CO 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 SOUTHERN CALIFORNIA EDISON CO.
- Gas received in SOUTHERN CALIFORNIA EDISON CO is pipeline quality.
- Liquids have not been found in SOUTHERN CALIFORNIA EDISON CO 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 not occurring and inspections do not indicate potential equipment malfunctions.
- System does not contain equipment known/prone to malfunction (Industry wide).

Equipment Malfunctions Due To Failing Valves

Equipment malfunctions due to failing 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:

- There are no areas with concentrations of excavation damages.
- There are no areas with concentrations of locate tickets.

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:

- Excavation damages are not being caused by operator's crews or contractors not following one call laws.
- Excavation damages caused by operator's crews or contractors due to mis-located lines have not been caused by poorly performing locating equipment.
- Excavation damages caused by operator's crews or contractors have not been due to unmarked or inaccurately marked facilities.
- Excavation damages are not caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have not occurred due to failure to follow company procedures/safety practices.

Excavation Damage Due To Third Party Damages

Excavation damage due to third party damages was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages have occurred due to third parties during the past few years.
- Excavation damages are being caused by third-party excavators not following one call laws.

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

- The (crews/contractors/excavators) identified for this section have caused damage that resulted in a reportable incident.
- 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 more serious when compared to all other excavation caused damages

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:

- No portions of the system are located where excavation in the area of pipeline would require the use of explosives.
- No portions of the system are in known areas of blasting or demolition activity, such as rock quarries or coal mining,
- No damage has occurred due to blasting.

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 to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Materials with known problems are in use.

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 to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The pipes/components on this section may have or may not have been pressure tested in accordance to Part 192, subpart J.
- Materials with known problems are in use.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the SOUTHERN CALIFORNIA EDISON CO system in general.

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:

- Leaks, failures or damages are not averaging one (1) or more per year.

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:

- Leaks, failures or damages are not averaging one (1) or more per year.

4.2.8. Other threats

Other Threats On The Entire System

Other threats 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:

- This system has not experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

Chapter 5. RISK EVALUATION AND PRIORITIZATION

5.1. Overview

Of the sections identified during the Threat Assessment as requiring further consideration for additional actions, SOUTHERN CALIFORNIA EDISON CO 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:

5.2. SOUTHERN CALIFORNIA EDISON CO Section Risk Ranking

a. Section: SOUTHERN CALIFORNIA EDISON CO portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Excavation Damage -> Third Party Damages

Description: Catalina Gas

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
1	0	1	7.59	3.9	1.5	1.038	1.25

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- The (crews/contractors/excavators) identified for this section have caused damage that resulted in a reportable incident.
- 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 more serious when compared to all other excavation caused damages

b. Section: Cathodic Protected, Bare Steel portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Corrosion -> External Corrosion

Description: Catalina Gas

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
2	0	2	6.08	4.6	1	1.321	1.00

Ranked here, in part, for the following reasons:

- Repaired leaks per service are increasing.
- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

c. Section: SOUTHERN CALIFORNIA EDISON CO portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Corrosion -> Atmospheric Corrosion

Description: Catalina Gas

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
3	0	3	5.79	4.38	1	1.321	1.00

Ranked here, in part, for the following reasons:

- Leaks caused by atmospheric corrosion leaks have required repair on any part of your system over the past 5 years.
- Inspections have found metal loss due to atmospheric corrosion over the past 5 years.

d. Section: Known Material portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Low-ductile inner wall Aldyl A pipe manufactured by Dupont Company before 1973

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
4	0	4	1.11	1	1	1.113	1.00

Ranked here, in part, for the following reasons:

- Failures in this section occur less than once per 5 years.

e. Section: Known Material portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Compression Couplings for PE Pipe

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
5	0	4	1.11	1	1	1.113	1.00

Ranked here, in part, for the following reasons:

- Failures in this section occur less than once per 5 years.

Chapter 6. ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS

6.1. MANDATORY ADDITIONAL ACTIONS

The following are mandatory additional actions required by DIMP regulations.

LEAK CLASSIFICATION AND ACTION CRITERIA

These leak classification and action criteria are taken from the Guide for Gas Transmission and Distribution Piping Systems, 2003 edition. A complete copy of the GPTC Guide can be purchased at www.aga.org.

Table 6.1. Leak Classification And Action Criteria - Grade 1

LEAK CLASSIFICATION AND ACTION CRITERIA - GRADE 1		
Grade Definition	Examples	Action Criteria
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. See §192.703(c).	<ol style="list-style-type: none"> 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 substructures (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. 	<p>Requires prompt action* to protect life and property, and continuous action until the conditions are no longer hazardous</p> <p>* The prompt action in some instances may require one or more of the following:</p> <ol style="list-style-type: none"> a. Implementation of emergency plan (§192.615). b. Evacuating premises. c. Blocking off an area. d. Rerouting traffic. e. Eliminating sources of ignition. f. Venting the area by removing manhole covers, barholing, installing vent holes, or other means. g. Stopping the flow of gas by closing valves or other means. h. Notifying police and fire departments.

Table 6.2. Leak Classification And Action Criteria - Grade 2

LEAK CLASSIFICATION AND ACTION CRITERIA - GRADE 2		
Grade Definition	Examples	Action Criteria
A leak that is recognized as being non-hazardous at the time of detection, but justifies scheduled repair based on probable future hazard.	<p>A. Leaks Requiring Action Ahead of Ground Freezing or Other Adverse Changes in Venting Conditions.</p> <p>Any leak which, under frozen or other adverse soil conditions, would likely migrate to the outside wall of a building.</p> <p>B. Leaks Requiring Action Within Six Months</p> <ol style="list-style-type: none"> 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 	<p>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.</p> <ol style="list-style-type: none"> 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. <p>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.</p>

	<p>migration and does not qualify as a Grade 1 leak.</p> <ol style="list-style-type: none"> 3. Any reading less than 80% LEL in 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 percent 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. 	
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Table 6.3. Leak Classification And Action Criteria - Grade 3

LEAK CLASSIFICATION AND ACTION CRITERIA - GRADE 3		
Grade Definition	Examples	Action Criteria
A leak that is nonhazardous at the time of detection and can be reasonably expected to remain non-hazardous.	<p>Leaks Requiring Reevaluation at Periodic Intervals</p> <ol style="list-style-type: none"> 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. 	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.

6.2. RISK BASED ADDITIONAL ACTIONS

The following lists the additional/accelerated actions that will be taken and describes the part of SOUTHERN CALIFORNIA EDISON CO to which each applies to address the priority risks described in the previous section of this Plan.

a. Section: SOUTHERN CALIFORNIA EDISON CO portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Excavation Damage -> Third Party Damages

Description: Catalina Gas

For **excavation damage due to third party damages** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- monitor backfill operation.
- monitor/audit excavation activity.

b. Section: Cathodic Protected, Bare Steel portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Corrosion -> External Corrosion

Description: Catalina Gas

For **external corrosion on bare, cathodically protected, steel mains and services** on the **Cathodic Protected, Bare Steel** section, SOUTHERN CALIFORNIA EDISON CO will:

- correct cathodic protection deficiencies by locating and eliminating shorts (including shorted casings) in this portion of the distribution system.
- correct cathodic protection deficiencies by repairing or replacing or adding a rectifier or groundbed to the existing cathodic protection

system in this portion of the distribution system.

- correct cathodic protection deficiencies by replacing anode beds or add anodes section-wide in this portion of the distribution system.

c. Section: SOUTHERN CALIFORNIA EDISON CO portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Corrosion -> Atmospheric Corrosion

Description: Catalina Gas

For **atmospheric corrosion on the entire system** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- perform leakage surveys on an accelerated frequency of Annually on this portion of the distribution system.

d. Section: Known Material portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Low-ductile inner wall Aldyl A pipe manufactured by Dupont Company before 1973

For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- monitor or trend material failures.
- repair or replace problem materials.

e. Section: Known Material portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Compression Couplings for PE Pipe

For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- monitor or trend material failures.
- repair or replace problem materials.

Chapter 7. MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS

7.1. MANDATORY PERFORMANCE MEASURES

SOUTHERN CALIFORNIA EDISON CO 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 SOUTHERN CALIFORNIA EDISON CO 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: SOUTHERN CALIFORNIA EDISON CO portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Excavation Damage -> Third Party Damages

Description: Catalina Gas

For **excavation damage due to third party damages** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of these failures per 1000 tickets.

b. Section: Cathodic Protected, Bare Steel portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Corrosion -> External Corrosion

Description: Catalina Gas

For **external corrosion on bare, cathodically protected, steel mains and services** on the **Cathodic Protected, Bare Steel** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cathodic Protected, Bare Steel.
- track the number of exposed pipe condition reports that find corrosion or coating damage on the Cathodic Protected, Bare Steel.

c. Section: SOUTHERN CALIFORNIA EDISON CO portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Corrosion -> Atmospheric Corrosion

Description: Catalina Gas

For **atmospheric corrosion on the entire system** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of leaks or failures due to atmospheric corrosion repaired each year per mile of main (and/or per service) in the SOUTHERN CALIFORNIA EDISON CO.

d. Section: Known Material portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Low-ductile inner wall Aldyl A pipe manufactured by Dupont Company before 1973

For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of these failures.

e. Section: Known Material portion of SOUTHERN CALIFORNIA EDISON CO

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Compression Couplings for PE Pipe

For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of these failures.

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

SOUTHERN CALIFORNIA EDISON CO will conduct a complete re-evaluation of this Plan no less than every 5 years. Trends in each of the performance measures listed in the previous section 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, SOUTHERN CALIFORNIA EDISON CO 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

SOUTHERN CALIFORNIA EDISON CO 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

SOUTHERN CALIFORNIA EDISON CO will track the number of excess flow valves installed on the system

These data will be sent to the PHMSA Information Resource Manager as part of the Distribution Annual Report (Form F7100.1-1).

MECHANICAL FITTING FAILURES

SOUTHERN CALIFORNIA EDISON CO 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 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:

California Public Utilities Commission

320 West 4th Street, Suite 500
Los Angeles, CA 90013

Chapter 10. RECORD KEEPING

The following records must be maintained 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

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 SOUTHERN CALIFORNIA EDISON CO 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 SOUTHERN CALIFORNIA EDISON CO will implement Additional/Accelerated Actions, if any, listed in [Chapter 6, ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS](#) 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.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Upon installation of new piping and/or appurtenances, the Catalina Water & Gas Crew will, under direction from a Foreman, record all relevant information in the gas distribution log book. Information will include the following: date, location, material, size, quantity and reason for installation. New installations will be recorded on a rolling basis throughout the year. Annually, a program analyst will compile and upload all system information into SHRIMP.

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

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

All data relating to a mechanical fitting failure will be recorded by the Catalina Water & Gas Crew in the distribution system log book on a rolling basis. A Water & Gas crew member will complete a leakage and inspection report for each incident caused by a mechanical fitting failure. A Water & Gas Foreman will review and approve all leakage and inspection reports and maintain a file in the Water & Gas office. A program analyst will compile and upload mechanical fitting failure into SHRIMP annually.

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.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

All hazardous leaks identified within the SCE Catalina Gas Distribution System are scheduled for immediate repair. Immediately following emergency repairs, a Water & Gas crew member will complete a leakage and inspection report, identifying a cause of the incident. A Water & Gas Foreman will review and approve the leakage and inspection report prior to filing in the Water & Gas office. Each year, a program analyst will compile all hazardous leaks, organize by cause, and upload into SHRIMP.

b. Number of excavation damages.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

A leakage and inspection report will be filed in the Water & Gas office for all excavation caused damages to the Catalina Gas Distribution System. The Water & Gas Foreman will review the damage report and attach a copy of the Dig Alert ticket for the excavation for recordkeeping purposes. At the end of the year, a program analyst will calculate all excavation caused damages and upload data to SHRIMP.

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

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

All excavation tickets (Dig Alerts) issued by and to Southern California Edison will be kept on file by an administrative aide for the Water & Gas Department. Total Dig Alerts data for the year will be uploaded to SHRIMP for use in tracking frequency of excavation caused damages.

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

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Each year, as preparation for submittal of the PHMSA Distribution Annual Report (Form F7100.1-1), a program analyst will tabulate the total leaks eliminated or repaired. Using information collected on the leakage and inspection reports on file for all gas incidents, leaks will be categorized and uploaded to SHRIMP.

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;

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

All hazardous leaks within the Catalina Gas Distribution System are scheduled for immediate repair. All other gas leaks within the system are repaired as identified. During leakage investigation, the Water & Gas crew will identify the damaged material on a leakage and inspection report to remain on file in the Water & Gas crew office. A program analyst will sort all leaks for the year and upload the data to SHRIMP annually.

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

a. For **excavation damage due to third party damages** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of these failures per 1000 tickets.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Upon receipt of a Dig Alert for a third party excavation, the Water & Gas crew will mark all gas lines within the subject area. If no gas lines are present, the Water & Gas crew will identify the area as having no gas distribution. Any damage caused by third party excavations to piping or appurtenances of the gas distribution system will be recorded on a leakage and inspection report. Information regarding the third party responsible for the damage will be recorded in the "additional remarks" section of the leakage and inspection report. Each year, a program analyst will determine the total number of leaks caused by a third party, and track the frequency of such incidents per 1000 Dig Alerts issued. All data will be uploaded to SHRIMP on a yearly basis.

b. For **external corrosion on bare, cathodically protected, steel mains and services** on the **Cathodic Protected, Bare Steel** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cathodic Protected, Bare Steel.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

All damage classified as being caused by external corrosion on a cathodically protected bare steel line on a leakage and inspection report will be calculated annually. The total number of external corrosion damages will be divided by the total miles of main of cathodically protected bare steel line within the distribution system. All relevant data will be uploaded to SHRIMP.

- track the number of exposed pipe condition reports that find corrosion or coating damage on the Cathodic Protected, Bare Steel.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

All gas distribution piping exposed during routine operations and maintenance is inspected, with conditions recorded on a leakage and inspection report. Exposed pipe condition reports are approved by the Water & Gas Foreman and filed in the Water & Gas crew office.

c. For **atmospheric corrosion on the entire system** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of leaks or failures due to atmospheric corrosion repaired each year per mile of main (and/or per service) in the SOUTHERN CALIFORNIA EDISON CO.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

For all leaks on the distribution system, a Water & Gas crew member will complete a leakage and inspection report. At the end of the year, a program analyst will upload the total number of leaks repaired due to atmospheric corrosion into SHRIMP. Frequency of leaks repaired due to damage caused by atmospheric corrosion will be track relative to miles of main and per service within the system.

d. For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of these failures.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Materials identified by the Water/Gas crew as prone to failure will be replaced as encountered routine operation and maintenance of the Catalina gas distribution system. All occurrences for the year will be compiled by support staff and maintained as part of recordkeeping.

e. For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- track the frequency of these failures.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Materials identified by the Water/Gas crew as prone to failure will be replaced as encountered routine operation and maintenance of the Catalina gas distribution system. All occurrences for the year will be compiled by support staff and maintained as part of recordkeeping.

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.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Grade I: All grade I leaks on the gas distribution system are scheduled for immediate repair. Routine action criteria for Grade I leaks include venting the area, stopping the flow of gas and notifying the police and fire departments. Grade II: All gas leaks on the distribution system are repaired as identified. Grade II leaks are scheduled for repair as soon as possible, though not on an emergent basis as in a Grade I leak. Grade III: All gas leaks on the distribution system are repaired as identified. Grade III leaks are scheduled for repair as time permits in routine system operations and maintenance. All leaks are recorded in the distribution log book and on a leakage and inspection report. All leakage and inspection reports require a Foreman's approval and will remain on file in the Water & Gas office.

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

a. For **excavation damage due to third party damages** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- monitor backfill operation.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Upon receipt of a Dig Alert ticket for a third party excavation, the Water & Gas Crew will identify all distribution lines in the subject area. If no distribution lines are present, the Water & Gas crew will identify as such. A Water & Gas representative will monitor backfill operations on a daily basis to ensure all applicable standards are met. A Leakage and Inspection report will be filed in the Water & Gas office for all damage resulting from third party backfill operations.

- monitor/audit excavation activity.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Upon receipt of a Dig Alert ticket for a third party excavation, the Water & Gas Crew will identify all distribution lines in the subject area. If no distribution lines are present, the Water & Gas crew will identify as such. The Water & Gas crew will monitor third party excavation activities daily to ensure no distribution piping and/or appurtenances are jeopardized. A Leakage and Inspection report will be filed in the Water & Gas office for all damage resulting from third party excavation activities.

b. For **external corrosion on bare, cathodically protected, steel mains and services** on the **Cathodic Protected, Bare Steel** section, SOUTHERN CALIFORNIA EDISON CO will:

- correct cathodic protection deficiencies by locating and eliminating shorts (including shorted casings) in this portion of the distribution system.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

A Technical Specialist from SCE's Source Inspection Group will perform routine inspections of the cathodic protection system a minimum of one time per calendar year. Any shorts in the cathodic protection system identified by the inspector or Water & Gas crew will be recorded in the distribution log book and scheduled for repair. Repairs to the cathodic protection services are performed by a Technical Specialist or the Water & Gas crew.

- correct cathodic protection deficiencies by repairing or replacing or adding a rectifier or groundbed to the existing cathodic protection system in this portion of the distribution system.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

A Technical Specialist from SCE's Source Inspection Group will perform routine inspections of the cathodic protection system a minimum of one time per calendar year. Any cathodic protection deficiencies due to groundbeds or rectifiers identified by the inspector or Water & Gas crew will be recorded in the distribution log book and scheduled for immediate repair. Repairs to the cathodic protection services are performed by a Technical Specialist or the Water & Gas crew.

- correct cathodic protection deficiencies by replacing anode beds or add anodes section-wide in this portion of the distribution system.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

A Technical Specialist from SCE's Source Inspection Group will perform routine inspections of the cathodic protection system a minimum of one time per calendar year. Any cathodic protection deficiencies due to anodes or anode beds identified by the inspector or Water & Gas will be recorded in the distribution log book and scheduled for immediate repair. Repairs to the cathodic protection system are performed by a Technical Specialist or the Water & Gas crew.

c. For **atmospheric corrosion on the entire system** on the **SOUTHERN CALIFORNIA EDISON CO** section, SOUTHERN CALIFORNIA EDISON CO will:

- perform leakage surveys on an accelerated frequency of Annually on this portion of the distribution system.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

A leakage survey is conducted annually by a third party (Heath Consultants) in the entire Catalina Gas Distribution System. A Water & Gas representative accompanies a leak detection technician and records all identified damages in the distribution log book. A leakage and inspection report is will be filed in the Water & Gas office for all leaks. All Grade I leaks are scheduled for immediate repair by the Water & Gas crew.

d. For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- monitor or trend material failures.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

The known problem material (low-ductile) pipe is no longer installed, but still exists in the Catalina Gas Distribution System. Failures of subject material will be reported on a leakage and inspection report to remain on file in the Water & Gas office. All damages due to low-ductile pipe failure will be compiled by a program analyst annually and uploaded to SHRIMP. Trending information for known material failures will be generated during DIMP re-evaluation.

- repair or replace problem materials.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Known problem material (low-ductile pipe) is no longer installed, however still exist in the distribution system. All subject materials are replaced as encountered during routine operations and maintenance of the gas distribution system.

e. For **material, weld or joint due to known problem materials** on the **Known Material** section, SOUTHERN CALIFORNIA EDISON CO will:

- monitor or trend material failures.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

The known problem material (compression couplings for PE pipe) is no longer installed, but still exists in the Catalina Gas Distribution System. Failures of subject material will be reported on a leakage and inspection report to remain on file in the Water & Gas office. All damages due to compression coupling for PE pipe failure will be compiled by a program analyst annually and uploaded to SHRIMP. Trending information for known material failures will be generated during DIMP re-

evaluation.

- repair or replace problem materials.

SOUTHERN CALIFORNIA EDISON CO will implement as follows:

Known problem material (compression couplings for PE pipe) is no longer installed, however still exist in the distribution system. All subject materials are replaced as encountered during routine operations and maintenance of the gas distribution system.

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) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (CORR)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

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	0	0	0	0
In 2005	0	0	0	0
In 2006	1	2	1	2
In 2007	1	4	1	4
In 2008	0	0	0	0
In 2009	2	3	2	3
In 2010	0	4	0	4

- Review the guidance. (ECMETALYES)

Your Choice (weight: 0) --Continue

- General System Description (EC101)

Your Choice (weight: 0) --

Table 11.2. Material

	Mains	Services
Plastic	0.300	0
Unprotected, Bare	0.000	0
Cathodically Protected, Bare	8.940	820
Unprotected, Coated	0.000	0
Cathodically Protected, Coated	0.000	164
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)

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	0.180	0.120	0.000	0.000	0.000	0.300
ABS	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Steel	0.000	4.810	2.130	2.000	0.000	0.000	8.940
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)

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	163	5	0	0	0	168
ABS	0	0	0	0	0	0	0
Steel	0	816	0	0	0	0	816
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) --I Don't Know

- Provide Additional Information (EC101b)

Your Choice (weight: 0) --

- **Atmospheric Corrosion (CORRAC) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (CORRAC)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

Your Choice (weight: 0) --Continue

- Does SOUTHERN CALIFORNIA EDISON CO have any facilities that require atmospheric corrosion inspections? (CORRAC101)

Your Choice (weight: 0) --Yes

- Over the past 5 years, have any atmospheric corrosion inspections found metal loss due to atmospheric corrosion? (CORRAC103)

Your Choice (weight: 5) --Yes

- Over the past 5 years, have leaks caused by atmospheric corrosion leaks required repair on any part of your system? (CORRAC104)

Your Choice (weight: 5) --Yes

- Are repaired atmospheric corrosion leaks increasing? (CORRAC104a)

Your Choice (weight: 0) --

Table 11.5. End of Year

	Leaks Repaired
In 2006	0
In 2007	0
In 2008	0
In 2009	0
In 2010	0

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

Do you accept this determination? (CORRAC104dok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that leaks are not increasing per year. (CORRAC104d)
Your Choice (weight: 0) --Continue
- Have inspections found problems with above ground pipe coatings that could not be fixed by routine maintenance? (CORRAC105)
Your Choice (weight: 0) --No
- Are atmospheric corrosion leaks system-wide/uniform or concentrated in local areas or facilities? (CORRAC110)
Your Choice (weight: 0) --Uniform
- Review the guidance. (CORRACCSQ0)
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? (CORRACCSQ1)
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)? (CORRACCSQ2)
Your Choice (weight: 0) --Outside Business Districts
- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (CORRACCSQ3)
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? (CORRACCSQ4)
Your Choice (weight: 0) --Low

• **External Corrosion (CORRECSTL-PB) (Cathodic Protected, Bare Steel)**

- Interview Start (CORRECSTL-PB)
Your Choice (weight: 0) --Continue
- Risk assigned for coated versus bare (AR-2b)
Your Choice (weight: 3) --Bare
- Are repaired corrosion leaks per mile increasing? (EC102)
Your Choice (weight: 0) --

Table 11.6. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile
In 2006	8.940	1	0.112
In 2007	8.940	1	0.112
In 2008	8.940	0	0.000
In 2009	8.940	2	0.224
In 2010	8.940	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)

Your Choice (weight: '0) --

Table 11.7. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/service
In 2006	984	2	0.002
In 2007	984	3	0.003
In 2008	984	0	0.000
In 2009	984	3	0.003
In 2010	984	4	0.004

- 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)

Your Choice (weight: 1) --Yes

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

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)

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)

Your Choice (weight: 0) --No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

Your Choice (weight: 0) --System-wide

- What percent of your cathodic protection test point readings meet or exceed acceptable cathodic protection criteria? (EC704)

Your Choice (weight: 0) --All readings exceed -.85 V

- Are there known sources of stray electrical current in the area? (EC705)

Your Choice (weight: 0) --No

- Is the section cathodic protection provided by rectifier(s) only, anode(s) only, or a combination? (EC720)

Your Choice (weight: 0) --Combination

- 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)

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)

Your Choice (weight: 0) --Outside 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)

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)

Your Choice (weight: 0) --Low

- **External Corrosion (CORRECSTL-PC) (Cathodic Protected, Coated Steel)**

- Interview Start (CORRECSTL-PC)

Your Choice (weight: 0) --Continue

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

Your Choice (weight: 0) --

Table 11.8. 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)

Your Choice (weight: 0) --

Table 11.9. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/service
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? (EC254ok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

Your Choice (weight: 0) --Continue

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

Your Choice (weight: 0) --No

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

Your Choice (weight: 0) --Yes

- Confirm that no corrosion problems are known. (EC204a)

Your Choice (weight: 0) --Accept

- **Internal Corrosion (CORRIC) (SOUTHERN CALIFORNIA EDISON CO)**

- 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)

Your Choice (weight: 0) --No

- Have leaks caused by internal corrosion occurred? (CORRIC102)

Your Choice (weight: 0) --No

- Do you receive any gas that is not of transmission pipeline quality? (CORRIC103)

Your Choice (weight: 0) --No

- Have liquids been found in your distribution piping? (CORRIC104)

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) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (EQIP)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

Your Choice (weight: 0) --Continue

- How many leak repairs resulting from equipment problems occurred by year for the last 5 years? (EQIP-Leak)

Your Choice (weight: 0) --

Table 11.10. Leak Repairs From PHMSA 7100.1-1

End of Year	Equipment Malfunction		Totals	
	Mains	Services	Mains	Services
In 2004	0	1	0	1
In 2005	1	0	1	0
In 2006	1	7	1	7
In 2007	0	5	0	5
In 2008	1	4	1	4
In 2009	2	1	2	1
In 2010	1	3	1	3

- Are leaks occurring or do inspections indicate potential equipment malfunctions? (EQ101a)

Your Choice (weight: 0) --

None of These

- Does system contain equipment known/prone to malfunction (Industry wide)? (EQ102a)

Your Choice (weight: 0) --

None of These

- Confirm that no other equipment problems are known. (EQ204)

Your Choice (weight: 0) --Accept

Incorrect Operations Threat

- **Incorrect Operations (IOP) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (IOP)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

Your Choice (weight: 0) --Continue

- How many leak repairs resulting from incorrect operations occurred by year for the last 5 years? (IOP-Leak)

Your Choice (weight: 0) --

Table 11.11. 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)

Your Choice (weight: 0) --No

- Have employees or contractors tested positive for drugs or alcohol (other than pre-hire tests)? (IOP106)

Your Choice (weight: 0) --No

- Confirm that no other incorrect operations problems are known. (IOP204)

Your Choice (weight: 0) --Accept

Material, Weld or Joint Failure Threat

- **Material, Weld or Joint Failure (MW) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (MW)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

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 11.12. Leak Repairs From PHMSA 7100.1-1

End of Year	Material, Weld or Joint Failure		Totals	
	Mains	Services	Mains	Services
In 2004	0	1	0	1
In 2005	0	5	0	5
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)

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: 2) --

Low-ductile inner wall Aldyl A pipe manufactured by Dupont Company before 1973

Compression Couplings for PE Pipe

- Provide Additional Information (MWSet3)

Your Choice (weight: 0) --

- **Known Materials (MW-MatI) (Known Material)**

- Interview Start (MW-MatI)

Your Choice (weight: 0) --Continue

- How often do failures occur in this section? (MW301)

Your Choice (weight: 1) --Less than once per 5 years

- Are failures in this section/component increasing or decreasing? (MW302)

Your Choice (weight: 0) --

Table 11.13. End of Year

	Failures
In 2006	0
In 2007	0
In 2008	0
In 2009	0
In 2010	0

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

Do you accept this determination? (MW302dok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that failures due to materials, welds or joints are not increasing per year. (MW302d)

Your Choice (weight: 0) --Continue

- Do failures occur more frequently than the scheduled leak survey intervals? (MW303)

Your Choice (weight: 0) --No

- Have your current material specification requirements and construction/installation procedures been modified to address this issue? (MW304)

Your Choice (weight: 0) --Yes

- Has the pipe/component on this section been pressure tested in accordance to Part 192, subpart J? (MW305)

Your Choice (weight: 0) --I Don't Know

- What is the likelihood that a leak in this section will become a Grade 1 leak? (MW306)

Your Choice (weight: 0) --Low

- Review the guidance. (MWCSQ0)

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? (MWCSQ1)

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)? (MWCSQ2)

Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (MWCSQ3)

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? (MWCSQ4)

Your Choice (weight: 0) --Low

- **Known Materials (MW-Matl) (Known Material)**

- Interview Start (MW-Matl)

Your Choice (weight: 0) --Continue

- How often do failures occur in this section? (MW301)

Your Choice (weight: 1) --Less than once per 5 years

- Are failures in this section/component increasing or decreasing? (MW302)

Your Choice (weight: 0) --

Table 11.14. End of Year

	Failures
In 2006	0
In 2007	0
In 2008	0
In 2009	0
In 2010	0

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

Do you accept this determination? (MW302dok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that failures due to materials, welds or joints are not increasing per year. (MW302d)

Your Choice (weight: 0) --Continue

- Do failures occur more frequently than the scheduled leak survey intervals? (MW303)

Your Choice (weight: 0) --No

- Have your current material specification requirements and construction/installation procedures been modified to address this issue? (MW304)

Your Choice (weight: 0) --Yes

- Has the pipe/component on this section been pressure tested in accordance to Part 192, subpart J? (MW305)

Your Choice (weight: 0) --I Don't Know

- What is the likelihood that a leak in this section will become a Grade 1 leak? (MW306)

Your Choice (weight: 0) --Low

- Review the guidance. (MWCSQ0)

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? (MWCSQ1)

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)? (MWCSQ2)

Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (MWCSQ3)

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? (MWCSQ4)

Your Choice (weight: 0) --Low

Excavation Damage Threat

- **Excavation Damage (OFEXC) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OFEXC)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

Your Choice (weight: 0) --Continue

- Does your system participate in a qualified one-call system (see 192.614)? (OFEXC101)

Your Choice (weight: 0) --Yes

- Which system do you do you use? (OFEXC102)

Your Choice (weight: 0) --California-Underground Service Alert Of Southern California

- 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 11.15. Leak Repairs From PHMSA 7100.1-1

End of Year	Excavation Damage		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	1	0	1
In 2008	0	0	0	0
In 2009	0	1	0	1
In 2010	0	0	0	0

- How many excavation caused damages not resulting in leaks reported on the PHMSA 7100.1-1 form have occurred during the past 5 years? (OFEXC105a)

Your Choice (weight: 0) --

Table 11.16. End of Year

	Mains	Services
In 2006	2	2
In 2007	1	1
In 2008	2	2
In 2009	0	0
In 2010	3	3

- 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)

Your Choice (weight: 0) --

Table 11.17. End of Year

	Damages Previously Entered	Excavation Tickets	Damages Per 1000 Tickets
In 2006	4	32	125
In 2007	3	138	21
In 2008	4	45	88
In 2009	1	46	21
In 2010	6	85	70

- 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) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OFEXC-Blast)

Your Choice (weight: 0) --Continue

- Has damage occurred due to blasting? (OFEXC137)

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) (SOUTHERN CALIFORNIA EDISON CO)**

- 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 11.18. End of Year

	Damages Previously Entered	Excavation Tickets Previously Entered	Damages Per 1000 Tickets
In 2006	4	32	125
In 2007	3	138	21
In 2008	4	45	88
In 2009	1	46	21
In 2010	6	85	70

- 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) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OFEXC-Crew)

Your Choice (weight: 0) --Continue

- Has excavation damage been caused by your crews or your contractors? (OFEXC115)

Your Choice (weight: 0) --Yes

- How many excavation damages were caused by the your crews and/or your contractors on the system over the last 5 years? (OFEXC116)

Your Choice (weight: 0) --

Table 11.19. End of Year

	Damages Caused By Your Crews	Damages Caused By Your Contractors
In 2006	3	1
In 2007	1	0
In 2008	4	0
In 2009	0	0
In 2010	3	0

- Are excavation damages caused by your crews evenly distributed or concentrated in a few operator crews? (OFEXC118)
Your Choice (weight: 0) --Evenly Distributed
- Are excavation damages being caused by your crews or your contractors not following one call laws? (OFEXC122)
Your Choice (weight: 0) --No
- Have any excavation damages caused by your crews or contractors due to mis-located lines been caused by poorly performing locating equipment? (OFEXC123)
Your Choice (weight: 0) --No
- Are excavation damages caused by your crews or contractors due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC124)
Your Choice (weight: 0) --No
- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC125)
Your Choice (weight: 0) --
No Damages
- Have excavation damages caused by your crews or contractors occurred due to failure to follow company procedures/safety practices? (Do not include excavation damages caused by failure to follow one-call laws.) (OFEXC126)
Your Choice (weight: 0) --No
- Confirm that no other excavation problems are known. (OFEXC204a)
Your Choice (weight: 0) --Accept

• **Third Party Damages (OFEXC-Third) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OFEXC-Third)
Your Choice (weight: 0) --Continue
- During the past few years, have excavation damages occurred due to third parties? (OFEXC127)
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 11.20. End of Year

	Third Party Damages
In 2006	0
In 2007	1
In 2008	0
In 2009	1
In 2010	0

- 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: 0) --
No Damages
- 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: 0.3) --Yes
- 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: 0.2) --More serious

Natural Forces Threat

- **Natural Forces (OFNF) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OFNF)
Data Source:
Distribution Log Book, Electronic Records, Operator Knowledge
Your Choice (weight: 0) --Continue
- Do leaks repaired per year average one (1) or more? (OFNF101rp)
Your Choice (weight: 0) --

Table 11.21. 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) --

	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 natural forces damages for the last 5 years.

Click Next to Continue. (OFNF101)

Your Choice (weight: 0) --

Table 11.23. 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) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OFOTHR)

Data Source:

Distribution Log Book, Electronic Records, Operator Knowledge

Your Choice (weight: 0) --Continue

- Do leaks repaired per year average one (1) or more? (OFOTHR101rp)

Your Choice (weight: 0) --

Table 11.24. 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	1	0	1
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 11.25. 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 11.26. 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) (SOUTHERN CALIFORNIA EDISON CO)**

- Interview Start (OTHR)

Data Source:

NA

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)

Your Choice (weight: 0) --No

- You have indicated that there are no other issues to be considered. (OTHR204)

Your Choice (weight: 0) --Continue

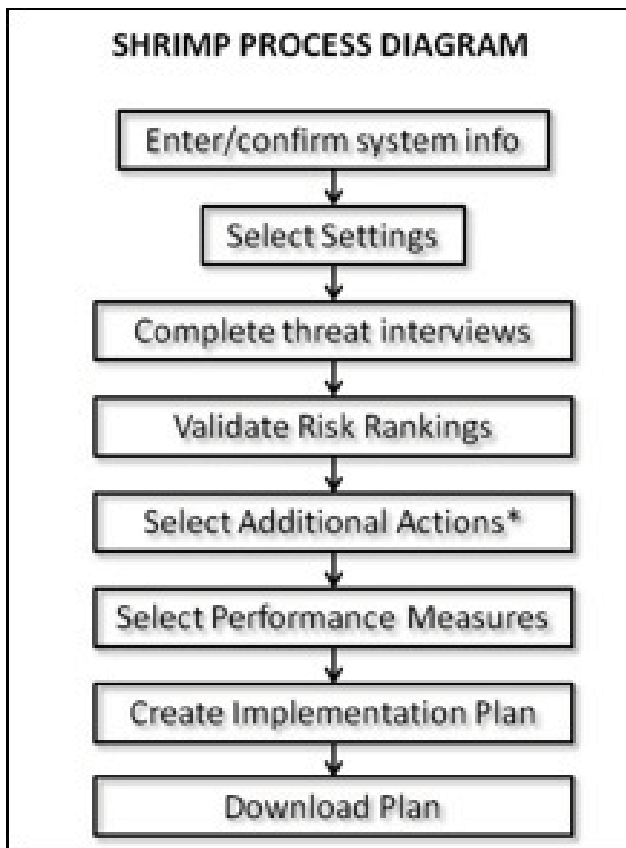
11.3. DESCRIPTION OF THE PROCESS FOLLOWED TO DEVELOP THIS PLAN

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



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 your 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:

$$\text{Relative Risk Score} = \frac{\text{Probability Score (Normalized to 1 - 10)}}{\text{10}} \times \text{Consequence Score (1.0 - 1.5)} \times \frac{\text{Leak History Factor (1 + \% of Lks)}}{\text{10}} \times \text{Incident Probability Factor (1.0 or 1.25)}$$

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 11.28. Probability Scores

Threat	Subthreat category	Maximum Score	Minimum Score	Incident Probability Factor
Natural Forces	No subthreats	19	0	1
Other Outside Forces	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
Corrosion	Blasting	15	0	1.25
	External Corrosion	16	1	1
	Internal Corrosion	30	1	1
Incorrect Operations	Atmospheric Corrosion	25	1	1
	Failure to Follow Procedures	5	1	1.25
	Inadequate Procedures	5	1	1.25
	Operator Qualification	5	1	1.25
Equipment	Drug & Alcohol	5	1	1.25
	No subthreats	5	1	1
	Material, Welds or Joints	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 11.29. Incident Probability Factor

Reported Cause of Incidents and Failures 2005-2007	# of Incidents	# of Failures	Incidents/1000 Failures	Normalized to Corrosion
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 11.30. 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 11.31. 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
		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 11.32. Reported Cause Of Failures (2005-2009)

Threat	Failures	Percent	Leak History Factor
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

Appendix B

Community Gas Emergency Plan

REGULATORY COMPLIANCE

This plan is developed in accordance with 49 Code of Federal Regulations, 191-195 (Emergency Plans-Transportation of Natural and Other Gas, Article 82 of the California Fire Code- Liquefied Petroleum Gases, and Code of Federal Regulation, and regulations and General Orders (94-B) of the California Public Utilities Commission.

Introduction

The public gas utility for Catalina Island is unique, in that it utilizes propane-air mixtures as a surrogate for natural gas in its public residential distribution system. This creates specific and unique hazards when responding to gas utility incidents on the island.

PROPANE CHARACTERISTICS

The characteristics of propane are very different than that of natural gas which is more common in other gas utility systems. Propane is heavier than air and will sink to low geographic positions such as trenches or depressions, low lying areas etc., or accumulate in low parts of a structure like basements and flooring. As propane accumulates it can form explosive mixtures with air. Propane will seek low places whether inside or outside of a building, regardless of weather or sunlight conditions, but will move in the same trajectory wind when released into open areas.

At standard temperature and pressure, LPG is a gas. It is liquefied by moderate changes in pressure (i.e., in a tank). The unique properties of LPG allow it to be stored or transported in a liquid form and used in a vapor form. LPG vapors are heavier than air and tend to collect on the ground and in low spots. After LPG is released, it volatilizes into a gas immediately, readily mixes with air and likely form a flammable mixture. This mixture can ignite and cause a vapor cloud explosion. The residential mixture for propane in the gas distribution system is 10% propane and 90% air.

Properties of LPG/ Propane stored by SCE at Pebbly Beach (Source: MSDS)

Property	Propane
Volatility	High 100%
Specific gravity (water = 1.0)	0.5853
Vapor Density (air = 1.0)	1.55
Vapor Pressure	6536 mmHG
Boiling Point	-44F. (-42C.)
Lower Flammable Limit (LFL) in air	2.0

Upper Flammable Limit (UFL) in air	9.5
Ignition temperature	725F.
Tank pressure at 60F.	90 psig
LPG liquid/vapor expansion	1 x 270
Water Solubility	Very slight
Odor threshold	5,000-20,000 ppm
Color	Colorless to white vapor
Flame Temperature	3,497F.
Speed of flame thru large vapor clouds	15 meters/second
Toxicity	Non Toxic- can cause headache, nausea and asphyxiation in high concentrations
Reactivity	None
IDLH range	2,100 PPM (10% of LEL)

Distribution System Operating Pressures

6 pounds per square inch gauge (psig)

Receiving, Classifying, and Responding to Gas Incidents

Gas incidents may include leaks, odors, outages, fires, or other incident types. Incidents reported to SCE Catalina Utilities Center will be classified by the following criteria:

Level 1 Incidents: These are non-emergency service calls which will be scheduled for routine response or maintenance by SCE gas service representatives.

Level 2 Incidents: These are urgent response issues which have the potential for escalation and potentially pose a threat to life and property. Included among these incidents is a smell of gas inside or immediately adjacent to occupied structures. It includes incidents of interruption of service to critical clients. While SCE staff may be assisted by public safety responders for some incidents, these situations will generally be handled by SCE gas service staff. The response by SCE staff shall be immediate to any Level 2 incident.

Level 3 Incidents: The highest level of emergency response includes incidents posing catastrophic potential. These would include rupture of gas mains, fires and explosions involving gas accumulations or structures, high volume gas leaks, and similar incidents. Level 3 incidents will require public safety and may also involve specialized contractor response. Portions of the Catalina gas system may be subjected to extended outages while repairs are accomplished. The response by SCE staff shall be immediate to any Level 3 incident.

Prohibitive Work Environments

SCE gas service staff shall not enter explosive atmospheres. If such conditions are suspected or determined, SCE staff should request fire department assistance in dealing with this condition. An example of this condition may include a residential structure with a high interior gas concentration due to a gas leak. Explosives atmospheres are any environment which meets or exceeds 10% of the Lower Explosive Limit (LEL). No entry should be made into suspect spaces until this risk has been mitigated. SCE staff may close exterior valves and shut off the gas flow, or shutoff electrical power to such spaces from safe positions. As a precaution, use of electronic devices, smoking, or any hot work involving welding or cutting should be immediately suspended and restricted when a potential gas leak is reported.

SCE staff shall not enter confined spaces which may be either Immediately Dangerous to Life and Health (IDLH) or oxygen deficient. These environments require self contained breathing apparatus for respiratory protection and life safety, and are beyond the training and scope of SCE gas staff duties. If such conditions are encountered, immediate assistance may be sought from fire department or contract responders. SCE staff may not enter such spaces until they are ventilated and returned to normal atmospheric values that do not require respiratory protection. IDLH atmospheres include concentrations of 2100ppm (or 10% LEL) of propane or less than 19.5% oxygen (O₂). SCE staff may cause such spaces to be ventilated from safe positions.

Welding, cutting, or “hot work” on gas mains which are actively transporting propane mixtures is strictly prohibited. Unlike lines transporting natural gas, propane will accumulate in low spaces quickly and pose significant flash fire and explosion hazards. These lines must be blocked and drained completely of product and the workplace ventilated until free of propane (less than 10% of the lower explosive limit). This should be confirmed with gas detection equipment that is calibrated specifically to propane. Only then is it safe to weld or cut SCE gas mains.

Emergency Notifications

Public safety emergency response may be required to support SCE gas staff in managing potentially flammable concentrations of leaking gas. Catalina Utilities Center staff shall dial 911 and access emergency services response to any report of a significant gas odor within or immediately adjacent to a structure (Level 2) or any major leak, fire, or report of rupture in a gas main (Level 3).

The public may notify SCE of a gas emergency by calling the Catalina Utilities Center at:

(310)510-4301

SCE staff will report on gas emergencies by calling the Catalina Utilities Center: (310)510-4301

Before digging to avoid pipeline intrusion: call: 811 or (800)227-2600 at least 48 hours in advance.

Response Priorities

The first priority of action for all incidents involving natural gas will be directed toward life safety first, property second, and environment third. Immediate care shall be given to any injured person(s). The forth priority is the corporate image and the intention that customers shall receive quality, timely, and professional service.

Incident Responsibilities

1. SCE staff shall manage all routine incidents (Level 1) within SCE procedures.
2. SCE staff shall establish a unified command post with public safety responders near the scene, when necessary or required, to coordinate significant incidents (Level 2 or 3) with public safety or contracted responders.
3. On-scene emergency personnel from Avalon Fire Department shall coordinate emergency medical care when necessary.
4. Los Angeles County Sheriff and the Avalon Fire Department shall conduct evacuations in gas incidents when necessary, as coordinated through Incident Commander.
5. The Los Angeles County Sheriff’s Department, in conjunction with other supporting agencies, shall establish and maintain incident perimeters as necessary to protect public safety and worker access, as coordinated through Incident Command.
6. SCE gas utility staff shall isolate the incident area by shutting off the flow of any gas from feed lines into the impacted area.
7. The Avalon Fire Department shall manage any fire suppression, combustible, or oxygen deficient atmospheres, and related risks, as coordinated through Incident Command.
8. SCE staff shall monitor the atmospheric conditions in and around the site and determine gas concentrations. SCE staff shall not enter hazardous work environments limited in “prohibitive work environments” above. SCE staff shall monitor any atmosphere where gas concentrations may be present.

Response Procedures

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
Under-pressure in the gas system.	Contact customers and evacuate affected area with assistance from the Sheriff’s Department, isolate gas by closing gas meter valves, plan and implement repair and restoration	Investigate potentially affected customers for extinguished pilot lights prior to restoring gas to prevent fire and explosion risk. Conduct system repair. Restore pilot lights as needed.

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
Over-pressure in the gas system	Contact customers and evacuate affected area with assistance from the Sheriff's Department, isolate gas by closing meter valves, plan and implement repair and restoration	Investigate affected customers for gas- flare caused fires. Investigate atmospheres for combustible concentrations. Eliminate sources of ignition. Conduct system repair.
Uncontrolled escaping gas	Contact customers and evacuate affected area with assistance from the Sheriff's Department. Identify affected area and close gas meter valves. Repair and restore system.	Interact with customers and safety responders as needed. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition. Ventilate and protect against ignition as necessary. Conduct system repair.
Escaping gas accumulates in low geographic area, tunnel, below grade structure, or confined space, including structures.	Contact customers and evacuate area as necessary with assistance from the Sheriff's Department. Identify affected area and close gas meter valves	Assist fire and emergency services and contact customers as needed. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition. Check all piping and appliances for leaks, repair as required.
Fire or explosion in the gas system.	Identify affected area and close gas meter valves. Evacuate 1000' from source. Repair and restore system post-emergency once cleared by fire department and inspected by regulatory authority.	Assist fire and emergency services as requested. Monitor atmosphere for combustible concentrations. Eliminate sources of ignition.

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
<p>Danger to segment of gas main system due to natural hazard or human caused risk. (ex: earthquake, landslide, flood, fire)</p>	<p>Identify affected area and close gas meter valves. Seek technical expertise as necessary to quantify hazards.</p>	<p>Coordinate with emergency services and other governmental entities to determine extent and consequences of emergency event. Interact with customers as needed. Monitor as necessary, eliminate sources of ignition.</p>
<p>Significant odor of gas in or near a building- unconfirmed or undetermined leak source.</p>	<p>Call 911 and request fire department assistance if not on scene. Identify affected area and close valves. Evacuate buildings as necessary.</p>	<p>Coordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. Check all piping and appliances for leaks.</p>
<p>Transient or occasional light odor of gas in or near a building- unconfirmed leak source.</p>	<p>Identify affected area and close valves. Evacuate buildings as necessary.</p>	<p>Coordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition. Check all piping and appliances for leaks.</p>
<p>Odor of gas emanating from single appliance.</p>	<p>Identify affected appliance and close appliance valves. Evacuate buildings as necessary.</p>	<p>Coordinate with customer as necessary. Monitor for gas accumulations. Ventilate as necessary. Repair leaks.</p>

CONDITION	IMMEDIATE ACTIONS	RISK MANAGEMENT
Suspected leaking gas meter.	Isolate meter by closing gas valves.	Coordinate with emergency services and customers as necessary. Monitor for gas accumulations and ventilate as necessary. Eliminate sources of ignition.

Other incidents may also require 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 (not necessarily in this order):

- Notifying police and fire departments
- Implementation of the SCE Community Gas Emergency Plan
- Evacuating a suitable area based on size of the leak
- Blocking off an area
- Rerouting traffic
- Eliminating sources of ignition
- Venting the area
- Stopping the flow of gas by closing valves or other means

Evacuation, Site Worker, and Public Protection

Lawful responsibility for ordering public evacuation rests with public safety officials. However SCE gas staff also have responsibility to immediately notify public safety officials of gas risks, and in the absence of public safety officials, take immediate actions to notify and protect the public from gas risks. This will include the recommendations as follows:

Perimeter zone(s) around the affected area should be established as directed by the incident commander. These include:

Hazard Zone - is the area in which personnel are potentially in immediate danger from the hazardous situation. This zone shall be established by the incident commander. Access to this area will be rigidly controlled and only authorized personnel shall be allowed to enter the Hazard Zone. Members of the general public are excluded from this zone. Further zoning may be incorporated into the hazard zone for purposes of emergency response and O.S.H.A. compliance.

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 Sheriff's Department when necessary. The area to be evacuated depends upon the nature and extent of the fire, explosion, or leak.

In Case of Fire

Do not extinguish fire generating from open or broken pipes, flanges etc. Evacuate the public for at least 500-1,000 feet, dependent on the size of the release. Control the exposures so that the fire does not spread and shutoff valves which allow fuel to burn. Extinguishing flames without controlling escaping gas will potentially lead to larger concentrations of gas developing and forming explosive mixtures in air.

Purging Gas Distribution Lines

When a pipeline is being purged of gas product, care must be exercised so that explosive mixtures with air are not formed. If purging cannot be accomplished with sufficient flow or ventilation to prevent explosive buildup's, then inert gases must be used to secure affected line segments. This will be especially important when welding or cutting is to be performed to prevent fire or explosion.

Periodic Gas Line Inspection and Testing

The entire buried gas pipeline system is required by State and Federal regulation to undergo periodic surveillance and patrol. This should include inspection for leaks, corrosion, or geological instability. System inspections should occur not less than quarterly.

In addition to routine inspection, cathodic protection systems shall be maintained, and periodic cathodic and pressure testing shall be conducted (49CFR 192.453). Cathodic inspections of buried gas lines shall occur not less than once each calendar year, but with intervals not exceeding 15 months (49CFR 192.463). Above ground exposed lines shall be expected at least once every three calendar years, but with intervals not exceeding 39 months.

The California Public Utilities Commission (CPUC) requires specific annual testing of buried gas utility systems with gas detection equipment in business districts, and in the vicinity of schools, hospitals, and churches. This instrument testing should focus at pavement cracks, utility manholes and pipe chasses, and other opportune locations.

Records must be maintained for such testing for at least 5 years. Consult federal and state regulation prior to the abandonment of any gas distribution line.

Gas Line Repair and Welding

Gas line repair and welds are required by law (49CFR 192.241-245) to be accomplished in accordance with ANSI Standard 1104. This standard established the quality of the weld or other repairs and should be consulted prior to the beginning of significant repair work.

Availability of Pipeline Emergency Information

This plan, including system maps, shall be made available to fire departments serving Catalina Island. This emergency plan must be made available to the public upon request per state and federal law. The position of buried gas transmission lines in open areas shall be marked when possible by signage, and shall be made available to pipeline excavation warning services. Pipeline excavation warning services may contact representatives of the Catalina Gas Utility by dialing (310)510-0932.

SCE Catalina Utilities Center Response Equipment Inventory (needs specific numbers added)

SCE maintains the following equipment for response to gas emergencies on Catalina Island:

- a. Response vehicles and equipment (W&G crew vehicles)
- b. Trained response staff (W&G crew members – Foremen, Operator/Mechanic, Apprentice, Utilitymen)
- c. Supervisory staff/emergency incident commanders (W&G Supervisor and CUC Supervisor)
- d. Gas concentration monitoring equipment (See Standard Procedure (SP) 429 – Operating Combustible Gas Indicators)
- e. Other equipment (materials and supplies to perform repairs)

Mutual Assistance

Assistance from neighboring gas utilities is generally unavailable to SCE on Catalina Island. The use of propane rather than natural gas is the principle issue, since neighboring gas utilities all utilize, train, and have operational experience and preparedness for natural gas rather than propane. Risk management decisions by these neighboring utilities have barred past assistance.

Contracting Emergency Response

General pipeline contractors may be sought to reconstruct broken gas mains. They will require that the site be confirmed as posing no combustibility hazards before they initiate work on the site. SCE has no existing emergency response contract with such providers. SCE contractors

such as ARB Inc. are equipped to do such work but are not on retainer to provide immediate service. Major gas outages from pipe main ruptures will likely mean protracted logistics and repairs will be required which could lead to outages for days.

Training and Post-Incident Review

SCE gas utility staff shall be aware of the procedures established in this plan, and shall refresh this awareness through training. SCE staff shall establish liaison with local fire service responders and ensure familiarity and operational capability during joint response.

SCE gas utility staff should conduct an After-Action Review (AAR) of significant incidents and responses with an emphasis on response methods, strategies, management, and related information with the intent on strengthening team capability and performance.

Persons responding to gas emergencies shall be trained in accordance with the utilities practices, OSHA standards, and emergency response techniques. Records of such training shall be maintained for not less than 5 years.

Mandatory Reporting to the State and Federal Government

Gas pipeline emergency incidents that meet the reportable requirements and have caused private property damage must be reported to the state and federal government (49CFR 191.5).

Reporting will be accomplished by SCE Safety and Environmental Specialists.

Federal 24 hour: National Response Center: (800) 424-8802

State 24 hour: State Warning Center (800)852-7550

This telephonic report, if required, should be no later than two hours after discovery. This telephonic report of a serious incident should include:

- Identity of reporting operator,
- 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 time)
- The number of fatalities and personal injuries, if any
- Type and extent of property damage, and
- Description of the incident including all significant facts.

For each telephonic report, follow-up reporting must be filed with the U.S. Department of Transportation (DOT RSPA Form 7100) within 30 days of the telephonic report.

Annual reporting to the DOT is required not later than March 15 each year for system incidents. (DOT RSPA Form 7100 1-1).

CHECK LIST FOR MAJOR EMERGENCY

1. [] Has the Fire Department been notified?
2. [] Have the occupants been evacuated and the area secured?
3. [] Has the Sheriff's Department been notified?
4. [] Has a repair crew been notified?
5. [] Has command and communications been established?
6. [] Has the leak been shut off or brought under control?
7. [] Has SCE Catalina Utilities District management and supervisory staff been notified?
8. [] Has SCE Safety and Environmental Services been notified?
9. [] Have emergency valves or proper valves to shut down or reroute the gas been identified and located?
10. [] If an area has been cut off from a supply of gas, has the individual building been cut off?
11. [] Is the situation under control and has the possibility of recurrence been eliminated?
12. [] Has the surrounding area, including adjacent buildings and cross streets, been probed for the possibility of further leakage or gas accumulations?
13. [] Has SCE completed telephonic reports to the State and Federal Government?

Emergency Call List

Avalon Fire Department	911 or (310)510-0174
Los Angeles County Fire Department	911
Los Angeles County Sheriff's Department	911 or (310)510-0174
Baywatch Avalon Lifeguards	911 or (310)510-0174
Catalina Island Medical Center (CIMC)	(310)510-0700
National Response Center	(800)424-8802
State Warning Center	(800)852-7550
SCE Pebbly Beach Generating Station	(310)510-4301
SCE Operator (24 hour)	(626)302-1212
Catalina Public Gas Smell/Leak Reporting Center	(800)367-8851
"Call Before Digging" Line	811 or (800)227-2600

Appendix C

SCE Catalina Workforce Meeting to Review the Safety Plan

SCE Catalina Workforce Meeting to Review the Safety Plan

§ 961(e) states that each gas corporation is to provide opportunities for meaningful, substantial, and ongoing participation by the workforce in the development and implementation of the plan, with the objective of developing an industry-wide culture of safety that will minimize accidents, explosions, fires, and dangerous conditions for the protection of the public and the gas corporation workforce.

On June 27, 2012, to comply with § 961(e), SCE Catalina made the Safety Plan available to, discussed it with, and provided for comments and suggestions from the workforce. A log of the comments and suggestions, including the disposition of the comment or suggestion, and a summary of the rationale for the disposition is presented below.

Employees were informed that if any of them perceive a breach of safety requirements, they may inform the Commission of the breach, and that the Commission will keep the identity of the employee confidential. This information was summarized in a handout and a copy of the handout was given to each employee during the meeting. In addition, the handout presents the address of the Director of the Commission’s Consumer Safety and Protection Division and instructions to request designation as “Safety Breach Notification from Gas System Operator Employee – Confidentiality Requested” to seek confidential treatment. A copy of the handout is presented in this Appendix.

Log of Employee Comments/Suggestions from the Safety Plan Review Meeting – June 27, 2012.

Employee Comments & Suggestions	Disposition and Rationale
1) I want to better understand how work orders are supposed to be processed and that I am completing the correct forms and documentation.	Work orders are given to supervisors and foremen at the daily work planning meeting. When the work task is assigned, forms and documents to be completed are to be provided. If you have questions, ask your foreman for clarification. Completed forms are to be turned into your foreman for further processing.
2) What tasks are associated with the distribution integrity management plan (DIMP) and simple, handy, risk-based integrity management plan (SHRIMP)?	The DIMP (and SHRIMP as a part of DIMP) became effective in August 2011. Work tasks associated with the plans are issued via work orders and instructions from you foreman. Copies of the plans are available and you are encouraged to read and review them. Your comments are welcome.

<p>3) I want to learn more about our standard procedures.</p>	<p>All standard procedures are available in electronic form on the common directory and in hardcopy. The location of these resources will be shown to you after this meeting. In addition, one standard practice will be reviewed during each Monday morning crew meeting to help keep current on requirements.</p>
<p>4) We need more employees and more field training (as opposed to classroom training). Also, the apprentice program needs to be improved. What is being done about these issues?</p>	<p>Training is performed under the umbrella of the operator qualification program and requirements presented in the O&M manual standard practices. The purpose of the Safety Plan is to change, optimize, or to enhance existing methods and this applies to training, too. Please note that some employees feel training needs to improve but others feel training is meeting requirements. In regards to staffing level, we have an employee enrolled in the apprentice program who is scheduled to complete training this fall. Once this training is complete, they will be providing additional day to day support of the utility. I will ask management for clarification of staffing levels for the near future and about the apprentice program curriculum. I will report back to you on July 2, 2012 at the Monday morning crew meeting</p>
<p>End of comments/suggestions.</p>	

***SCE Catalina Workforce Meeting to Review the Safety Plan
Employee Handout
June 27, 2012***

As an employee, if you perceive a breach of safety requirements for the propane distribution system, you may inform the California Public Utilities Commission (CPUC) of the breach and the CPUC will keep your identity confidential.

If you wish to report a breach of safety requirements, contact the Director of the CPUC's Consumer Safety and Protection Division.

Jack Hagan
Director of the Consumer Protection & Safety Division
California Public Utilities Commission

San Francisco Office (Headquarters)
505 Van Ness Ave.
San Francisco, CA 94102
Phone: (415) 703-2782
800.848.5580 (Toll Free)
Fax: (415) 703-1758

When you contact the CPUC, request designation as a "Safety Breach Notification from Gas System Operator Employee – Confidentiality Requested" to receive confidential treatment.