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June 16, 2020

VIA EMAIL

Caroline Thomas Jacobs
Director, Wildfire Safety Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

**Re: San Diego Gas & Electric Company's Request for a 2020 Safety Certification
Pursuant to Public Utilities Code Section 8389**

Dear Director Jacobs:

Pursuant to Public Utilities Code Section 8389(e)-(f) and your May 6, 2020 letter providing guidance on submission of 2020 safety certification requests ("Guidance Letter"), San Diego Gas & Electric Company ("SDG&E" or "Company") hereby requests issuance of a 2020 safety certification.

The Commission's Executive Director granted SDG&E's initial safety certification on July 26, 2019.¹ Section 8389(f)(2) of the Public Utilities Code provides that an annual safety certification request must be submitted before the expiration of the prior certification, and that the Wildfire Safety Division ("WSD") "shall issue a certification within 90 days of a request if the electrical corporation has provided documentation that it has satisfied the requirements of subdivision (e)" of Section 8389.² This letter and the accompanying attachments comprise SDG&E's documentation that it has satisfied those requirements.

¹ SDG&E requested its initial safety certification via letters dated July 18 and July 24, 2019.

² Public Utilities Code Section 8389(f)(4) provides that "[n]otwithstanding paragraph (1), a safety certification shall remain valid until the division acts on the electrical corporation's pending request for safety certification."

1. Approved Wildfire Mitigation Plan – § 8389(e)(1)

On June 11, 2020, the Commission ratified Resolutions WSD-002 (“Guidance Resolution”) and WSD-005 (“SDG&E Resolution”). In Resolution WSD-005, WSD conditionally approved SDG&E’s 2020 WMP. As noted in SDG&E’s May 27, 2020 Comments on WSD’s draft resolutions, WSD should have made clear that conditional approval is not intended to impact an electrical corporation’s ability to obtain a safety certification in 2020, for which an approved WMP is a prerequisite. SDG&E further explained that Public Utilities Code Section 8386.3(a) does not contemplate “conditional approval”; rather, it authorizes WSD to approve or deny a plan. Since WSD approved SDG&E’s 2020 WMP with conditions, and did not deny that plan, the only logical conclusion is that its 2020 WMP is approved for purposes of Public Utilities Code Section 8389(e)(1).

2. Good Standing and Safety Culture Assessment – § 8389(e)(2)

The Commission has not initiated a safety culture assessment of SDG&E. As a result, and per the Guidance Letter, SDG&E has included documentation of the following items in Attachments to this letter.

a. Safety policies, including employee and contractor safety, gas pipeline and electrical safety.

While SDG&E has numerous standards, standard practices, program documents, operating procedures, work methods, and other documents across multiple business units that address safety in some fashion, such documents are largely driven by SDG&E’s Injury and Illness Prevention Plan (“IIPP”). The principal, overarching safety documents administered by SDG&E’s Safety Service Department include the following, which are included in Attachment 1:

- SDG&E Employee Safety Handbook (“ESHSD”) (note: the IIPP is Rule 1100 of this handbook)
- Environmental and Safety Compliance Management Policy (“ESCMP”)
- Contractor Safety Standard G8308

b. Number of reported ignitions to date in 2020 pursuant to CPUC Decision 14-02-015.

There have been seven ignitions to date in 2020 using the definition in D.14-02-015.

c. Number of fatalities and/or structures damaged and/or destroyed by wildfires ignited by utility infrastructure and/or equipment.

Since no time period was provided with respect to this item, SDG&E is interpreting it as consistent with the time period set forth in subsection d. – *i.e.*, “since issuance of the previous safety certification.” In that time period, there have been no fatalities and/or structures damaged and/or destroyed by wildfires ignited by utility equipment and/or infrastructure.

d. Worker and contractor fatalities and incidents since issuance of the previous safety certification. See Attachment 1.d.

Since July 26, 2019, there have been no employee and contractor OSHA-reportable fatalities or injuries.

e. CPUC investigations and court actions, if any, related to safety violations of the electrical corporation, including ongoing and closed investigations.

Since no time period was provided with respect to this item, SDG&E is interpreting it as consistent with the time period set forth in subsection d. – *i.e.*, “since issuance of the previous safety certification.” In that time period, there have been no such court actions. There has been one CPUC investigation:

- I.19-11-013 – Order Instituting Investigation on the Commission’s Own Motion on the Late 2019 Public Safety Power Shutoff Events

f. Responses to any Wildfire Safety Division requests for remedies as a result of compliance findings from evaluation of the 2019 and 2020 Wildfire Mitigation Plans.

SDG&E has not provided responses to any WSD requests for remedies as a result of compliance findings from evaluation of the 2019 and 2020 WMPs, as no such requests have been issued.

3. Safety Committee of Board of Directors – § 8389(e)(3)

The members of the Safety Committee of SDG&E’s Board of Directors are unchanged since SDG&E’s initial safety certification request and include:

Robert J. Borthwick: Mr. Borthwick’s relevant safety experience includes 16 years of energy industry experience. He has held executive leadership roles in environmental health, safety, and compliance functions across energy infrastructure and renewable energy business segments.

Erbin B. Keith: Since joining Sempra Energy in 1998, Mr. Keith has had responsibility for a variety of operational, safety and compliance functions. Mr. Keith, a licensed professional engineer and member of the Bar, chairs the SDG&E Safety Committee and liaises with the Sempra Energy Environmental, Health and Safety Committee.

Trevor I. Mihalik: Mr. Mihalik's relevant safety experience includes 20 years of executive energy infrastructure management throughout the United States and South America. Since 2000, Mr. Mihalik has held managerial board positions with gas pipeline, storage, renewable energy and utility companies.

These members have served on the SDG&E Safety Committee since 2019. SDG&E has included biographies of the Safety Committee members "highlighting safety expertise." *See Attachment 2.*

Additionally, while not required by Public Utilities Code Section 8389(e) or the Guidance Letter, SDG&E notes that in 2019, it established a Community Wildfire Safety Advisory Council ("Community Advisory Council") comprised of independent community members who possess extensive public safety and wildfire experience. The Community Advisory Council provides input and guidance to the Safety Committee and the Company on safety matters. It meets four times per year. SDG&E management also focuses on overseeing and managing safety initiatives through its Executive Safety Committee.

4. Executive Incentive Compensation Structure – § 8389(e)(4)

On January 27, 2020, SDG&E submitted a letter to WSD documenting its compliance with the executive compensation provisions within Public Utilities Code Sections 8389(e)(4) and (e)(6). Further, via letter dated February 11, 2020, SDG&E responded to comments on its executive incentive compensation structure submitted to WSD by the California Environmental Justice Alliance and The Utility Reform Network, demonstrating that neither party presented any valid basis for altering or rejecting SDG&E's executive compensation structure. SDG&E incorporates those submissions documenting compliance with Public Utilities Code Sections 8389(e)(4) and (e)(6) by reference.

While SDG&E demonstrated that its 2020 executive incentive compensation structure and its 2020 compensation structure for executive officers comply with Sections 8389(e)(4) and (e)(6), respectively, SDG&E notes that to the extent WSD plans to impose modifications in any respect, such modifications should take effect with respect to 2021 executive compensation structures. Such prospective modification is warranted due to the fact that SDG&E's 2020 executive compensation structures have now been in place for six months, and participants in those structures thus have settled expectations regarding those structures.

Finally, per the Guidance Letter, SDG&E recognizes that WSD anticipates disposition of executive compensation filings prior to June 30, 2020. To the extent WSD's disposition of SDG&E's submissions require follow-up submissions, SDG&E will undertake them at the appropriate time.

5. Board-of-Director-Level Reporting to the Commission on Safety Issues – § 8389(e)(5)

In its 2019 initial safety certification request, SDG&E established Board-of-Director-level reporting to the Commission on safety issues by identifying Kevin C. Sagara, Chairman of the Board of Directors, as its liaison. While the Guidance Letter seeks documentation of reporting protocols or schedules, SDG&E has not established any such protocols or schedules, nor does it believe they are required under any statute or regulation. SDG&E is willing to establish such protocols or schedules at the Commission's or WSD's direction, recognizing that the Commission's *ex parte* rules, as applicable, may be implicated. As discussed below, SDG&E has submitted reports to the Commission regarding the Safety Committee of its Board of Directors' consideration of safety issues via the Section 8389(e)(7) advice letters.

6. Compensation Structure for Executive Officers – § 8389(e)(6)

See response to item 4 above.

7. Implementation of Approved Wildfire Mitigation Plan, Safety Culture Assessment and Safety Committee Recommendations Quarterly Advice Letters – § 8389(e)(7)

Per the Guidance Letter, SDG&E has included the Tier 1 advice letters it filed pursuant to Section 8389(e)(7) since the issuance of the initial safety certification. These include:

SDG&E Advice Letter 3461-E (November 5, 2019) – approved

SDG&E Advice Letter 3496-E (January 16, 2020) – pending

SDG&E Advice Letter 3535-E (April 27, 2020) – suspended

*See Attachment 3.*³ Each Tier 1 advice letter complies with that statutory provision because it (1) details the implementation of its approved wildfire mitigation plan and most recent safety culture assessment (not applicable to SDG&E); (2) contains a statement of the recommendations of the Board of Directors Safety Committee meetings that occurred during the quarter; and (3) summarizes the implementation of the safety committee recommendations from the electrical corporation's previous advice letter filing.

The Guidance Letter also requires electrical corporations to “submit the results of any Wildfire Safety Division compliance audits of the 2019 Wildfire Mitigation Plans, the §8389(e)(7) advice letters, or audits associated with 2020 Wildfire Mitigation Plans, if any, along with an explanation of remedies.” SDG&E does not have any such materials to submit since no such audits have occurred.

³ SDG&E's next Safety Committee meeting will occur on July 8, 2020, after which it will submit another quarterly Tier 1 advice letter.

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SDG&E meets the requirements of Public Utilities Code Section 8389(e). Accordingly, SDG&E respectfully requests that you expeditiously issue it a 2020 Safety Certification. Please contact me if you have any questions about this request.

Sincerely,

/s/ Dan Skopec

Dan Skopec

Vice President of Regulatory Affairs

SAN DIEGO GAS & ELECTRIC COMPANY

Attachments

cc: Service List, R.18-10-007

ATTACHMENTS

ATTACHMENT 1

Erbin B. Keith-Safety Biography

Since joining Sempra Energy in 1998, Mr. Keith has held a variety of leadership positions, including Senior Vice President, Delivery and Operations, Sempra Energy Solutions and President of Sempra Energy Solutions; Vice President, Global Regulatory Affairs, Sempra Energy and Vice President, Regulatory Affairs and Chief Compliance Officer, Sempra Energy; Senior Vice President, General Counsel & External Affairs, Southern California Gas Company, and Chief Regulatory, Risk Officer and General Counsel, San Diego Gas & Electric (“SDG&E”). Mr. Keith currently serves as Deputy General Counsel for Sempra Energy.

Selected safety-related responsibilities:

Sempra Energy Solutions (2000-2004) Mr. Keith led operations for Sempra Energy Solutions (a former Sempra Energy subsidiary focused on the commercial and industrial energy market.). In his capacity as Senior Vice President, Mr. Keith had responsibility for safety functions.

Sempra Global; Sempra Energy (2004-2010) During this time period, Mr. Keith was responsible for the safety and compliance functions of Sempra Global. Sempra Global included all Sempra-affiliated operations other than SDG&E and SoCalGas. Mr. Keith oversaw Sempra Global regulatory activity at CPUC, FERC and Mexico regulatory agencies, including authorizations for major projects, enforcement investigations, permitting and compliance plans. Mr. Keith managed environmental services and compliance for existing facilities and new project development. In 2008, Mr. Keith’s responsibilities were expanded to manage YHE external affairs organization in Mexico.

SDG&E (2016-2017) Mr. Keith served as chief risk officer and general counsel for SDG&E, one of Sempra Energy’s regulated California utilities. As chief risk officer, Mr. Keith and his team were responsible for identifying safety risks and working with operational safety experts to mitigate these risks.

Sempra Energy (2017-present) For the past three years, Mr. Keith has served as the legal advisor to the Environmental, Health and Safety Committee (“EHS&T Committee”) of the Sempra Energy Board of Directors. In this governance role, Mr. Keith assists the EHS&T Committee chairperson in identifying critical and relevant safety topics to be reviewed by the EHS&T Committee, and assists the chairperson in the EHS&T’s committee report to the Sempra Energy Board of Directors.

Additional Professional Experience, Licenses and Education:

Mr. Keith is a member of the State Bars of California and Texas and a licensed professional engineer. Before becoming a lawyer, Mr. Keith was a lead engineer and project manager for Bernard Johnson, Inc. and prior to that, at Suttles, Madget & Dabney Consulting Engineers. In 2001, Mr. Keith was selected as “Energy Professional of the Year” by the Association of Energy Engineers. He previously served on United States Department of Energy's first Federal Energy Management Advisory Committee.

Robert Borthwick-Safety Biography

Mr. Borthwick has served in various capacities at Sempra Energy over the last 16 years. Most recently, he was general manager of Sempra Renewables, leading all aspects of Sempra's renewable energy business segment, including commercial development, finance and operations, as well as supporting the sale of its U.S. wind and solar assets. He was previously vice president and general counsel at Sempra Infrastructure, LLC, where he led the legal, environmental, health and safety, regulatory, human resources and external affairs groups supporting both Sempra Renewables and Sempra LNG. He also served as vice president and general counsel for Sempra U.S. Gas & Power, and associate general counsel for Sempra Energy. In 2019, he completed the 10 Hour OSHA safety training course. Mr. Borthwick currently serves as Deputy General Counsel for Sempra Energy.

Selected safety-related responsibilities:

Sempra Energy (2003-2012) Mr. Borthwick worked extensively on San Diego Gas & Electric's litigation arising out of three 2007 wildfires, specifically the Witch, Guejito, and Rice fires. He provided advice on changes and enhancements to SDGE's inspection and fire prevention procedures.

Sempra U.S. Gas & Power/Sempra Infrastructure (2013-2018) Mr. Borthwick had management and operational responsibility for a number of teams at Sempra U.S. Gas & Power and Sempra Infrastructure, including the environmental, health and safety (EHS) permitting and compliance functions. Safety practices included assigning a safety monitor to all major construction projects, establishing guidelines for qualified electrical worker designations, implementing a contractor safety screening process requiring contractors to meet safety metrics prior to submitting bids, establishing new minimum requirements for contractors performing critical lifts, and increasing the sharing of safety enhancements and lessons learned between plants and with industry groups. Mr. Borthwick led compliance committees for both companies and oversaw their annual risk assessments. Mr. Borthwick also served on the board of directors of two regulated public utilities, Mobile Gas in Alabama and Willmut Gas in Mississippi, from 2013 to 2016. In these board roles, he provided oversight on a variety of employee and public safety issues.

Sempra Renewables (2018-2019) As the General Manager for Sempra Renewables, Mr. Borthwick was responsible for operations, including health and safety. Sempra Renewables was a leader in safety compliance, conducting semi-annual safety summits to introduce new programs and share best practices, introducing a program to cross-train plant employees by having them lead semi-annual safety and environmental performance inspections at sister plants with support from safety and environmental professionals, and implementing a telemedicine service for employees at remote operating plants to provide better access to health care services. The Copper Mountain Solar complex in Nevada and the Mesquite Solar complex in Arizona were the first solar generation facilities in the United States to receive OSHA's VPP (Voluntary Protection Program) certifications.

Sempra Energy (present) Mr. Borthwick's responsibilities include overseeing Sempra Energy's compliance program and coordinating on compliance issues with its operating companies in

California, Mexico, Chile, and Texas. He served as vice chairman of the board of directors of Luz del Sur (luzdelsur.com.pe/en), the largest electric company in Peru, from March 2019 to April 2020, when Sempra sold its interest in the company.

Trevor I. Mihalik-Safety Biography

Selected safety-related responsibilities.

Bridgeline Holdings (2000-2005) Bridgeline, a joint venture between Chevron and Targa Resources, was a gas pipeline, storage and marketing operation consisting of over 1000 miles of intrastate gas pipelines and 25 bcf of high turn salt dome gas storage. Mr. Mihalik was one of the four senior executives responsible for the daily operations of the pipeline. During Mr. Mihalik's tenure, the organization handled multiple significant events and outages. Bridgeline held annual safety summits with the field personnel to ensure compliance with the Chevron standards of safety protocol.

Iberdrola Renewables Holdings (2006-012) Iberdrola Renewables was the U.S. division of the Spanish utility Iberdrola S.A., one of the world's largest utility holding companies. In this position, Mr. Mihalik served as one of the four senior executives overseeing the U.S. operations. Iberdrola Renewables, the second largest wind power developer and operator in the U.S., developed and built over 6,000 MW of wind power at 60 wind farms across the U.S. Mr. Mihalik served on the Board of two joint ventures and, in that capacity, had financial and operational oversight for the wind farms. Iberdrola Renewables maintained one of the highest safety records in the industry, with a workforce involving over 700 field operating personnel.

Sempra Energy (2012-present) Mr. Mihalik is Executive Vice President and CFO of Sempra Energy. As a senior executive, he has held governance roles in a number of energy infrastructure and utility subsidiaries. As Chairman of the board of Chilquinta Energia and Luz del Sur, Mr. Mihalik had oversight of the management team where safety was deemed the highest priority. Part of his role included ensuring that the Sempra safety standards were adhered to for all South American operations. Worked to facilitate best practices between South American operations and the US utilities, including annual safety summit participation. Mr. Mihalik has also served as a board member of SDG&E, SoCalGas, IEnova, Sempra U.S. Gas and Power and Sempra International. Board meetings regularly discussed and addressed safety issues and best practices.

ATTACHMENT 2

SDG&E Employee Safety Handbook (ESHSD)

SDG&E Employee Safety Handbook

This is an offline copy of the SDG&E Employee Safety Handbook as of 5/28/2020.

Most, if not all, hyperlinks point to internal documents and are not accessible outside the Sempra Energy network.

Number	Document Title
ESHSD-0000	Phone Numbers
ESHSD-1100	Rule 1100 - Injury and Illness Prevention Program
ESHSD-1200	Rule 1200 - General Safety and Health Rules
ESHSD-1300	Vehicle and Forklift Safety
ESHSD-1400	Office Safety
ESHSD-1500	Fire Prevention
ESHSD-1600	Emergency Action Plan (EAP)
ESHSD-1700	Workplace Security
ESHSD-1800	Incident and Injury Reporting
ESHSD-2100	General Construction, Maintenance and Operation Safety Rules
ESHSD-2200	Aerial Lift Equipment
ESHSD-3100	Electric - General Safety Rules
ESHSD-3200	Electric - Lithium (LI) Battery Safety
ESHSD-3300	Electric Substation and Maintenance
ESHSD-3400	Overhead Electric - Distribution and Transmission
ESHSD-3600	Underground Electric - Distribution and Transmission
ESHSD-3800	Electrical Safety Hazards
ESHSD-4100	Gas Distribution and Transmission
ESHSD-9999	Definitions

PHONE NUMBERS

Emergency Medical, Fire, Police	911
Claims	858-650-4100
DigAlert	811
Distribution Operations (Emergency)	619-725-5199
Service Dispatch (Trouble)	619-725-5100
Emergency Operations Center (EOC) Alternate Site	858-636-6920
Emergency Operations Center (EOC) Primary Site	858-636-6920
Employee Assistance Program (EAP)	800-342-8111
Employee Identification Badges/Access Control	619-696-2017
Ethics Helpline	800-241-5689
Fleet Dispatch (for breakdowns)	800-696-0076
Gas Control	323-266-5800
Safety Services	858-654-1895

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Brief:

Document Profile Summary	
Responsible Person:	Nardoza, Katherine
Published On:	08/26/2011
Last Full Review Completed On:	08/26/2011
Writer:	
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	

RULE 1100

INJURY AND ILLNESS PREVENTION PROGRAM

1100. PURPOSE AND SCOPE

This purpose of this program is to outline the seven essential elements of SDG&E's Injury and Illness Prevention Program (IIPP).

NOTE: The requirements of this program apply to SDG&E employees, and are effective on the date of issue.

1101. ELEMENT #1: AUTHORITY AND RESPONSIBILITY FOR THE PROGRAM

- A. **Chief Executive Officer:** Has overall authority and responsibility for implementation of the IIPP.
- B. **Vice President – Human Resources, Diversity & Inclusions:** Provides policy guidance, compliance oversight, and executive safety leadership.
- C. **Officers:** Have overall authority and responsibility for program implementation and performance in their areas.
- D. **Directors:** Have direct authority and responsibility for program implementation and performance in their areas.
- E. **Department Heads/Managers and Supervisors:** Have responsibility for implementing and maintaining the injury and illness program in their work areas and for answering questions about the injury and illness prevention program.
- F. **All Employees:** Perform only work they are qualified to do in a safe and efficient manner.
- G. **Executive Safety Council:** Review, and/or support company wide initiatives for safety and health as well as remove barriers that inhibit a strong safety program.
- H. **Safety and Health Department:** Specifies employee protection, interprets all applicable safety related regulations, creates safety policies and programs, identifies and evaluates workplace hazards, periodically, conducts safety and health assessments, and manages health and safety functions.

1102. **ELEMENT #2: PROMOTING COMPLIANCE WITH SAFE AND HEALTHY WORK PRACTICES**

- A. All employees are responsible for using safe work practices, for following all directives, policies, and procedures, and for assisting in maintaining a safe work environment. Employees who fail to follow safety procedures and rules are subject to disciplinary action.
- B. Management is responsible for ensuring all safety and health policies and procedures are clearly communicated and understood by all employees. Management is expected to enforce the rules fairly and consistently.
- C. Personal recognition, as well as award and recognition programs, is used to recognize employees, organizations, and employee safety committees for safety leadership and safe performance. Refer to the [Safety Recognition Policy](#) for more details.
- D. Our systems of ensuring all levels of employees comply with the rules and maintain a safe work environment include job observations, inspections, audits, incident evaluations, performance appraisals, and safety training as well as those mentioned in the above paragraphs.
- E. Compliance deficiencies may indicate the need for additional employee training and/or retraining, revision of policies and procedures, review of equipment and tools, etc.

1103. **ELEMENT #3: COMMUNICATING WITH EMPLOYEES IN A READILY UNDERSTANDABLE FORM**

- A. Open, two-way communication between management and employees on safety and health issues is essential to an injury-free, productive workplace. The following system of communication is used to ensure a continuous flow of information is shared:
 - Supervisors communicate safety and health information with all employees to whom they provide work direction including office employees.
 - Employees report hazards, injuries, and incidents without fear of reprisal of any kind.
 - Various committees are as follows with their associated responsibilities:
 - a. Executive Safety Council: Communicates to employees at regularly scheduled meetings to gain a deeper understanding of safety at the frontline.
 - b. Safety Action Team: Communicate between union and management on health and safety issues.
 - c. Local Safety Committees; Create and maintain active interest in their department's safety issues and initiatives.

- i. Safety committees will be established for each department involved in construction, operations, maintenance or other manual work.
 - ii. Size and representation will be determined by the department. One member of supervision shall be a regular committee member.
 - iii. Safety committees will meet regularly and documentation of committee meetings, activities, and recommendations will be made in writing and provided to the department head.
- Injuries and incidents are communicated to the organization via the Safety Information Management System (SIMS) or the phone tree.
- Other means of communicating safety and health issues are:
 - a. Safety and health training, including formal training instructions such as the safety lesson plans and classroom training.
 - b. Employee newsletter, safety bulletins, posters, Cal-OSHA Log and Summary of Occupational Injuries and Illnesses, Safety Standards, surveys, incident evaluation reports, Safety and Health Department intranet website and MS Outlook public folders.
 - c. Safety Committee Congress.
 - d. Safety meetings, department staff meetings and tailgates.
 - i. Office employees shall receive safety information through department staff meetings, safety meetings and email alerts. The goal is to ensure office employees are provided safety information and opportunities to discuss safety issues
 - ii. Safety meetings are as follows:
 - 1. Every 10 days for employees engaged in field construction or construction associated activities.
 - 2. Monthly for employees involved in operations, maintenance or other manual work (employee who spend at least 50% of their time in the field).
 - iii. Tailboard conferences or job briefings will be conducted by crew leaders to enhance understanding of the job plan prior to starting any job or day's work and whenever the job plan changes during the work.
 - iv. Safety meetings must be recorded on a 5300 form (or the [Safety Meeting Record](#) form) and filed locally. Records must be maintained for three years at a designated location within each department.

1104. ELEMENT #4: IDENTIFYING AND EVALUATING WORK HAZARDS

- A. Safety inspections are conducted to identify and evaluate hazards and results of inspections will be documented in the Safety Information Management System (SIMS) and communicated to affected employees.
- B. Periodic inspections are performed depending on the hazards involved and are conducted at a frequency to ensure workplace safety. At a minimum, inspections should be conducted:
 - Daily or weekly depending on project for construction areas and jobs.
 - Semiannually for operating bases and office areas.
 - Daily for Class A and B vehicles and forklifts
- C. When new substances, process, procedures, or equipment which present potential hazards are introduced into our workplace.
- D. When workplace conditions warrant an inspection, i.e., new unidentified hazard is recognized, injury or illness occurs, etc.
- E. Supervisors routinely observe their area(s) of responsibility and correct at-risk work practices and conditions.
- F. Employees shall report immediately any hazardous conditions, defective tools or equipment, or at-risk procedures to their supervisor.
- G. In addition, work place hazards and at-risk work practices can be identified through safety committee meetings, safety meetings, job observations, incident statistics and incident evaluation reports, near misses, audits, safety assessments and manufacturer warnings and information.
- H. All inspection records are retained in SIMS.

1105. ELEMENT #5: INVESTIGATING OCCUPATIONAL INJURIES AND ILLNESSES

- A. Employees report all work-related incidents promptly to their supervisors.
- B. Department heads/supervisors will investigate work-related injuries, illnesses, incidents, and near misses to determine underlying/contributing factors and actions necessary to prevent recurrences. Near Misses/Close Calls can be entered into SIMS, via the Close Calls page of the Safety Website, or by printing and completing a paper copy available here.
- C. Incident evaluation procedures include:
 - Proper notification is made.
 - Visit the incident scene as soon as possible.
 - Interview injured employees and witnesses.
 - Examine all factors associated with the incident
 - Determine the contributing factors of the incident

- Develop and implement corrective actions to prevent reoccurrence.
 - Document the findings and corrective actions using incident evaluation form.
- D. Incident evaluation process will conform to the Safety and Health department website, the [injury and illness reporting](#) section.

E. Cal/OSHA Inspections and Information Requests

- In the event a Cal/OSHA compliance officer contacts an employee regarding a particular incident, the employee must NOTIFY SDG&E's Safety Compliance Manager immediately at 858-654-620 (Office) or 858-264-7408 (Mobile).

Employee should be prepared to provide the understanding of the reason for the inquiry and details of the request. If the Safety Compliance Manager is not available, notify other members of the Safety and Health Department (Director, Manager, Industrial Hygienists or Field Safety Advisors).

- In the event a Cal/OSHA compliance officer shows up at any of the SDG&E facilities or job sites, the following steps should be followed:
 - Ask for his/her credentials and a business card
 - Advise the OSHA compliance officer that you must contact SDG&E's Safety & Health Department and that the inspection will have to be delayed until a representative from Safety & Health arrives
 - Have the inspector wait in a conference room or other suitable location, and be polite
 - Document the inspector's arrival time and reason for the visit
 - Notify SDG&E's Safety Compliance Manager at 858-654-6420 (Office) or 858-264-7408 (Mobile). If you cannot reach the Safety Compliance Manager, contact other members of the Safety and Health Department (Director, Manager, Industrial Hygienists, or Field Safety Advisors).

1106. ELEMENT #6: CORRECTING UNSAFE OF UNHEALTHY CONDITIONS, WORK PRACTICES AND PROCEDURES IN A TIMELY MANNER

- A. Unsafe and unhealthy work conditions, practices or procedures shall be corrected in a timely manner based on severity of hazard.
- B. Supervisors correct and control identified hazards as soon as practical. When hazards are beyond supervisor's authority, supervisors communicate hazardous conditions with recommended corrective

action to management and/or Safety and Health will be contacted for assistance.

- C. When a hazard is identified, the following steps are taken:
- Eliminate the hazard source immediately if practical.
 - Take immediate temporary action until permanent controls are in place.
 - Permanent controls are done in this order:
 - i. If practical, build engineering controls into the process and eliminate the hazard. Examples are: use barriers or mechanical guards; provide ventilation; substitute less hazardous substances; change the design; etc.
 - ii. Apply administrative controls to reduce or limit employees' exposure to hazards. They include training, personal hygiene, and reduction of employee exposure time.
 - iii. Provide personal protective equipment to the employee. It must be correct for the hazard. This includes eye and face protection, protective coveralls, respirators, gloves, foot protection, head protection, etc.
- D. When an imminent hazard exists and cannot be abated immediately, all exposed persons must leave the area. Only properly trained and equipped employees are allowed to correct imminent hazards.
- E. A serious concealed danger is one which, (1) results from normal company operations, (2) poses a substantial probability of death or great bodily harm, and (3) is not readily apparent to the individual who is likely to be exposed. For these conditions that cannot be corrected immediately, take the following steps:
- Notify and remove the employee(s) and call the Field Safety Advisor.
 - Outside normal working hours, contact the SCG message center or SDG&E Trouble Desk and ask for the on-call Field Safety Advisor.
 - If corrections cannot be made within 15 days, Safety and Health must report the condition to Cal-OSHA.
- F. Records of hazard control actions must be retained by each department for a minimum of three years.

1107. **ELEMENT #7: TRAINING AND INSTRUCTIONS**

- A. All employees, including managers and supervisors, shall have training and instruction on general and job-specific safety and health practices as well as on specific hazards associated with employee's job tasks. When employees know how to do their job properly, know the hazards of the

job, and understand their supervisor's expectations, they work safely. The required training is provided:

- To all new employees which include training on the IIPP, rules for safe work, notation of all hazardous materials and conditions etc.;
 - To all employees given new job assignments for which training has not previously been received;
 - Whenever new substances, processes, procedures or equipment are introduced into the workplace and represent a new hazard;
 - Whenever the company is made aware of a new or previously unrecognized hazard;
 - For supervisors to familiarize them with the safety and health hazards to which employees under their immediate direction and control may be exposed and how to communicate information about those hazards effectively.
- B. Training and instruction is provided depending on employees job tasks and may include the following:
- How and when to use personal protective equipment.
 - Employee Safety Handbook
 - Smith System® defensive driving
 - Potential hazards, protective measures and safety practices associated with new job assignments before exposure
 - Information on chemical hazards to which employees could be exposed and other hazard communication program information
 - Emergency action and fire prevention plans
- C. For a listing of all Safety and Health training required and Safety and Health training requirements, go to the [Safety Training](#) section of the Safety and Health Department website.
- D. Training records must be documented and maintained as required in the Employee Safety Training Standard (G8301).

1108. **RECORDKEEPING**

- A. All inspections are recorded on the SIMS safety inspection checklists. Copies of the SIMS safety inspection [checklists](#) can be found at the Safety and Health Department website.
- B. Safety and Health training is documented and maintained as required in the Employee Safety Training standard (G8301).
- C. Inspection records are maintained for at least three years and in accordance with the company retention policy.

1109. **DOCUMENTS**

- A. The IIPP is the foundation of SDG&E's safety and health program. In addition to the IIPP, other safety and health documents and program are established and must be adhered to, those include but are not limited to:
- Safety Standards
 - Safety Lesson Plans,
 - SDG&E Employee Safety Handbook,
 - SDG&E Safety and Security Policies and Programs Manual,
- B. These documents are equivalent in providing required training and information to employees, as outlined in federal, state, and local regulations as well as company policy.

1110. **DEFINITIONS**

- A. **Incident:** Any work related injury, illness, damage, or near miss.

1111. **REFERENCES**

- A. California Code of Regulations, Title 8, Section 3203, Injury and Illness Prevention Program

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.

Brief: Addition to Element #5 of the IIPP concerning the Procedure for Cal/OSHA Inspections and Information Requests.

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	05/18/2017
Last Full Review Completed On:	
Writer:	The Dell, Terry
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	

RULE 1200

GENERAL SAFETY AND HEALTH RULES

1200. SCOPE

The following safety and health rules apply to all employees.

1201. QUALIFICATION FOR DUTY

- A. No employee will attempt work for which they are not technically, mentally and physically qualified.
- B. Any supervisor, foreman or employee in charge, having reasonable grounds to suspect that an employee is technically, mentally or physically unfit for work assigned, will prohibit such employee from working until satisfactory evidence of that employee's fitness is obtained.
- C. Supervisors will ensure that employees have adequate training, equipment and access to other resources needed for their work.

1202. CARE IN PERFORMANCE OF DUTIES

- A. Employees will use reasonable care in the performance of their duties to ensure, at all times, maximum safety for themselves, fellow employees and the public.
- B. Employees are not permitted to engage in practical jokes, "horseplay" or the encouragement of others to take unnecessary chances.
- C. Employees shall not use cellular phones or other electronic devices for non-work related purposes while engaged in an assigned task at a work site. Note: Use of cellular phones and other electronic devices includes but is not limited to voice, text, internet and gaming features.

1203. JOB PLANNING & BRIEFING

- A. Prior to starting any construction job or day's work or any other activity of sufficient hazard or complexity, the supervisor or designated representative, shall ensure the key job hazards are identified and safety measures can be implemented to control the hazards.

- B. Before starting any construction job or day's work or any other hazardous or sufficiently complex activity requiring two or more employees, the foreman or employee in charge must use a tailgate form/checklist to identify the hazards and controls or mitigation and call the affected work group together for a job briefing to identify/discuss:
1. The purpose of the job
 2. Materials and equipment
 3. Routine and critical tasks
 4. Crew member roles and responsibilities
 5. Existing conditions
 6. Circuit information, if applicable
 7. Hazards, potential hazards, and mitigation measures
 8. Personal Protective Equipment (PPE) requirements
 9. Work methods (including insulation, isolation, rubber gloves for electrical hazards)
 10. Emergency response communication procedures
- C. The employee in charge will encourage questions, comments and suggestions by the crew members. The briefing will continue until affected employees understand the job at hand.
- D. If, during the course of the work, changes in procedure become necessary, affected employees will be called together and the change properly explained.
- E. After completion of the job or task, while onsite, the foreman or employee in charge shall debrief employees and other parties present on the following:
1. What could or should have been done differently?
 2. Were there any close calls / near misses?
 3. Were the procedures adequate?

If there are lessons learned that impact other groups, they shall be shared with the supervisor for follow-up and communication as needed.

1204. CLOTHING

- A. Suitable clothing shall be worn during working hours for the type of work being performed and consistent with the job duties. The

supervisor, foreman or employee in charge will determine that employees are suitably clothed for their jobs.

- B. Flame-resistant (FR) clothing provided by the company will be worn by employees when they are potentially exposed to the hazards of electrical arcs. Where FR clothing is not provided for occupations that are potentially exposed to electrical arcs only approved natural fiber clothing made from 100 percent cotton, silk or wool shall be worn as an outer layer. Only 100 percent natural fiber garments shall be worn against the skin by employees who may be exposed to electrical arcs.

1205. **HOUSEKEEPING, CLEAN AND ORDERLY PREMISES**

- A. Combustible material (oil-soaked or paint-covered rags, waste, shavings, packing and rubbish) must not be allowed to accumulate on benches, floors or yards. These materials should be placed in containers provided for them.
- B. Floors and platforms will be maintained in good repair and kept free of trash, projections, obstructions, oil, grease, food waste, spilled beverages and water. Where the job requires working on slippery surfaces, mats or grates, cleats or other protection are required to prevent slipping. Floors and platforms will be constructed and maintained to support the loads they must carry.
- C. Stairways, aisles, exits, roadways, walkways, and material storage areas will be kept clear of obstructions.
- D. Materials and supplies should be stored in a secure and orderly manner to prevent them from falling or spreading.

1206. **STAIRWAYS, DOORS, LANDINGS, HALLS**

- A. Handrails shall be used when ascending or descending stairs, maintaining 3 points of contact.
- B. Employees shall not run in hallways, on stairways or around corners.
- C. Employees should be careful when passing through swinging doors.
- D. Keep to the right in hallways, going around corners and when passing through double swinging doors.

1207. **EQUIPMENT AND TOOLS**

- A. Employees will use equipment and tools that are appropriate for the job and in good repair.
- B. Any equipment or tool found to be unsafe must not be used until repaired or replaced.
- C. Proper handles will be fitted to equipment and tools where required.
- D. Equipment, tools and other materials in elevated positions shall be protected from falling.
- E. Cutting tools will be kept sharpened and protected from incidental contact by people.
- F. Metallic tapes or metallic rules will not be used near exposed, energized electrical equipment or carried by anyone working with electricity.
- G. Compressed air must not be used to clean clothing or hair. It must not be directed toward an employee for any reason. Compressed air may not be used for cleaning purposes except when reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.
- H. All Safety equipment, including personal protective equipment, shall be first approved for use by the Safety Department (see Section 1216). Safety equipment shall be inspected before use to ensure it can be used effectively. If defective or past service date, it shall be removed from service.

1208. **REMOVING SAFEGUARDS**

- A. Safeguards will not be removed except on approval of the supervisor, foreman or employee in charge.
- B. Before normal operation is permitted to resume, any regular safeguards that have been removed will be replaced or suitable temporary safeguards be provided.

1209. **WARNING SIGNS, GUARDS AND OTHER DEVICES**

- A. Approved warning signs, barriers, guards, flags, flares or lights will be properly installed and maintained where hazards exist due to moving or stationary machinery or vehicles, exposed energized parts

of equipment, open excavations, construction operations, removal of manhole/hand hole covers or other conditions.

- B. These warnings and guards will be placed immediately at the point of obstructions, excavations or other hazards and far enough in advance to give adequate warning.
- C. Employees will read and comply with written warnings on signs, labels or instruction manuals and with audible warnings or alarms of other types.

1210. **LADDERS**

- A. Ladders will be inspected for cracks, missing rungs, damage or slippery feet/surfaces before each use.
- B. When working from a portable ladder, employees must make certain the ladder is securely placed, held, tied, or otherwise made secure to prevent slipping or falling.
- C. Care must be used in placing ladders. The bottom of the ladder should be away from the wall a distance equal to one-fourth of the length of the ladder from the ground to the point of support. The side rails of ladders used to serve a platform, roof etc., must extend at least three feet above the upper landing, unless suitable handholds are available.
- D. Ladders must not be placed in front of doors opening toward the ladder unless the door is open, locked or guarded.
- E. The employee will face the ladder and use both hands when climbing or descending. Three points of contact (one hand and two feet or two hands and one foot) shall be maintained at all times while ascending or descending ladders. Materials and tools should be raised and lowered by a hand line.
- F. When work from a ladder requires reaching to one side, the center of the body must not extend beyond the side rails. (This is also known as the "belt buckle" rule.)
- G. Employees may not stand on the top platform of ordinary stepladders, except when used to gain access to attics or similar spaces through "crawl holes" affording adequate handholds.
- H. Do not stand on the top three rungs of a straight ladder or the top two steps of an ordinary stepladder and work unless:

1. The adjacent structure provides firm handholds, or
 2. A safety belt attached to a secure structure member is used.
- I. Do not use ladders with weakened, broken or missing steps, broken side rails or other defects.
 - J. Portable ladders, except stepladders, will be equipped with non-slip bases. In addition, when the ladder is used on cement, metal or an oily surface, it must be blocked, lashed or held by someone.
 - K. Portable metal ladders, except approved hook ladders, will not be used in the vicinity of energized electric circuits. All such ladders must be legibly marked "Caution - Do Not Use around Electric Equipment."
 - L. Benches, boxes, tables or other makeshift substitutes must not be used in place of a ladder.
 - M. Wooden ladders will have a clear finish only. Paint that might obscure a defect in the wood is not to be used.

1211. **SAFE SUPPORTS**

- A. No employee, material or equipment will be supported by any portion of a tree, pole, structure, scaffold, ladder, walkway or other elevated structure until the employee makes sure the support is strong enough and properly secured.
- B. Scaffolding must have sufficient strength and rigidity to support four times the maximum intended load.
- C. Construction details of scaffolding will comply with applicable governmental safety orders.

1212. **EXPLOSION-PROOF OR INTRINSICALLY-SAFE LIGHTS AND EQUIPMENT**

Only an approved vapor-proof flashlight or extension cord/fixture may be used near gasoline, escaping gas or other flammable vapors or when entering a room or enclosure suspected of containing gas.

Basements, cellars and other dark areas must not be entered without proper light; the use of matches or other open flame is strictly forbidden.

1213. **MATERIAL HANDLING**

- A. When lifting, check the load weight and balance, take a firm grip, get a good footing, place the feet a comfortable distance apart, keep the back straight, bend the knees and lift with the legs.
- B. Get help when needed. Use cranes or hoists for lifting heavy loads. Keep out from under suspended loads.
- C. Use gloves or hand pads as required when handling materials.
- D. Never carry a load that obstructs the vision.

1214. **PACKING, UNPACKING, STORAGE, LOADING AND UNLOADING OF MATERIALS**

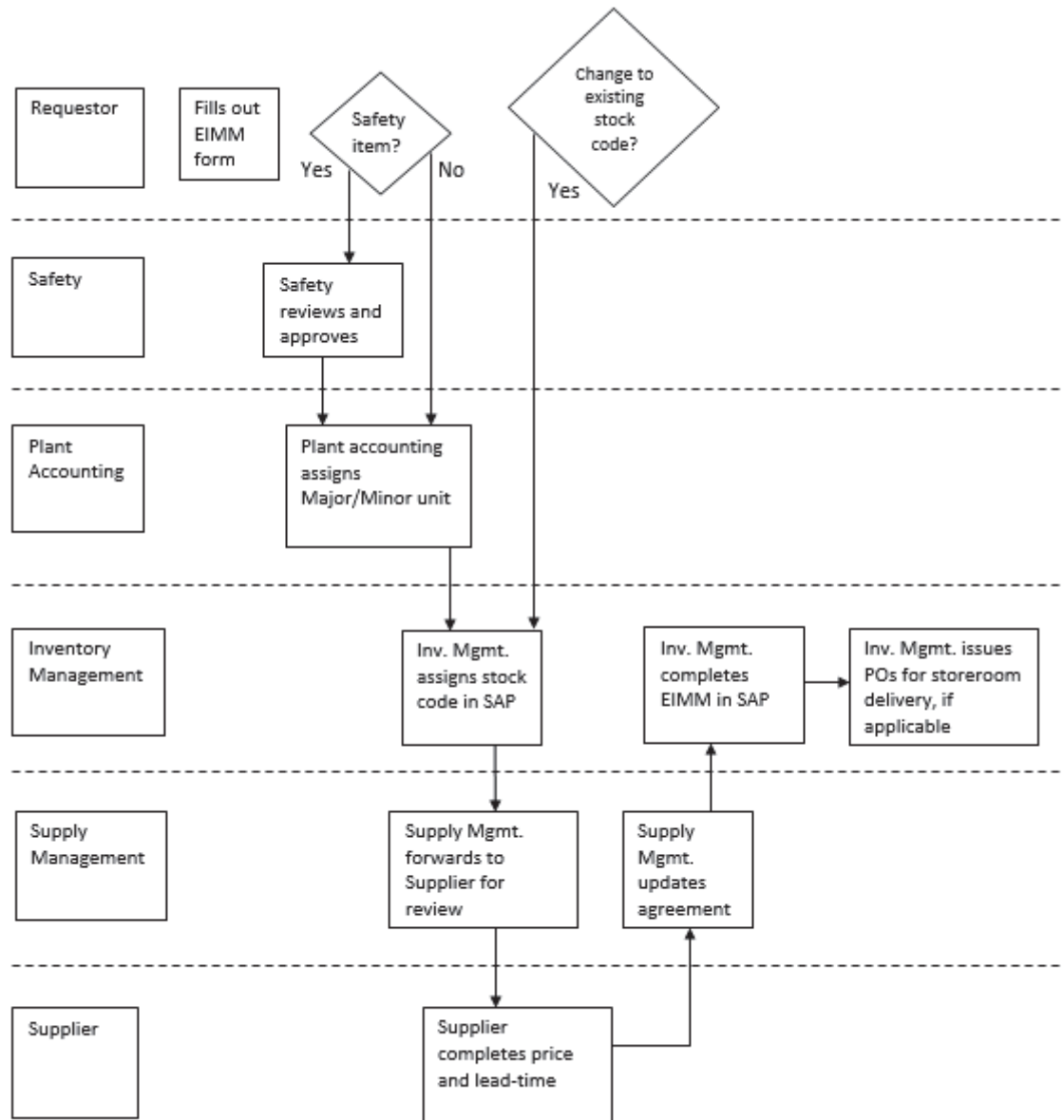
- A. Articles and tools will be stored in a way that prevents persons from coming in contact with sharp edges and points.
- B. Nail points, ends of wires or bands should not be left exposed when packing or unpacking boxes, crates, barrels or other containers. Nails will be removed from loose lumber or the points bent down before disposing of the lumber.
- C. Be careful when packing or unpacking glassware, porcelain and other objects, which may have sharp edges.
- D. Do not handle loads from the street side of a vehicle if it can be avoided.

1215. **POLE HANDLING**

- A. Unloading. Prior to and during the unloading of poles, crossarms, and similar material, the load shall be thoroughly examined to ascertain if the load has shifted, binders or stakes have broken or the load is otherwise hazardous to employees. Where a hazardous condition is noted, positive means shall be taken to eliminate the hazard.
- B. Employees shall not stand on top or in the potential path of an unsecured load while unloading poles from pole dollies or utility trailers.

1216. **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- A. Personal protective equipment (PPE) means any approved device worn or installed (usually in close proximity) to eliminate, preclude or mitigate a hazard to a person.
- B. All requests to create, change, or delete PPE products and their respective stock codes requires the completion of an Electronic Item Master Maintenance (EIMM) form by the requestor and submitted to Inventory Management and Logistic representative. EIMMs require Team Lead or Supervisor approval from the requesting department, the requestor is responsible for obtaining proper approvals before submitting the EIMM to the Inventory Management representative for processing. All EIMMs that fall under the safety or personal protection equipment (PPE) category shall be approved by the Safety Department. The requestor is responsible to obtaining approval from the Safety Department before submitting the EIMM to the Inventory Management representative for processing. Any EIMMs for safety or PPE items without Safety's approval will be rejected by Inventory Management and sent back to requestor to obtain approval. The following diagram depicts the EIMM process flow:



- C. The supervisor shall assure that the employee is instructed and uses PPE in accordance with the manufacturer's instructions.
- D. PPE shall be of such design, fit and durability as to provide adequate protection against the hazards for which it is designed.
- E. PPE will be worn when the employee is exposed to hazards not eliminated by engineering, administrative or work practice controls or where additional protection is required.
- F. PPE shall be inspected before use. It shall not be worn or used by another person unless sanitized before use. The employee is responsible for using only those in good condition.

1217. EYE PROTECTION

- A. Employees exposed to eye hazards must wear eye protection. Hazardous areas or operations will be identified for employees by their departments. Eye protection must be worn when the employee is engaged in or is near:
1. Drilling or chipping stone, brick, concrete, paint, pipe coatings or metal.
 2. Grinding, buffing or wire brushing.
 3. Dust or flying particles.
 4. Welding, cutting or burning.
 5. Hot or cryogenic liquids and other hazardous substances.
 6. Injurious light or heat rays.
 7. Work on energized high or low voltage electrical equipment.
 8. Work with compressed air or gases.
 9. Any job where there is danger of eye injury.
- B. Selection, use and construction of eye protection (including prescription eye wear) will meet or exceed the requirements of American National Standard (ANSI) Z87.1 "Practice for Occupational and Educational Eye and Face Protection". ANSI Z87.1 Excerpts Safety glasses will have side shields of the manufacturer's original design and construction. Tinted eye protection will not be worn indoors or inside enclosed spaces unless required for protection against high-intensity exposure to visible, infrared or ultraviolet light.
- C. Non-prescription eye protection will be stocked by Logistics and suitable types will be provided to employees by their departments. A guide for obtaining prescription safety glasses or prescription lenses for respirators can be obtained by contacting the Safety & Health Department.
- D. Employees who have corrected vision will wear approved eye protection over street-wear glasses or obtain prescription eye protection. Employees will ensure that these devices are in good condition, fit properly and are clean. Safety glasses must have side shields. Employees exposed to electrical hazards will not wear eye protection that has conductive (metal) frames.
- E. Employees will be reimbursed up to \$300 annually by their department for the cost of prescription safety glasses, under these conditions:

1. Employees need prescription lenses to adequately see their work and are required to wear eye protection due to routine exposure to eye hazards on the job.
 2. Lenses meet the written prescription obtained by an employee from a licensed physician or optometrist.
 3. Replacement of safety glasses is required due to prescription change or damage at work.
 4. Associated eye exams, fitting and procurement of prescription safety glasses are done on employees' own time.
- F. If photo-chromic (photo-gray) lenses are selected, they must not be worn when employees move to lighter or darker areas before the lens shading changes completely. Other lenses are recommended to be made of polycarbonate or other material which absorbs ambient noontime levels of ultraviolet light.
- G. Employees who wear a full-face respirator will be reimbursed by their department for the cost of prescription lenses fitting a respirator spectacle kit, under these conditions:
1. Employees need prescription lenses to adequately see their work and use of a full-face respirator is a requirement of the employee's job (i.e.; fire brigade member, painter).
 2. Lenses meet the written prescription obtained by the employee from a licensed physician or optometrist.
 3. Lenses are clear (untinted).
 4. Replacement of prescription lenses is required due to prescription change or damage at work.
 5. Associated eye exams, fitting and procurement of lenses (assembled by the lens supplier in a company provided spectacle kit) are done on employees' own time.
- H. If contact lenses are worn where there are potential eye hazards, appropriate eye protection must also be worn. No reimbursement will be provided for contact lenses.
- I. For further details about Protective Eyewear, refer to Safety [Standard G8341](#) Protective Eyewear Policy.

1218. HEARING PROTECTION

- A. Approved hearing protection must be worn by employees when noise exposure is 85 decibels (dB) or higher or when posted. Such exposures occur when operating or working near operators of pneumatic tools, compactors, grinders, chainsaws, abrasive blast equipment and backhoes. Exposures at or above 85 dB also occur

at operating units in power plants, gas turbines and compressor plants.

- B. Employees observing or overseeing operators of noisy equipment also will wear hearing protection.
- C. For further details about Hearing Protection, refer to the Safety [Standard G8340](#), "Hearing Conservation Program."

1219. **HEAD PROTECTION**

Approved head protection must be worn by all employees when:

- A. Working on or visiting any job site involving construction or maintenance of Company facilities or systems.
- B. Working in or visiting power plants other than when in offices, control rooms or rest areas.
- C. In district construction yards when engaged in or in proximity to manual or mechanical materials handling operations.
- D. Entering any area or facility posted as a "Hard Hat Area."
- E. So directed by employees in charge of work areas or facilities.

1220. **HAND PROTECTION**

Appropriate hand protection must be worn when work may expose the hands to cuts, burns, slivers or other harmful physical or chemical agents. Gloves are not required where there is danger of them being caught in moving machinery or materials.

- A. Leather gloves shall be worn when an employee may contact sharp, rough, or hot objects, surfaces or edges.
- B. Kevlar or similar thermal insulating gloves shall be worn for sustained contact with hot objects or surfaces.
- C. For voltages up to 250 volts, Class 0 rubber gloves, approved insulated tools or protective isolative barriers must be used.
- D. Class 2 rubber gloves shall be worn for exposure to electricity above 600 volts up to 15,000 volts.

- E. Class O rubber gloves shall be worn for energized electrical equipment up to 600 volts as a minimum protection for exposed energized conductors and equipment.
- F. Nitrile rubber gloves shall be worn for contact with fuels, oils, hydraulic fluids, paints, solvents, cleaning agents, adhesives, resins, paving compounds, pesticides, PCB, acids and bases unless a replacement glove of a known material is specified. Lightweight "surgical" types of nitrile gloves may be used only for light-duty applications where abrasion, puncture, degradation and/or permeation of a thin nitrile glove will not occur.
- G. Cotton gloves will be used only for exposure to rough surfaces or objects or as a liner on the inside of other gloves for comfort.

1221. **FOOTWEAR AND FOOT PROTECTION**

- A. Suitable footwear must be worn during working hours to provide protection, support, traction, and comfort for the work being performed.
- B. Wear Company approved foot guards when using pavement breakers, rock drills, clay spades, tampers, or other equipment that could crush or cut the toes or feet. Employees must:
 - 1. When putting on strap-on foot guards, ensure that the straps cross over the top of the foot.
 - 2. Prior to each use, visually inspect the strap-on foot guards for cracks, holes, corrosion or other damage to the foot protector shell.
 - 3. Check for weakened or broken rubber toe clips, cross bars, straps, and buckles.
 - 4. Damaged, defective, or deformed foot guards shall not be used and must be replaced.
 - 5. Note: With the approval of the crew leader, the use of toe guards is optional under the following conditions: When operating a clay digger in an excavation below ground level in soil that contains rocks 3 inches in diameter or smaller, and/or in soil conditions that will not cause the operator to lose control and possibly cause injury.
 - 6. Note: With the approval of the crew leader, the use of toe guards while operating the Powder Puff (Sand Rammer) are optional as long as the operator is able to operate the tool from above the excavation and the foot of the Powder Puff will not raise above ground level during operation.

- C. Wear Safety Department approved boots to prevent contact with hazardous materials or wear dielectric boots as needed. Any boots shared by employees must be sanitized between uses.
- D. For further details about footwear and foot protection, refer to Safety [Standard G8343](#) "Footwear and Foot Protection Policy"

1222. PROTECTIVE GARMENTS

Personal protective garments will be worn for the hazards below (unless determined otherwise by supervision):

- A. Abrasive blasting, welding, torch cutting, heavy grinding >> Denim coveralls.
- B. Fire fighting (beyond incipient-stage fire) >> Turnout coat and pants.
- C. Flammable gas concentrations greater than 60 percent of the power explosive limit (60 % LEL) >> Nomex hooded coverall. *Note: the 60% of the LEL is for natural gas (per the Working in Flammable Atmospheres standard).
- D. Hazardous materials may contact skin or clothing >> Chemical-resistant suit appropriate for exposure, such as:
 - 1. Asbestos dust, lead dust, paint spray, pesticide spray >> Tyvek hooded coverall or launderable denim coveralls.
 - 2. Corrosive liquid or mist >> PVC suit.
 - 3. Lab chemicals >> lab coat.
 - 4. Lead acid battery >> Rubber apron.
- E. Employees (on foot) exposed to vehicular traffic including off-highway, private roads or job sites shall be provided with, and shall wear: warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

1223. RESPIRATORY PROTECTION

- A. When air contaminants such as dust, fumes, mists, gases or vapors are present in harmful concentrations, ventilation or other engineering controls or work process changes will be used to eliminate such hazards.
- B. When such controls are not feasible or effective, approved respiratory protection will be used by exposed workers that have

been instructed in and fitted for its use. Information and requirements for selection, fit and use of respirators are contained in the [Safety Standard G8365 "Respiratory Protection Program"](#)

NOTE: Employees required to use respirators for emergency response shall be ready at all times to don their respiratory protection as a requirement of the job.

1224. **FALL PROTECTION**

- A. Employees working or walking in elevated areas will be protected from falling. Elevated areas are those where an employee could fall more than four feet when working on poles, towers or similar structures or within six feet of an unprotected edge. Primary protection is to be provided by guardrails, enclosures or coverings for openings in floors, roofs or other equipment.
- B. Where a guardrail or other fall prevention cannot feasibly be installed (i.e.; on a pole), personal fall arrest equipment will be used by employees.
- C. Employees will use approved body belts or harnesses, safety straps, lanyards, life lines or other fall arrest equipment as required when working in elevated positions.
- D. It is the employee's duty to inspect each safety device, whether furnished by the company or personally owned, each time it is used and to use only those that are in good condition.
- E. No employee will be elevated in a boom-type aerial bucket or work platform without first being secured with a body harness and safety strap or lanyard attached to the boom. If a lanyard is utilized, it shall be of such length as to limit a free fall to as short a distance as practicable, not to exceed six feet.
- F. When climbing poles or towers, employees will look to make sure that the snap hook is properly engaged in the "D" ring before the weight of the body is placed on the safety strap. When the strap is in use, both snap hooks shall not be attached to the same "D" ring.
- G. Wire hooks shall not be used on body belts.
- H. An employee using a boatswain chair will be secured by a safety belt and a safety line attached to the load line holding the chair or a fixed part of the structure being worked upon.

- I. No welding, burning, or sandblasting shall be done from a boatswain chair suspended by a fiber rope.

1225. **WORK OVER OR NEAR WATER**

- A. When working over or near water and the danger of drowning exists:
 1. Employees will wear approved life jackets or buoyant work vests.
 2. Ring buoys with at least 90 feet of line will be immediately available.
 3. At least one life-saving skiff will be immediately available.

NOTE: Proper use of personal fall arrest equipment or an approved safety net will be considered as eliminating the danger of drowning.

1226. **SCUBA DIVING**

Since scuba diving within the company has limited occupational application, the rules for this activity are not included in this manual. A separate manual has been developed for issue to those employees engaged in diving activities. Copies are also available in the Safety & Health Department and at the Metro Construction Operations for reference purposes.

1227. **PERMIT-REQUIRED CONFINED SPACES**

Confined spaces have limited access, are large enough to work in and are not intended for continuous human occupancy. Permit-required confined spaces also have the additional element of serious hazards that exist or could develop, causing death or serious injury.

- A. Some examples of permit-required confined spaces are tanks, cooling water tunnels, piping, pits, scrubbers and sewer/water vaults.
- B. Note: Electric, gas and telecommunications vaults are exempt from permit-required confined space regulations and are addressed in Rule 1228 "Other Confined Spaces".
- C. All employees involved including supervisors, entrants, attendants, potential rescuers and qualified testers must receive additional training before confined space work.
- D. Confined Space Entry Permit: No entry may be made and no work may proceed until hazards are assessed, protective measures

implemented and an entry permit is signed and posted. Requirements of the permit must be met. Any changes, such as turning off ventilation or altering work operations, automatically void entry permits and confined spaces must be evacuated immediately.

- E. Isolation and Purging: The space must be emptied and isolated from potentially hazardous substances, engulfing material or energy.
- F. Pre-Entry Air Testing: The air must be tested with instruments to determine if oxygen deficiency, flammable gas and/or toxic air contaminants are present. Specially-trained employees called Qualified Testers must do the hazardous atmosphere testing.
- G. Ventilation in Confined Spaces: Mechanical or natural ventilation must ensure good breathable air with adequate oxygen and reduce or eliminate hazardous air contaminants. Only outside air or grade D breathing air may be used to ventilate confined spaces—oxygen or other gases are prohibited.
- H. Respiratory Protection: Rescues, entry into unknown atmospheres, and work in air that is Immediately Dangerous to Life or Health (IDLH) require the use of self-contained breathing apparatus (SCBA). Normally, entries will not be allowed during IDLH conditions since these situations should be controllable with ventilation or other measures. Lower-level air contamination requires that employees choose and use the proper type of respirator.
- I. Attendants and Rescue Teams: Employees who standby to help in an emergency must also be CPR-certified and be able to summon help. Attendants are required on confined space entries where constant communication or assistance is required or when rescue may be needed due to potential for serious injury.
- J. Safety with Welding Gases: Compressed gas cylinders are prohibited in confined spaces (except SCBA). Hoses must be removed at the end of each shift. Oxygen is prohibited for ventilating spaces.
- K. For further details about Confined Space Entry, refer to Safety [Standard G8315](#) "Confined Space Operations."

1228. **OTHER CONFINED SPACES**

- A. Entry into electric, gas or telecommunication vaults may only be made after testing the atmosphere for combustible gas and determining that there is no combustible gas.

- B. Any unusual odor, substance or condition is to be investigated. Samples of suspect materials should be collected and analyzed from outside the vault until safe entry can be assured. If samples or hazards must be investigated by entering the space, only trained, protected entrants may enter the space.
- C. The space must be mechanically ventilated before entry for 10 minutes prior to entry and continuously ventilated during occupancy.
- D. A record of gas testing must be kept at the space for the duration of the entry.
- E. For further details about Confined Space Entry, refer to Safety [Standard G8315](#) "Confined Space Operations."

1229. **HAZARDOUS SUBSTANCES**

- A. Before handling substances that are toxic, corrosive, irritating, flammable, pressurized, reactive or infectious, employees will understand the hazards involved and follow the recommended procedures for safe handling, use of personal equipment and emergency response.
- B. Safety Data Sheets (SDS's) are available online through the Safety & Health website. Site specific hazardous substance inventories and SDSs can be downloaded and printed from the website. In addition, SDS can faxed to a location by calling 1-800-451-8346. For further details, refer to the Safety and Health website and Safety [Standard G8335](#) "Hazard Communication Program."
- C. Food, beverages or tobacco will not be consumed in areas where hazardous substances are stored, handled or disposed. If hazardous materials are transferred into other ("secondary") containers, a label identifying the contents and hazards must be attached to the secondary container and must be legible for its useful life.
- D. Chemicals will not be mixed or combined for use unless they are parts of a multi-component product as specified by the manufacturer.
- E. Hazardous substances will be transported safely over-the-road according to federal and state regulations.

- F. Contact with liquids or solids that may be absorbed through or be harmful to the skin will be avoided. Skin should be cleansed immediately following contact. Contaminated clothing should be removed and laundered separately before reuse or should be replaced.
- G. When engineering and work practice controls are not feasible or adequate to prevent overexposure to hazardous substances, personal protective equipment should be used, as shown below:
1. **Eye and face protection** - to prevent contact with corrosive or irritating substances which may splash, spray, blow or be wiped into the eyes, chemical goggles or a face shield with chemical goggles must be worn.
 2. **Chemical-resistant garments** - to prevent skin contact and clothing contamination, apparel such as gloves, apron, boots, coveralls and/or hood suited to the exposure must be worn.
 3. **Respiratory protection** - to prevent inhalation of air contaminants, approved respirators must be selected and used. For further details refer to the Safety [Standard G8365](#) "Respiratory Protection Program." Personal Protective Equipment (PPE) will be stored in identified cabinets or locations that are clean, readily accessible and do not expose PPE to temperature extremes or sunlight.
- H. If body surfaces are contacted or splashed by harmful substances (especially highly toxic, corrosive or irritating liquids), follow the manufacturer's directions for emergency treatment or the general instruction below:
1. **Eye Contact** - Flush immediately with large amounts of water holding eyelids open, then seek medical attention.
 2. **Skin Contact** - Flush the affected area with large amounts of water immediately. Washing with soap is helpful in removing substance not soluble in water. If clothing is contaminated, remove first under a running deluge shower. Seek medical attention if irritations, injury to the skin or other symptoms develop.
 3. **Inhalation** - Move to fresh air and get medical attention. If victim is not breathing, provide artificial respiration until emergency medical responders arrive.
- I. Deluge showers and eyewash stations must be maintained in operating order with access unobstructed by debris or objects.
- J. Hazardous material/waste spills and leaks must be controlled and contained safely as soon as possible. The area must be marked and

closed to entry by unauthorized personnel. Employees may engage only in aspects of spill cleanup for which they have been trained. Employees will follow department procedures and/or manufacturer's recommendations for safety measures, personal protective equipment, control and cleanup. Enclosed areas with evaporating liquids must be well ventilated or proper respiratory protection used.

- K. Refer to the SDG&E Hazardous Material and Waste Compliance Manual for more details on the introduction of new products, storage, handling, transportation, disposal, documents and training.

1230. **INFECTIOUS MATERIALS (ANIMAL CARCASSES, SEWAGE, BIOSOLIDS, SYRINGES)**

- A. Employees will avoid contact with potentially infectious materials such as animal carcasses, sewage, biosolids, or liquids contaminated by human or animal blood, wastes or fluids.
- B. Look before working in areas where potentially infectious materials may be found or abandoned, such as in or around remote building sites, pad mounted equipment, curb meter boxes, vaults or bushes.
- C. Protective gloves and eye protection must be used to prevent skin/eye contact where contaminated materials cannot be avoided and work must be conducted. Additional protective garments and equipment must be used if ingestion and/or inhalation are possible routes of exposure. Additional protective measures may also be needed in the event of a declared public health emergency regarding animal disposal.
- D. Scoop or place contaminated material in suitable containers. Animal carcasses should be wetted with a bleach solution (1 ½ cup of household bleach per gallon of water) and placed in double layered 6 mil plastic bag. IMPORTANT: DO NOT TOUCH, MOVE OR BLEACH AN EAGLE CARCASS! Instead, immediately contact Environmental Services Natural Resources staff.
- E. Contaminated work surfaces and tools must be disinfected with chlorine bleach solution (1 ½ cup of household bleach per gallon of water) or other disinfectants before work continues by unprotected employees. Disinfectants must be adequately removed or rinsed to prevent skin irritation.
- F. Employees must use good personal hygiene, including washing hands with soap and water before eating, drinking, smoking or leaving the work area.

- G. Contaminated clothes should be machine washed separately in hot water, detergent and house hold bleach.
- H. If an employee is just near sewage, there is no exposure. If an employee is exposed to sewage through eyes, skin or cut, follow these procedures:
- Notify supervisor as soon as practical
 - Immediately remove contaminated clothing
 - Do not take clothing home, put in plastic bag for routine laundering
 - Soak clothing in (1 ½ cups of bleach per gallon water) for 30 minutes before sending to laundry
 - Wash boots with soap and water as soon as possible.
 - Wash hands and affected area with soap and water as soon as possible. In the field, use the waterless hand cleaner ("Scrub in a Bucket") immediately.
 - Wash with soap and water as soon as possible. Avoid touching mouth, eyes or food until washing.
- I. Sewage Treatment Plant biosolids are usually the dry treated solids from the plants that have been spread on the soil. During routine work activities around biosolids, follow these guidelines:
- Never eat, drink or smoke before washing hands
 - Don't smoke, chew tobacco or gum while working in area
 - Avoid touching the face or eyes before washing hands
 - Keep cuts covered
- If direct contact with biosolids occurs, follow these rules:
- Notify supervisor immediately
 - Remove contaminated clothing
 - Wash affected areas with soap and water as soon as possible (In the field use waterless hand cleaner immediately.)
 - Wash boots with soap and water as soon as possible
- J. Look before reaching into areas where used syringes may be abandoned, such as in or around pad mounted equipment, curb meter boxes or bushes.
- K. Needle sticks, infectious material exposure to non-intact skin or symptoms after exposure must be reported immediately to a Company nurse. Symptoms may include fever, nausea, cramps or localized redness, swelling, heat, pain and drainage.
- L. Specific instructions on human blood/fluid exposures can be found in the SDG&E Bloodborne Pathogen Protection Manual.

1231. **ASBESTOS**

- A. Thermal insulation, surfacing material (such as acoustic or fireproofing spray) and vinyl floor tile installed before 1980 will be presumed to contain asbestos fibers until samples or written documentation prove otherwise.
- B. Employees are not to disturb the above materials or others that may contain asbestos fibers unless specifically trained, equipped and authorized to do so. Employees shall notify their supervisor if they suspect that exposure to asbestos-containing material may occur due to company operations.
- C. Employees working with asbestos-containing materials will understand and follow established safe handling procedures to ensure that allowable exposure limits are not exceeded. Training and procedures will correspond to four classes of construction-related asbestos work:
 - Class I - Removal of thermal or surfacing insulation
 - Class II - Removal of other asbestos material
 - Class III - Repair or maintenance of asbestos material
 - Class IV - Cleanup of asbestos waste
- D. Other training will be provided to employees who repair or replace automotive brakes containing asbestos.
- E. All thermal insulating materials will be considered to contain asbestos unless specifically known or tested to be otherwise.
- F. Asbestos materials must be handled, removed, cut or worked wet to prevent the release of asbestos fibers into the air. When wetting is not practical and airborne fibers may be released in excess of allowable concentrations, the material will be enclosed in a glove bag or enclosure. Negative-pressure ventilation and high-efficiency particulate filtration (HEPA) will also be used to control fibers at the point of generation or in a glove bag or enclosure.
- G. Approved respiratory protection must be used by an employee engaged in work where asbestos fibers may be released (i.e.; removal of pipe or cable insulation). For further details refer to the Safety [Standard G8365](#) "Respiratory Protection Program."

- H. Personnel removing insulation or those working in areas where asbestos fiber concentration may exceed exposure limits must wear coveralls sealed at the wrist and ankles, foot coverings and head covering to prevent contamination with asbestos dust. All disposable garments will be discarded as asbestos waste at the worksite. Launderable coveralls will be bagged, marked as asbestos-contaminated, and laundered by an approved facility.
- I. All sites where asbestos fibers may be released in hazardous concentrations will be cordoned off with signs posted to warn unprotected persons from entering such areas.
- J. When feasible, plastic sheets will be placed on the ground or walking surface in areas where asbestos is removed to catch and contain any falling asbestos debris.
- K. Employees will prevent the spread of asbestos to uncontaminated areas and will remove protective garments before eating, smoking, or entering offices or areas where food is consumed.
- L. Asbestos-containing debris, disposable coveralls and respirators, plastic sheets, vacuum bags and other asbestos-contaminated articles shall be placed and sealed in marked double plastic bags at the end of the operation or shift, whichever is sooner.
- M. No food, beverage, or tobacco products will be consumed in an asbestos work area.
- N. Compressed air shall never be used for blowing off clothing, equipment, or surfaces which may be contaminated with asbestos.
- O. Asbestos debris must be wetted to prevent the release of fibers. An approved asbestos vacuum cleaner, wetted rags, or other approved means shall be used to clean up asbestos debris and dust.
- P. For specific information regarding procedures for asbestos, refer to the Safety [Standard G8321](#) "Asbestos Management "

1232. **LEAD**

- B. Paint on facilities and equipment will be assumed to contain lead until samples or written documentation proves otherwise.
- C. Only trained, protected workers will handle or work with lead-containing materials. For specific information regarding procedures for lead handling, refer to the Safety [Standard G8355](#) "Lead and Metals in Surface Coatings: Hazard Compliance Program."

- D. Where feasible, work methods and equipment that minimize the release of lead dust or fume will be used. Avoid abrasive blasting, welding or torch cutting on lead materials. For specific information regarding work method procedures for lead, refer to the Safety [Standard G8355](#) "Lead and Metals in Surface Coatings: Hazard Compliance Program."
- E. Lead-containing waste will be collected and disposed of as hazardous waste.
- F. For specific information regarding procedures for lead, refer to the Safety [Standard G8355](#) "Lead and Metals in Surface Coatings: Hazard Compliance Program."

1233. **COMPRESSED GASES**

- A. Use extreme care when handling portable gas cylinders. Store them in a suitable, well ventilated location, properly secured in an upright position with valve cap in place.
- B. Compressed oxygen or other gases must **never** be used as a source of breathing air or for ventilation purposes. Compressed breathing air must be verified before use to be at least Grade D in purity (refer to Compressed Gas Association requirements).
- C. Do not allow oil or grease to come in contact with valves, regulators or any other parts of oxygen cylinders or apparatus.
- D. Do not store portable gas cylinders or containers in direct sunlight or expose to heat, sparks or flames.
- E. Oxygen cylinders in storage must be separated from fuel gas cylinders (hydrogen, butane, propane, acetylene, or combustible materials--especially oil or grease) a minimum distance of 20 feet. This distance may be reduced only if a properly designed and constructed one-hour fire wall or better fire-resistant barrier is used.
- F. All connections to piping, regulators and other appliances must be kept tight to prevent leakage. Use only soap and water solution or equivalent to make leak tests; never use open flame. Keep valve tightly closed when cylinders are not in use. Slowly "crack" open the valve to clean out dirt before attaching piping regulators or other appliances.

- G. Do not use compressed gases from a cylinder or cylinder manifold unless an acceptable pressure-regulating device is installed to safely control the pressure of the gases being used.
- H. Compressed gas cylinders must be hydrostatically tested every ten years. Cylinders must also be marked or labeled with the specific gas contents.

1234. **EXPLOSIVES**

Explosives are to be handled only by authorized and experienced employees using approved and lawful methods.

1235. **WELDING AND TORCH CUTTING ON USED CONTAINERS**

- A. Welding or cutting is prohibited on portable containers such as five-gallon or 55-gallon drums that contained a hazardous material. Before welding or cutting on tanks, piping or similar vessels, the following precautions must be used to prevent fire, explosion or toxic exposure:

1. Identify potential hazards by labels, signs, MSDS, records and/or engineering specifications.
2. Test for oxygen-deficiency, flammable and/or toxic atmospheres with a suitable instrument if the air concentration in the vessel is not known.
3. If flammable gas reaches or exceeds the lower explosive limit (LEL), fill the vessel with inert gas (e.g. argon, carbon dioxide, helium, nitrogen), then ventilate with ambient air.

Note: Other procedures may be used by qualified gas personnel to repair and control natural gas pipeline leaks when it is not feasible to use inert gas.

4. Clean vessel residue with water, steam or detergent solution. Waste liquid must be handled as hazardous waste.
5. Provide ample venting to allow release of pressure when welding or cutting.

Move combustible material or flammable liquids at least 35 feet from vessel or provide an observer equipped with proper fire extinguisher(s).

1236. **SMOKING**

- A. Smoking is prohibited in company vehicles, facilities and other enclosed spaces. Employees shall stay a minimum of 20 feet away from any entrances to buildings and far enough away such that the

odor of smoke is not carried into the building or that persons entering or exiting are affected by smoke.

- B. Smoking is not permitted during work with toxic chemicals or in environments having significant concentrations of toxic air contaminants.
- C. Employees must not smoke near flammable liquids or gases, explosives, or where "No Smoking" signs are displayed.
- D. Lighted matches, cigars, cigarettes, tobacco or other burning substances must be placed in a proper receptacle or otherwise disposed of safely.
- E. Employees must leave matches and cigarette lighters behind before entering an area in which explosives or combustibles are stored.
- F. Smoking is not permitted in areas indicated as danger zones or areas closed to smoking by federal, state, county or city officials.
- G. Smoking is not permitted in Gas Facilities except for designated smoking areas.
- H. For specific information regarding the Sempra Energy utilities smoking policy, go to **Utilinet > Policies > Index of Utility Policies > Environment and Safety > Utilities – Smoking Policy**, or follow this link:
<http://utilinetpolicyindex.sempra.com/docs/Environmental%20and%20Safety/SDGE%20Smoking%20Policy.docx>

1237. **DRUGS AND ALCOHOL**

Employees are to be mentally, physically and emotionally able to perform their duties. They are prohibited from reporting for work under the influence of alcohol or drugs, including any prescriptive or over-the-counter drugs that may affect an employee's ability to safely and effectively perform their duties.

All employees are subject to "reasonable suspicion" drug and alcohol testing. Employees found to be in violation of the company drug and alcohol policy are subject to disciplinary action, up to and including discharge. Employees with substance abuse problems are encouraged to contact the Employee Assistance Program for assistance.

1238. **EMPLOYEE ASSISTANCE PROGRAM (EAP)**

SDG&E's Employee Assistance Program is available for employees and their families who are experiencing personal problems. The counseling services

they provide include marriage and family problems, child and adolescent issues, drug and alcohol problems, legal and financial referrals, and assistance in managing stress. Assistance through EAP can be reached 24 hours daily by dialing (1-800-342-8111).

INTERNAL

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.	
Brief: Made minor revisions to section 1221 (Footwear and Foot Protection) to match the changes made to G8343, which was recently published.	

Document Profile Summary	
Responsible Person:	Karimi, Majid
Published On:	09/24/2019
Last Full Review Completed On:	04/01/2017
Writer:	Karimi, Majid
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01426

RULE 1300

VEHICLE AND FORKLIFT SAFETY

1300. SCOPE

Rules in this section apply whenever an employee is operating company-owned motor vehicles, when operating privately-owned motor vehicles under contract to the company, or whenever the employee is being compensated for the use of a vehicle on a mileage or salary basis by the company. This includes operating any on or off-road motorized vehicle (cars, trucks, tractors, ATVs, and other motorized vehicles) and forklifts for any business purpose.

1301. DRIVERS

- A. Drivers are only authorized to operate the class of vehicle(s) for which they have been trained, licensed, qualified (when required) and are medically fit to operate. Drivers may be medically evaluated if there are adequate reasons to believe the operator cannot or is not safely operating a vehicle or forklift.
- B. Drivers are required to obey all federal and state vehicle codes, local traffic rules and ordinances, traffic control signs, posted speed limits, parking restrictions, and company policies.
- C. Drivers must not use or consume any alcohol or drugs, and not be suffering from fatigue.
- D. Smoking is not permitted in company vehicles or forklifts.

1302. LICENSE, PERMITS, & QUALIFICATION REQUIREMENTS

- A. Drivers of vehicles must have a valid California Driver's License in their possession at all times.
 - 1. Commercial Driving Students must have a valid permit in their possession before they may attend behind the wheel driver's training.
 - 2. Commercial Drivers must obtain and maintain a valid medical card for those positions which require a medical card.
 - 3. Individuals who elect to keep their commercial license for personal reasons, but whose job does not require them to hold a

commercial license are still required to keep their medical card current. The Company is not responsible for any of the associated fees for personal commercial licenses.

4. Individuals may elect to surrender their commercial license once it is no longer a job requirement. The company is not responsible for those conversion fees.
- B. Any change in the status of an employee's California Driver's license must be reported immediately to his supervisor.
1. Drivers with an expired medical card, or invalid license are not permitted to drive company vehicles, personal vehicles on company business, nor on company property until such issue is satisfactorily resolved.
 2. Supervisors report updated driver license information to be reported immediately to the Employer Pull Notice Administrator in order to maintain driving privileges. Driving privileges will be suspended for those who do not comply.
- C. All forklift drivers must be qualified by training and evaluation to operate their respective forklift. The certification of this training shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

1303. DEFECTIVE EQUIPMENT

All vehicles must be fit for purpose, inspected and confirmed to be in safe working order prior to operation.

- A. Drivers shall not operate any vehicles or equipment with mechanical defects that affects the safe operation of the vehicle, such as faulty brakes, steering mechanism, horn or lights, except to proceed to a place where repairs can be made, and then only at such reduced speed or in such a manner as will enable the movement to be made safely.
- B. Defective equipment must be reported on a repair request and provided to Fleet Services immediately. The vehicle must be cleared by sign-off from Fleet Services before the vehicle can be operated.
- C. Inspections must be documented at the end of vehicle use.

1304. BRAKE TESTS

When operating vehicles with brake-equipped trailer equipment, a brake application test must be made each time the units are coupled. Additionally, a visual inspection of hoses, couplings and related components must be made prior to vehicle movement.

1305. WASTE OR BURNING MATERIALS

- A. Drivers or passengers must not throw garbage, trash, waste paper, burning material or other objects from vehicles.
- B. Trash and debris must not be allowed to accumulate in company vehicles. The driver is responsible for having such materials properly disposed of at the end of each workday or shift during which the vehicle is used.

1306. CHILDREN

Drivers must drive extra carefully when passing schools, playgrounds, or when in the vicinity of children.

1307. MOVEMENT OF VEHICLES

Before moving a vehicle forward or backwards, the driver must ensure vehicle loads are properly secured and do not exceed manufacturer's design specifications or legal limits for the vehicle, and electronic devices are docked. The driver must ensure that no person or object is in the path of the vehicle.

- A. Before entering a vehicle, drivers must perform a Circle of Safety (i.e., walk completely around the vehicle observing objects or conditions that could affect safe movement). This includes but is not limited to securing and/or locking truck bin doors, equipment and material, condition of vehicle, safe exit routes, stationary objects, refueling nozzles, etc.
- B. When conditions warrant and a second employee (spotter) is available, a spotter must be positioned so that he/she can warn the driver of approaching danger and guide him or her in the safe movement of the vehicle.
- C. Backing should only take place after the driver has performed a Circle of Safety and ensured backing can be done safely. Drivers should use a spotter to help with backing if available.

1308. PARKING

- A. The operator must not leave the controls of any parked vehicle or mobile equipment in such a position that it might coast or free wheel from its parked position.
- B. Wheel chocks, where provided, must be used and placed for maximum effect whenever vehicles or equipment are parked.
- C. Before leaving the controls of any vehicle or mobile equipment, the operator must set the parking brake, place the transmission in the "park" position (if available, or neutral if park is not available) and stop the motor (note: some vehicles may self-start or need to be kept running when parked in order to perform their intended function). This does not preclude the use of wheel chocks with vehicles or equipment so equipped.

1309. REFUELING

While refueling, the driver shall remain outside of the vehicle within arm's reach of the fueling nozzle. If the fueling nozzle has a built-in latching mechanism to hold the nozzle in the open (flow) position, it may be used. Fueling nozzles without built-in latching mechanisms may not be held in the open position by any means other than the employee's hand. A Circle of Safety is to be performed immediately prior to departure from the fueling area.

1310. HEADLIGHTS

Company vehicles should be driven with headlights on at all times.

1311. SEAT BELTS

Drivers of vehicles and forklifts and passengers riding in company vehicles must use safety lap and shoulder (when available) belts.

1312. FORK LIFT OPERATION

A. Operator Training, Evaluation, and Retraining

All forklift operators must be trained and evaluated before they can operate the equipment.

Each new operator must receive training consisting of the following:

1. Formal Instruction - lecture, discussion, video, written material
- Training - (required one time for each type of forklift) demonstrations performed by the trainer with practical maneuvering/ lifting exercises performed by the trainee.

2. Operator Evaluation - A written operator evaluation with each different type of forklift must be conducted to assure training effectiveness as well as the operator knowledge and skill. The "Operator Evaluation" is a test where the operator must drive the forklift while being observed. Evaluations must be conducted at least once every three years or after refresher training.

Refresher Training is required for all operators after:

The operator has been observed to operate the vehicle in an unsafe manner.

The operator has been involved in an incident or near-miss/close call incident.

The operator has received an evaluation that reveals that the operator is not operating the forklift safely.

The operator is assigned to drive a different type of forklift.

A condition in the workplace changes in a manner that could affect safe operation of the forklift.

Experienced forklift operators are not required to go through formal instruction unless refresher training is required; however, they are required to be evaluated at least every 3 years.

B. Inspection Requirements

Drivers shall inspect each forklift before use or verify it has been inspected during that shift by reviewing the completed inspection form for that day or shift.

If the forklift has not been inspected, or the form cannot be reviewed, it must be inspected before use regardless of the time of day or proposed length of use and the results recorded.

1. In multi-shift operations, the forklift shall be inspected prior to use in each shift where it is to be used, regardless of the time of day or proposed length of use, and the results recorded.

2. If defects are discovered they shall be reported immediately to a supervisor or mechanic and the forklift shall not be operated until it has been made safe.

3. If a previously uninspected forklift needs to be used later in a shift, see #1, above.

4. If a forklift is not used during a particular day or shift, inspection is not necessary.

5. All inspections must be documented on the [DAILY CHECKLIST](#). Checklists are kept locally for three years.

C. Posting and Load Capacity Labeling Requirements

Every department using forklifts shall post and enforce the set of operating rules found at the [Safety](#) website.

The rated load capacity must be plainly marked on lift equipment including fork lifts and slings.

1313. TRUCK AND HEAVY EQUIPMENT OPERATION

- A. Drivers must comply with all Vehicle Code Regulations covering inspection reports and logbooks when required, maximum weights, widths, heights and overhang of loads.
- B. Binders are to be used as required to secure loads.
- C. Before any truck is moved from a parked position, the driver is responsible for determining that the load is secure. "Load" includes any material, equipment, tools, personal belongings, etc., carried in or on the truck.
- D. Vehicles having projections to the rear (load or part of the vehicle) four or more feet beyond the bed or body must display at the end of the projection:
 1. During darkness, two red lights visible at least 500 feet to the sides and rear.
 2. At all other times, a red flag not less than 16 inches square.

1314. OFF HIGHWAY VEHICLES (OHV)

Drivers of OHVs must comply with manufacturer operating instructions and federal, state and local laws governing the operation of these vehicles. This includes wearing appropriate PPE including a helmet, goggles or safety glasses, gloves, and boots as required. Depending upon the type of vehicle, additional operator training may be required by Equipment Training and Ops Services.

1315. PASSENGERS

- A. To prevent injury to passengers, saws, chisels, axes, knives and other sharp tools carried on vehicles will be stored or guarded. (Note: Passengers are not allowed to ride on forklifts)

- B. Before proceeding, drivers ensure vehicle is loaded safely and all equipment is secured, electronic devices are docked and occupants are properly seated and seat belted. The number of passengers shall not exceed the design specifications of the vehicle.
- C. Hazardous substances are not permitted inside the passenger compartment of the vehicle.

1316. WARNING SIGNS, GUARDS AND OTHER DEVICES

- A. Approved warning signs, barriers, guards, flags, flares or lights will be properly installed and maintained where hazards to pedestrians or vehicles exist.
- B. Warnings and guards will be placed immediately at the point of obstructions, excavations or other hazards and far enough in advance to give adequate warning to pedestrians and vehicle operators.
- C. Specific instructions on traffic warning devices and their use are found in Regional Standard Drawings (Traffic Control Plans) at the Regional Standards Committee, San Diego County Department of Public Works. These instructions are to be followed when work will impact pedestrian or vehicular traffic.
- D. Where pedestrian or vehicular traffic conditions require, a properly trained and equipped flagman must be stationed to warn the traffic.
- E. All employees whose work exposes them to vehicular traffic including off-highway, private roads, or job sites must wear approved vests marked with or made of reflective or high visibility material.

NOTE: For purposes of this rule, exposure means any activity on a normally traveled portion of a roadway or other area open to traffic. Barricading, coning or delineation of the immediate work area will not eliminate the need for the vest.

Please refer to the Safety & Health website for safe driving training resources.

Please refer to PowerUp for other related vehicle use policies.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.	
Brief: Per request from Operations and safety management, revised/clarified one bullet in section '1308-C	

Document Profile Summary	
Responsible Person:	Karimi, Majid
Published On:	03/04/2020
Last Full Review Completed On:	05/20/2016
Writer:	Karimi, Majid
Document Status:	Active
Document Type:	MANUALS
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01472

RULE 1400

OFFICE SAFETY

1400. GENERAL PRINCIPLES

Incident prevention in the office begins with a positive attitude for learning and following office safety procedures, practicing the art of good housekeeping, staying in shape, and using common sense.

1401. SLIPS, TRIPS AND FALLS

Slips, trips and falls top the list of common office incidents, and maintaining a good sense of awareness of hazard potential can prevent them.

A. Floor Surfaces

1. Keep floor areas and stairways clean.
2. Pick up paper clips, thumbtacks, pencils, papers and other objects immediately.
3. Wipe up spilled liquids promptly. Report to Facilities for assistance if necessary.
4. Wear appropriate shoes.
5. Watch out for recently waxed floors, loose tiles, floorboards and tiles.

B. Chairs

1. Be careful sitting down. Sit in the center of a chair and not on the edge. Watch out for chairs on casters, which can be inadvertently pushed from under you when you attempt to sit down. Place your hand behind you to make sure the chair is in place before you settle into it. Inspect tilting chairs for broken springs, broken welds or loose screws.
2. Report broken chairs to Facilities.
3. Keep all chair legs on the floor. Tilting results in overbalancing and falls.
4. Never use a chair as a ladder. A ladder is a ladder, and a chair is a chair.
5. Don't lean from a chair to pick up objects from the floor.
6. Don't propel a chair across the floor while seated in it.

C. Lighting

1. Use as much light as is necessary to complete a job correctly and safely.
2. Report dusty or out-of-order lights.
3. Reduce glare by adjusting window blinds or task lights and eliminating excessive reflective surfaces

D. Electric Cords

1. Exercise care to prevent electric cords on office machines and telephones from becoming tripping hazards.

2. Avoid stretching cords between desks or across aisles.
3. If such a procedure is temporarily unavoidable, employ some means of calling attention to the cord.
4. Avoid plugging electric cords together in sequence typically referred to as "daisy-chain" Use only as designed by the manufacturer.

E. **Stairways**

1. Handrails shall be used when ascending or descending stairs, maintaining 3 points of contact.
2. Report worn treads and broken or loose stairs to your supervisor.

F. **Entering and Leaving Work**

1. Stay aware of the weather conditions when entering or leaving work. Sidewalks may be slippery from the weather. Wipe your shoes when entering a building. Wet shoes and a freshly waxed floor don't mix.

1402. **FILING CABINETS**

- A. **General Considerations:** When caution is ignored, filing cabinets can pinch, cut, crush or trip a user. With the exception of the newer file cabinets that are bottom weighted and interlocked so that only one drawer may open at a time, always fill a file cabinet from bottom to top. Put heavy items in the bottom while keeping the top drawer light. Individual files should be bolted to a floor, wall or column. Files which are grouped side by side should be fastened together. Always be alert for a top-heavy filing cabinet. It may tip over when a drawer is opened.

- B. **Using Filing Cabinets:** Be cautious when you open a file drawer so no one bumps into it. Climbing on file drawers is forbidden -- use a stool. However, stools can be tripping hazards when left in passageways. Always keep stools stored out of the way when not in use. Do not leave drawers open. Once the desired contents are removed, close the door. Never leave an open drawer unattended.

1403. **SHELVES AND STORAGE**

Stack objects neatly inside cabinets, not on top. Keep frequently used items within easy access. Store heavy or breakable items on lower shelves.

1404. **HOUSEKEEPING**

- A. **Good Housekeeping In The Office:** Everyone can benefit from good housekeeping practices. It is something everyone can and should practice with every task during the workday. It is taking care of your work area.
- B. **Clean-Up and Disposal of Sharp Objects:** Dispose of broken glass in the approved manner; sweep up broken glass and wrap in heavy paper. Identify and place broken glass beside a wastebasket for removal. Dispose of used pressurized containers and all unwanted sharp objects, such as razor blades, in a similar manner.
- C. **Storing Sharp Objects:** Never keep loose razor blades in desk drawers. Use razor blades, knives, scissors, pushpins and other objects with sharp edges or points with caution. Keep sharp objects in protective containers.

1405. GENERAL INCIDENT PREVENTION PRACTICES

- A. Place wastebaskets, brief cases, umbrella stands and similar objects where they will not present a tripping hazard.
- B. Exercise care to avoid paper cuts.
- C. Fasten loose papers together with paper clips or staples. Exercise extreme care when loading and using staple machines. Use a proper staple remover for removing staples.
- D. Keep fingers away from the sharp edge of paper cutters. Never leave the knife in a raised position. All guillotine type paper cutters shall have finger guards, and other types of paper cutters shall have proper finger protection.

1406. PROHIBITED CONDUCT IN THE OFFICE

- A. Do not run in aisles, corridors or stairwells. Walk at all times and be especially careful at blind corners and partitions.
- B. Never run to answer a telephone.

- C. Do not indulge in any form of horseplay. Horseplay is strictly prohibited.
- D. Don't sit on the edges of desks, boxes or low filing cabinets.

1407. **MATERIAL HANDLING PRACTICES FOR THE OFFICE**

- A. Be careful when carrying liquids in uncovered containers. Hot liquids and certain chemicals can cause burns and make floors slippery if spilled.
- B. Serious strains often result from improper handling of boxes and bundles, office supplies, ledgers, office machines etc. Such objects shall be moved with a handtruck and handled as smaller parcels.
- C. Bulky objects shall be carried in such a way as not to obstruct the view ahead or interfere with the use of handrails on stairways.

1408. **FIRE HAZARDS IN THE OFFICE**

- A. Flammable solvents and cleaning solutions shall be dispensed only from approved safety containers. Solvent-soaked or oily rags used for cleaning office equipment shall be kept in metal self-closing waste cans.
- B. Heat producing appliances such as coffee pots and desktop cup warmers should be disconnected or turned off when not in use. Immersion type water heaters are not approved for use in company buildings.

- C. Space heaters are prohibited in office or warehouse spaces unless specifically approved in writing by Facilities and Safety.

1409. OFFICE ERGONOMICS

- A. Risk factors associated with repetitive motion injuries shall be minimized through proper use of equipment, furniture and accessories and by regular stretching.
- B. Information on office ergonomics can be found on the Safety and Health website.
- C. Report ergonomics-related concerns to your supervisor.

Note: For further details about Office Safety, refer to Safety Standard S404 "Office Safety."

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Brief:	

Document Profile Summary	
Responsible Person:	Zepeda, Ruben
Published On:	06/05/2009
Last Full Review Completed On:	
Writer:	Saragosa, Mario
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01485

RULE 1500

FIRE PREVENTION

1500. SMOKING / OPEN FLAMES

- A. Employees shall not smoke or permit others to smoke in buildings, vehicles, in proximity of flammable liquids, explosives and gases, or where "No Smoking" signs are displayed.
- B. Matches, cigars, cigarettes, tobacco or other substances must be disposed of safely and are not to be discarded while still burning, except when placed in a proper receptacle.
- C. No smoking shall be allowed in areas indicated as danger zones or areas closed to smoking by federal, state, county or city ordinances.
- D. The use of open flames in battery rooms is prohibited.
- E. No smoking or open flames shall be permitted while filling or purging hydrogen from equipment filled with hydrogen. "No Smoking" signs should be conspicuously posted and the area around the unit should be barricaded during the period.
- F. "No Smoking" and/or "No Open Flame" signs shall be posted where flammable gases (i.e.; hydrogen, propane, methane) are

present either in operation or storage and in all other areas where smoking or an ignition source could cause a fire hazard.

1501. **FIRE ALARMS**

- A. In the case of fire, report to your supervisor and call for help. Then if it can be done safely, attempt to extinguish the fire, unless your site's emergency action plan prohibits you from doing so.

1502. **EVACUATION OF BUILDINGS**

- A. Upon notification, buildings or structures should be immediately evacuated or occupants should be relocated.
- B. Fire drills should be conducted where required in accordance with applicable governmental regulations.

1503. **FIRE EQUIPMENT LOCATIONS**

- A. One or more fire equipment stations have been located at suitable and convenient points properly marked and designated at all company locations requiring fire protection equipment. Ready access to this equipment must be maintained at all times. A record should be kept of the equipment at each work location. Fire extinguishers having a gross weight of up to 40 pounds should be hung on brackets or placed in cabinets so that the top of the extinguisher is not more than five feet above the floor. Extinguishers having a gross weight of more than 40 pounds should be hung on brackets or placed in cabinets so that the top of the extinguisher is not more than 3½ feet above the floor.

- B. Extinguishers carried on trucks should be mounted on an approved vehicle-mounting bracket for the extinguisher involved and fastened to the truck. Fire extinguishers should be mounted outside of the vehicle when practical.

1504. **FIRE PROTECTION DURING CONSTRUCTION OR RECONSTRUCTION**

Construction or reconstruction jobs may present fire hazards and interfere with regular fire fighting equipment. Where necessary, additional fire fighting equipment should be provided and adequate precautions taken to reduce potential fire hazards.

1505. **GOVERNMENTAL STANDARDS**

In addition to these Fire Prevention Rules and Practices, the company and its employees are subject to regulations of various governmental agencies including federal, state, county, and city. Supervisors should comply with all applicable provisions of governmental regulations on their jobs.

1506. **FIRE PROTECTION EQUIPMENT LABELS**

All portable fire protection equipment should be plainly labeled designating its specific use. The manufacturer and the fire equipment inspector are the only ones authorized to place labels on the equipment.

1507. **FIRE EQUIPMENT COLORS**

- A. Fire extinguishers, except water type, should be painted with red enamel. Extinguisher valve assemble, nameplates, operating instruction plates or hoses should not be painted.

- B. Markings such as red arrows should be used to direct attention to extinguisher locations not readily visible.

NOTE: Locations such as office buildings should be marked in a manner acceptable to the authority having jurisdiction.

1508. INSPECTION AND INSPECTION REPORTS

- A. An annual inspection of all company fire protection equipment should be made by company fire equipment inspectors or by personnel otherwise qualified and authorized to do so. Reports should be made of conditions found, corrections needed, with recommendations for eliminating fire hazards as well as recommendations for changes or additions to existing fire fighting equipment.
- B. Inspections and maintenance for fixed fire systems should be accomplished and documented in accordance with direction from the state fire marshal requirements.
- C. Monthly extinguisher inspections should be made by local personnel. This consists of a routine visual check that an extinguisher is available and will operate. This is done by ensuring:
 - 1. It is mounted properly in its designated location.
 - 2. The label is showing and legible.
 - 3. There is a clear space surrounding the extinguisher so that it is easily accessible.
 - 4. It has not been actuated or tampered with.

5. The seal has not been broken.
6. There is no other obvious damage to prevent its operation.

1509. **FIRE PREVENTION**

- A. All employees should take steps to immediately eliminate potential fire hazards upon discovery.
- B. It is impractical to give specific instructions for all good housekeeping methods; however, all employees are responsible for keeping their work area clean and orderly. Each location should provide specific guidelines and assign responsibility for additional housekeeping requirements.

1510. **TRASH AND RUBBISH**

Approved receptacles should be used for holding rubbish, waste materials, paper, oily rags and other combustibles.

1511. **BRUSH, LEAVES, GRASS AND WEEDS**

- A. Brush, leaves, grass and weeds should be removed from around buildings, station yards, pole yards, switch structures, fences and poles when they present a fire hazard to a distance compliant with the State Public Resources Code (Check with jurisdictional fire authority). Burning of any materials should be done only with

proper regard to surrounding conditions, and in accordance with regulations of public authorities, including securing and adhering to the requirements of a valid burn permit. Open fires should not be left unattended or abandoned until thoroughly extinguished. Adequate fire-extinguishing equipment must be immediately available.

1512. **FLAMMABLE AND COMBUSTIBLE LIQUIDS**

A. **NFPA Definitions:**

Class 1 — Flammable liquids with flash points below 100°F (i.e.; gasoline, alcohol, acetone and naphtha).

Class 2 — Combustible liquids with flash points at or above 100°F and below 140°F (i.e.; kerosene, solvents and thinners).

Class 3 — Combustible liquids with flash points at or above 140°F (i.e.; lube oil, transformer oil and fuel oil).

Note: Liquefied gases such as hydrogen, propane and liquefied natural gas pose extreme fire hazard since they will vaporize when released from a container and are easily ignitable.

B. Class 1 liquids should not be dispensed by gravity from tanks or drums. Drums containing these liquids should be stored in a vertical position and should be equipped with pumps for the withdrawal of the contents. Containers and pumps should be electrically grounded and a bond installed to metal containers being filled with Class 1 liquids.

C. Class 2 liquids stored outside should be at least 25 feet from the nearest building. These liquids may be dispensed by gravity from tanks and drums provided they are equipped with self-closing valves.

- D. Class 2 liquids may not be dispensed by gravity from tanks and drums inside a building without local fire department approval. All combustible liquid storage must be in compliance with local code and ordinance requirements.
- E. Solvents and paint removers should not be used in rooms, generator pits, tanks or other enclosed areas unless adequate ventilation is provided, and should never be used in locations where electric sparks may occur or where unguarded electric lamps are used.
- F. All areas where Class 1 and Class 2 liquids are being used should be adequately posted with approved "No Smoking" signs. Gasoline should not be used for cleaning purposes.
- G. Flammable liquids should be stored in accordance with the instructions contained in Rule 1516 (Gasoline Storage), and in accordance with all local code and ordinance requirements.
- H. All containers should be plainly labeled to show the contents.
- I. Flammable and combustible liquids should not be permitted to flow or to be poured into wastewater drains.

1513. **FLAMMABLE AND COMBUSTIBLE MATERIALS**

- A. Flammable or combustible materials must be kept in covered metal containers. Rags and waste, which have been used for cleaning machinery or equipment, or for painting operations, when not in actual use, should be kept in UL-listed or FM-approved metal waste cans with self-closing covers and away from any source of ignition.

- B. Flammables or combustibles should not be allowed to run into, or be poured into any drain opening, sewer, sump or drainage canal -- this is extremely dangerous and could result in a gasoline fire or explosion.

1514. **SPONTANEOUS IGNITION (COMBUSTION)**

- A. In general, spontaneous ignition is the result of a slow chemical oxidation process whereby oxygen from the air combines with a combustible substance containing carbon in some form, which will produce heat. The heat thus generated causes the rate of combining with oxygen to increase, gradually at first and then more rapidly, until ignition temperature is reached and fire starts. Materials susceptible to this action include:

Fibers such as cotton, waste and cloth, when coated or saturated with drying or oxidizing oils, especially if contaminated with certain metallic oxides or rust; sawdust and wood if exposed to moderate temperatures, as from steam pipes, heating ducts or boiler flues; borings or filings of iron, aluminum or magnesium, when saturated with oil; charcoal, lamp black and accumulations of dust are especially dangerous.

- B. When sawdust or other absorbent material is used for soaking up oil, it should be discarded or stored as soon as possible.
- C. Conditions that could allow spontaneous ignition to occur must never be permitted on company property.

1515. **STATIC ELECTRICITY**

- A. The making and breaking of contact between particles of material generates static electricity (i.e., builds up differences of electrical

potential). When the difference of potential is sufficient to bridge the dielectric gap between the materials, sparking discharges occur.

- B. The static discharge phenomenon can be a fire or explosion hazard in the handling of flammable or combustible liquids.
- C. Antistatic additives may be added to a liquid to increase the conductivity of the liquid, preventing the accumulation of static potential, and thereby preventing static sparks.
- D. As practicable, vessels to be filled with flammable or combustible liquids should be purged with inert gas such as dry nitrogen or carbon dioxide (fuel tanks in some cases may be purged with natural gas), to remove oxygen and the purging agent should then be displaced by the liquid, or the vessels should be "vacuum filled."
- E. Note that filling gasoline tanks that are in use is relatively safe since the positive vapor pressure of the gasoline results in air being purged from the tanks. A gasoline tank that has been completely emptied for repair or other purpose must be purged with inert gas to prevent an explosion.
- F. Grounding is required to prevent differences in potential between hoses or pipes and tanks.

NOTE: Grounding the fill pipe or filling through a grounding screen does NOT prevent static discharge inside the tank.

1516. **GASOLINE STORAGE (also see Rule 1514.)**

- A. All outdoor gasoline storage must be in underground tanks, or in approved standard drums or safety containers, which should be plainly labeled.
- B. Above ground storage should be a minimum of 25 feet and 50 feet (where possible), from the nearest building or equipment. All flammable liquid storage must meet local code and ordinance requirements.
- C. Quantities of not more than five gallons may be kept inside of buildings in approved safety cans or containers when not in violation of local ordinances or laws.

1517. **PAINT, VARNISH, AND THINNER STORAGE**

- A. Paint, varnish, thinner and similar material should normally be stored in a building or structure assigned for this purpose. Such storage areas should be labeled with conspicuous lettering as:

FLAMMABLE - KEEP FIRE AWAY!!!

- B. When not in use, partly used cans of paint etc., should always be kept to a minimum and tightly covered. Such cans should be stored in an approved metal paint locker or in buildings or rooms especially constructed for that purpose. Shelving in such paint storage buildings or rooms should be of steel.
- C. Where separate storage buildings are used, they should be at least 25 feet from any other structures.

1518. **LP GAS (LIQUEFIED PETROLEUM GAS — BUTANE AND PROPANE)**

- A. LP gas is heavier than air and will seek the lowest level if there is a leak or if it is released into the atmosphere. When certain gas-air temperature combinations are developed, it is explosive.
- B. LP gas is highly flammable. LP gas fixed storage vessels must be plainly marked "Flammable" on each side. The letters must be at least 1/12 of the diameter of the fixed storage vessel in height, except that it need not be more than 1½ inches high on tanks of 500 gallons or less, or more than 4 inches high on larger tanks.
- C. Signs reading "No Smoking or Open Flame Permitted Within "feet"* must be posted on or near the fixed storage vessel in letters at least 1½ inches high.

*For the correct minimum distance use those shown in part (D) below.

- D. Each individual fixed storage vessel should be located with respect to the nearest important building or group of buildings, or line of property adjoining which may be built upon, in accordance with the following table:

Minimum Distance

Not more than 500 gallons	10 feet
501 to 1200 gallons	25 feet
Over 1200 gallons	50 feet

- E. LP gas fixed storage vessels should be mounted on a firm foundation of concrete or masonry, which cannot settle or shift and thus break pipes and connections.

1519. COMPRESSED FLAMMABLE AND OXIDIZING GASES

Locations where compressed flammable and oxidizing gas cylinders are stored should be conspicuously posted with "No Smoking" or "No Open Flame" signs. This area should be kept free of sparks or flames from any source at all times. Oxidizing gas cylinders should be stored separated from fuel gas cylinders. All gas cylinders should be secured at all times. Gas cylinders are designed to withstand temperatures between 32°F to 120°F without exceeding the fracture disc rating. The heating effect of the sun's rays should be considered when arranging storage of gas containers.

Compressed gas cylinders or containers should not be exposed to rough handling or excessive heat.

Valve protection caps, where tanks are designed to accept a cap, should always be in place, hand-tight, except when tanks are in use or connected for use. Unless tanks are secured on a special truck or rack, regulators should be removed and valve-protection caps installed before any tanks are transported.

- A. **Oxygen:** Only the fittings supplied with oxygen cylinders should be used. The use of oil or oily rags to clean or wipe oxygen gauges, pressure regulators or valves is prohibited.

All oxygen cylinders should be equipped with proper pressure regulating devices before being used.

Oxygen should never be used for purging pipelines, ventilating working areas or dusting clothing.

- B. **Hydrogen:** Hydrogen gas is lighter than air; therefore storage rooms should have ventilation outlets in the ceiling.

Where hydrogen cylinders are connected in a bank in order to maintain a constant pressure and supply to any electrical equipment or apparatus, frequent leak checks must be performed.

- C. **Acetylene:** Only approved and properly maintained acetylene tanks should be used. Tanks, hoses and regulators should be inspected and tested for leaks with a soap solution prior to each day's use and, if found to be defective, should not be used.

Keep tanks in an upright position at all times. When being transported or used, they should be properly secured to prevent toppling.

NOTE: Acetylene tanks contain acetone liquid, which may damage the diaphragm of the regulator if the tank is used in other than the upright position.

Tank valves are to be turned on and off only with the special wrench or key provided in order to prevent damage to the valve. Never light a torch with an open flame, only with a flint or spark lighter. After use, shut gas off at both main supply valve on bottle and the regulator. Bleed gas from hose by opening shut-off valve at torch handle.

1520. **WELDING, CUTTING AND SOLDERING**

- A. When in operation, welding torches must be at least 35 feet from flammable solids, fluids or gases, and where fire might occur. Special care must be taken to control sparks. Torches and hoses

should be inspected frequently to be sure that all working parts are in good operating condition, and there are no leaks.

- B. When welding in areas having wooden floors with open cracks or when welding on open gratings, the floor areas or grating in the immediate vicinity of the welding operation should be covered with metal plates, non-combustible pads, or wet canvas covered with sand, before welding is commenced. Use metal spark screens when necessary. Adequate precautions should be taken to prevent molten metal sparks from spattering or dropping through the cracks or grating into inaccessible locations, potentially causing injury to personnel or starting a fire.
- C. Permanent welding fixtures, such as benches, horses, supports, or tables should never be built of combustible materials.

Repairing, soldering, cutting and welding of tanks, which have been used for storing flammable liquids, gases, oil or grease, including air tanks is exceedingly dangerous. Adequate precautions must be taken.

- D. Untrained personnel should not be allowed to operate any type of welding or cutting tools.
- E. When welding, cutting or heating, suitable fire extinguishing equipment shall be immediately available in the work area.

1521. **GRINDERS**

Where bench grinders are installed on wooden benches, a metal sheet should be installed between the bench grinder and the bench. No flammable material should be permitted near operating grinders.

1522. MOTOR VEHICLE SHOPS AND GARAGES

- A. Only approved cleaning solvents should be used for cleaning motor vehicle parts.
- B. Do not start any equipment or vehicle indoors in the vicinity of a flammable material spill. Clean up the spill or push the vehicle to a safe distance before starting the engine.

1523. ELECTRICAL WIRING AND EQUIPMENT

- A. The fundamental causes of electrical fires are arcs, overheating due to overloading or improper installation of circuits.
- B. Fuses and circuit breakers must be properly installed and maintained at all times. Bypassing of breakers and fuses is prohibited.
- C. Electrical equipment should be connected only to those circuits designed to accommodate them. Flexible cords should not be spliced and should be replaced if worn or frayed. Where extension cords are used, they should be of the proper conductor size for which they are used.
- D. All portable electrical appliances and hand tools should be of the proper conductor size for which they are used.
- E. All electrical wiring should be installed and maintained in accordance with local ordinances and standards.

1524. **STOVES AND HEATERS**

- A. Only approved space-heating stoves and heaters should be used. When installed, suitable clearances shall be maintained on all sides. Proper care shall be exercised when filling reservoirs with oil or kerosene. Care shall be exercised to ensure adequate ventilation.
- B. Gasoline-fueled stoves and drum fires are prohibited.

1525. **CHIMNEYS AND FLUES**

Chimneys and flues must be kept clean and inspected annually, preferably at the beginning of the heating season. When it is necessary to close stovepipe holes in chimneys, only approved insulating material should be used. All local ordinances, rules and regulations that are applicable should be observed. This also applies to the use of chimney spark arrestors.

1526. **CLASSIFICATION OF FIRE**

The National Fire Protection Association classifies fires as to Class A, B, C and D. These designations are used to facilitate the use of the proper equipment. Most currently manufactured extinguishers are labeled with a classification system so that users may quickly identify the class of fire for which a particular extinguisher may be used. The classification system gives the applicable class symbol (or symbols) with supplementary words to recall the meaning of the letters. Color-coding is also used.

Color coding is part of the identification system, and the triangle (Class A) is colored green, the square (Class B) red, the circle (Class C) blue, and the five-pointed star (Class D) yellow.

- A. **Class A Fires:** Fires involving ordinary combustible materials such as wood, cloth, paper, rubber and many plastics.
- B. **Class B Fires:** Fires involving flammable or combustible liquids, flammable gases, greases, some plastics and similar materials.
- C. **Class C Fires:** Fires involving energized electrical equipment such as motors, control cabinets, transformers, oil circuit breakers, cubicles or compartments enclosing buses or equipment, high voltage lines, cables, house wiring and similar apparatus.
- D. **Class D Fires:** Fires involving certain combustible metals such as magnesium, titanium, zirconium, sodium, potassium etc.

1527. FIRE EXTINGUISHING PRACTICE

- A. Fire is a chemical reaction, which happens when a combustible material unites with oxygen so rapidly that it produces flame. Fire burns because three elements are present— heat, fuel and oxygen. The fuel must be heated to its ignition temperature before it will burn. Combustion will continue until one or more of the following takes place:
 - 1. The combustible material is cooled to below its ignition temperature (remove heat).
 - 2. The combustible material is consumed or removed (remove fuel).

3. The oxygen content is lowered to be below the concentration necessary to support combustion (remove oxygen).
 4. The flames are chemically inhibited (stop the reaction).
- B. There are very few fires, which cannot be easily extinguished if they are discovered in their incipient stage (beginning), and suitable extinguishing equipment is readily available. The first few minutes are more valuable than any other period. Therefore, it is essential that employees be properly trained in the use of available fire protection equipment at their work location.

1528. EXTINGUISHING VARIOUS CLASSES OF FIRES

- A. **Class A Fires:** (see "C" when energized equipment is nearby). Class A fires are best extinguished by the use of water hose lines, using a nozzle with fog, or a straight stream to break up or separate piled fuel. In the absence of a water hose, extinguishers using water, HALON or dry chemicals may be used. Hand extinguishers are used when it is apparent that the fire is so small that it can be extinguished by such method, or to keep it under control or retarded until other equipment can be used. Water from hose lines, and the contents of hand extinguishers should be, in general, directed to the fire from the windward side, at the base of and along the outer edges of the burning area, with a back and forth slow sweeping motion.
- B. **Class B Fires:** (see "C" when energized equipment is nearby). Class B fires are most effectively extinguished by the use of dry chemical, water fog, foam, carbon dioxide (CO₂) gas, or approved HALON.

The contents of all extinguishers should be projected onto the fire from the windward side wherever possible and directed at its base or outer edge until the blaze is extinguished.

C. **Class C Fires:** Class C fires involve energized electrical equipment; such equipment should be considered hot until it is positively known to be de-energized and will not become energized without the knowledge of all personnel concerned. When a fire occurs and the electrical equipment cannot be de-energized, the following types of extinguishers should be used:

- Carbon Dioxide (CO₂), C-rated
- HALON or Dry Chemical, C-rated

(Use of CO₂ or HALON is preferred)

These three types of extinguishers are nonconductors of electricity and therefore can be used safely on energized equipment of any voltage. When the electrical equipment involved in a fire can be de-energized, it should be done immediately, and then if another type of fire extinguisher is used inadvertently, there will be no hazard. When fires are fought adjacent to energized electrical apparatus, only Class C approved extinguishers should be used until the equipment is de-energized. Specially designed fixed systems using water fog or spray where the piping is grounded may be safely used to extinguish fires on essential energized electrical equipment; other electrical equipment should be de-energized automatically. CO₂ or HALON extinguishers should be used on fires involving electrical equipment with control or protective relay components, such as in combustion and burner control cabinets or in locations containing relay protection devices. Dry chemicals will infiltrate equipment and may cause erroneous functions by contamination of contacts or corrosion. Action on Class-C fires by unqualified persons should be restricted to the incipient stage only. C-rated fires that are actively burning should be suppressed or managed by qualified fire experts.

D. **Class D Fires:** Class D fires require a heat-absorbing extinguishing medium not reactive with the burning metals. Uses of special “dry

powder" extinguishing agents, such as G-1 powder and met-L-X powder have proven successful in fighting this type of fire.

NOTE: Some fire extinguishers are of primary value on only one class of fire; some are suitable on two or three classes; none is suitable for all four classes of fire.

1529. **FIGHTING SPECIFIC TYPES OF FIRES**

- A. **Forest, Brush or Grass Fires (Class A):** These should be reported to the local fire department as soon as possible. The fighting of forest fires is always done under the supervision of trained fire department personnel. However, small grass fires are often handled by available personnel, so the following suggestions are in order.

Small water extinguishers are excellent. 5 gallon backpack pumps work well also. Shovels, rakes, garden and fire hoses, or burlap sacks, if available are also satisfactory equipment to use. The most effective work can be done on the windward side. Begin your action from an anchor point (a point on the fire with little to no active fire) and flank or progress along fire's edge until the perimeter is circled. Two people can work both flanks at the same time and progress away from the anchor point for effective control. Actions taken can include cooling the fire with water, removing the fuel with the hand tools listed, or smothering with dirt or burlap sack. Action should only be taken when fire is small and it is completely safe to do so. If fire activity increases or control efforts are not successful, retreat to an area of safety and allow fire personnel to arrive and handle the incident.

NOTE: Pole lines should be inspected as soon as possible after grass or brush fires have burned past as deep-seated fire smoldering in crevices of the poles may damage them to the extent that it will be necessary to replace them.

Back-firing can cause more damage than good, and should be employed only by the experts.

- B. **Clothing Fires (Class A):** A person's clothing may catch on fire from an electrical flash or by accidental contact with fire, or by being covered with burning oil. All cases of burning clothing are very dangerous and call for the greatest calmness on the part of both victim and rescuers. If a person's clothing is on fire, and there are no serious injuries, he/she should call for help, lie down and roll. He/she should never run, as that fans the fire. Those assisting should try to smother the fire with any available article, such as a coat, blankets, rags, sacks etc. Water can also be used if necessary.

Woolen Clothing: We wish to emphasize the value of woolen clothing for the following reasons. A good grade of woolen clothing is flame resistant, even when oily. On the other hand, certain cotton and synthetic clothing is highly flammable. Records indicate that many lives have been lost through the burning of cotton clothing, lives which might have been saved had woolen clothing been worn.

- C. **Vehicle Fires (Possible Class A, B and C):** If a vehicle is on fire, immediately shut off the engine. Dry chemical, HALON or carbon dioxide (CO₂) portable fire fighting equipment can be effectively used on fires either around the engine or inside a car. Water is effective only if used as a spray or fog pattern.

If gasoline is leaking, also extinguish flames that may be burning on the ground beneath the car. If an extinguisher is not available, sand or dirt is effective and usually available along the road.

- D. **Gas Fires (Class B):** A gas fire should be extinguished by shutting off the supply of gas to the fire. If that is impossible, the gas flame should be allowed to burn. In no case should the flame be smothered or extinguished while the gas is flowing, as an accumulation of gas may become ignited and cause a disastrous

explosion. Adjacent property and structures should be protected and cooled by streams of water or any other available means.

Special care and water spray (cooling) protection should be provided for any gas cylinders or LPG containers exposed to fire or fire radiation (heat). Avoid positioning yourself adjacent to either end of a gas cylinder or tank.

If the fire is directed against the cylinders or containers, or if the fire is of extended duration, allowing cylinders or containers to heat up, the areas shall be immediately evacuated of all personnel, including fire fighters.

1530. **PORTABLE FIRE EXTINGUISHERS**

- A. Selection of the proper extinguisher is important, because each type has distinct characteristics, values and limitations. The following information will help you to better understand portable fire extinguishers and their proper use.
- B. Fire extinguishing equipment is for emergency use only. It may be used frequently or may lie idle for long periods, but in case of fire, it is desperately needed. To ensure availability for instant use, a thorough system of periodic inspections and maintenance is essential.
- C. Fire extinguishers must be checked monthly by the user department to assure that extinguishers are fully charged and operable at all times. After discharge, extinguishers shall be recharged or replaced as soon as possible.
- D. Extinguishers shall be inspected and certified annually. At the time of annual inspection, recharge, or overhaul, extinguishers shall be tagged (dated and signed) by a registered fire equipment inspector.

- E. Repairs to extinguishers shall be made by or under the supervision of a registered fire equipment inspector.

1531. DRY CHEMICAL EXTINGUISHERS

- A. **General Information:** There are three types of dry chemical extinguishers used throughout the company system:

1. Hand-held, cartridge-operated.
2. Hand-held, stored-pressure.
3. Wheeled nitrogen cylinder operated.

The hand-held, cartridge-operated and the wheeled units are a standard extinguisher. They have a B-C rating, using either a sodium bicarbonate based chemical (plus-50) or a potassium based chemical (purple k), purple k is being phased out. Both chemicals have a primary extinguishing effect of chemically interrupting the combustion process.

The hand-held, stored-pressure units are a standard company extinguisher. Most units that we have are multi-purpose extinguishers (A-B-C rated) using a mono ammonium phosphate-based chemical. This multi-purpose agent has the additional characteristic of softening and sticking when in contact with hot surfaces. In this way, it can adhere to burning material and form a coating, which will smother and isolate the fuel from air. Although it has added extinguishing capabilities, it also makes clean up difficult and on some equipment impossible.

NOTE: The use of chemicals approved for multi-purpose extinguishers (A-B-C) is prohibited in a dry chemical type B-C extinguisher or vice versa.

Application of dry chemical should be at the base of the blaze with a side-to-side movement along the leading edge, then gradually moving forward in order to cover the blazing areas as soon as possible. It is desirable to work from the windward side of the fire. On vertical fires the same procedure should be followed, applying the chemical at the base of the flame and working upward until the fire is extinguished.

- B. **Cartridge-Operated Extinguishers:** When the puncture lever is depressed, the CO₂ pressurizes the dry chemical chamber and forces the agent through the hose and up to the nozzle. Discharge is controlled by squeezing the nozzle-operating lever.

Operating Procedure

1. If so equipped, remove ring pin. Remove hose.
2. Push down on puncture lever.
3. Squeeze nozzle-operating lever. Direct stream at base of flames using a side-to-side motion.
4. After using, invert extinguisher by grasping elbow, and squeeze nozzle to release all pressure.

- C. **Stored-Pressure Dry Chemical Extinguishers:** When the operating lever is squeezed, the expellant gas forces dry chemical up the discharge tube, through the hose and out the nozzle.

Operating Procedure

1. Removing ring pin.
2. Remove hose from holder.
3. Squeeze operating lever. Direct dry chemical stream at base of flame.
4. After using, invert extinguisher and squeeze operating lever until all remaining pressure is relieved.

1532. **CARBON DIOXIDE (CO₂) HAND EXTINGUISHERS**

Carbon dioxide is an inert, non-conducting and non-corrosive gas that will not support combustion. A mixture of air containing 17% or more of CO₂ gas will smother fire. The gas has no adverse effect on any material and it can be applied without danger to apparatus. It is nonpoisonous and harmless to breathe unless present in such concentration that suffocation will occur because of lack of oxygen.

Carbon dioxide is applied from cylinders, either portable or stationary, in which it is stored at pressure of approximately 850 pounds per square inch at normal room temperature (approximately 70°F).

The safety blow-off of all high-pressure cylinders is set by the US Bureau of Explosives at 2,700 psi, which is considerably less than the tested working pressure of the cylinder, which is 3,000 psi.

In the hand-held and wheeled extinguishers, the cylinders range from 2½ pounds to 50 pounds by weight of CO₂. These units can be carried or wheeled to the area of fire involvement and placed quickly into operation. The 50-pound CO₂ units are mounted on wheels and can be easily taken to the area of trouble. Portable extinguishers are hand operated. After removing the safety pin located at the top of the cylinder valve, the unit can be placed into operation by either turning the valve at the top of the cylinder or by depressing the valve lever. This action releases the CO₂ liquid, which changes to a heavy gas with some snow.

Carbon dioxide is used for quick fires not involving glowing coals or deep-seated smoldering fires.

1533. **HALON 1211 EXTINGUISHERS**

The underlying extinguishing principle in the use of HALON 1211 is to chemically interrupt the combustion process. In addition, it has a limited cooling effect, particularly at close range. It has outstanding properties in preventing re-flash.

HALON 1211 is a colorless, non-corrosive liquefied gas that evaporates rapidly, has low toxicity and leaves no residue. It does not freeze or cause severe cold burns, and will not harm fabrics, metals or other delicate material.

There are three models of HALON extinguishers: single unit, canister model and 150-pound wheeled unit.

The hand-held single unit and canister models operate basically the same. When the safety pin is removed and the operating lever is squeezed, the expellant gas (nitrogen) forces HALON 1211 up the discharge tube, through the hose and out the nozzle.

Recent changes in the regulatory environment have underscored a strong sense of urgency surrounding the global phase out of ozone-depleting substances (ODS). HALON falls within the scope of the ODS regulation.

The regulation requires compliance by 1998; however, an increase in costs associated with recharging has been steadily rising. SDG&E has elected to an earlier compliance schedule and will utilize the industry substitute CO₂, while awaiting an approved replacement.

Regarding HALON fixed systems. SDG&E will continue to maintain existing banked storage of HALON as approved by the US Government.

SDG&E currently employs several HALON fixed deluge systems at our facilities.

NOTE: If fire is in an enclosed area when agent decomposition products are not dispersed to the atmosphere, evacuate the area on detection of a sharp acid odor.

1534. HOW TO OPERATE YOUR FIRE EXTINGUISHER

- Learn now, before there's a fire.
- Read the label.
- Instruct all family members.

- Periodically review instructions and operations.
- Learn how to P-A-S-S.

- A. **Pull:** Pull the pin or ring. Some units require the releasing of a lock latch, pressing a puncture lever or other motion.
- B. **Aim:** Aim the extinguisher nozzle at the base of the fire.
- C. **Squeeze:** Squeeze or press the handle.
- D. **Sweep:** Sweep from side to side slowly at the base of the fire until it goes out.

If the fire gets big, get out! Close the door to slow the spread of the fire.

1535. **HYDRANTS AND FIRE HOSE SYSTEMS**

All emergency equipment shall be in good operating condition at all times to prevent failure at a time when it is needed most. Maintaining fire equipment stations and fire fighting equipment in top condition is merely a matter of good housekeeping and adequate routine inspections. Remember, successful fire fighting is largely dependent upon adequate equipment in first-class condition. Inoperative equipment is of no value.

1536. **FIRE HYDRANTS AND STANDPIPES**

- A. All fire hydrants shall be inspected for leaks, corrosion, and operating condition on a routine basis. Repairs and/or replacements shall be made immediately.
- B. Standard hydrant and hose line hardware is sized at 1½ and 2½ inches equipped with American National Fire Hose Connections screw threads. This thread size can be used by local fire departments when necessary. Protective caps shall be placed on hydrant outlets when not in use.

1537. **FIRE HOSE TRAINING**

Hands-on training should be provided at regular intervals for those employees who may be required to use a fire hose. Successful fire fighting depends to a great extent upon adequate fire streams, and adequate fire streams depend upon use, care and inspection of fire hoses. When fire hoses have been neglected for one reason or another and a section goes out of service during a fire, valuable time can be lost in replacing it; this delay can cause extra loss of property and risk to human life.

A. **Proper Use of Fire Hoses:**

1. Do not use a fire hose for purposes other than fighting fires.
2. Hose couplings should not be dropped or dragged, as this will result in mashed threads, jammed swivels, or other damage.
3. Never drag a fire hose unnecessarily over pavements, sharp objects such as lumber containing nails, broken glass, or sharp stones. Such treatment will cause worn places and rips in the outer fabrics and cracked inner linings.

B. **Care of Rubber or Neoprene-Lined Fire Hose:**

1. A good hose will last a long time if given proper care. The principal sources of damage to hoses are mechanical injury, heat, mildew and mold, acid gasoline and oils, tears, snags and abrasions.
2. Mildew, mold and other forms of rotting result from improper drying of hoses. These organisms damage hose jackets if they contain cotton fibers.
3. Acid damage is another common cause of fire hose failure; this may be caused by acids formed in the rubber lining of the hose.
4. Gasoline and many oils are solvent for rubber compounds and attack the lining. The jacket absorbs gasoline and oil like a wick and carries them to the lining where they may dissolve the lining or the cement, which holds the jacket, and lining together. Improved rubber compounds to resist these hazards do provide greater life to hoses, but cannot justify careless handling.

C. **Inspection:**

1. NFPA recommends that all hoses be inspected and tested annually and cleaned as needed. Hoses should be removed from the racks or reels and inspected for leaks and mildew and rodent damage.

CAUTION: Inspect for poisonous insects.

D. **Washing and Drying Hose:**

1. After hose has been in use at fires, all dirt should be thoroughly brushed off. If the dirt cannot be removed by brushing, the hose should be washed with plain water and scrubbed.
2. If the hose has been exposed to acid, gasoline or oils, it should be washed with soap and thoroughly rinsed.
3. Drying the rubber or neoprene-lined hose should be accomplished very carefully after use at fire, testing or scrubbing. Hose should not be dried in the sun, on concrete

roadways or sidewalks. After hose is dried, return it to its station immediately. Do not leave it out in the drying area. Remember: Keep the outside of the hose dry and the inside of the hose moist (rubber and neoprene-lined hose only). Water should be run through the hose frequently to prolong its life. If one end of the hose is covered during the drying process it will help to keep the inside from drying out.

E. Storage:

1. All fire hose shelters should be kept clean and weather proofed at all times. Fire hose and its use are always considered one of the first lines of defense against fire losses. It should always be kept clean and well protected from the weather. If any defects are noted on inspection, they should be repaired or the hose replaced at once.

1538. FOAM EDUCTOR

Foam is a very effective extinguishing agent when used on most Class A and B fires. It has a blanketing effect, which smothers and cools.

NOTE: Do not use on electrical equipment as it is conductive, corrosive, and clean up is very difficult.

To operate: connect 1½-inch hose to the inlet of the eductor-proportioner. Set the proportioner at 3% and place suction line in five-gallon (standard) container of foam concentrate. Connect the eductor-proportioner and adjust the nozzle for the desired foam flow (straight stream, narrow fog or wide fog).

When using foam on oil or gasoline fires in tanks or pans, best results are obtained when the discharge is sprayed lightly on the surface or against the opposite side of the tank in order to permit the natural spread of the foam back over the burning liquid. For fires in pools of burning oil etc., the operator should stand far enough away from the fire to allow the foam to fall lightly upon the burning surface. The stream should not be directed into the burning liquid as this would tend to spread the pool over a larger surface.

For fires in ordinary combustibles (Class A fires), the force of the stream may be used, or the foam may be used to coat the burning surface, depending upon conditions.

NOTE: Always flush nozzle and suction line after use.

1539. **GARDEN HOSE AND HYDRANTS**

The use of garden hoses and hydrants should be recognized for their true value; they are very effective on fires in common combustibles (Class A fires) if discovered in time. An ordinary adjustable nozzle produces a straight stream or spray. At locations not equipped with regular fire hydrants and fire hoses, excellent use can be made of garden hose.

CAUTION: Streams from garden hoses should not be used on energized apparatus or equipment because of the shock hazard.

1540. **FIXED EXTINGUISHING SYSTEMS**

- A. Each fixed system is designed and installed for protection against a specific fire hazard.
- B. All systems require annual inspection, testing, maintenance and documentation by qualified personnel especially trained for this procedure to ensure proper operation at all times.
- C. After discharge, fixed systems shall be serviced and placed back in operation as soon as possible.

1541. **AUTOMATIC SPRINKLER SYSTEM**

Automatic water sprinkler systems are installed in certain storage warehouses, garages, office building and other applicable locations.

The sprinklers have fusible links, which melt at about 150°F, and when in operation, effectively wet everything below within a diameter of 15 feet or more depending on pressure and type of head.

Maintenance or alterations of sprinkler systems should be done by properly qualified personnel under close supervision, and in accordance with the special rules governing manipulation of valves, posting of "caution" signs, procedure for restoring to normal operation etc.

Systems should be maintained in full operative condition at all times.

1542. **HALON 1301 (Total Flooding Fixed Systems)**

HALON 1301 is a liquefied gas, which rapidly vaporizes when released into the atmosphere. It is colorless, has a low toxicity, and does not displace oxygen. Discharge of HALON 1301 will chemically interrupt the combustion process. When used in an enclosed area, * it is an effective agent, which may be used to combat shallow Class A (cellulose materials, wood, cloth, paper, rubber etc.), Class B (flammable liquids), and Class C (energized electrical equipment) type fires. It is especially useful where an electrically nonconductive medium is desirable or where clean-up of other media presents a problem.

NOTE: Where personnel are required to remain in an area after total flooding, pressurized breathing apparatus should be available and used by such personnel.

* To ensure an effective concentration of HALON1301, all automatic closing devices to openings should be maintained in a readiness condition at all times (doors, dampers, and ventilation ducts should be blocked open).

1543. **CARBON DIOXIDE (CO₂) FIXED SYSTEMS**

The principal extinguishing effect of carbon dioxide is to displace oxygen. Buildings or areas protected with an automatic CO₂ system should have a warning sign posted at each entrance, "Important: This Building Is Protected by an Automatic CO₂ Fire System." Before entering any building, room, switch cell, or other compartment where automatic CO₂

equipment is permanently piped for fire protection, the CO₂ equipment must be made non-automatic unless the station and/or division manager expressly authorizes suitable safeguards to ensure prompt evacuation of, and to prevent entry into such atmosphere should the system discharge. Suitable safeguards should include personnel training, pre-discharge alarms, discharge alarms and warning signs.

WARNING: No employees may remain in a carbon dioxide protected area after alarm, or enter after discharge, unless they are qualified (trained) and wearing an approved self-contained breathing apparatus or until the area has been thoroughly ventilated and tested with an approved oxygen deficiency tester.

Carbon dioxide, when released, smothers and cools the area. This, along with eliminating visibility created by its initial cloud, creates a deadly condition for anyone inside. The greatest danger is from suffocation. This is initially accompanied by extreme cold. In a matter of seconds, after the discharge, the atmosphere is totally uninhabitable, becoming a frozen opaque mist deficient in oxygen. The cloud is composed of carbon dioxide particles and frozen moisture. Upon warming, the carbon dioxide particles melt and the moisture condenses out or returns to the air. However, even though the atmosphere is clear in appearance, it is still hazardous and uninhabitable until the carbon dioxide is replaced with air.

1544. **FOAM (Synthetic) FIXED SYSTEMS**

- A. The principal extinguishing effects of synthetic foam are to exclude air (oxygen) from the surface and to cool the surface.
- B. The systems are all manually activated and used for combating fuel fires in tanks, pumps, or boiler fronts.

1545. **MISCELLANEOUS FIRE PROTECTION EQUIPMENT**

This group includes breathing apparatus, fire-resistant suits and gloves, fire blankets, fire axes and other equipment, which may be located at strategic points.

- A. Such equipment should always be kept in good condition and ready for instant use.
- B. Detailed operation instructions should be furnished to the personnel by the supervision of the plants where this equipment is installed.

INTERNAL

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.	
Brief:	

Document Profile Summary	
Responsible Person:	Zepeda, Ruben
Published On:	01/28/2009
Last Full Review Completed On:	
Writer:	Saragosa, Mario
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01486

RULE 1600

EMERGENCY ACTION PLAN (EAP)

1600. SCOPE

The Emergency Action Plan ("EAP") is required by both the State and Federal law and covers the facility and employees in the event of emergencies in the workplace. Its primary function is to communicate to employees their role(s) in emergencies.

Facilities with fewer than 10 employees are not required to maintain a written plan. At those facilities, it is permissible to verbally provide employees information on the basic elements of emergency response, such as, but not limited to: reporting procedures, communication strategies, employee response procedures, emergency escape procedures, and outside meeting and accountability.

1601. EMPLOYEE RESPONSIBILITIES

A. As an employee, you must:

1. Be aware of this plan.
2. Understand your role as outlined in the plan and your responsibilities during emergencies.
3. Know where a current copy of the plan is located.

B. The basic elements of the plan of which employees must be aware are:

1. Procedures for reporting a fire or other emergency.
2. The general communication strategy describing how the emergency will be communicated once reported.
3. Procedures for emergency evacuation, including types of evacuation and exit route assignments (including alternative routes). This includes training employees to assist in a safe and orderly evacuation of other employees.
4. Designation of which, if any, employee(s) will remain after the evacuation alarm to shut down critical operation or perform

other duties before evacuating, unless doing so poses a greater danger to their safety.

5. Designated assembly area(s) to be used after evacuations.
 6. Procedures to account for all employees after evacuation.
 7. Procedures to be followed by employees performing rescue or medical duties; and the names and regular job titles of persons or departments who can be contacted for further information or explanation of duties under this plan.
 8. Provisions for specific assistance to those employees with special needs (who may require extra assistance during an evacuation).
 9. Procedures to address employee response for various types of emergencies such as, but not limited to, fire, medical, hazardous materials release, civil unrest, natural disasters and bomb threats.
 10. Elevator and Stair Policy and Procedure.
 11. Housekeeping policy to control the accumulation of flammable and combustible waste material and residues in order to prevent a fire hazard.
- D. You should contact your supervisor or department head if you have questions concerning the location of the plan, and/or your responsibilities under the plan.
- E. For more detail, refer to [Safety Standard No. G8261, Emergency Action and Fire Prevention Plan](#).

1601. **SUPERVISOR RESPONSIBILITIES.**

- A. Your supervisor or department head is responsible for ensuring that each employee under his/her supervision is adequately trained on how to respond to emergency situations in the workplace.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Modified for consistency with SDG&E Emergency Services Standard G8261

Document Profile Summary	
Responsible Person:	Turman, Jim
Published On:	05/07/2014
Last Full Review Completed On:	05/07/2007
Writer:	Turman, Jim
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD, SDERS
NOP Learning Module (LM) Training Code:	NOP01487

RULE 1700

WORKPLACE SECURITY

1700. SCOPE

The following workplace security requirements apply to all employees.

1701. SAFE WORK ENVIRONMENT

SDG&E is committed to maintaining a safe work environment free from the hazards of violence. The company's objective is to maintain a safe and secure work place for all employees, customers, contractors, suppliers and visitors. Employees must use common sense regarding personal articles of value. The company will not be responsible for the loss or theft of personal items.

1702. ZERO TOLERANCE

SDG&E will not tolerate violence, threats, firearms or other offensive weapons in the workplace. Violent physical contact is prohibited as well as violent verbal exchanges, or threats of violence to employees or their families or against employees by persons outside the company.

- A. A "threat of violence" is an indication of intent to harm a person or property. A threat may be made verbally, in writing or through physical action.
- B. An "act of violence" is an action taken with intent to harm a person or property.

1703. **REPORTING VIOLENT ACTS**

- A. Any employee who witnesses or who anticipates a violent physical act involving immediate danger must immediately call local law enforcement officials at 911. When circumstances permit, a follow-up call must then be made to Security at 619.725.8611 and to the employee's supervisor.
- B. Any threats or actions not involving immediate danger must be reported promptly to Security at 619.725.8611. Reports will be investigated promptly and appropriate action will be taken.

1704. **REPORTING THEFTS**

Employees are responsible for reporting all thefts immediately upon discovery to their supervisor and to Corporate Security through the Intranet, using the "Security Incident Report" which is located in the Request section of the SDGE Homepage on Netscape.

1705. **REPORTING ANONYMOUSLY**

Employees who report violence concerns will be protected from company retribution. If the matter is not urgent, employees can also use the Ethics Helpline (800-241-5689) to report or discuss concerns about violence issues confidentially or anonymously.

1706. **EMPLOYEE IDENTIFICATION BADGES/ACCESS CONTROL**

Corporate Security issues employee identification and access control badges to employees. The badge provides employee access into company facilities and are essentially keys to our properties. Employees are responsible for their badges, and in the event of loss, employees are required to immediately report the loss to Corporate Security at 619.725.8611 so it can be electronically deactivated.

1707. **HAZARD ASSESSMENT**

Employees are encouraged to report any security concerns they may have to their supervisor and/or Corporate Security. Security will evaluate

all security-related concerns and will make recommendations as warranted.

1708. **TRAINING**

A. **Managers / Supervisors:**

Corporate Security and Human Resources provides managers and supervisors with training on security-related issues such as, crisis management, sexual harassment, substance abuse awareness and employee intervention. Contact Corporate Security 619.725.8611 or Human Resources for the current schedule of available training programs.

B. **Employees:**

Corporate Security coordinates security training programs for employees such as, "Street Smarts," robbery training, street gangs, counterfeit bill identification and other programs, many of which are done in concert with local police agencies. Contact your manager or supervisor and have them contact Corporate Security 619.725.8611 to request an employee security training program.

1709. **DRUGS AND ALCOHOL**

Employees are prohibited from reporting for duty under the influence of alcohol or drugs. This includes any and all drugs, including prescriptive drugs that may affect an employee's ability to safely and effectively perform their duties.

All employees are subject to "reasonable suspicion" drug and alcohol testing. Employees found to be in violation of the company drug and alcohol policy are subject to disciplinary action, up to and including discharge. Employees with substance abuse problems are encouraged to contact the EAP (1-800-342-8111) for assistance.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Document was fully reviewed. Phone number for security was the only change to document.

Document Profile Summary	
Responsible Person:	Zepeda, Ruben
Published On:	12/23/2014
Last Full Review Completed On:	12/23/2014
Writer:	Saragosa, Mario
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
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Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01488

RULE 1800

INCIDENT AND INJURY REPORTING

1800. SCOPE

This applies to all employees involved in an incident or injury, on the scene of an incident, or reporting an incident or injury.

1801. EMPLOYEES ON THE SCENE OF A SERIOUS INCIDENT

- A. In case of a serious injury, immediately obtain medical assistance, call 911 and provide first aid to the injured. If unable to reach 911, request Dispatch – SD (Trouble) to do so. [Dispatch – SD (Trouble) can be reached at 619) 725-5199].
- B. Notify Dispatch – SD (Trouble) of all items on the Scene Assessment Checklist. (see Attachment A). Dispatch – SD (Trouble) will notify the employee's department head or delegate, Safety & Health Department, SEU Communications Department, SEU Claims Department and Corporate Security as needed.
- C. Secure the incident scene. Perform only that work that can safely be done to mitigate any immediate hazards. Do not allow any crew members, any member of the public, or any emergency response personnel to take any action involving our facilities that will compromise their safety.
- D. With the exception of that work necessary to mitigate immediate hazards, ensure that nothing is moved before the scene has been thoroughly inspected and released by Safety or SEU Claims Department. All evidence must be tagged and preserved until released in writing by the manager of Safety or the manager of SEU Claims Department.
- E. Do not discuss the incident with any member of the public.
- F. Obtain names, addresses and phone numbers of all parties involved and any witnesses of the incident.
- G. Request the presence of a safety representative during any interview involving Cal-OSHA.

- H. Provide a detailed description of all activities leading up to the incident to the Safety & Health Department or SEU Claims Department.

1802. INJURIES REQUIRING MEDICAL TREATMENT

- A. In case of a life-threatening emergency:
 - 1. Call 911.
 - 2. Contact area dispatcher.
 - 3. If a telephone is not available, radio the area dispatcher and request that they call 911 immediately.
 - 4. Notify the area supervisor and the Safety & Health Department, (858) 650-4002 during normal business hours and (619) 725-5199 after hours, weekends and holidays.
- B. All other injuries or illnesses requiring a physician:

Contact one of the Occupational Health Nurses. During regular work hours in North County call (760) 480-7684, or in San Diego call (858) 654-8758 for a physician referral. This will ensure that proper medical treatment is provided.
- C. FORM TO BE COMPLETED: The report of injuries requiring medical treatment is completed electronically by the supervisor in the Safety Incident Management System (SIMS) from the Safety Website <http://utilinet.sempra.com/departments/safety/SIMSLanding.cfm>

1803. MINOR INJURIES

- A. Steps to be taken are:
 - 1. Administer first aid if trained.
 - 2. If not trained, or if additional services are needed, contact an Occupational Health Nurse for assistance.
- B. FORM TO BE COMPLETED: The report of Minor Injury is completed electronically by the supervisor in the Safety Incident Management System (SIMS) from the Safety Web site <http://utilinet.sempra.com/departments/safety/SIMSLanding.cfm>

1804. INJURIES AFTER HOURS (WEEKDAYS 5 P.M. THROUGH 7 A.M., WEEKENDS AND HOLIDAYS)

- A. Call Service Dispatch - SD (Trouble) at (619) 725-5199.

- B. Relay the nature, condition, and exact location of the injured employee. Service Dispatch will contact the Safety Department and others if necessary.
- C. For non-emergency work related injury care instruction, including discomfort, contact the 24/7 telephonic triage line by calling 1-877-888-8701.

1805. VEHICLE INCIDENTS

- A. Ensure you are safe and able to discuss the incident with other involved drivers or persons. Exchange names, drivers' license information, address, phone number at home and work, auto insurance company and policy number (Sempra Energy is self-insured).
- B. Contact SEU Claims Department immediately to relay information about the incident if a member of the public is injured or there is damage to property or a vehicle.
- C. Vehicle Incident Reports are made electronically by the supervisor in the Safety Incident Management System (SIMS) from the Safety Web site within three (3) working days.

<http://utilinet.sempra.com/departments/safety/SIMSLanding.cfm>

1806. NEAR MISSES

Near Misses/Close Calls can be entered into SIMS, via the Close Calls page of the Safety Website, or by printing and completing a paper copy available here.

I. Attachment A

SCENE ASSESSMENT CHECKLIST

- ☒ Has 911 been called?
- ☒ Has Dispatch been called (619) 725-5199?
- ☒ Who's in charge?
- ☒ What is their phone number?
- ☒ What is the location of the incident?
- ☒ How many people are injured?
- ☒ What is the extent of the injuries?
- ☒ Where are they being transported?
- ☒ What additional assistance is required at the site to mitigate immediate hazards? (specific crews, equipment, emergency response etc.)
- ☒ What was the employee/crew doing when injured?
- ☒ Are any customers affected?
- ☒ Who has been notified?
- ☒ Secure and preserve the scene for investigation purposes.

NOTE: Do not state the name of any injured employee over the radio.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.	
Brief: Section 1804 was revised to show the phone number employees can call during after hours for injury evaluation. This is additional service Safety, Wellness and ECS are providing our employees.	

Document Profile Summary	
Responsible Person:	Karimi, Majid
Published On:	08/31/2018
Last Full Review Completed On:	08/31/2018
Writer:	Karimi, Majid
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01489

RULE 2100

GENERAL CONSTRUCTION, MAINTENANCE AND OPERATION SAFETY RULES

2100. SCOPE

The requirements of this section apply to all General Construction, Maintenance and Operation employees and are effective on the date of issue.

2101. JOB BRIEFING

- A. Prior to starting any construction job or day's work, the foreman or employee in charge will call the entire crew together for a conference or "Job Briefing." Each worker will understand:
 - 1. The purpose of the job.
 - 2. What he/she is to do.
 - 3. What the other members of the crew are to do.
 - 4. The intended manner of carrying on the job.
 - 5. The hazards or trouble spots involved.
 - 6. How the employee in charge is proposing to overcome such problems.
- B. The employee in charge will encourage questions, comments and suggestions by the crew members. The briefing will continue until all crew members understand the job at hand.
- C. If, during the course of the work, changes in procedure become necessary, the crew members affected will be called together and the change properly explained.

2102. CLOTHING AND PROTECTIVE GARMENTS

The supervisor, foreman or employee in charge will determine that employees are suitably clothed for their jobs at all times. Protective garments will be worn as below (unless determined otherwise by supervision):

- A. Abrasive blasting, welding, torch cutting, heavy grinding >> Denim coveralls.
- B. Firefighting (beyond incipient-stage fire) >> Turnout coat and pants.
- C. Flammable gas concentrations greater than 60 percent of the power explosive limit (60 % LEL) >> Nomex hooded coverall.
- D. Hazardous materials may contact skin or clothing >> Chemical-resistant suit appropriate for exposure, such as:
 - 1. Asbestos or lead dust >> Tyvek hooded coverall or launderable denim coveralls.
 - 2. Corrosive liquid >> PVC suit.
 - 3. Lab chemicals >> lab coat.
 - 4. Lead acid battery >> Rubber apron.
- E. Employee exposed to vehicular traffic shall be provided with, and shall wear; warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.
- F. A flame retardant shirt or jumper with full-length sleeves rolled down and buttoned when buttons are provided must be worn when working on poles, structures or near energized conductors or equipment, and under such other conditions as the supervisor in charge may direct. Clothing made from the following types of fabrics, either alone or in blends, is prohibited when working on or near energized conductors or apparatus: acetate, nylon, polyester and rayon, unless specifically designed into an approved FR Garment with an Arc Thermal Protection Value of at least 4.0.

2103. HEAD PROTECTION

Approved head protection (hard hat) must be worn by all employees when:

- A. Working on or visiting any job site involving construction or maintenance of company facilities or systems.
- B. Working in or visiting power plants other than when in offices, control rooms or rest areas.

- C. In district construction yards when engaged in or in proximity to manual or mechanical material handling operations.
- D. Entering any area or facility posted as a "hard hat area."
- E. So directed by employees in charge of work areas or facilities.

2104. EYE AND FACE PROTECTION

Approved eye and face protection are provided and will be worn when employees are exposed to eye hazards. Employees who have corrected vision will wear approved eye protection over street-wear glasses or obtain prescription eye protection. Employees will ensure that these devices are in good condition, fit properly and are clean. Safety glasses must have side shields. Employees exposed to electrical hazards will not wear eye protection that has conductive (metal) frames.

Eye protection must be worn when the employee is engaged in or is near:

- A. Drilling or chipping stone, brick, concrete, paint, pipe coatings or metal.
- B. Grinding, buffing or wire brushing.
- C. Dust or flying particles.
- D. Welding, cutting or burning.
- E. Hot or cryogenic liquids and other hazardous substances.
- F. Injurious light or heat rays.
- G. Work on energized high or low voltage electrical equipment.
- H. Work with compressed air or gases.
- I. Any job where there is danger of eye injury.
- J. For further details about Protective Eyewear, refer to: Safety [Standard G8341](#) "Protective Eyewear Policy."

2105. RESPIRATORY PROTECTION

- A. When air contaminants such as dust, fumes, mists, gases or vapors are present in harmful concentrations, ventilation or other engineering controls or work process changes will be used to eliminate such hazards.
- B. When such controls are not feasible or effective, approved respiratory protection will be used by exposed workers that have been medically qualified, instructed in and fitted for its use. Information and requirements for selection, fit and use of respirators are contained in the Safety [Standard G8365](#) "Respiratory Protection Program Safety Standard."

NOTE: All employees required to use respirators for emergency response shall be ready at all times to apply the respirator as a required of the job.

2106. WARNING SIGNS, GUARDS AND OTHER DEVICES

- A. Approved warning signs, barriers, guards, flags, flares and lights will be properly installed and maintained wherever hazards exist due to moving or stationary machinery or vehicles, exposed energized parts of equipment, open excavations, construction operations, removal of manhole/handhole covers or other.
- B. These warnings and guards will be placed immediately at the point of excavations, obstructions or other hazards and far enough in advance to give adequate warning to motorists.
- C. Specific instructions on traffic warning devices and their use are found in Regional Standard Drawings (Traffic Control Plans) at the Regional Standards Committee, San Diego County Department of Public Works. This manual will be used by employees whose work involve or affect pedestrian or vehicular traffic.
- D. Where pedestrian or vehicular traffic conditions require, a properly trained and equipped flagman must be stationed to warn the traffic.
- E. All employees whose work exposes them to vehicular traffic must wear approved vests marked with or made of reflectorized or high visibility material.

NOTE: For purposes of this rule, exposure means any activity on a normally traveled portion of a roadway or other area open to traffic. Barricading, coning or delineation of the immediate work area will not eliminate the need for the vest. Should exposure be intermittent, the vest must be put on upon arrival at the job site and not removed until departure.

2107. FALL PROTECTION

- A. Employees working or walking in elevated areas will be protected from falling. Elevated areas are those where an employee could fall more than four feet or is within six feet of an unprotected edge. Primary protection is to be provided by guardrails, including toe rails, enclosures or coverings for openings in floors, roofs or other equipment.
- B. Where a guardrail or other fall prevention cannot feasibly be installed (i.e.; on a pole), personal fall arrest equipment will be used by employees.
- C. Employees will use approved body belts or harnesses, safety straps, lanyards, life lines or other fall arrest equipment as required when working in elevated positions. Anchor points in which the fall protection will be attached must be designed to withstand the weight according to applicable governmental safety orders.
- D. It is the employee's duty to inspect each safety device, whether furnished by the company or personally owned, each time it is used and to use only those that are in good condition.
- E. No employee will be elevated in a boom-type aerial bucket or work platform without first being secured with a safety strap or lanyard. If a lanyard is utilized, it shall be of such length as to limit a free fall to as short a distance as practicable, not to exceed six feet.
- F. When climbing poles or towers, employees will look to make sure that the snap hook is properly engaged in the "D" ring before the weight of the body is placed on the safety strap. When the strap is in use, both snap hooks shall not be attached to the same "D" ring.
- G. Wire hooks shall not be used on body belts.

- H. An employee using a boatswain chair will be secured by a safety belt and a safety line attached to the load line holding the chair or a fixed part of the structure being worked upon.
- I. No welding, burning, or sandblasting shall be done from a boatswain chair suspended by a fiber rope.

2108. SAFE SUPPORTS

- A. No employee, material or equipment will be supported by any portion of a tree, pole, structure, scaffold, ladder walkway or other elevated structure until the employee makes sure the support is strong enough and properly secured.
- B. Scaffolding must have sufficient strength and rigidity to support four times the maximum intended load.
- C. Construction details of scaffolding will comply with applicable governmental safety orders.

2109. WORK OVER OR NEAR WATER

- A. When working over or near water and the danger of drowning exists:
 - 1. Employees will wear approved life jackets or buoyant work vests.
 - 2. Ring buoys with at least 90 feet of line will be immediately available.
 - 3. At least one life-saving skiff will be immediately available.

NOTE: Proper use of personal fall arrest equipment or an approved safety net will be considered as eliminating the danger of drowning.

2110. SCUBA DIVING

Since scuba diving within the company has limited occupational application, the rules for this activity are not included in this manual. A separate manual has been developed for issue to those employees engaged in diving activities. Copies are also available in the Safety & Health Department and at the Metro Construction Operations for reference purposes.

2111. RESCUE FROM UNDERGROUND VAULTS, MANHOLES AND SIMILAR STRUCTURES

- A. Rules covering procedures for work in hazardous atmospheres are found in Section 3600. These rules require, under certain circumstances, the use of a harness and surface-tended life line for the purpose of rescue. See Electric Distribution Engineering, Electric Standard Practice 234 for equipment and procedure.
- B. In situations involving injury or illness to an employee, the employee in charge must determine the needs as circumstances dictate.

NOTE: Fire Department Rescue units will be utilized as the first option for manhole rescue.

2112. PERMIT-REQUIRED CONFINED SPACES

Confined spaces have limited access, are large enough to work in and are not intended for continuous human occupancy. Permit-required confined spaces also have the additional element of serious hazards that exist or could develop, causing death or serious injury. Such hazards include:

- A. Some examples of permit-required confined spaces are tanks, cooling water tunnels, piping, pits, scrubbers and sewer/water vaults.

Note: Electric, gas and telecommunications vaults are exempt from permit-required confined space regulations and are addressed in Rule 1228 "Other Confined Spaces".

- B. All employees involved including supervisors, workers, attendants, potential rescuers and qualified testers must receive additional training before confined space work.
- C. Confined Space Entry Permit: No entry shall be made until hazards are assessed, protective measures implemented and an entry permit is signed and posted. All requirements of the permit shall be met. Any changes, such as turning off ventilation or altering work operations, automatically void entry permits and confined spaces must be evacuated immediately.
- D. Isolation and Purging: The space must be emptied and isolated from potentially hazardous substances or energy.

- E. Pre-Entry Air Testing: The air must be tested with instruments to determine if oxygen deficiency, flammable gas and/or toxic air contaminants are present. Specially-trained employees called Qualified Testers shall do the hazardous atmosphere testing.
- F. Ventilation in Confined Spaces: Mechanical or natural ventilation must ensure good breathable air with adequate oxygen and reduce or eliminate hazardous air contaminants. Only outside air or grade D breathing air may be used to ventilate confined spaces—oxygen or other gases are prohibited.
- G. Respiratory Protection: Rescues, entry into unknown atmospheres, and work in air that is Immediately Dangerous to Life or Health (IDLH) require the use of self-contained breathing apparatus (SCBA). Normally, entries will not be allowed during IDLE conditions since these situations should be controllable with ventilation or other measures. Lower-level air contamination requires that employees choose and use the proper type of respirator.
- H. Attendants and Rescue Teams: Employees who standby to help in an Emergency, in addition to confined space training, must also be CPR-certified and be able to summon help. Attendants are required on confined space entries where constant communication or assistance is required or when rescue may be needed due to potential for serious injury.
- I. Safety with Welding Gases: Compressed gas cylinders are prohibited in confined spaces (except SCBA). Hoses must be removed at the end of each shift. Oxygen is prohibited for ventilating spaces.
- J. For further details about Confined Space Entry, refer to Safety [Standard G8315](#) "Confined Space Operations."

2113. OTHER CONFINED SPACES

- A. Entry into electric, gas or telecommunication vaults may only be made after testing the atmosphere for combustible gas and determining that there is no combustible gas.
- B. Any unusual odor, substance or condition is to be investigated. Samples of suspect materials shall be collected and analyzed from outside the vault until safe entry can be assured. If samples or

hazards must be investigated by entering the space, only trained, protected entrants may enter the space.

- C. The space must be mechanically ventilated a minimum of 10 minutes prior to entry and continuously ventilated during occupancy.
- D. A record of gas testing must be kept at the space for the duration of the entry.
- E. For further details about Confined Space Entry, refer to Safety [Standard G8315](#) "Confined Space Operations."

2114. EXPLOSIVES

Explosives are to be handled only by authorized and experienced employees using approved and lawful methods.

2115. EXPLOSION-PROOF OR INTRINSICALLY-SAFE LIGHTS AND EQUIPMENT

Only an approved vapor-proof flashlight or extension cord/fixture may be used near gasoline, escaping gas or other flammable vapors or when entering a room or enclosure suspected of containing gas.

- A. Basements, cellars and other dark areas must not be entered without proper light; the use of matches or other open flame is strictly forbidden.

2116. WELDING AND TORCH CUTTING ON USED CONTAINERS

- A. Welding or cutting is prohibited on portable containers such as five-gallon or 55-gallon drums that contained a hazardous material. Before welding or cutting on tanks, piping or similar vessels, the following precautions must be used to prevent fire, explosion or toxic exposure:
 - 1. Identify potential hazards by labels, signs, Safety Data Sheet (SDS), records and/or engineering specifications.
 - 2. Test for oxygen-deficiency, flammable and/or toxic atmospheres with a suitable instrument if the air concentration in the vessel is not known.

3. If flammable gas reaches or exceeds the lower explosive limit (LEL), fill the vessel with inert gas (e.g. argon, carbon dioxide, helium, nitrogen), then ventilate with ambient air.

Note: Other procedures may be used by qualified gas personnel to repair and control natural gas pipeline leaks when it is not feasible to use inert gas.

4. Clean vessel residue with water, steam or detergent solution. Waste liquid must be handled as hazardous waste.
5. Provide ample venting to allow release of pressure when welding or cutting.
6. Move combustible material or flammable liquids at least 35 feet from vessel or provide an observer equipped with proper fire extinguisher(s).

2117. POLE HANDLING

- A. Unloading. Prior to and during the unloading of poles, cross arms, and similar material, the load shall be thoroughly examined to ascertain if the load has shifted, binders or stakes have broken or the load is otherwise hazardous to employees. Where a hazardous condition is noted, positive means shall be taken to eliminate the hazard.
- B. Employees shall not stand on top or in the potential path of an unsecured load while unloading poles from pole dollies or utility trailers.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Changed the name of Material Safety Data Sheets (MSDS) to Safety Data Sheets (SDS).

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	06/05/2013
Last Full Review Completed On:	06/05/2013
Writer:	Terry Thedell
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	

RULE 2200

AERIAL LIFT EQUIPMENT

2200. GENERAL

- A. Any type of equipment utilizing booms or ladders to raise baskets or platforms, in or on which employees work on electric lines or other equipment, will be classified as aerial lift equipment. For purposes of this section, the device used to elevate employees will be termed "boom"; the portion upon which they stand will be termed "basket."
- B. Except in emergencies, only those employees trained by Equipment Operations department personnel, and authorized by the supervisor in charge, are permitted to operate the boom controls of aerial lift equipment.
- C. Unauthorized personnel must not be carried aloft nor allowed to operate controls on aerial lift equipment without specific approval of the supervisor in charge.
- D. Defects in the hydraulic or mechanical components of aerial lift equipment must be reported promptly for examination and repair before work continues or is begun.
- E. Only personnel authorized by the Fleet Services Department are permitted to perform mechanical maintenance or repair work on aerial lift equipment.
- F. Before repaired aerial lift equipment is returned to service, qualified operating personnel must inspect and cycle the equipment through all phases of operation.
- G. Surfaces of insulated booms, ladders, baskets, liners and platforms must be kept clean, using only approved materials and methods. Trash and debris must not be allowed to accumulate in aerial lift baskets.
- H. No modifications, such as drilling holes or making permanent attachments to aerial booms or baskets are permitted unless authorized by the Fleet Services Department.
- I. Material or equipment carried on the truck bed must not be placed or piled so as to obstruct access to ground controls.

- J. The sequence specified by the manufacturer in raising and lowering boom sections must be followed.
- K. Manufacturer's load limits for boom and auxiliary holding and lifting devices must not be exceeded. Built-in protective devices (load limit, travel limit switches) are not to be bypassed.
- L. When using the winch line of material handling aerial devices on "energized lines" an approved link stick must be used.

2201. **TRUCK OPERATION**

- A. Drivers of aerial lift trucks and derricks must be constantly alert to the fact that the vehicle has exposed equipment above the elevation of the truck cab, and determine that necessary travel clearance is available.
- B. Operating personnel must conduct a daily visual inspection and cycle equipment through all phases of operation before employees are taken aloft. Inspection and cycling procedures are to be conducted according to and recorded on the "Aerial Lift Truck Daily Check List." Completed check lists are to be submitted to and maintained by the appropriate supervisor.
- C. Riding in the basket while the truck is traveling between work locations is not permitted. Employees may ride in baskets for short moves at the work location, but only with boom in the cradled position.
- D. Footing for truck wheels and outriggers must be examined carefully. Before operating boom, all outriggers must be lowered. When conditions require it, cribbing or pressure plates must be used to keep the truck stable.
- E. Wheel chocks must be used each time the truck is parked or positioned to elevate employees except:
 - 1. Equipment specifically designed to operate with hydraulic jacks extended with all weight off the tires.
- F. While outriggers are being lowered, all personnel must remain clear of the truck. Outriggers not visible to the operator must be observed by a crew member visible to the operator.
- G. When positioned on hills, the truck must face the direction of the slope, uphill or down. In either case, the boom must extend only uphill, never downhill, from the truck.

- H. Adequate warning devices such as signs, cones, flags, lights, etc., must be placed so as to warn or safely divert approaching traffic. Particular care must be taken with elbow-type aerial lift equipment when any portion of the boom extends into or over lanes of traffic.
- I. Before any aerial device is moved for travel:
 - 1. The boom must be properly cradled and secured, and
 - 2. All outriggers must be fully retracted.
- J. With the exception of emergency restoration procedures, if adverse weather conditions produce winds exceeding 25 miles per hour OR if any of the following hazards exist, the qualified lift operator must exercise extreme caution and contact the supervisor to jointly evaluate and determine if work should be discontinued.
 - 1. The wind could blow an employee from an elevated location,
 - 2. The wind could cause an employee or equipment handling material to lose control of the material, or
 - 3. The wind would expose an employee to other hazards not controlled by the work method involved.

2202. **WORKING ALOFT**

- A. Employees aloft must always face the direction of travel, and determine that the path of the boom and basket is clear before any movement is made. The operator must make certain basket controls are clear of any fixed object in the work area.
- B. Employees must not attempt to gain additional height by standing on top of the basket, on planks across the top, or on ladders in the basket. Employees must stand with both feet on the floor of the basket while working aloft, except when working from boom-mounted ladder platforms.
- C. Company rules in Sections 3100 and 3400, which specify the use of grounds, protective equipment, working clearances, clothing, etc., during work on poles and structures, will also apply to work from aerial lift equipment.
- D. Approved fall arrest harness and safety lines attached to the designated anchor point in the boom must be used by employees when aloft. Whenever the boom is out of the cradle, it is considered "aloft."

E. Belting off to adjacent poles, structures or equipment while working from an aerial lift is not permitted.

F. While aloft, employees must not transfer from baskets to poles or structures, or between baskets on dual basket trucks.

Exception: This rule does not apply to Qualified SDG&E Transmission workers using work procedures under ESP # 809 "Entering and Exiting Aerial Lifts at Elevated Positions".

G. Climbers must not be worn in baskets.

Exception: This rule does not apply to Qualified SDG&E Transmission workers using work procedures under ESP # 809 "Entering and Exiting Aerial Lifts at Elevated Positions".

H. Employees must not enter or leave the basket unless the boom is cradled or placed in the approved position of entering or leaving the basket.

Exception: This rule does not apply to Qualified SDG&E Transmission workers using work procedures under ESP # 809 "Entering and Exiting Aerial Lift at Elevated Positions".

I. Except for ladder type booms, employees must not walk on the boom to enter or leave the basket.

J. Handlines, tool hooks or other lifting apparatus must not be attached to or hung from baskets for the purpose of lifting loads.

K. Only tool trays or hooks specifically designed for the purpose are to be attached to baskets.

L. Neither the basket nor boom will be allowed to contact unprotected energized conductors. This does not preclude the use of attachments to the boom specifically designed to support energized conductors.

Exception: This rule does not apply to Qualified Transmission workers using Bare-Hand work Procedures.

- M. The number of employees occupying or working from a basket must not exceed the number for which the basket was designed.
- N. When two employees are working from a basket or baskets, the employee at the controls must not move the unit until he has told the second employee of the move.

2203. **GROUND OPERATIONS**

- A. When two qualified electrical workers are required to work aloft, a qualified employee must be nearby to operate the ground controls if the need arises.
- B. All crew members must be able to restart and operate equipment from the ground, and be familiar with emergency operating procedures (checklist items 7 & 8).
- C. Except in emergency situations, or unless specifically directed by employees aloft, ground controls must not be operated when employees are aloft. (Does the highlighted area mean that the employees aloft are directing themselves?)
- D. Unless assured that no conductive portion of the boom or basket is in contact with energized conductors, employees must not step onto or off aerial lift trucks or pass material between the truck and the ground while employees are aloft.
- E. When minimum clearance specified in Section 3100 cannot be maintained between non-insulated sections of an aerial lift boom and energized conductors:
 - 1. Insulating barriers must be installed between the conductor and boom, or
 - 2. The truck must be grounded, or
 - 3. The truck must be considered energized and isolated by means of effective perimeter barricading.
- F. When the truck is considered energized, ground personnel must not touch the truck.

2204. **SINGLE BASKET AERIAL LIFT EQUIPMENT**

- A. A qualified employee may work alone from single basket aerial equipment:

1. Subject to Section 3100 (Qualified Employees).
 2. On conductors and equipment energized at 600 volts or less, phase to phase, provided there is a CPR and First Aid trained person nearby who can respond within 4-minutes.
- B. A qualified electrical worker may work alone from single basket aerial equipment:
1. Subject to Section 3100 (Qualified Employees).
 2. Such employee shall stay out of the "Contact Area."
 3. Work on voltages above 600 volts shall be limited to replacing fuses, operating switches, taking current and voltage tests, clearing "trouble" or in emergencies involving hazard to life or property.

2205. **HELICOPTER OPERATIONS**

- A. Only those authorized persons associated with the helicopter operations shall be permitted to approach the helicopter.
1. Safe approach distances will vary according to helicopter size and ground/landscape conditions.
 2. The supervisor or general foreman in charge of the job will pre-determine the initial safe approach distance.
 3. The initial safe approach distance may be changed to reflect changes in ground/landscape conditions by the pilot and crew-leader after the initial landing of the aircraft.
- B. Prior to each day's operation, the crew leader will hold a job briefing for the purpose of setting forth the plan of operation for the pilot and ground personnel.
- C. Employees being transported by helicopter must observe the following:
1. Boarding and departing the aircraft may be done only on instruction from the pilot.
 2. Personnel must be seated while aboard and seat belts/ harnesses used during take-off, flight and landing.
 3. Conversation with the pilot is to be confined to that necessary to safely conduct the work in progress.
 4. Smoking is not permitted around or during helicopter operations.

- D. Only one designated employee is to give signals to the pilot. The employee giving signals must be clearly distinguishable from other ground personnel by use of a high visibility vest or equivalent distinctive clothing.

Signal systems between air crew and ground personnel shall be understood and checked in advance of hoisting the load. Hand signals shall be as shown in Appendix A.

- E. Employees may stand under a hovering helicopter only with the approval of the pilot and employee in charge, and, then only for the time necessary to hook-up or unhook a load.
- F. Employees required to handle any part of a suspended load must wear rubber gloves to guard against the effects of static charge buildup in the aircraft and attached load.
- G. Employees must not approach or leave a helicopter while its engines are running unless approved by and in full view of the pilot. Such movement must always be made toward or from the front of the aircraft, never from or to higher ground than that of the helicopter.

2206. **GROUND CREW**

- A. Ground personnel working in the vicinity of helicopters hovering, landing or taking off must wear appropriate dust goggles, hard hats secured by chin straps and hearing protection.

2207. **CARGO LOADING AND HANDLING**

- A. All cargo must be loaded and secured under the direction of the pilot or pilot's designee.
- B. Tag lines may be attached to sling loads only with specific approval of and under the direction of the pilot.
- C. No passenger shall be transported in the helicopter with a sling load and no person shall be transported as an external sling load, except in an emergency. Exception: Unless authorized by the F.A.A.
- D. When stringing conductive lines or ropes there shall be radio communication between the helicopter and the ground crew.
- E. When stringing conductor lines or ropes close to or parallel to energized lines, conductive lines or reels, the pay-out machine, and conductors shall be grounded as required.

F. Hoist wires or other gear shall not be attached to any fixed ground structure.

1. Exception: When pulling lines or conductors that are allowed to "pay-out" from a container or roll off a reel.

G. No passenger shall be transported during wire/rope stringing operations (unless requested from pilot for safe operation).

2208. **CRANES, HOISTS AND DERRICKS**

A. Cranes, hoists and derricks will be operated only by qualified and authorized persons.

B. When work is to be done on or near energized lines with a mechanized line truck, a minimum distance of 3 feet of insulated boom shall be extended prior to elevating the boom.

C. When mobile hoists, cranes, booms or other similar lifting devices are used near energized equipment, everyone must remain in the clear until the equipment is in a safe position. The employee in charge will see that all employees remain in a safe work position while the vehicle is being moved or the boom is being repositioned.

D. Employees are not permitted to ride on suspended loads.

Portable cranes, hoists, derricks and similar material-handling equipment, machinery, tools and materials must be positioned, protected and/or operated so that no part comes closer to energized high-voltage lines than indicated in the following table.

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 - 50,000	10
over 50,000 - 75,000	11
over 75,000 - 125,000	13
over 125,000 - 175,000	15
over 175,000 - 250,000	17
over 250,000 - 370,000	21
over 370,000 - 550,000	27
over 550,000 - 1,000,000	42

Equipment in transit must comply with the following table:

Nominal Voltage	Minimum Required
------------------------	-------------------------

(Phase to Phase)	Clearance (Feet)
600 - 50,000	6
over 50,000 - 345,000	10
over 345,000 - 750,000	16
over 750,000 - 1,000,000	20

- E. Operators must not move loads over the heads of workmen or others unless authorized by the supervisor. Operators must not leave cranes, hoists or derricks unattended while load is suspended, unless the load is suspended over a barricaded area or if it is blocked or otherwise supported from below during repair or emergency.
- F. Prior to beginning operations, the operator, signal person and lift director (if there is one) must contact each other and agree on the voice signals that will be used. Once the voice signals are agreed upon, these workers need not meet again to discuss voice signals unless another worker is added or substituted, there is confusion about voice signals, or a voice signal is to be changed.
- G. Crane, hoist or derrick operators will take signals from only one person during operations. Only qualified and authorized employees will give signals.
- H. Standard hand signals as set forth in Appendix "B" of Section 2200 will be used to signal derrick, crane, rotating boom and overhead traveling crane operators. The appropriate chart will be conspicuously posted in the vicinity of hoisting operations (cage or cab, if so equipped) depicting and explaining the system of signals to be used.

Attachment A - Helicopter Hand Signals

HELICOPTER HAND SIGNALS



**MOVE
RIGHT**

Left arm extended horizontally; right arm sweeps upward to position over head.



**MOVE
LEFT**

Right arm extended horizontally; left arm sweeps upward to position over head.



**MOVE
FORWARD**

Combination of arm and hand movement in a collecting motion pulling toward body.



**HOLD-
HOVER**

The signal "Hold" is executed by placing arms over head with clenched fists.



TAKEOFF

Right hand behind back, left hand pointing up.



LAND

Arms crossed in front of body and pointing downward.



**RELEASE
SLING
LOAD**

Left arm held down away from body. Right arm cuts across left arm in a slashing movement from above.



**MOVE
UPWARD**

Arms extended, palms up; arms sweeping up.



**MOVE
DOWNWARD**

Arms extended, palms down; arms sweeping down.











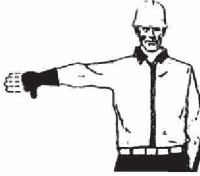
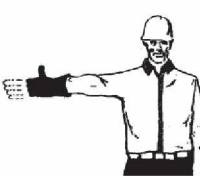
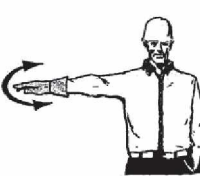

**MOVE
REARWARD**

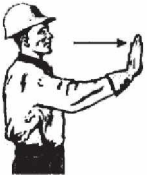







Hands above arm, palms out using a noticeable shoving motion.

Attachment B - Standard Crane Hand Signals





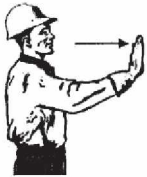

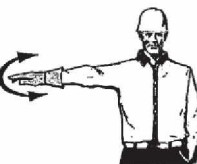




Standard Hand Signals FOR CONTROLLING MOBILE CRANE OPERATIONS






 <p>HOIST With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles.</p>	 <p>LOWER With arm and index finger pointing down, hand and finger make small circles.</p>	 <p>USE MAIN HOIST A hand taps on top of the head. Then regular signal is given to indicate desired action.</p>	 <p>USE WHIPLINE (Auxiliary Hoist) With arm bent at elbow and forearm vertical, elbow is tapped with other hand. Then regular signal is used to indicate desired action.</p>
 <p>BOOM UP With arm extended horizontally to the side, thumb points up with other fingers closed.</p>	 <p>BOOM DOWN With arm extended horizontally to the side, thumb points down with other fingers closed.</p>	 <p>MOVE SLOWLY A hand is placed in front of the hand that is giving the action signal. (Hoist slowly shown in example.)</p>	 <p>SWING With arm extended horizontally, index finger points in direction that boom is to swing.</p>
 <p>BOOM DOWN AND RAISE THE LOAD With arm extended horizontally to the side and thumb pointing down, fingers open and close while load movement is desired.</p>	 <p>BOOM UP AND LOWER THE LOAD With arm extended horizontally to the side and thumb pointing up, fingers open and close while load movement is desired.</p>	 <p>STOP With arm extended horizontally to the side, palm down, arm is swung back and forth.</p>	 <p>EMERGENCY STOP With both arms extended horizontally to the side, palms down, arms are swung back and forth.</p>

 <p>TRAVEL With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel.</p>	 <p>DOG EVERYTHING Hands held together at waist level.</p>	 <p>TRAVEL (BOTH TRACKS) Rotate fists around each other in front of body; direction of rotation away from body indicates travel forward; rotation towards body indicates travel backward. (For crawler cranes only)</p>	 <p>TRAVEL (ONE TRACK) Indicate track to be locked by raising fist on that side. Rotate other fist in front of body in direction that other track is to travel. (For crawler cranes only)</p>
 <p>TELESCOPE OUT (TELESCOPING BOOMS) With hands to the front at waist level, thumbs point outward with other fingers closed.</p>	 <p>TELESCOPE IN (TELESCOPING BOOMS) With hands to the front at waist level, thumbs point at each other with other fingers closed.</p>	 <p>TELESCOPE OUT (TELESCOPING BOOMS) One hand signal. One fist in front of chest with thumb tapping chest.</p>	 <p>TELESCOPE IN (TELESCOPING BOOMS) One hand signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.</p>



Standard Hand Signals FOR CONTROLLING TOWER CRANE OPERATIONS

 <p>HOIST With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles.</p>	 <p>LOWER With arm and index finger pointing down, hand and finger make small circles.</p>	 <p>TOWER TRAVEL With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel.</p>	 <p>TROLLEY TRAVEL With palm up, fingers closed, and thumb pointing in direction of motion, hand is jerked in direction trolley is to travel.</p>
 <p>STOP With arm extended horizontally to the side, palm down, arm is swung back and forth.</p>	 <p>DOG EVERYTHING Hands held together at waist level.</p>	 <p>MOVE SLOWLY A hand is placed in front of the hand that is giving the action signal. (Hoist slowly shown in example.)</p>	 <p>SWING With arm extended horizontally, index finger points in direction that boom is to swing.</p>
 <p>EMERGENCY STOP With both arms extended horizontally to the side, palms down, arms are swung back and forth.</p>			

Corresponding Hand Signal	Function	Initiate Function	Terminate Function
	TRAVEL (BOTH TRACKS) (Mobile Crawler Cranes ONLY)	"Travel both tracks forward" "Travel both tracks reverse"	"Travel stop"
	TRAVEL (ONE TRACK) (Mobile Crawler Cranes ONLY)	"Travel left track forward" "Travel left track reverse" "Travel right track forward" "Travel right track reverse"	"Travel stop"
	TELESCOPE OUT (Mobile Telescopic Boom Cranes ONLY)	"Telescope out"	"Telescope stop"
	TELESCOPE IN (Mobile Telescopic Boom Cranes ONLY)	"Telescope in"	"Telescope stop"
	TROLLEY TRAVEL (Tower Cranes ONLY)	"Trolley in" "Trolley out"	"Trolley stop"

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.	
Brief: Per request from Executives, and further safety evaluation, added section '2201J' to include aerial lift operational parameters when wind exceeds 25 mph.	

Document Profile Summary	
Responsible Person:	Karimi, Majid
Published On:	11/07/2019
Last Full Review Completed On:	
Writer:	Karimi, Majid
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01490

RULE 3100

ELECTRIC—GENERAL SAFETY RULES

3100. SCOPE

These rules apply to personnel engaged in work on or in proximity to electrical conductors or equipment energized at 50 volts and above.

3101. QUALIFIED EMPLOYEES

- A. A Qualified Electrical Worker (QEW) is a person who has a minimum of two (2) years of training and experience with high voltage circuits and equipment, and has demonstrated familiarity with the work to be performed and the hazards involved and has obtained a journeyman status.
- B. A qualified employee is a person who by reason of experience or instruction is familiar with the work to be performed and the hazards involved.
- C. Only Qualified Electrical Workers (QEW) or persons in training under the supervision or instruction of a QEW may be assigned to work on lines or equipment energized in excess of 600 volts phase to phase.
- D. During the time a QEW is doing work on lines or equipment energized in excess of 600 volts, another qualified electrical worker or qualified rubber glove employee must be in close proximity at each work location to:
 - 1. Act primarily as an observer for the purpose of preventing an incident.
 - 2. Render immediate assistance in the event of an incident.
- E. A qualified electrical worker may be assigned to work alone on high voltage systems under the following circumstances:
 - 1. Replacing fuses.
 - 2. Operating switches.
 - 3. Making current and voltage tests.
 - 4. Clearing "trouble".
 - 5. Emergencies involving hazard to life or property.

3102. SUITABLE CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT

- A. Company-approved head protection meeting ANSI Z 89.1 Class E requirements must be worn when working on or in proximity to energized conductors or equipment. Head protective devices must not be altered in any way that changes their dielectric quality, except for the attaching of approved hard hat lights.
- B. Company-approved flame resistant (FR) clothing, as shirt and pants or coverall with an arc rating of at least 8.0 calories per square centimeter (8.0 cal/cm²), must be worn during working hours by the following employees:
 - 1. Employees whose duties may include working on energized electrical conductors or equipment (e.g. qualified employees, QEWs)
 - 2. Employees who manually support work of the above workers (e.g. handle site tools/equipment/material)
- C. Other employees must wear Company-approved flame resistant (FR) shirt and pants or coverall having an arc rating of at least 8.0 cal/cm² when they are within the arc flash boundary (where potential exposure is at or above 2 cal/cm²).
- D. All employees must wear FR clothing of at least 8.0 cal/cm² with their shirts tucked into pants, buttons fastened (except top button), and sleeves rolled down and buttoned when:
 - 1. Working on energized conductors or equipment
 - 2. Climbing or working from poles or towers
 - 3. Within the minimum approach distance
 - 4. Within the arc flash boundary of 2 cal/cm²
 - 5. Being moved in or on an aerial lift or a helicopter
 - 6. Entering a substation (unless the entry area is posted with other instructions or the employee remains in a vehicle not used for operating, maintaining, repairing or washing energized equipment)
- E. When performing tasks having potential arc energy above 8 cal/cm², additional approved protection having at least an equal arc rating must be worn. Note: An employee exposed to potential arc energy above 4 cal/cm² from equipment in an enclosure must wear an arc-rated face shield.

- F. During activities listed in 3102.D., it is prohibited to wear under garments, outer garments or accessories made of acetate, nylon, polyester, rayon or other manmade fabrics, alone or in blends, unless the garment is arc rated by Company approved test method.
- G. The following hand protection must be worn for activities in 3102.D. 1 through 4:
1. Rubber insulating gloves with leather keepers, or
 2. Gloves arc rated for potential arc energy of the task, or
 3. Heavy leather work gloves for potential arc energy up to 14 cal/cm²
- H. Employees whose work exposes them to vehicular traffic and who work on or in proximity to energized electrical equipment or support those employees must wear (a) approved arc rated FR vests meeting ANSI 107 Class 2 high visibility standards, or (b) approved arc rated FR shirts, jackets or sweatshirts meeting ANSI 107 Class 3 high visibility standards.
- NOTE: For purposes of this rule, exposure to vehicular traffic occurs during any activity on a normally traveled portion of a roadway or other area open to traffic. Barricading, coning or delineating the immediate work area will not eliminate the exposure and need for the vest. Should exposure be intermittent, the vest must be worn on arrival at the job site and not removed until departure.
- I. Metal watch chains, wrist bands, rings, key chains, tie chains or clasps must not be worn when working on or in proximity to exposed energized equipment.
- J. Approved eye protection meeting ANSI Z87 requirements must be worn by employees when working on or in proximity to energized circuits, equipment or any job where there is danger of eye injury.
- K. Suitable footwear must be worn during working hours, for the type of work being performed and consistent with your job duties. Closed toe footwear with leather uppers (e.g. heavy duty work shoes) must be worn for activities in 3102.D

3103. APPROACH AND WORKING DISTANCES

- A. The following tables list the minimum approach and working distances from unprotected energized conductors and equipment for qualified employees.

Approach and Working Distances Below 3000 feet

Voltage Range (phase to phase) in kilovolts	Minimum Working and Clear Live Line Tool Distance Phase to Ground Exposure
Above 1.1 to 15	2 ft. 1 in.
Above 15 to 69	3 ft. 4 in.
Above 69	Calculated for each Individual line*

Footnotes:

* Calculation method given in 29CFR1910.269, Table R-3.

Approach and Working Distances Above 3000 feet*

Voltage Range (phase to phase) in kilovolts	Minimum Working and Clear Live Line Tool Distance Phase to Ground Exposure
Above 1.1 to 15	2 ft. 4 in.
Above 15 to 69	3 ft. 4 in.
Above 69	Calculated for each Individual line**

Footnotes:

* Approach and working distances altitude adjusted (by a factor of 1.11) to the highest elevation (Hot Springs Mountain, 6535 feet) in the service territory.

** Calculation method given in 29CFR1910.269, Table R-3.

- B. When employees are working on energized conductors and equipment using the rubber glove method, rubber gloves rated for the exposure of the highest nominal voltage shall be worn prior to entering the "Primary Contact Zone" and may not be removed until the employee is out of the "Primary Contact Zone" regardless of whether rubber insulating protective cover-up is in place.
- C. Before getting into a position where the worker can extend any part of the body or a conductive object into the Minimum Approach Distances (MAD) in the above tables, rubber gloves (and sleeves if there is upper arm exposure) or rubber protective equipment shall be used to insulate/isolate energized conductors or other conductive parts.

- D. If there is upper arm exposure to uncovered energized conductors, rubber sleeves and gloves are required.
- E. Rubber protective equipment must be installed in the order of "nearest exposed part first" and removed in the reverse order.
- F. Energized or de-energized parts within MAD may have to be temporarily covered to install rubber protective equipment on all parts to insulate/isolate the part to be worked on. The part to be worked on must only be uncovered after all other insulated protective equipment has been installed.

3104. **ENERGIZED CONDUCTORS OR APPARATUS - PROTECTIVE EQUIPMENT**

- A. No employee may touch or work on any exposed energized conductor or apparatus unless he/she is insulated or isolated from other conductive surfaces or uses adequate protective devices.
- B. No employee may touch or work on any exposed energized conductor or equipment energized up to 15,000 volts, phase to phase, except when wearing approved rubber gloves approved insulated tools or using approved live line tools.
- C. Conductors or apparatus energized at 15,000 volts and above, phase to phase, must be handled only with approved live line tools or by approved working procedures other than live line tools. Note: The exception for Substation Electricians is anything above 4kV must be handled with approved live line tools.
- D. Neutral conductors of energized circuits and series street light conductors, including all their current carrying parts are considered energized lines.
- E. Except for that portion of the conductor or apparatus actually being worked on, all other energized or grounded conductors or apparatus within reach of the employee (second point of contact) must be covered with protective equipment.
- F. When applying protective equipment, an employee must always protect the nearest and lowest wires first, protecting him/herself as he/she progresses. When removing protective equipment, the reverse order is to be followed. Protective equipment is to be applied from a position underneath the conductor when possible.
- G. Rubber blankets, when used on the ground, must be protected from physical damage and moisture by means of a tarpaulin, canvas or

protective mat. Extreme care must be exercised to avoid puncturing rubber blankets.

- H. When rubber gloves are required, they must be put on before climbing the pole or entering the "contact area," and must not be removed until the employee is out of the contact area or back on the ground. Leather protectors are required when using rubber gloves.
- H. Contact Area: Any location in or from which any part of a worker's body is within reach of unprotected energized conductors or equipment. "Within reach" includes conductors and equipment which might be touched if the employee slips or falls. It also includes conductors and equipment that might be touched by any material the employee is carrying or handling.
- I. Primary Contact Zone: When workers are working on energized circuits or equipment using the rubber glove method, any location in or from which any part of a worker's body or any tool or material the employee is carrying or handling is within four feet (4') of conductors or equipment energized at greater than 600 volts, regardless of whether protective cover-up is used.
- I. Whenever circumstances require an employee to wear rubber gloves, the observer, where required (see Rule 3101D) must also wear rubber gloves.
- K. **For voltages up to 250 volts to ground.** Approved Insulated Tools (1,000 volts ANSI Rated) and/or rated barriers (1,000 volts ANSI Rated) may be used alone for testing or isolated work. This **does not apply** to exposed energized overhead and underground secondary voltage work.
- L. **For voltages above 250 volts to ground and up to 600 volts.** Class "0" rubber gloves **must** be used in addition to any barriers or insulated tools for testing or isolated work as a minimum protection. Class "2" rubber gloves shall be worn above 600 volts and up to 15,000 volts.
- M. A safety review process shall be in place that will be performed by a competent person. Included in the review process will be assurances that the company safety rules and proper cover up procedures are being followed.

3105. TESTING CONDUCTORS AND EQUIPMENT

Electrical conductors and equipment must always be considered as energized unless they are positively known to be de-energized. Before starting work, preliminary inspection or test must be made to determine what condition exists. Wires designed to operate at ground potential may sometimes become energized by reason of faulty or inadequate connections. Care must always be exercised to handle neutral wires with the same caution as is used with energized wires.

3106. DE-ENERGIZING CONDUCTORS AND EQUIPMENT TO BE WORKED ON

- A. When de-energizing conductors or equipment normally operated in excess of 600 volts, the following steps must be taken:
1. The line or equipment to be de-energized must be positively identified and isolated from all potential sources of voltage.
 2. Authorization must be obtained through the appropriate authority on all switches and disconnect devices through which voltage may be supplied to the particular line or equipment to be worked on.
 3. All switches and disconnect devices opened for de-energizing purposes must be tagged, and where design permits, rendered inoperable.
 4. After all designated switches and disconnect devices have been opened, tagged and rendered inoperable (where design permits), tests must be made for indication of voltage on the "de-energized" lines or equipment.
 5. After the lines or equipment to be worked on have been determined by test to be de-energized, they must be grounded and short circuited unless the use of grounds would increase the working hazard. When grounds are omitted, work on lines or equipment must be done using approved devices, as outlined in Rule 3104.
 6. Whenever the possibility of induced voltage is present on conductors or equipment to be worked on, they must be short circuited and grounded.
 7. Whenever work is performed on de-energized lines or equipment, all energized lines or equipment in the "contact area" must be covered with suitable protective equipment.
 8. De-energized lines or equipment may be restored to service only after the employee in charge has determined that all personnel are clear, personal grounds have been removed, and the appropriate authority has been notified.

3107. REPORTING DEFECTIVE APPARATUS

Employees must immediately report to the nearest manager, foreman, supervisor or employee in charge of any defective apparatus, tool or other condition which, in their judgment, may be dangerous to life, property or likely to interrupt or delay service.

3108. CARE OF RUBBER PROTECTIVE EQUIPMENT

- A. Rubber gloves must never be worn inside out or without leather protectors. Gloves are to be exchanged at any time they are damaged or the employee to whom they are assigned becomes doubtful of their safe condition. Leather protectors or over gloves are not to be worn except when in use over rubber gloves.
- B. All rubber protective equipment, including gloves, sleeves, blankets, line hose and other cover-up, must be inspected before use for any damage, wear or contamination that would affect its ability to insulate or isolate workers from the difference in potential to which they may be exposed. Rubber gloves must be inspected for cracks and bruises and given the roll and air test/water test at least once each day of use at the beginning of the work period and at any other time when their condition is in doubt. Rubber gloves may be turned inside out only momentarily for the purpose of inspection. If protective equipment is found to be defective or beyond its allowable service date, it must be removed from service.
- C. When not in use, rubber protective equipment must be protected from mechanical and chemical damage, and always stored in the containers provided, and nothing else placed therein. Protective equipment shall not be laid on the ground or other contaminated surfaces unless a tarp or other such device is used.
- D. High voltage rubber goods should not be left on "energized lines" for extended periods of time (i.e.; overnight). Should this be deemed necessary, they must not be depended upon to protect the employee. They must be removed, cleaned and visually inspected before re-use, and if suspect, submitted for electrical test.
- E. Rubber protective equipment should be submitted for tests as required, or any time they become suspect.

3109. USE OF LIVE LINE TOOLS

- A. Conductors and apparatus energized at 15,000 volts and above, phase to phase, must be handled only with live line tools or by approved working procedures other than live line tools.
- B. Only qualified employees, specifically trained in their use, may perform work with live line tools.
- C. Subject to the exceptions as outlined in Rule 3101, two workers are required when live line work is performed.
- D. When using live line tools, employees are to position their hands no closer than is absolutely necessary to energized lines or metal parts of the tool being used. In no case may the hands be closer than distances specified in Rule 3103A.
- E. Employees working with live line tools must use adequate protective equipment to cover primary conductors, low voltage conductors, telephone circuits, grounded conductors and guy wires or other wires within the "contact area."
- F. When handling energized conductors with live line tools, neither the metal parts of the tool nor the conductor may be allowed to contact cross arms, poles or associated hardware.
- G. Holdout ropes or live line tools used to spread, raise or support conductors must be securely fastened and are not to be handled except as is necessary to secure or release the ropes or tools.
- H. Breakers or approved link sticks are to be used in conjunction with ropes in hot line work in the event the dielectric quality of the rope is suspect, or if the employee in charge considers them necessary.
- I. Live line tools showing any leakage must not be used until cause of leakage has been determined and corrected.
- J. Except in emergencies or to finish a task, live line tools may not be used in rain or heavy fog.
- K. No other work may be done on a pole or structure where live line work is in progress.

- L. Only approved live line tools in good repair are to be used. Alterations or modifications to live line tools may not be made without specific approval.

3110. **CARE OF LIVE LINE TOOLS**

- A. Live line tools not being regularly transported must be stored in a dry, warm location and are not to be tampered with nor handled by unauthorized personnel.
- B. Live line tools, when transported, are to remain in containers designed for their storage and transportation to prevent mechanical damage and exposure to the weather.
- C. Live line tools may not be hung on conductors, crossarms or pole hardware. Only tool hangers or bags designed to hold tools in elevated work locations may be used.
- D. Live line tools must be visually inspected for defects before use each day. Tools to be used must be wiped clean and if defects are indicated, such tools must not be used. Live line tools should be cleaned with approved cleaners only and at no time should any other type of chemical be used to clean live line tools.
- E. All blocks, ropes, slings and other tackle when not in use must be stored in a manner protecting them against dirt and moisture.
- F. Live line tools must be kept free of dirt and moisture and under no circumstance are they to be laid directly on the ground.

3111. **GROUNDING**

- A. All conductors and equipment must be treated and worked as energized unless:
 - 1. They have been tested for indication of voltage, and
 - 2. They have been grounded and short-circuited following safe grounding procedures as prescribed by Electric Distribution Engineering, Electric Standard Practice 400.
- B. New lines or equipment may be considered de-energized when grounds have been installed or the hazard of induced voltage is not present, and means to prevent contact with energized lines have been implemented.

- C. Bare wire communication conductors on power poles or structures must be treated as energized lines and covered with protective equipment.
- D. Grounding devices must first be connected to a ground before attachment to the conductor or equipment to be grounded. Reverse order must be followed for removal of grounding devices.
- E. The employee installing the grounding device must determine that all other employees are a safe distance from any portion of the grounding device before contacting the line or equipment being grounded.
- F. Insulating devices appropriate for the voltage involved (normal operating voltage of the conductor or equipment) must be used to make or break ground connections directly to conductors or equipment.
- G. When grounds are required, they must be placed between work locations and all sources of supply. Energized high voltage lines, which cross over or under a de-energized line must be considered a source of supply.
- H. Grounds are to be placed as close as practicable to the work location.
- I. Temporary protective grounding equipment shall be placed in such a manner as to prevent each employee from being exposed to hazardous differences in electrical potential.
- J. If work is to be performed at more than one location on a given line, each employee in charge is responsible for grounding and short circuiting all conductors to protect the workers from all sources of supply and all other crews. This may be accomplished by installing grounds on both sides of the workers on all conductors, and installing individual protective grounding equipment to prevent each employee from being exposed to hazardous differences in electrical potential. In such instances, one set of grounds must be readily visible to at least one member of the crew at all times.
- K. The minimum distance shown in rule 3103A must be maintained from unprotected, de-energized, ungrounded conductors at the work location, or such conductors must be worked as energized.

- L. Grounding to towers must be made with a tower clamp.
- M. All ground leads must be capable of conducting the maximum fault current available and must have a minimum conductance of #1/0 AWG copper.
- N. Only approved grounding equipment may be used.
- O. Grounds may be temporarily removed for test purposes and extreme care exercised during test procedures.

3112. **FALL PROTECTION EQUIPMENT**

- A. Employees may not work on a pole or any elevated structure, including truck mounted street light ladders and mechanical or hydraulic platform lifts, without first securing themselves with Fall Protection Equipment (FPE). In aerial lift platforms, the FPE must be attached to the designated anchor points.
- B. For work on lattice structures and wood poles, Fall Protection Equipment (FPE) must be used when ascending, in the working position, changing positions, descending, and performing rescue operations
- C. Employees who climb lattice structures and poles must be trained and competent in selection, inspection, application, use and care of FPE and other necessary fall protection methods for tasks they may perform on lattice structures or poles.
- D. Employees must inspect FPE before use each day to ensure it is in usable condition and must be used in accordance with the manufacturer's instructions.
- E. When in the working position, Work Positioning Equipment (WPE) shall be used so an employee cannot fall more than two feet. WPE supports a worker on a lattice structure or pole so his/her hands are free when in the working position. A safety strap and lineman's body belt or harness (and climbing gaffs for pole work) constitute WPE.
- F. Employees must never rely on the "click" of the keeper in the snap hook, when attaching a safety strap to a "D" ring, as an indication that the fastening is secure.

- G. Employees must always look to make sure that the snap hook and "D" ring are properly engaged before the weight of the body is placed on the strap. When a safety strap is in use, both snap hooks are never to be attached to the same "D" ring.
- H. Safety straps shall not be used when any part of the red safety marker strip in the strap is exposed.
- I. Leather shall not be used for safety straps.
- J. Wire hooks, rings, loops or other conductive tool holding devices may not be attached to body belts.
- K. Tubular Steel Pole Climbing may be done only when utilizing specific equipment as outlined in Electric Distribution Engineering, Electric Standard Practice #801.

3113. **TRANSFORMERS**

- A. No work is to be done on a de-energized transformer normally energized above 600 volts phase to phase until:
 - 1. Cutouts, fuse holders or switches, where provided, have been opened and the taps to the line have been removed using approved devices. If removal of the taps to the line is not practicable, the lead between the open cutouts, fuse holders or switches and the transformer must be grounded or removed using rubber gloves.
- B. Where transformers are not protected by cutouts, fuse holders or switches, the tap to the line must be removed using approved live line tools.
- C. Before work is done on transformers connected in parallel or if there is a possibility of backfeed:
 - 1. Open secondary breaker switch where provided.
 - 2. Disconnect secondary power source (PS) leads only.
 - 3. Disconnect high voltage following (a) 1 or (b) above.
 - 4. Disconnect secondary ground lead.

3114. **CURRENT TRANSFORMER SECONDARIES**

Before energizing current transformers, it must be determined that the secondary circuit is closed. If the primary voltage exceeds 600 volts phase to phase, the secondary must also be grounded. Before working on instruments or other devices in a current transformer secondary circuit, the instruments or devices must be short circuited by jumpers or approved test switches so that the current transformer secondary circuit cannot be opened while working on the instruments or devices connected thereto. The ground lead or the secondary circuit of an energized current transformer is never to be disconnected or opened.

3115. **PORTABLE POWER TOOLS**

- A. When using power tools approved for use on erected poles, the tools and all supply lines connected thereto must be kept a safe distance below the level of circuits or apparatus energized in excess of 600 volts phase to phase, or must be guarded or secured in such a way as to prevent contact with energized circuits or equipment.
- B. Non-current-carrying metal parts of portable electric power tools must be grounded except when connected to an isolated power supply.
- C. Only approved portable power saws are to be used from elevated positions on erected poles and whenever practicable supported by brackets clamped to the pole.
- D. Portable air-operated tools must not be adjusted or changed (unless equipped with "quick-change" connectors) until air supply has been shut off at the supply valve. The hose must be bled through the tool before breaking connections.
- E. Employees operating air tools to break or drill concrete or rock must wear eye, ear, and foot protective devices provided.
- F. Compressed air must never be used to clean an employee's body or clothing, and must never be directed at any person in an act of "horseplay."
- G. Compressed air used for cleaning purposes must be reduced to less than 30 psi and then used only with effective chip-guarding and personal protective equipment.

- H. Hydraulic hoses shall be non-conductive and orange in color. They shall be wiped clean and visually inspected prior to use. Employees shall avoid body contact with hoses.
- I. Hydraulic tool hoses used for work on "energized lines" shall be submitted for a dielectric test or replaced any time they become suspect.
- J. Only non-conducting hoses of adequate strength for normal operating pressure are to be connected to hydraulic and pneumatic tools used near energized lines or equipment.
- K. Compressors supplying pneumatic tools must be equipped with moisture accumulators.

3116. **PHASING**

- A. Only employees who are trained and properly equipped with phase testing equipment shall perform that work.

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	07/01/2018
Last Full Review Completed On:	05/03/2018
Writer:	Heramb, Brian
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01491

RULE 3200

ELECTRIC- LITHIUM (LI) BATTERY SAFETY

3200. SCOPE

These rules apply to all employees concerned with and/or directly working lithium (Li) battery applications. Only trained and authorized employees may directly work with Li batteries.

Under normal conditions of Li Battery use there is little danger of electrocution, fire, or hazardous materials leakage. However, in the unlikely event of upset conditions, precautions are described below to avoid electrocution, ignition, or hazardous materials leakage. Review these safety rules and manufacturers safety data sheets PRIOR to working with Li batteries so that you are familiar with the steps to take in the event of an unlikely Li battery incident.

3201. ADVANCED ENERGY STORAGE (AES) BATTERY OPERATIONS (LITHIUM ION SECONDARY RECHARGEABLE BATTERIES)

Under normal Advanced Energy Storage (also known as Community/Distributed Energy Storage) conditions of rechargeable Li battery use, the solid electrode materials and liquid electrolyte are non-reactive provided the battery integrity is maintained and seals remain intact. Under **normal conditions** of use, there is little danger of electrocution, fire, or hazardous materials leakage.

Typically AES devices are designed to have externally accessible ON/OFF switch disconnect on the outside of the Power Conditioning System (PCS) compartment. In the unlikely event of a device malfunction or issue, the ON/OFF switch should be turned to the OFF position and locked in the OFF position.

WARNING - EVEN WITH THE AC DISCONNECT TURNED OFF THERE IS STILL LETHAL VOLTAGE PRESENT ON THE INPUT SIDE OF THE AC DISCONNECT DEVICE. ALSO, THERE IS THE POSSIBILITY FOR HIGH VOLTAGE DC PRESENT FROM THE BATTERY COMPARTMENT.

If unsafe conditions are visible, service should be limited to the external AC Disconnect.

Do not relocate an AES device with the battery modules installed. All battery modules must be removed from the unit and packaged in appropriate shipping containers prior to the move.

Batteries and related equipment contain components which could produce sparks. To prevent fire or explosion, do not install the batteries in compartments or locations containing flammable materials or in locations that require ignition-protected equipment. This includes any space containing gasoline-powered machinery, fuel tanks, as well as joints, fittings, or other connections between components of the fuel system.

3202. INDIVIDUAL ADVANCED ENERGY STORAGE LI BATTERY CELL MODULE HANDLING

Under normal conditions of Li battery module use there is little physical danger of ignition, explosion or chemical danger of hazardous materials leakage.

However, materials contained within damaged lithium battery modules can cause severe irritation to the respiratory tract, eyes and skin. In addition, violent cell venting could result in hazardous air contaminants, including corrosive or flammable vapors. Review these safety rules and manufacturers safety data sheets PRIOR to working with modules, so that you are familiar with the steps to take in the event of a release.

1. Work Preparation

- a. Wear safety glasses whenever handling batteries.
- b. Remove jewelry items such as rings, wristwatches, pendants, etc., that could come in contact with the battery terminals.
- c. Cover all metal work surfaces with an insulating material. Work areas should be clean and free of sharp objects that could damage a cell module.
- d. Excessive force should not be used to free a battery module lodged inside its housing.
- e. To reduce the chance of short-circuits, always use insulated tools when installing or working with batteries.
- f. Wear Class "0" gloves in the first approach to the battery module units.

2. Battery Module Inspection

- a. Any battery modules with dented or cracked sides should not be used and properly disposed. Denting/cracking of sides or ends increases the likelihood of the battery module developing a dangerous internal short circuit at a later time.
- b. After a module has been inspected it should be returned to its original shipping container until placed in service.

3. Work Procedures

- a. Do not open or disassemble individual Li battery modules. Do not expose the battery modules to fire or open flame. Do not mix batteries or modules of varying sizes, chemistries, or types. Do not short circuit, puncture, incinerate, crush, over-charge, over discharge, or expose the batteries to temperatures above the manufacturers declared limit.
- b. Do not drop batteries. Any unpacked battery module that has been dropped must not be used.
- c. Avoid reversing battery polarity within the battery assembly as it may flame or leak.
- d. Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods.
- e. Do not heat or solder the battery modules.
- f. Keep the battery modules away from food and drink
- g. NO smoking when working with battery modules.
- h. Electrical, mechanical, or thermal abuse of the battery modules could result in the risk of fire or explosion and may release hydrogen fluoride gas.

4. Transporting Battery Modules (Use caution – 40 lbs. weight)

- a. During battery module transportation, avoid exposure to high temperature and prevent the formation of any water condensation. The container must be handled carefully. Prevent the collapse of the cargo piles and wetting by rain.
- b. Transport batteries in their original shipping containers.

- c. Do not drop batteries. Any unpacked battery module that has been dropped must not be used.

5. Battery Disposal

Battery terminals should be capped to prevent a short circuit. Dispose the batteries in accordance with company, manufacturer instructions and applicable local laws.

6. Storage of Battery Modules

- a. Facilities storing battery modules shall be equipped with an eyewash facility and a safety shower.
- b. Battery modules should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery module stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.
- c. Battery modules must be stored in their original shipping containers.
- d. Do not store battery modules in a manner that allows terminals to short circuit. Battery terminals should be capped to prevent a short circuit.
- e. Store the cells at temperatures that should be as cool as possible to maximize shelf-life. Observe the manufacturers minimum and maximum storage temperatures. Battery exposure to extreme temperatures may result in the battery venting flammable liquid and gases.
- f. Never stack heavy objects on top of boxes containing lithium batteries to preclude crushing or puncturing the cell case.
- g. Keep ABC Fire Extinguisher on site.
- h. Prevent the formation of any water condensation and keep rain off of battery modules.

3203. ADVANCED ENERGY STORAGE BATTERY EMERGENCIES & FIRST RESPONDER PROCEDURES

DANGER: IMMEDIATE LETHAL HAZARDS - Electrical Shock: Line Voltages & DC Battery Voltages; Chemical Exposures (i.e. Hydrofluoric Acid); and Fire

In the unlikely event of a battery failure or other unit event involving the possible discharge or damage to an AES- Lithium ion battery unit, it is important... **DO NOT ATTEMPT TO OPEN THE BATTERY COMPARTMENT.** There are no serviceable features within the battery compartment that are useful to access in the event of a battery module event. The battery compartment is designed to contain and isolate battery events. The proper response in the event of a lithium battery malfunction or emergency event is to turn the unit OFF using the AC-side switch disconnect and then to secure the unit area and contact Kearny battery operations or the respective manufacturer for servicing assistance.

There is risk of immediate lethal hazards in cases of abuse to the batteries (mechanical, thermal, electrical), which opens the safety valve and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/fire may follow, depending upon the circumstances. In case of excessive internal pressure and/or high temperature some batteries are fitted with a safety vent for protection and/or rupture of the cell case.

Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produces sparks when subjected to high temperatures (> 150 degrees C (302 degrees F)), when damaged or abused (e.g., mechanical damage; high temperatures; or electrical short-circuits, over charging or discharging). Other problems:

- May burn rapidly with flare-burning effect.
- May ignite other batteries in close proximity.
- Contact with battery electrolyte may be irritating to skin, eyes and mucous membranes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Burning batteries may produce toxic hydrogen fluoride gas
- Fumes may cause dizziness or suffocation.

A. Area Evacuation

As soon as it has been determined that a hot Lithium ion battery cell situation exists, completely evacuate all personnel from the area. The area should be secured such that no unnecessary persons enter. As an immediate precautionary measure, isolate any battery spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed areas before entering. Vapors may be heavier than air and may travel along the ground or be moved by ventilation to an ignition source.

If it is safe to do so before evacuating the area, quickly determine if an external short-circuit is present and remove it as quickly as possible. Note that some cell chemistries may enter a thermal runaway reaction above a certain temperature; thus, a cell may continue to gain heat and there may be a cascade to other cells.

B. First Aid

Move victim to fresh air and call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with electrolyte substances, immediately flush skin or eyes with running water for at least 20 minutes. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

C. Electrical Isolation of the Battery - Disconnect Decisions

Isolate/insulate batteries in a manner that will not expose employees to the hazards of arc flash, electrical shock, chemical exposure, or fire. If unsafe conditions are visible, service should be limited to the external AC Disconnect. In the event of a battery failure or other unit event involving the possible discharge or damage, it is important **DO NOT ATTEMPT TO OPEN THE BATTERY COMPARTMENT unless trained and qualified to do so.** There are no serviceable features within the battery compartment that are useful to access in the event of a battery module event by first responders.

D. Chemical Response and Abatement

Only trained and qualified personnel should attempt to respond and abate a lithium or lithium ion battery incident.

The interaction of water or water vapor and exposed lithium hexafluorophosphate (Li PF₆) may result in the generation of hydrogen and extremely hazardous hydrogen fluoride (HF) gas. Li PF₆ is hygroscopic (absorbs moisture from the air) and can spontaneously generate gases. In the event of a battery rupture, electrolyte fumes/gases can cause serious damage to the eyes, skin, and lungs.

Personal Precautions: As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed areas before entering. Vapors may be heavier than air and may travel along the ground or be moved by ventilation to an ignition source.

Special Protective equipment: Level "A" protective suit and self-contained breathing gear when entering an area with an unknown contaminant or when entering an area where the concentration of the contaminant is unknown. Level "A" protection should be used until monitoring results confirm the contaminant and the concentration of the contaminant. Eye and skin protection is required when working with any form of compromised battery materials.

Environmental Precautions: Prevent material from contaminating soil and from entering sewers or waterways.

Methods for Containment: Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.

Methods for Clean-up: Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose appropriately. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

After removing the cells and any absorbent/neutralizing materials, the areas can be cleaned with water or an ammonia-based cleaner.

E. Fire Fighting Procedures

Only trained and qualified personnel should attempt to fight a lithium or lithium ion battery fire.

Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures ($> 150\text{ }^{\circ}\text{C}$ ($302\text{ }^{\circ}\text{F}$)), when damaged or abused (e.g., mechanical damage or electrical overcharge). Burning cells can ignite other batteries in close proximity.

First responders must use a positive pressure self-contained breathing apparatus if batteries are involved in fire. Full protective clothing is necessary. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.

Use an infrared temperature probe to determine temperatures of battery cells.

Because there is no metallic lithium in a lithium ion battery, ordinary extinguishing agents (e.g., ABC extinguisher) can be used effectively on a fire involving lithium ion batteries

3204. ADVANCED METER OPERATIONS (LITHIUM ION PRIMARY BATTERIES)

Under normal conditions of Li battery use, the solid electrode materials and electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact. Under **normal conditions** of use, there is no physical danger of ignition, explosion or chemical danger of hazardous materials leakage.

A. Work Procedures

1. Do not open or disassemble the batteries. Do not expose the batteries to fire or open flame. Do not mix batteries of varying sizes, chemistries, or types. Do not short circuit, puncture, incinerate, crush, over-charge, over discharge, or expose the batteries to temperatures above the manufacturers declared limit.
2. Avoid reversing battery polarity within the battery assembly. To do so may cause cell to flame or to leak.
3. Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods.

4. Do not directly heat or solder the batteries.
5. Keep the batteries away from food and drink.
6. NO smoking when working with battery materials.

B. Battery Cell Storage

1. Facilities storing batteries shall be equipped with an eyewash facility and a safety shower.
2. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.
3. Cells should be stored in their original containers.
4. Do not store batteries in a manner that allows terminals to short circuit. Battery terminals should be capped to prevent a short circuit.
5. Store the cells in a well ventilated, dry area. The temperature should be as cool as possible to maximize shelf-life. Observe the manufacturers minimum and maximum storage temperatures. Battery exposure to extreme temperatures will result in the battery venting flammable liquid and gases.
6. Never stack heavy objects on top of boxes containing lithium batteries to preclude crushing or puncturing the cell case. Severe damage can lead to internal short circuits resulting in a cell venting or explosion.
7. Do not allow excessive quantities of cells to accumulate in any storage area.
8. Type D and ABC Fire Extinguishers must be on site. Allow space for complete encapsulation with Class D fire extinguisher media or Lith-X in the event of a fire.
9. Keep batteries away from strong oxidizers and acids.
10. Prevent the formation of any water condensation and keep rain off of batteries

C. Transporting Batteries

In the case of transportation, avoid exposure to high temperature and prevent the formation of any moisture condensation. The container must be handled carefully. Prevent the collapse of the cargo piles and wetting by rain.

D. Battery Disposal

Dispose the batteries in accordance with company, manufacture instructions and applicable local laws.

3205. ADVANCED METER OPERATIONS BATTERY EMERGENCES & FIRST RESPONDER PROCEDURES

Under normal conditions of Li battery use, the solid electrode materials and electrolyte they contain are non- reactive provided the battery integrity is maintained and seals remain intact. Under **normal conditions** of use, there is no physical danger of ignition, explosion or chemical danger of hazardous materials leakage.

A. Electrical Isolate Battery - Disconnect Decisions

If not already discharged, then isolate/insulate batteries in a manner that will not expose employees to the hazards of electrical shock, chemical exposure, or fire.

B. Chemical Response and Abatement

Eye and skin protection is required when working with any form of compromised battery materials.

C. Fires Fire Fighting Procedures

DO NOT USE ABC OR CO2 TYPE EXTINGUISHERS ON LITHIUM METAL FIRES.

1. Use an extinguishing agent that is best suited to quench the bulk of the fuel that is available. For example, if a single cell were to start burning, a Lith-X Class D extinguisher should be used to quench the fire.
2. The presence of minute amounts of water may ignite the material and the hydrogen gas. Lithium fires can also throw off highly reactive molten lithium metal particles. Cells adjacent to any burning material could overheat causing a violent explosion.

3. Lithium will burn in a normal atmosphere and reacts explosively with water to form hydrogen.
4. Only trained and qualified personnel should attempt to fight a lithium or lithium ion battery fire.
5. Battery fires that are beyond the incipient stages may require personnel protective equipment, such as self-contained breathing apparatus and heat/fire protective bunker gear.
6. In addition to the battery itself, packaging materials, plastics, electronic components and flammable solvents may be involved in a fire.

INTERNAL

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.

Brief: New rules have been created for both Advance Energy Storage and Advanced Metering Operations in the Employee Safety & Health Handbook regarding safe work with lithium (Li) battery applications. Under normal conditions of Li Battery use there is little danger of electrocution, ignition, explosion or hazardous materials leakage. However, in the unlikely event of upset conditions, precautions in the rules are described to avoid these dangers

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	10/08/2012
Last Full Review Completed On:	
Writer:	Thedell, Terry
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	

RULE 3300

ELECTRIC SUBSTATION AND MAINTENANCE

3300. SCOPE

These rules will apply to all personnel concerned with and engaged in work on electrical distribution and transmission facilities within the confines of a substation fence.

3301. ENTERING OR WORKING IN SUBSTATIONS

- A. Only qualified persons may enter a substation.
- B. No person other than a qualified electrical worker should perform work or take any conducting object within the area where there is a hazard of contact with energized conductors unless directly under the observation of a qualified person.
- C. All employees entering a substation must immediately report their presence and purpose to the appropriate switching centers. Entry reporting by the employee in charge will constitute reporting for his entire crew.
- D. All substation gates must be kept locked at all times, except when personnel or vehicles are actually entering or leaving.
- E. Any employee entering an unattended substation must record such entry in the station log book, stating the date, entering and exiting time, and purpose of the visit.
- F. No employee may work on any station apparatus without first obtaining proper authorization from the appropriate switching center.
- G. When any testing, switching or other work is to be done on high voltage control or protective apparatus in a substation, the

appropriate switching center must be notified before the work is started and after the work is completed.

- H. Minors, visitors or uninstructed employees may enter substations only when such visit has been approved by the appropriate switching center, and must be accompanied by a qualified employee.
- I. Station operations may be performed only by or under the direct supervision of a qualified employee and according to instructions issued by the appropriate switching center.

3302. **QUALIFIED OBSERVER REQUIRED**

- A. No un-qualified employee or contract employee may enter an energized substation to perform work or take any conducting object within the area where there exists a hazard of contact with energized conductors by reason of the work he/she is doing, unless directly under the observation of a qualified employee.
- B. No material or tools of any sort may be carried on the shoulder. Extreme caution must be exercised to prevent any material or tools from accidentally contacting energized conductors or apparatus.

3303. **GROUNDING**

- A. De-energized conductors and apparatus must be tested for voltage before grounds are installed.
- B. Grounds must be placed so that one of them is visible to at least one member of the crew.
- C. Only approved grounding devices may be used. They must first be connected to a ground before attachment to the conductor or apparatus to be grounded. Reverse order must be followed for removal of grounding devices.
- D. The employee installing the grounding device must determine that all other employees are a safe distance from any portion of the grounding device before contacting the conductor or apparatus being grounded.

- E. Grounds are to be placed as close as practicable to the work location.
- F. Insulating devices appropriate for the voltage involved (normal operating voltage of the conductor or apparatus) must be used to make or break ground connections directly to conductors or apparatus.
- G. The minimum distance shown in Rule 3103A must be maintained from unprotected, de-energized, ungrounded conductors or apparatus at the work location, or such conductors or apparatus must be worked as energized.

3304. **BARRIERS AND BARRICADE TAPE**

- A. When work is in progress in or adjacent to a structure, which has energized parts, suitable temporary barriers must be used to prevent accidental contact.
- B. When unqualified employees are required to work in substations, suitable barriers must be installed to bar their approach to within ten feet of energized parts. Minimum barrier requirements are:
 - 1. Stakes at 10-foot intervals.
 - 2. Double barricade tapes.
 - 3. Appropriate warning signs on alternate stakes facing the outside of the enclosed area.
- C. Unqualified employees may not cross over or under the tape while it is barricading an area, except in an emergency or when the work in progress requires an unqualified employee to enter the area. While within the barricaded area, the unqualified employee must be continuously watched by a qualified employee for the purpose of preventing an accident.

3305. **AUTHORIZATIONS ON STATION APPARATUS**

- A. Work involving live parts or directly affecting live parts of substation apparatus may not be performed until the appropriate authorization has been obtained from either Electric Distribution Operations or Electric Grid Operations on the station apparatus in accordance with established dispatching practice.

- B. If the status of equipment on which a authorization is held is requested to be changed through switching, the authorization held must be released and a new authorization obtained once switching is completed.
- C. When it is necessary to do any switching in an energized structure where employees are working, the switchman must notify the person, or persons holding the authorization, who will in turn call all workers out of the structure until the switching has been completed. Before allowing the employees to resume work, the status of the structure, conductors and apparatus must be rechecked.

3306. **WORK ON ENERGIZED DISCONNECT SWITCHES**

- A. Work may not be done on any open disconnect device of 7,200 volts or above while one side is energized except with the specific permission of the employee in charge and in no case may the hands be closer than the distances specified in Rule 3103A. Except with approved cover up.

3307. **CAPACITORS**

- A. Before any work is done on capacitors they must be de-energized.
- B. Controls of automatically switched capacitors must be made inoperative.
- C. After waiting five minutes the capacitor terminals must be short circuited by means of temporary jumpers and the cases adequately grounded, or by use of a ground disconnect switch.

3308. **MECHANICAL EQUIPMENT**

- A. Only mechanical equipment specifically required to accomplish work in progress may be allowed inside energized substation.
- B. Vehicles may be stored in unattended energized substation only with the specific approval of the appropriate switching center. Entry into and departure from the substation will be under the direction of a qualified electrical worker or employee. Keys for such vehicles will be locked in the key box provided by the main gate.

- C. Mechanical equipment required to be in restricted or hazardous areas must be operated under the control and continuous direction of qualified electrical worker.
- D. Booms of mobile cranes, derricks or other such equipment operated in substations may be allowed no closer than distance specified in Rules 2110 and 2200 unless insulated for the voltage involved.
- E. While mobile cranes, derricks or other such equipment are being operated in energized substations, ground personnel may not touch, mount or dismount such equipment unless it has been determined by the employee in charge that it is safe to do so.

3309. HOT LINE INSULATOR WASHING

- A. When washing hot line insulators:
 - 1. A minimum nozzle pressure of not less than 400 lbs per square inch must be used.
 - 2. Water of resistivity of less than 500 ohms per cubic inch must not be used.
 - 3. Water must be tested with an approved water resistivity tester after each filling.
- B. The following table constitutes the minimum safe working distance from the energized conductors when washing hot line insulators:

Voltage (Line to Ground)	1/4 Inch Nozzle	5/16 Inch Nozzle
2.4 to 13 kV	7 ft.	10 ft.
69 kV	12 ft.	16 ft.
138 to 230 kV	15 ft.	20 ft.

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Brief:

Document Profile Summary	
Responsible Person:	Williamson, David
Published On:	01/27/2012
Last Full Review Completed On:	01/27/2012
Writer:	Saragosa, Mario
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01493

RULE 3400

OVERHEAD ELECTRIC—DISTRIBUTION AND TRANSMISSION

3400. SCOPE

These rules will apply to all personnel concerned with and engaged in work on overhead electric distribution and transmission facilities.

3401. POLE TOP APPARATUS

- A. All disconnecting devices must be operated with a switch stick or other approved device.
- B. Except when approved protective devices are used, contact with transformer, capacitor, regulator or oil switch cases, bond wires, conductors and other pole-top apparatus is to be avoided.
- C. Where work is to be performed at the location of pole top gang-operated air break switches, the hardware and base of these switches must be proved by test to be de-energized immediately before each period of work at the location.

3402. GROUNDING

- A. See 3111 and 3603.
- B. See Electric Standard Practices 400 Personal Protective Grounding Manual.

3403. BONDS

- A. Every insulator of the circuit on the pole to be worked is to be visually checked for breaks and cracks before any work is done on the bond wire or related hardware.
- B. When work is to be performed on energized conductors (including jumpers), the bond wire and hardware related to those conductors must be insulated, isolated or grounded before work is performed on the conductor. The only exception to this rule applies to a qualified electrical worker

responding to a wire down situation. If he deems it safe to cut an energized wire in the clear, he can do so with a hot cutter from a safe distance below the crossarm (refer to section 3101, Approach and Working Distances). The crew responding to replace the wire shall open the bond prior to installing the new wire.

- C. Employees must wear rubber gloves while working on ungrounded bonds or related hardware of all energized circuits except as indicated in (D), (E) and (F) below.
- D. Live line tools must be used when work is performed on bonds or related hardware of circuits energized above 15kV and the conductors are supported on single unit insulators except on newly installed Non-Ceramic Insulators (NCI).
- E. Circuits supported on multiple unit insulators must have 70% of the insulators in a safe condition, or the bond and related hardware must be isolated using live line tools before work is done on the conductor.
- F. When any condition makes it unsafe to follow the above procedures, the bond wire is to be worked with live line tools or the circuit de-energized before handling the bond wire.

3404. **WORKING POSITION**

- A. When working on energized lines or apparatus, work is to be done from below when possible.

3405. **WORKING IN ELEVATED POSITIONS**

- A. Employees may not work on a pole or elevated structure, including truck-mounted street light ladders and mechanical or hydraulic platform lifts, without first securing themselves with Fall Protection Equipment (FPE). FPE must be attached to the boom and never attached to the platform.
- B. Before climbing poles or structures, employees must familiarize themselves with the circuits, voltages, apparatus thereon, and any unusual conditions which might present a hazard.
- C. Not more than one employee may ascend or descend a pole at the same time. The first employee must be in place on the pole or on

the ground before the next employee climbs or descends the pole. When it becomes necessary for one employee to work above the other, extreme care must be exercised.

- D. Before climbing poles, ladders, scaffolds, or other elevated structures, or riding span wires, messengers, cables, boatswain's chairs or the like, the employee must first determine that the structure or device is strong enough to safely sustain the maximum intended load. Particular care must be taken to determine that standard pole-setting depths have not been reduced through grading of soil from the pole base.
- E. Before employees begin work on any pole from which supporting wires or guys are to be removed or on which the stress is to be changed, it must first be determined that the pole will stand the change in stress without falling. If it is necessary to test the pole, (see Rule 3409).
- F. Particular care must be exercised whenever it is necessary to climb any customer owned and/or installed service pole. This includes placement of ladders against the pole, unless the proper depth conduit has been installed and the depth of the pole can be measured and determined safe, the pole will be secured by pole pikes or whatever method is safe for an employee to climb. Extreme caution and care must be observed by all employees.
- G. Prior to climbing, the pole must be tested as indicated in Rule 3409.
- H. Whenever possible, pulling of slack or dead-ending of service conductors must be performed from the SDG&E pole rather than the service pole.
- I. Fall hazards associated with elevated work performed on lattice structures shall be assessed and include the following:
 - 1. Identify task(s) to be performed.
 - 2. Identify suitable anchorage points to be used for the task(s).
 - 3. Identify necessary Fall Protection Equipment (F) and/or Work Positioning Equipment (WPE).
 - 4. Address rescue considerations and implement appropriate measures based on the conditions.

- J. Visual inspections must be performed prior to and during climbing to ensure the structure is in acceptable condition for safe completion of tasks.

3406. CLIMBING GAFFS

- A. Climbing Gaffs must not be used after they are worn or filed to less than 1¼ inches long, measured on the underside of the gaff.
- B. Manufacturer recommendations for maximum number of gaff replacements must not be exceeded.
- C. Climbing Gaffs are to be worn only when engaged in work requiring their use and never worn when driving or riding in a vehicle, setting or handling poles, working on the ground, while on floors or roofs, or working from aerial lift.

Exception: This rule does not apply to Qualified Transmission workers using work procedures under ESP #809 "Entering or Exiting Aerial Lifts at Elevated Positions.

- D. Climbing Gaffs may be worn when climbing a ladder to gain access to a pole only after properly securing the ladder.

3407. FALL PROTECTION EQUIPMENT

- A. Employees may not work on a pole or elevated structure, including truck mounted street light ladders and mechanical or hydraulic platform lifts, without first securing themselves with Fall Protection Equipment (FPE). In aerial lift platforms, the FPE must be attached to designated anchor points.
- B. For work on lattice structures and wood poles, Fall Protection Equipment (FPE) must be used when ascending, in the working position, changing positions, descending, and performing rescue operations.
- C. Employees who climb lattice structures and poles must be trained and competent in selection, inspection, application, use and care of FPE and other necessary fall protection methods for tasks they may perform on lattice structures or poles.

- D. Employees must inspect FPE before use each day to ensure it is in usable condition and must be used in accordance with the manufacturer's instructions.
- E. When in the working position, Work Positioning Equipment (WPE) shall be used so an employee cannot fall more than two feet. WPE supports a worker on a lattice structure or pole so his/her hands are free when in the working position. A safety strap and lineman's body belt or harness (and climbing gaffs for pole work) constitute WPE.
- F. Employees must never rely on the "click" of the keeper in the snap hook, when attaching a safety strap to a "D" ring, as an indication that the fastening is secure.
- G. Employees must always look to make sure that the snap hook and "D" ring are properly engaged before the weight of the body is placed on the strap. When a safety strap is in use, both snap hooks are never to be attached to the same "D" ring.
- H. Wire hooks, rings, loops or other conductive tool holding devices may not be attached to body belts.
- I. Tubular Steel Pole Climbing may be done only when utilizing specific equipment as outlined in Electric Distribution Engineering, Electric Standard Practice #801.

3408. **HAND LINES**

- A. A hand line must be in place on every structure where overhead work by crews is performed on or near conductors or equipment. The hand line may not be removed until the work is completed.
- B. Hand lines are to be maintained in good condition and not rigged in such a manner that would prevent their immediate use in lowering an injured employee during an emergency.
- C. When raising or lowering tools or lightweight material, a hand line or hand line with attached material bag is to be used.
- D. Hand lines must be of approved material and not less than the equivalent strength of ½ inch manila rope.

- E. At the discretion of the employee in charge, a smaller line may be used by the employee on the pole to raise and lower lightweight tools and material.
- F. Hand lines shall be attached to the pole or aerial device and shall not be supported from the lip of the bucket or "energized lines". Hand lines must be clean, dry and in good repair.

3409. **TESTING POLES**

- A. When it has been determined that a pole is to be tested (see Rule 3405 E, F & G), the following steps are to be followed:
 - 1. Make a close visual inspection.
 - 2. Expose butt of pole to a minimum depth of 18 inches.
 - 3. Sound-test pole by tapping it with a hammer, beginning at the bottom of excavation to a height, which can be reached from the ground.
- B. If after visual inspection and sounding there is any doubt as to the pole's soundness, bore a 9/16 inch hole in the pole at the bottom of the excavation. This hole is to be at a 30 to 40 degree angle with the center line of the pole extending to within about two inches of the opposite side, care being taken not to break through.

NOTE: A pole stub is considered as part of the pole and tested accordingly.

- C. When the condition of a pole to be worked on is in doubt or when it is not practicable to test as set forth in rule 3409 A & B, the pole must be adequately supported from 3 or more opposite directions before work is started.

NOTE: A pole supported by the grabbers of a line truck boom is considered adequately supported.

3410. **DIGGING HOLES**

- A. Employees must stay "in the clear" of the revolving auger of any pole digging device.

- B. All pole holes, anchor holes or excavations must be barricaded and/or covered except when employees are actively engaged in the related work.

3411. **SETTING OR REMOVING POLES OR POLE TOP APPARATUS**

- A. All persons not engaged in pole setting operations are to be kept out of the work area.
- B. Footing for truck wheels and outriggers must be examined carefully. Before operating boom, all outriggers must be lowered. When conditions require it, cribbing or pressure plates must be used to keep the truck stable.
- C. No one is allowed on a gin pole when it is being used to raise another pole.
- D. When poles and pole-top apparatus are set or removed near energized conductors and the minimum clearances specified in Rule 3103A cannot be maintained between non-insulated lifting equipment (including the load) and the energized conductor:
 - 1. Insulating barriers must be installed between the conductor and lifting equipment, or,
 - 2. The lifting equipment must be grounded, or
 - 3. The lifting equipment must be insulated, or
 - 4. The lifting equipment must be considered as energized and isolated by means of effective perimeter barricading.
- E. Employees handling the butt of a pole must wear rubber gloves whether or not cant hooks or slings are used.
- F. No one is to step on or off the lifting equipment or touch any part of the equipment from the ground unless the lifting equipment or load is secured in such a manner that it cannot possibly contact an energized conductor.

3412. **PIKING POLES**

When piking poles, the pikes are not to be supported by the employee's body belt or safety strap. Cant hooks or other suitable devices must be used to prevent rotation of poles.

3413. **WIRE STRINGING AND REMOVAL**

- A. Before stringing or removal operations begin, a briefing must be held setting forth the plan of operation. This will include the type of equipment employed, grounding procedures, crossover methods, clearance authorizations received and communications to be used.
- B. If there is any possibility of conductors accidentally contacting energized circuits or buildup of static electricity, include barricading of pulling and tensioning equipment, installation of protective covering or energized crossovers and use of guard structures where practical. As an alternative, the conductor being installed or removed can be grounded.
- C. When crossing over or under a de-energized line, the de-energized line must be grounded on both sides of the crossover, or the line being strung or removed will be considered and worked as energized.
- D. When crossing over lines or with 10 feet under lines energized in excess of 300 volts, re-closing features or the interrupting devices of these lines must be made inoperative and permission to work on that section of line received from the appropriate authority. In addition, the line being strung or removed must be grounded on either side of the crossing or considered and worked as energized.
- E. Conductors being strung in or removed must be kept under positive control by the use of adequate tension reels, guard structures, tie lines, or other means to prevent accidental contact with energized conductors.
- F. On completion of stringing operations, but prior to working on the conductors, (dead ending, clipping etc.), tests for voltage must be made and grounds applied when the isolation and/or insulating method has been used for employee protection.
- G. Grounds, when used, are removed as the last phase of aerial cleanup.

- H. Guard structure members must be of adequate dimension and strength and adequately supported.
- I. Catch-off anchors, rigging, stubs and hoists must be of ample capacity to prevent loss of the lines.
- J. Manufacturer's load ratings must not be exceeded on stringing lines, pulling lines, sock connections, load-bearing hardware and accessories.
- K. Conductor grips must not be used on wire rope unless designed for this application.
- L. While the conductors or pulling lines are in motion, employees must not be permitted directly under overhead operations nor may any employee be permitted on crossarms to which rollers may be attached.
- M. Transmission clipping crews must have a minimum of two structures clipped in between the crew and the conductor being sagged.
- N. When stringing or removing conductors parallel to existing energized high voltage lines and the possibility of induced voltage buildup exists, the conductors must be considered and worked as energized, or the following additional precautions must be taken:
 - 1. The tension stringing method or other methods that will preclude unintentional contact between lines being pulled and any employee must be used.
 - 2. All pulling and tensioning equipment must be grounded or considered energized and barricaded, isolated or insulated.
 - 3. A ground must be installed on each bare conductor between the tensioning reel setup and the first structure.
 - 4. Each bare conductor must be grounded at the first structure adjacent to both the tensioning and pulling setup and at intervals so that no point is more than 2 miles from a ground.
 - 5. A ground must be located at each side and within 10 feet of work areas where conductors are being spliced at ground level.

6. The ends of conductors being spliced at ground level must be bonded together, by using a temporary jumper.
 7. All conductors must be grounded at dead-end or catch-off points.
 8. Except for grounds of the traveling type, all grounds must be installed and removed by means of approved devices for the voltage involved.
 9. When stringing conductors on or removing conductors from towers all conductors being worked on must be bonded to the tower.
 10. Grounds are to be left in place until conductor installation or removal is completed. Grounds are to be removed as the last phase of aerial cleanup.
 11. Employees on the ground must not contact equipment unless using protective devices for the voltage involved.
- O. For detailed wire string or removal grounding procedures, see Electric Distribution Engineering, Electric Standard Practice Section #400.

3414. **CAPACITORS**

- A. Before work is done on capacitors or work is done above the secondary level on any pole or structure supporting capacitors, the capacitors must be de-energized.
- B. Capacitors may be de-energized or energized only from an aerial lift device, maintaining minimum distance as specified in Rule #3103.
- C. Controls of automatically switched capacitors must be made inoperative.
- D. Cutouts of capacitors energized above 5000 volts phase to phase must be opened with load break tools, those energized below 5000 volts phase to phase may be opened with a switch stick.
- E. After waiting five minutes, the capacitor terminals must be short circuited by means of temporary jumpers.

- F. Live line tools must be used when installing temporary jumpers on all voltages.
- G. During the time capacitor switching procedures are in progress,
the public and Company personnel not directly involved in the
operation must be kept clear of the pole or supporting structure.
- H. For detailed procedures, see Electric Distribution Engineering, Electric Standard Practice #302.

3415. RATCHET HOISTS AND POWER PULLS

- A. Metal ratchet hoists or metal power pulls may not be attached to energized circuits. Such hoists may not be used in any position where conducting parts thereof can come closer to unprotected energized conductors than the working distance set forth in Rule 403a.

Exception: This rule does not apply to Qualified Transmission workers using Bare-Hand work procedures.

- B. When using the live line methods, non-conductive strap ratchet hoist may be attached to energized conductors subject to the following voltage/hoist capacity limitations:

Voltage Range (phase to phase)	Hoist Capacity
Below 5000	One ton (single web, 22" handle)
Up to 15000	One ton (single web, 36" handle)
to 15000	Two ton (double web, 36" handle)

NOTE: Energized conductors within 25 inches of any conductive parts of the hoist must be covered with approved protective devices.

- C. Particular care must be taken to protect non-conductive hoist straps against damage when exposed to sharp objects, such as broken insulators, etc.
- D. Non-conductive strap ratchet hoists designed for use on energized conductors are to be stored and handled, as are live line tools, keeping them clean, dry and free of foreign substances.

- E. When using a fiber strap hoist, an approved insulated link stick shall be installed between the hoist and any other surface with a different potential. Fiber strap hoist must be kept clean, dry and in good repair.

3419. **USE OF METALLIC HOISTING LINES**

Consult appropriate Electric Standard Practices that cover hoisting within approach distances to electric conductors.

3420. **WORKING ENERGIZED CONDUCTORS UP TO 600 VOLTS**

- A. For Voltages up to and not to exceed 600 volts, when working on exposed energized overhead or underground secondary conductors, tie-wires or connections, Approved Insulated Gloves (Class "0" Rubber Gloves) with leather protector gloves must be worn and used.
- B. For voltages up to 250 volts to ground, Approved Insulated Tools (1,000 volts ANSI Rated) and/or rated barriers (1,000 volts ANSI Rated) may be used alone for testing or isolated work. This does not apply to exposed energized overhead and underground secondary voltage work.
- C. **For voltages above 250 volts to ground and up to 600 volts.** Class "0" rubber gloves **must** be used in addition to any barriers or insulated tools for testing or isolated work as a minimum protection. Class "2" rubber gloves shall be worn above 600 volts and up to 15,000 volts.

3421. **RUBBER GLOVE WORK FROM 600 TO 15,000 VOLTS**

- A. These rules shall apply to all employees engaged in rubber glove work involving voltages 600 through 15,000 volts nominal phase to phase.
- B. Rubber glove work on voltages from 5,000 to 15,000 volts shall be done by utilizing the principles of "INSULATE and ISOLATE."
 - 1. The worker is "insulated" by using approved Class 2 rubber gloves and sleeves (where there is upper arm exposure).
 - 2. The worker is "isolated" by using an approved insulating aerial device with tested bucket liners or insulated work platform, which is also an additional layer of insulation.

C. Only "qualified" rubber glove employees may perform this work. "Qualified" rubber glove employees are those who have successfully completed appropriate company training.

D. The term "energized lines", as used in this section only, is defined as a conductor or apparatus energized at 600 volts through 15,000 volts, nominal phase to phase.

E. All rubber glove work on voltages at 600 through 15,000 volts nominal phase to phase requires at a minimum a "qualified rubber glove employees", Qualified Electrical Worker and a "Qualified Observer" to ensure clearances are maintained, PPE, and effective cover-up is installed.

A crew member on the ground for rubber glove crews shall be a qualified company employee and trained in the following:

1. First Aid
2. Cardiopulmonary Resuscitation
3. Radio Procedures
4. Aerial Lift Operations:
5. Upper Controls
6. Lower Controls
7. Aerial Rescue Procedures (Reference Electric Standard Practice 314)

E. During the time an employee is working on "energized lines" above 600 volts, another employee in close proximity at each work location to:

1. Act primarily as an observer for the purpose of preventing an accident.
2. Render immediate assistance in the event of an accident.

F. Personnel shall confine their work to one phase and shall not make simultaneous contact with any part of the structure or any other phase.

G. Qualified rubber glove employees performing the work, shall exclusively determine whether to perform the work with live line tools or utilize rubber glove procedures.

H. The person in charge of the crew at the job site can overrule a unanimous opinion of the qualified rubber glove employees who have elected to use the rubber glove work procedure.

- I. The rubber gloving method will not be used in inclement weather. Weather conditions for the day shall be considered before starting rubber gloving work. If inclement weather develops after work has begun and the task must be completed, the live line method shall be used.
- J. Rubber gloving - requires a "hot line order" for primary voltages. (Reference *Electric Distribution Engineering, Electric Standard Practice 127.*)
- K. Illumination shall be provided as needed to perform the work safely.
- L. Hand lines shall be attached to the pole or aerial device and shall not be supported from the lip of the bucket or "energized lines." Hand lines must be clean, dry and in good repair.
- M. All rope making direct contact with "energized lines" in excess of 600 volts shall be treated as a live line rope.
- N. All blocks, ropes, slings and other tackle when not in use must be stored in a manner protecting them against dirt and moisture.
- O. No other work will be done on a pole or structure while rubber gloving on "energized lines" is in progress.
- P. No rubber glove work above 5,000 volts will be done directly from the pole or structure.
- Q. The rubber gloving method will not be used for the following operations:
- For making or breaking parallel
 - For picking up or dropping load
 - For phasing
 - For testing line or equipment
 - For energizing underground cable
 - Operating disconnect devices or lightning arrestors.
 - Whenever the condition of the line or equipment to be energized is in doubt

3422. **USE OF RUBBER PROTECTIVE EQUIPMENT FROM 600 TO 15,000 VOLTS**

- A. Rubber protective equipment shall be inspected prior to each day's use and at any time its condition is in doubt. Rubber protective equipment shall be inspected for any damage, wear or

contamination that would compromise its ability to insulate or isolate the lineman from different potentials. Rubber gloves must be inspected for cracks and defects and given the roll air test and air/water test as part of the inspection. Rubber gloves may be turned inside out only momentarily for the purpose of inspection. Applicable service dates shall be observed. If rubber protective equipment is found to be defective, the equipment shall be removed from service.

- B. Rubber protective equipment shall be rated for the highest nominal voltage of equipment to which employees may be exposed.
- C. When rubber gloves are required, they shall never be worn inside out or without leather protectors.
- D. When employees are working on energized circuits or equipment using the rubber glove method, rubber gloves rated for the exposure of the highest nominal voltage shall be worn prior to entering the "Primary Contact Zone" and shall NOT be removed until the employee is out of the "Primary Contact Zone" regardless of whether rubber insulating protective cover-up is in place.
- E. Primary Contact Zone: When workers are working on energized circuits or equipment using the rubber glove method, any location in or from which any part of a worker's body or any tool or material the employee is carrying or handling is within four feet (4') of conductors or equipment energized at greater than 600 volts, regardless of whether protective cover-up is used.
- F. The term "contact area" is defined as any location in or from which any part of a worker's body is within reach of unprotected energized conductors or equipment. The term "within reach" includes conductors and equipment which might be touched if the employee slips or falls. It also includes conductors and equipment that might be touched by any material the employee is carrying or handling.
- G. Employees in the contact area shall not touch or work on any exposed "energized lines" except when working from an approved insulated aerial device or insulated platform wearing lineman's rubber gloves.
- H. If there is upper arm exposure to uncovered energized conductors, rubber sleeves and gloves are required.
- I. When work is being performed on or near "energized lines", all energized conductors, grounded conductors, or guy wires in the work area within reach of any part of the body or aerial device shall

be covered with rubber protective equipment (second point of contact), except that portion of the conductor or apparatus on which the employee is working.

- J. When applying rubber protective equipment, an employee shall always cover the nearest and lowest conductors first. When removing rubber protective equipment, the reverse order shall be followed. Protective equipment should be applied from a position below the conductor when possible.
- K. Intentional contact shall not be made with energized lines or rubber protective equipment with any part of the body except with rubber gloves.

3423. **INSPECTION AND CARE OF RUBBER PROTECTIVE EQUIPMENT**

- A. Gloves are to be exchanged at any time they are damaged or the employee to whom they are assigned becomes doubtful of their safe condition. Leather protectors or over gloves are not to be worn except when in use over rubber gloves.
- B. When not in use, rubber protective equipment shall be protected from mechanical and chemical damage, and shall always be stored in the containers provided and nothing else placed therein. Protective equipment shall not be laid on the ground or other contaminated surfaces unless a tarp or other such device is used.
- C. High voltage rubber goods should not be left on "energized lines" for extended periods of time (i.e. overnight). Should this be deemed necessary, they must not be depended upon to protect the employee. They must be removed, cleaned and visually inspected before re-use, and if suspect, submitted for electrical test.
- D. Rubber protective equipment shall be submitted for tests as required, or anytime they become suspect.

3424. **USE AND CARE OF INSULATED AERIAL DEVICES FOR RUBBER GLOVING ABOVE 5,000 VOLTS**

- A. No aerial device will be used for rubber glove procedures involving voltages above 5,000 volts unless it has a current dielectric certification *in the black box, in the cab*.

- B. Whenever any work is performed on an aerial device that could affect its insulating qualities, it shall be electrically tested and certified before being returned to service.
- C. Aerial devices used for rubber gloving above 5,000 volts shall have both upper and lower controls with a start and stop switch at the upper control position.
- D. Aerial devices used for rubber glove procedures above 5,000 volts require an approved bucket liner *with a liner bottom protector installed*.
- E. Bucket liners shall have a current dielectric certification sticker/label affixed to the outer surface and inner surface.
- F. At no time shall the insulated boom or bucket on aerial devices contact unprotected conductive or grounded objects when an employee in the aerial device is rubber gloving "energized lines."
- G. Extreme care shall be taken when handling conductive objects near unprotected "energized lines." Conductive objects carried inside the bucket of an aerial device shall not extend above the lip when in the contact area.
- H. Conductive objects should not be allowed to hang on the outside of the bucket.
- I. Immediately prior to using aerial devices for high voltage rubber glove work, all insulated portions shall be visually inspected and wiped clean. Surfaces of insulated booms, baskets, liners and platforms must be kept clean, using only approved materials and methods. Trash and debris must not be allowed to accumulate in aerial lift basket.
- J. Except in emergency situations, or unless specifically directed by employees aloft, ground controls must not be operated when employees are aloft.
- K. When not in use, or when driven, buckets with liners shall be covered to keep the inside clean, and free of moisture and debris.
- L. In addition to these rules, for all working aloft, the following rules apply (per Employee Safety Handbook Section 10, Rule 2202 1-15):
 - 1. Employees aloft must always face the direction of travel, and determine that the path of the boom and

basket is clear before any movement is made. The operator must make certain basket controls are clear of any fixed object in the work area.

2. Employees must not attempt to gain additional height by standing on top of the basket, on planks across the top, or on ladders in the basket. *Employees must stand with both feet on the floor of the basket the entire time it is aloft.*
3. Company rules in Section 3400, which specify the use of grounds, protective equipment, working clearances, clothing, etc., during work on poles and structures, will also apply to work from aerial lift equipment.
4. Approved body *harness and safety lanyard* attached to the boom must be used by employees when aloft.
5. Belting off to adjacent poles, structures or equipment while working from an aerial lift is not permitted.
6. While aloft, employees must not transfer from baskets to poles or structures, nor between baskets on dual basket trucks.

Exception: This rule does not apply to Qualified SDG&E Transmission workers using work procedures under ESP # 809 "Entering and Exiting Aerial Lifts at Elevated Positions".

7. Climbing gaffs must not be worn in baskets.

Exception: This rule does not apply to Qualified SDG&E Transmission workers using work procedures under ESP # 809 "Entering and Exiting Aerial Lifts at Elevated Positions".

8. Employees must not enter or leave the basket unless the boom is cradled or placed in the approved position of entering or leaving the basket.

Exception: This rule does not apply to Qualified SDG&E Transmission workers using work procedures under ESP # 809 "Entering and Exiting Aerial Lifts at Elevated Positions".

9. Except for ladder type booms, employees must not walk on the boom to enter or leave the basket.

10. Hand lines, tool hooks or other lifting apparatus must not be attached to or hung from baskets for the purpose of lifting loads.
11. Only tool trays or hooks specifically designed for the purpose are to be attached to baskets.
12. Neither the basket nor boom will be allowed to contact unprotected energized conductors. This does not preclude the use of attachments to the boom specifically designed to support energized conductors.

Exception: This rule does not apply to Qualified Transmission workers using Bare-Hand work Procedures.

13. The number of employees allowed to occupy or work from a basket must not exceed the number for which the basket was designed.
14. When two employees are working from a basket or baskets, the employee at the controls must not move the unit until he has told the second employee of the move.
15. The rubber glove method of work on voltages above 5,000 volts will not be done from boom mounted ladders.

3425. **USE AND CARE OF TOOLS**

- A. Hydraulic hoses shall be non-conductive and orange in color. They shall be wiped clean and visually inspected prior to use. Employees shall avoid body contact with hoses.
- B. Hydraulic tool hoses used for work on "energized lines" shall be submitted for a dielectric test or replaced any time they become suspect.
- C. Electric tools and their power cords shall be removed from the bucket when working on "energized lines."
- D. When using fiber strap hoist, an approved insulated link stick shall be installed between the hoist and any other surface with a different potential. The fiber strap hoist must be kept clean, dry and in good repair.

- E. When using the winch line of material handling aerial devices on *unprotected* "energized lines," an approved link stick must be used.

3426. COMBINATION RUBBER GLOVE/LIVE LINE TOOL WORK

- A. When work is to be accomplished through both the use of live line tools and rubber gloving procedures, the contact area must be observed. The use of live line tools in conjunction with rubber glove procedures is to be limited to situations where the safety margins are not decreased by the introduction of live line tools into the rubber glove environment.

Both employees will follow the same work rules for the work method used.

Note: *The following combination is not allowed:*

One qualified employee on the pole utilizing live line tools and one qualified employee on an insulated platform utilizing rubber gloves.

- B. During the time an employee is doing work on lines or equipment energized in excess of 600 volts, another employee must be in close proximity at each work location to:
 - 1. Act primarily as an observer for the purpose of preventing an accident.
 - 2. Render immediate assistance in the event of an accident.

Note: **Additional manpower should be considered when deemed necessary by the nature of the work at hand or by safety concerns.**

- C. At no time will rubber glove work above 5,000 volts be done except from an aerial device or insulated platform.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Revised the highlighted texts to match what has been recently changed in Electric Standard Practices (ESP). Subjects pertain to PPE and all rubber goods inspection requirements, primary contact zone, cell phone use, gloves and sleeves, and job planning and briefing/de-briefing requirements.

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	04/01/2017
Last Full Review Completed On:	04/01/2017
Writer:	Thedell, Terry
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01494

RULE 3600

UNDERGROUND ELECTRIC—DISTRIBUTION AND TRANSMISSION

3600. SCOPE

These rules will apply to all personnel associated with and engaged in work on underground electric distribution and transmission facilities.

3601. OPEN HOLE SAFEGUARDS

- A. When a cover or lid is removed from a manhole or similar structure, an employee shall be stationed at the surface as long as workers are in the structure, and adequate warning devices or barriers must be placed so as to warn and safely guide pedestrians and vehicular traffic.
- B. Where permissible and practicable, the truck must also be placed to guard against oncoming traffic.
- C. Upon first entering a manhole or vault, the employee must make a careful inspection of any unsafe physical conditions in the structure.
- D. Forced ventilation is required. (See Rule 3602 I.)
- E. Working and entry rules as prescribed in rule 3602A do not apply to walk-in vaults or walk-in-enclosures.

3602. ATMOSPHERE TESTS IN UNDERGROUND STRUCTURES

- A. Employees must not enter any vault, manhole, or similar structure without first having assured themselves, by test, that the atmosphere therein is safe. "Walk-in" vaults or enclosures that are intended for human inhabitants are precluded from this rule.
- B. The test results will be recorded and documented with the date, time, location, results of tests and the initials or signature of the person doing the testing.
- C. Only approved devices are to be used to test the atmosphere of enclosures to be entered.
- D. Where feasible, initial atmosphere tests should be made before access doors are opened or covers are removed.
- E. Once the access door has been opened or the cover removed, tests of the enclosure atmosphere, to the maximum depth permitted by the test device, must be made before entry.
- F. Prior to entry into any vault, manhole, or similar structure, the structure will be forced ventilated for a minimum of ten minutes.
- G. The atmosphere within a vault, manhole or similar structure will be considered hazardous and the space must not be entered when:
 - 1. Oxygen is less than 19.5 % or more than 23.5% in air
 - 2. Combustible gas is more than 20% of the lower explosive limit (L.E.L.) (e.g. 0.9% natural gas in air)
 - 3. Carbon monoxide is more than 25 parts per million in air
 - 4. Hydrogen sulfide is more than 10 parts per million in air

5. Other toxic air contaminants are above Immediately Dangerous to Life or Health (IDLH) levels

- H. The presence of unusual conditions, such as an unfamiliar or irritating odor or unidentified liquids or solids in the structure, shall be cause for identification and evaluation of any related hazard. Contact your immediate supervisor and the Environmental Specialist or Safety Services for assistance. Entry should be made only after it is designated safe.
- I. Regardless of atmosphere test results, forced ventilation shall be used prior to entry and throughout the time underground structures are occupied. The end of the flexible hose should be located about six feet from the floor of the structure.

Note: Subsurface structures having covers, which will provide total surface opening when opened or removed (e.g. handholes), may be continuously monitored with an approved instrument instead of using forced ventilation if no hazardous atmosphere was identified by initial testing.
- J. Once the enclosure has been entered, additional tests must be made at ceiling level, duct openings, floor level and other places where gas or vapors may collect.
- K. Ignition sources (open flames etc.) must be kept at least 20 feet from enclosure openings when pre-entry atmosphere tests are conducted or a flammable atmosphere has been detected.
- L. When the atmosphere of a space is found by test to be hazardous, the supervisor in charge must be notified before work continues.

- M. Before entry is made into a space that has been found by test to be hazardous, the space must be purged by forced ventilation until a safe atmosphere has been achieved and proved by test.
- N. Atmospheric testing after initial testing shall be performed as required to ensure a safe atmosphere if continuous monitoring is not performed.
- O. No source of ignition (open flames etc.) may be introduced into the enclosure unless immediately preceded by an atmosphere test with a reading below 20% of the Lower Explosive Limit (L.E.L.) or 0.9 or less is reached on the "EXPL (4.5%)" scale of the Combustible Gas Indicator, or 10% LEL on a Multi-Gas Monitor.
- P. Care must be exercised in placement of ventilation devices relative to running internal combustion equipment to prevent introduction of engine exhaust into the work areas.

3603. **GROUNDING**

- A. All cables and equipment must be considered and worked as energized unless positively known to be de-energized by test and grounded.
- B. New lines or equipment may be considered de-energized when grounds have been installed or the hazard of induced voltage is not present and means to prevent contact with energized sources have been implemented.
- C. De-energized cables or equipment must be tested for voltage before grounds are installed. **NOTE: You can have no current flow and the cable**

and/or equipment can still be energized. Testing for current alone is not a valid test

- D. Grounding devices must first be connected to a ground before attachment to the cable or equipment to be grounded. Reverse order must be followed for removal of grounding devices.
- E. The employee installing the grounding device must determine that all other employees are a safe distance from any portion of the device before contacting the cable or equipment being grounded.
- F. Insulated devices or live line tools, appropriate for the voltage involved (normal operating voltage of the cable or equipment), must be used to make or break ground connections directly to cables or equipment.
- G. When grounds are required, they must be placed between work locations and all sources of supply.
- H. Grounds are to be placed as close as practicable to the work location.
- I. Temporary protective grounding equipment shall be placed in such a manner as to prevent each employee from being exposed to hazardous differences in electrical potential.
- J. If work is to be performed at more than one location on a given cable, each employee in charge is responsible to ensure that grounds, when required, have been installed to protect the workers from all sources of supply and all the other crews. This may be accomplished by installing grounds on both sides of the workers on all conductors, and installing individual protective grounding equipment to prevent each employee from being exposed to hazardous differences in electrical potential. In such instances, one set of grounds must be readily visible to at least one member of the crew at all times, unless the grounding device is accessible only to authorized persons.

- K. The minimum distance shown in Rule 3103 must be maintained from unprotected, de-energized, ungrounded cables at the work location, or such cable must be considered and worked as energized.
- L. All grounded leads must be capable of conducting the anticipated fault current and have a minimum conductance of No. 1/0 AWG copper.
- M. Only clamps designated for grounding may be used for that purpose.

3604. **MOVING CABLE**

- A. Cable energized at more than 600 volts phase to phase may be moved only under the direction of the employee in charge, and only after the automatic circuit recloser is taken out of service.
- B. Any energized cable to be moved must be carefully examined before and after the move of any defects, which may affect the movement or be caused by it.

3605. **USE OF WIRE ROPE**

- A. Wire rope may not be used to pull cable in duct already occupied by conductors.
- B. Wire rope may be used to raise or lower equipment only when:

1. The wire rope is maintained at least six feet from any exposed energized conductors or equipment, or
2. The energized conductors or equipment are adequately covered or protected.
3. Pulling equipment must be grounded.

3606. INSTALLING AND REMOVING UNDERGROUND CABLE

- A. When installing or removing cable in proximity to exposed energized conductors or equipment, and minimum distances specified in Rule 3103 cannot be maintained:
 1. The energized cables equipment must be adequately covered or protected, or
 2. The cable being installed or removed, including cable reels and dollies, must be considered and handled as energized.
- B. Ducts must always be fished or blown in the direction presenting the least hazard, with an employee stationed at each end of the conduct.
- C. Care must be exercised to position and/or protect employees stationed near conduit ends so as to minimize the hazard of possible "blow-back" during duct blowing operations.
- D. No new cable of equipment may be energized until identification tagging or other approved marking procedures have been completed.

3607. CONTINUITY OR PHASE TESTING OF CABLE OR EQUIPMENT

A. Whenever high voltage lines or equipment to be tested are connected or exposed to a possible source of supply:

1. Low voltage continuity test devices (telephone, lights, etc.) may be used only under proper authorization from the appropriate switching center and after determination, by test, that the lines or equipment are de-energized.
2. In the absence of switching center authorization, only approved high voltage test devices (phasing set, touch voltmeter may be used.

B. Grounds may be temporarily removed when necessary for test purposes with extreme caution exercised during test procedures.

3608. **DISCONNECT DEVICES**

A. Only switches and/or devices specifically designed for dropping or picking up load may be used for that purpose.

3609. **OPERATING UNDERGROUND SWITCHES**

A. The opening or closing of any energized oil switch, vacuum switch, gas filled switch, or oil filled cutout in the underground system, should be performed remotely. If remote operation is not possible, the source should be de-energized by means of an adjacent oil switch, circuit breaker etc., where remote switching can be accomplished.

3610. **HEATING MATERIALS**

- A. Metal and insulating compound heating processes must be carried out in a manner to minimize hazard to employees working in vaults, manholes and similar structures and to vehicular or pedestrian traffic.
- B. Gloves, face shield and Flame Retardant shirts with long sleeves, rolled down and buttoned when buttons are provided, must be worn by employees heating or handling hot metals or insulating compounds.
- C. Furnaces and their supply tanks containing liquefied petroleum gas may not be taken into or used in vaults.
- D. Portable handled propane torches may be taken into and used in vaults or manholes only for the period of time they are actually needed. A test of the atmosphere for explosive gases must be performed prior to introducing any open flame within the structure.

3611. **MATERIAL HANDLING**

- A. Material, tools or equipment may be lowered into vaults or manholes only on instruction from below.
- B. Surface employees must always warn workers in the manhole or vault to stand clear before lowering material.

3612. **FIRE EQUIPMENT**

- A. At least one fire extinguisher must be readily available while work is in progress in a manhole, vault or similar structure.

3613. **EXCAVATING**

- A. Employees using hand tools to excavate in the vicinity of underground electrical facilities must wear approved rubber gloves with protectors under the following circumstances:
 - 1. When the exact location of the facilities is not known.
 - 2. When concrete or other covering material is being removed for the purpose of exposing either the duct or conductor.
 - 3. When the employee in charge so directs.
- B. Whenever mechanical equipment is utilized to excavate in areas containing or suspected of containing energized underground electric supply lines, all employees must be kept clear of the equipment while it is in operation.

3614. **AUTOMATIC CIRCUIT RECLOSER OPERATION**

- A. The automatic circuit recloser on the circuit being worked shall be made non-automatic when:
 - 1. Splicing or patching energized high-voltage underground cable.
 - 2. Relocating or moving energized high-voltage underground cable or equipment.
 - 3. Filtering or replacing oil on energized high-voltage underground equipment.

4. Supervisor or employee in charge deems it necessary for the safety of the employees performing the work.

3615. RESCUE FROM UNDERGROUND VAULTS, MANHOLES AND SIMILAR STRUCTURES

- A. Rules covering procedures for work in hazardous atmospheres are found in Section 3600. These rules require, under certain circumstances, the use of a harness and surface-tended lifeline for the purpose of rescue. See Electric Distribution Engineering, Electric Standard Practice 234 for equipment and procedure.
- B. In situations involving injury or illness to an employee, the employee in charge must determine the needs as circumstances dictate.

NOTE: Fire Department Rescue units will be utilized as the first option for manhole rescue.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.	
Brief:	

Document Profile Summary	
Responsible Person:	Williamson, David
Published On:	05/29/2012
Last Full Review Completed On:	05/29/2012
Writer:	Saragosa, Mario
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	

RULE 3800

ELECTRICAL HAZARDS & NON-ELECTRICAL WORKERS

3800. SCOPE

These rules apply to all non-electrical employees present at construction sites and non-electrical workers assisting electric crews to perform work near energized or de-energized electric distribution and transmission facilities.

3801. TRAINING AND RESPONSIBILITIES

Non-Electrical Employees / workers

- A. No employee will be permitted in the delineated work area unless they have received basic training on Electrical Safety Hazard Awareness.
- B. Employees shall have a valid reason for going to a job site. Upon arrival at the job site, employees must first report to the employee in charge and state the purpose for their visit.
- C. Employees shall wear appropriate personal protective equipment and appropriate attire for a construction zone.
- D. Employees must always observe all barricades, postings, and warning signs regarding dangerous voltages and potentially hazardous conditions.
- E. Employees **shall never enter or approach** electrical work areas unless specifically authorized and, or escorted by a qualified employee.
- F. Employees must always treat all electrical conductors and equipment, **bare or insulated**, as energized until proven de-energized.
- G. Work on electrical circuit conductors or equipment may only be performed by qualified personnel authorized to do the work.

- H. Employees must observe the minimum approach distances from power lines for non-electrical workers at all times. These distances are shown on table No1, subparagraph (I).
- I. Table No 1: Minimum approach distances from **bare or exposed** power lines for non-qualified electrical workers.

Voltage	Distance
Under 300 volts	2 Feet
300 to 50,000 volts	10 feet
69,000 volts	11 feet
138,000 volts	13 feet
230,000 volts	16 feet
500,000 volts	25 feet

3802. TRAINING AND RESPONSIBILITIES

Qualified Electrical Workers (QEW)

- A. The **QEW who is the** employee in charge is responsible for providing a safe work environment for all non-electrical workers at the job site.
- B. The employee in charge is responsible for making sure that non-electrical workers maintain the approach distances specified on Table No1, subparagraph (I) at all times.
- C. When requesting assistance, from Gas Construction Crews, Locators, Hazmat and other non-electrical **_____**, at the work site, the employee in charge will conduct a tailgate with all non-**electrical** workers in accordance with Rules 1203 and 2101. The **employee in charge** will use sufficient detail to fully address items **1 and 2 below** and ensure there is acknowledgement by the gas crew leader and others on the potential job site hazards, and agreement on the work to be performed.

1. Ensure Clear Understanding of:

- a) The total work area.
- b) All potential electrical hazards.

- c) Energized/de-energized equipment or conductors.
- d) Protective measures implemented to prevent injury to non-electric personnel; i.e. total isolation, personal protective grounding, and barriers or cover up, etc.
- e) Protective measures and work methods necessary to prevent mechanical damage to electric facilities.
- f) Work methods and approach to be used to prevent non-electric personnel from making contact with system neutral or grounded conductors.

2. **Ensure Agreement and Acknowledgement on:**

- a) Work to be performed and **work area boundaries**.
 - b) Location of personal protective grounds and the grounding plan used by the electric crew leader.
- D. **Non-electrical** workers **shall not** be permitted to approach or take any conductive object closer to exposed energized parts than shown on Table No 1 above, unless the energized part is insulated or guarded from the employee or any other conductive object at a different potential.
- E. A qualified electrical worker **shall be in close proximity of the work area during the time** non-electrical workers perform work near properly barricaded or covered energized or de-energized conductor or equipment or system neutrals or grounded conductors to:
- 1. Act primarily as an observer for the purpose of preventing an incident.
 - 2. Render immediate assistance in the event of an incident.
 - 3. Ensure that non-electrical personnel do not come in contact with properly protected energized / de-energized cables or equipment and system neutral or grounded conductors.
 - 4. Ensure and prevent mechanical damage to the electrical system.
 - 5. Closely supervise or assume the duties of non-electrical personnel when approaching **the two feet distance** from:

- a) Properly covered or barricaded energized facilities.
- b) Insulated or properly protected energized conductors or equipment.
- c) Exposed system neutral and grounded conductors.

F. The **two feet approach distance** will be observed under the following conditions:

1. Trenching into any pad mounted energized equipment or substructure.
2. Installing pulling ropes (blowing string) into energized pad mounted equipment or substructures.
3. Removing water from substructures.
4. Adjusting or raising energized substructures.
5. Core boring energized substructures.
6. Intercepting existing energized direct burial or encased energized cables.
7. Assisting with installation of temporary cables (shoofly).
8. Any other work deemed appropriate by the qualified electrical worker.

G. Rubber glove protection is required when working inside the 2 feet approach distance.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Minor changes to the title, terminology, use of acronym QEW and using the word 'ensure'

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	04/01/2017
Last Full Review Completed On:	04/01/2017
Writer:	Saragosa, Mario
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
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Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01496

RULE 4100

GAS DISTRIBUTION AND TRANSMISSION

4100. PERSONAL PROTECTIVE EQUIPMENT

- A. All employees engaged in work requiring hand protection must wear approved gloves. Such work includes, but is not limited to:
 - 1. Welding.
 - 2. Tapping, plugging and purging energized gas pipelines.
 - 3. Material and equipment handling.
 - 4. Excavating with hand or pneumatic tools.
 - 5. Applying pipe wrap. Refer to Section 1220.
- B. Protection against Electrical Hazards employees must wear dielectric rubber insulating gloves and boots when:
 - 1. Performing all horizontal boring operations.
 - 2. Leak Investigation/surveys using rock drill when drilling within 6 feet of marked power or when the underground power has not been verified by USA or substructure sweep
 - 3. Potholing to locate power lines
 - 4. Excavating joint trench
 - 5. When the condition of the dielectric handle on the impact bar is in question
 - a. Refer to Gas Standard for inspection, use and maintenance of Insulated impact bar
- C. Personnel directly involved in welding operations must wear approved welding eye protection.
- D. Approved eye protection must be worn by employees when tapping, plugging and purging energized gas pipelines and operating pneumatic tools such as jackhammers, rock drills and chipping operations.
- E. Approved ear protection must be worn by employees operating or working near operators of pneumatic tools, compactors, and other equipment designated as noise hazards.

- F. Face shields, in addition to any other required eye protection such as chipping goggles, flash glasses, safety glasses and ear protection, must be worn by employees operating grinders with disc or buffer attachments.
- G. Approved foot protection must be worn by employees using pneumatic tools to break or drill pavement, rock, or tamp earth in excavations.
- H. All employees must wear approved head protection (Hard Hat) when working or visiting any job site including construction of company facilities or system. Refer to Section 1219 or 2103 in this book.
- I. Personnel directly involved in welding operations and tapping, plugging and purging energized gas pipelines must wear company supplied cotton or Company Safety and Gas Operations Staff approved Flame Resistant (FR) coveralls (see 4101, below).
- J. When physical contact with the MSA is required, a voltage test with company approved voltage detector must be conducted prior to employee contact with the houseline and/or MSA. (Refer to D7131; Company Operations Standard Gas Engineering).

4101. **WORK IN THE PRESENCE OF ESCAPING GAS**

- A. When excavating over or near a leaking gas line, or doing any work involving escaping gas or the potential of escaping gas, sources of ignition, including lit cigarettes, are not permitted within fifty (50) feet from any gas-containing area as determined with a combustible gas indicator.
- B. Only those employees actually required to excavate for and repair gas leaks or perform associated duties in the presence of escaping gas are to be permitted in the immediate area.
- C. Extreme caution must be exercised when necessary to operate gasoline-powered equipment in the vicinity of escaping gas.
- D. Escaping gas must never be ignited for the purpose of determining the extent or location of leaks.
- E. When purging, blowing or anytime gas is released from gas pipelines, grounded metal risers must be installed and extended to such a height

as to minimize hazards of escaping gas in the work area. Refer to Gas Standards.

- F. Leaking gas that has accumulated in the ground must be evacuated by suction.
- G. Whenever work is in progress in the presence of escaping gas, a fire extinguisher rated 40BC or greater, must be available for immediate use. Care must be exercised in the extinguisher placement to prevent its being enveloped by flame in the event of ignition.
- H. Should a fire occur and get out of control, the appropriate local fire department is called immediately.
- I. Approved Combustible Gas Indicators must be utilized to test the atmosphere where work is involved in the presence of a known or suspected gas leak.
- J. Before works begins a competent evaluation must be made by the employee in charge to determine if the gas is below, or can be controlled below, the potentially flammable level (0.9% gas = 20% LEL) is reached on the combustible gas indicator. The evaluation will include, but is not limited to:
 - 1. Tests with the combustible gas indicator.
 - 2. Probability of gas accumulation in the work area due to condition such as:
 - Terrain or structures.
 - Type of soil.
 - Parallel or intersection trenches.
 - Duct systems.
 - 3. Work location (ground level or subsurface).
 - 4. Motorized (internal combustion or electrical) equipment on the job site as a possible source of ignition.
- K. Company furnished 100 percent cotton or Company Safety and Gas Operations Staff approved Flame Resistant (FR) coveralls and or FR pants and FR shirts shall be worn when:
 - 1. Blowing or leaking gas is present or may be present with or without warning.
 - 2. Hot squeezing (pinching) and reopening.
 - 3. Leak repair when Gas Extraction suits are not required.

4.

Bar-hole drilling, excavating for leaks, and repairing leaks. (Coveralls may be removed for backfilling and clean up duty when tests with a combustible gas indicator in the excavation and bar holes confirms natural gas is less than the potentially flammable level of 0.9% Gas = 20% LEL., and as long as all the following requirements are met:

- a. One layer of long sleeve cotton or Safety and Gas Operations Staff approved FR clothing, with appropriate company logo identification, is worn; and
 - b. The Crew Leader and Crew conduct a "Tailgate" meeting prior to removing coveralls; and
 - c. Test results for gas levels are documented on the tailgate form).
5. Under Gas Extraction suits.
 6. Pipeline fire control.
 7. Pressure control (tapping, stopping, stop-cock changing, etc.) or any gas handling.
 8. Welding, soldering, or brazing.
 9. Crawling under buildings.
 10. Potentially exposed to insects
 11. Using or assisting with guided or unguided trenchless construction equipment such as horizontal drilling and spud boring machines/tools.

Note: Coveralls or FR pants and FR shirts are always worn with sleeves rolled down and sleeves and neck buttoned during these activities. FR shirts must be tucked in. It is recommended that the sleeve cuffs and pant leg bottoms be secured to prevent gas from entering. Coveralls and or FR pants and FR shirts shall be in good condition free of fraying, tears and holes. It is also strongly recommended that clothing under coveralls or FR pants/shirts should be made of 100% natural fibers (cotton, silk, or wool) to avoid injuries caused by melting or dripping of manmade materials affected by heat (e.g. polyethylene, acrylic, nylon). In particular, a 100% cotton or FR long sleeve shirt and pants worn under a Company-furnished 100% cotton or FR coverall and Gas Extraction suit are

recommended to minimize the initial effects should gas ignition occur.

- L. The atmosphere will be considered potentially hazardous whenever a consistent read of 2.7% (60% LEL) is reached on the combustible gas indicator. If consistent reads are detected in this range, appropriate respiratory protective equipment and Nomex coveralls are required and the crew must comply with all of the following:
1. Use the airline respirator or other approved respirator device and wear a fire retardant Nomex suit over Company-furnished cotton (or FR rated) coveralls.
 - Three qualified employees who wear Nomex coveralls, SAR(s) with escape bottle(s) and/or SCBA.
 - Wear a safety harness with rescue-line attached.
 2. One Observer trained in CPR/First Aid and able to communicate via phone or company radio is immediately available and does not enter the flammable atmosphere.

Note: Employees such as Gas Service Techs or Regulator Techs who are not trained, qualified or equipped with proper safety equipment such as airline respirators and FR Gas Extraction suits, are not permitted to work in an excavation or other location where the atmosphere has consistent reads at or above 60% of the lower explosive limit (L.E.L.) or 2.7% on the combustible gas indicator.

- M. The term "controlled" refers to positive measures taken by the employee in charge to maintain leaking gas below the hazardous level such as:
1. Use of properly maintained plugging and tapping devices, leak plugs, repair clamps, squeezers etc.
 2. The use of blower or suction (venturi) devices.

Note: The use of blowers or suction requires periodic monitoring of the atmosphere with the combustible gas indicator.

- N. Where employees may work near flammable gas or vapor, the following controls should be used to prevent or manage potential static charge:
1. Put on and remove garments away from flammable concentrations of gas and vapor. Methods for draining static charge should be used after such actions.

2. After sliding across or standing up from a vehicle seat, touch a grounded metal object or vehicle away from an open fuel filler neck, fueling nozzle or other source of flammable gas/vapor. Touching the vehicle will transfer a large amount of charge to the vehicle. Other than touching large metal objects, use of Company-approved non-metallic conducting rods or other measures may be designated for draining static charge.
3. Avoid transfer of static charge from the employee through a conductive metal tool to the ground, making that the location of a static spark.
4. If possible, select exterior garments (e.g. coveralls, safety vests, shirts, pants) that provide protection from flame and prevent static ignition.
5. Where feasible, select combinations of inner and outer garments that minimize static build-up, which can accumulate on the body as well as the outer garment.
6. Inspect garments to be worn near flammable gas/vapor to ensure they are suitable for the exposure. Check for fraying, tears or holes and repair/replace as needed before gas/vapor exposure. Check the label to verify it is flame resistant (and has antistatic properties if required).
7. Be alert to signs of static build-up such as tingling, annoyance or pain. If flammable gas is nearby, stop work and report this to your supervisor to investigate immediately.

4102. **WELDING (General)**

- A. Before any employee enters any weld hole, the excavation must be checked for possible gas accumulation.
- B. When a welder is in a hole welding on a gas main, the welder shall have a helper or higher rated qualified employee, such as but not limited to a Tech A, Welder, Working Forman, Shop Assistant, etc., in immediate attendance for the full period of such operation.
- C. Personnel directly involved in welding operations shall wear company furnished 100% cotton or FR coveralls. Other exposed skin surfaces must be covered to protect against sparks.

Note: Coveralls or FR pants and FR shirts are always worn with sleeves rolled down and sleeves and neck buttoned during these activities. Long-sleeve FR shirts must be tucked in. It is recommended that the sleeve cuffs and pant leg bottoms be secured to prevent sparks from entering. Coveralls or FR pants and

FR shirts shall be in good condition free of fraying and holes. It is also strongly recommended that clothing under coveralls or FR pants/shirts should be made of 100% natural fibers (cotton, silk, or wool) or FR fabric to avoid injuries caused by melting or dripping of manmade materials affected by heat (e.g. polyethylene, acrylic, nylon). In particular, a 100% cotton or FR long sleeve shirt and pants worn under a Company-furnished 100% cotton or FR coverall and Gas Extraction suit is recommended to minimize the initial effects should gas ignition occur.

D. Before welding on any live gas main or service pipe:

1. Major leaks must be plugged or temporarily clamped.
2. Exposed pipe must be thoroughly cleaned, inspected and tested for small leaks and deep pits.
3. Before entering the excavation, the welder will flash the hole by lowering the welding torch down and passing it along the pipe.
4. The welding torch may be passed slowly along the pipe to allow hard scale to fly off, with the employee in position clear of possible "blow-outs."

E. While welding, approved welding eye protection must be worn. Exposed skin surfaces must be covered to protect against sparks.

F. Leather hoods or equivalent must be worn whenever a welding operation requires the welder to place him/herself in a hazardous position.

G. Welding or cutting may not be done above other workers unless suitable protective barriers are in place to safeguard the workers below.

H. Whenever welding or cutting is in process, a fire watch shall always be immediate attendance with an approved fire extinguisher with the pin pulled for immediate use. Crew leader shall review hazards with the fire watch during the tailgate and again prior to the welding or cutting process.

Note: Fire Watch shall be Fire Extinguisher trained and Fire Extinguisher Seal Replacement trained.

I. Placement of welding hoses across vehicular traffic lanes should be avoided. When circumstances require placement of hoses in traffic lanes, steps must be taken to protect them against damage.

- J. Before welding on lines controlled by a valve or pressure control fitting, verification must be made that they are within acceptable limits of the lower explosive limit (L.E.L.). Such controls must be attended or tagged during welding operations. See Gas Standards.
- K. Open ends of abandoned gas pipes must be closed prior to proceeding with other work. Such pipes must be checked for potentially flammable mixture of 20% or more of the lower explosive limit (L.E.L.) or 0.9% or more is reached on the combustible gas indicator and where necessary, purged before capping.
- L. Forced ventilation with an approved blower should be used whenever welding is done inside a pipe to remove air contaminants from the welder's breathing zone.
- M. Approved respiratory protection must be worn by employees during silver soldering, welding or cutting galvanized metals or other operations where ventilation is inadequate to remove air contaminants.
- N. Compressed oxygen should never be used to provide a breathable atmosphere in pipes or confined spaces.
- O. Hot welds must be observed or guarded against to prevent contact with personnel or flammable material.
- P. Hot welding rods or other hot materials must be disposed of in a manner not creating a hazard to members of the crew or the public.
- Q. Combustible structures or materials within 10 feet of welding or cutting processes must be protected with non-combustible shielding.
- R. When trucks are moved from one job location to another, welding gas cylinder valves must be closed. Upon completion of the workday, all cylinder valves must be closed, hoses exhausted and regulator adjustment screws backed off.
- S. Welding carts containing cylinders with regulators attached may not be trailed behind a truck. Under no circumstances will a welding cart be towed from one job to another.
- T. Stored welding gas cylinders must be in an upright position and secured with valve covers in place. Refer to Section 1232 of this book.
- U. Only qualified employees may repair welding equipment.

4103. **ARC WELDING**

- A. Approved helmets with appropriate lens must be worn by the welder.
- B. Personnel assisting in arc welding operations shall wear approved arc flash eye protection at all times.
- C. Employees involved with welding operations shall cover exposed skin surfaces to protect against sparks and ultraviolet radiation.
- D. Screens must always be placed as required to protect workers and members of the public from arc flashes.

4104. RUBBER EXPANSION DEVICES

- A. When welding adjacent to rubber stopper (rubber expansion devices) used to stop gas flow, minimum-working distances specified in the Gas Standards must be maintained. Refer to Gas Standards.
- B. Round rubber stoppers must be secured to prevent slipping when used to stop the flow of gas through a service nipple. Refer to Gas Standards.
- C. Stopcock changers for 3/4" and 1" lock wings should not be used to stop gas flow for the purpose of welding on an energized line. Refer to Gas Standards.
- D. Expansion rubber devices should not be used as plugs when testing pipes with compressed air.
- E. Test plugs are to be used only on the diameter pipe for which they are designed.
- F. Test plugs may be removed only after all air used for the test has been discharged.

4105. OPEN HOLE SAFEGUARDS

- A. Before the cover is removed from a vault, manhole or similar structure:
 - 1. Adequate warning devices must be placed so as to warn and safely guide pedestrians and vehicular traffic. These devices must not be removed until the cover is back in place.
 - 2. Where permissible and practicable, the truck may also be placed to guard against oncoming traffic.

4106. **WORKING IN VAULTS, MANHOLES OR SIMILAR STRUCTURES**

- A. Whenever an employee enters a vault, manhole or similar structure, an employee must be in attendance at the surface. The surface attendant may leave the opening for the purpose of securing tools or equipment from the truck.
- B. Placement of a protective device over or around the opening does not change the surface attendant's requirement.
- C. Upon first entering a manhole or vault, the employee must make a careful inspection for any unsafe physical conditions in the structure.
- D. Forced ventilation is required. Refer to Section 4107-F and 4107-I
- E. Smoking is not permitted within 15 feet of open gas vaults, manholes, or similar Gas Facilities that contain vents, blowers, flanges or screwed components.

4107. **ATMOSPHERE TEST IN UNDERGROUND STRUCTURES**

- A. Employees must not enter any vault, manhole or similar structure without first having assured themselves, by test that the atmosphere therein is safe.
- B. Only approved devices are to be used to test the atmosphere of enclosures to be entered.
- C. Results of such tests will be recorded and documented with the date, time, location, results of tests and person doing the testing.
- D. Where feasible, initial atmosphere tests shall be made before access doors are opened or covers are removed.
- E. Once the access door has been opened or the cover removed, tests of the enclosure atmosphere to the maximum depth permitted by the test device, must be made before entry.
- F. Prior to entry into any vault, manhole or similar structure, the structure will be forced ventilated for ten minutes.
- G. The atmosphere within a vault, manhole or similar structure will be considered hazardous and the space may not be entered when:
 - 1. Oxygen is less than 19.5 % or more than 23.5% in air
 - 2. Combustible gas is more than 20% of the lower explosive limit (L.E.L.) (e.g. 0.9% natural gas in air)
 - 3. Carbon monoxide is more than 25 parts per million in air

- 4. Hydrogen sulfide is more than 10 parts per million in air
- 5. Other toxic air contaminants are above Immediately Dangerous to Life or Health (IDLH) levels
- H. The presence of unusual conditions, such as an unfamiliar or irritating odor or unidentified liquid or solids in the structure, should be cause for identification and evaluation of any related hazard. Contact the Safety Department for assistance. Entry shall be made only after it is designated safe.
- I. Regardless of atmosphere test results, forced ventilation shall be used prior to entry and throughout the time underground structures are occupied. The end of the flexible hose should be located about six feet from the floor of the structure.

NOTE: Subsurface structures having covers, which will provide total surface opening when opened or removed (e.g. meter vaults), may be continuously monitored with an approved instrument instead of using forced ventilation if no hazardous atmosphere was identified by initial testing..
- J. Once the enclosure has been entered, additional tests must be made at ceiling level, duct openings, floor level and other places where gas or vapors may collect.
- K. Ignition sources (open flames etc.) must be kept at least 20 feet from enclosure openings when pre-entry atmosphere tests are conducted or a flammable atmosphere has been detected.
- L. When the atmosphere of a space is found by test to be hazardous, the supervisor in charge must be notified before work continues.
- M. Before entry is made into a space found by test to be hazardous, the space must be purged by forced ventilation until a safe atmosphere has been achieved and proved by test.

Atmospheric testing after initial testing shall be performed as required to ensure a safe atmosphere if continuous monitoring is not performed.
- N. No source of ignition (open flames etc.) may be introduced into enclosure unless immediately preceded by an atmosphere test with a reading below 20% of the lower explosive limit (L.E.L.) or below 0.9% on combustible gas indicator. Refer to Gas Standards.
- O. Care must be exercised in placement of ventilation devices relative to running internal combustion equipment to prevent introduction of engine exhaust into work areas.

4108. **PNEUMATIC TOOLS**

- A. Pneumatic tools are not to be left standing in an upright position. When applicable, steel is to be removed and the tool lay on the ground.
- B. Drill guides should be used when starting to drill holes in concrete.
- C. Only approved air hose couplings are to be used to connect lengths of air hose.
- D. Steel gads designed to use in pneumatic tools must not be used for any other purpose.
- E. When necessary to operate a pavement breaker in a horizontal position, a second workman must be utilized in supporting the tool.
- F. Compressed air may not be used for cleaning trucks, bins, tools or other equipment without authorization of the employee in charge and then only after precautions have been taken to protect all workmen and members of the public. Compressed air for general cleaning purposes may not exceed 30 pounds per square inch.
- G. Compressed air in excess of 10 pounds per square inch may not be used to clean clothing being worn, and never directed at any person in an act of "horse play."
- H. Only qualified employees may repair pneumatic equipment.
- I. Placement of air hoses across vehicular traffic lanes should be avoided. When necessary to expose hoses to traffic, they must be securely anchored and protected.

4109. **EARTH BORING EQUIPMENT**

- A. Manual Tools
 - 1. All manual drill motors should be equipped with a non-conductive section of pipe that couples onto the motor.
 - 2. Pipe used in boring operation must be supported as necessary to prevent excessive bending and whipping.
 - 3. When pulling ropes are used to increase drill pressure, workers pulling the ropes must face the direction of the bore.
 - 4. Boring pipe sections must be disconnected using the air motor until connections are first loosened with wrenches.

5. During boring operations, two men must support the motor except when a handle is removed and the drill motor is lowered into the trench.
6. When retracting boring pipe, the operators must turn and face the direction of the pull.

B. Pneumatic Piercing Tools

1. All piercing tools should be equipped with a minimum 6-foot section of a non-conductive hose that couples onto the piercing tool and the 50-foot wire reinforced air hose.
2. Rubber gloves should be worn when in close proximity of underground electric lines or if exact location of underground electric lines is unknown.

C. Directional Drilling Unit

1. Only qualified employees may operate directional drilling equipment, all other employees should stay clear of the drilling machine's rotating drill bit and pipe.
2. Hard hats, safety glasses, approved rubber-insulated gloves and boots should be worn when operating boring equipment.
3. A grid mat system electrically bonded to the drill unit should be used to protect employees from injury during an electrical strike.
4. Protective equipment in the electrical strike system includes:
 - A bonded grid mat system.
 - Electrically insulating boots and gloves.
 - Grounding rods.
 - A strike sensing system.
 - Barriers.
5. No loose clothing, gloves or long hair are allowed near the rotating bore pipe.
6. Operator should not leave the controls of the machine while it is in operation.
7. The machine should be operated at reduced speeds when connecting and disconnecting drilling pipe.
8. An approved respirator with hand and eye protection is required when preparing drilling mud.

4110. PIPE HANDLING

- A. When handling pipe manually, care must be taken to have a sufficient number of workers evenly spaced to prevent undue strain on any one worker.

Note: The National Institute of Occupation Safety and Health (NIOSH) recommends: When lifting large and awkward objects such as pipe, a minimum of two people are required with a weight limit of 50 lbs. each.

- B. Extra care must be taken when carrying pipe over uneven terrain, especially where there is a possibility of tripping, slipping or falling.
- C. Timbers used for supporting pipe over an open trench must be of sufficient strength and have adequate bearing on each side of the trench to support the weight of the pipe.
- D. Lengths of pipe placed along the edge of a trench must be at least 12 inches from the edge of the excavation and securely choked.
- E. When pipe is being mechanically hoisted, suspended or transported, no persons should be permitted under the load.
- F. Unloading of Pipe:
 - 1. Steel pipe 3" and 4" in diameter (in excess of 11 feet in length) should be unloaded with mechanical equipment.
 - 2. Plastic gas pipe 8" in diameter (in excess of 20 feet in length) should be unloaded with mechanical equipment.
- G. Pipe handling must be conducted in a manner to avoid or minimize interference with vehicular or pedestrian traffic.
- H. When unloading or handling polyethylene pipe, extra care should be used because of the flexibility and whipping effect of the pipe.
 - I. When unloading or handling steel pipe, extra care should be used because of the momentum that the pipe generates while being moved.
- J. When manually handling/moving pipe (up to 40 feet in length) 4" and larger in diameter, the foreman will determine if handling devices (such as slings) are required. Refer to Section A and to Gas Standard to determine pipe weight.
- K. Steel pipe 3" and larger in diameter and plastic gas pipe 8" and larger in diameter, should not be lowered into trenches manually when the weight of the pipe exceeds the maximum limits. Refer to Section A.

4111. EARTH MOVING EQUIPMENT

- A. Employees other than the operator must not ride on earth moving equipment unless a seat is provided for that purpose.
- B. Employees must maintain a minimum of five feet from excavating equipment in operation.
- C. Employees must not place themselves beneath any portion of trenching equipment for any reason while such equipment is in operation.
- D. Whenever mechanical equipment is utilized to excavate in an area containing or suspected of containing energized underground electric lines, all employees must be kept clear of the equipment while it is in operation.

4112. VEHICLE OPERATION

See Section 1300 (Motor Vehicle Operations)

4113. COMPRESSED GAS

- A. Use extreme care when handling portable gas cylinders. Store them in a suitable, well-ventilated location, properly secured in a vertical position with valve cap in place.
- B. Do not allow oil or grease to come in contact with valves, regulators or any other parts of oxygen cylinders or apparatus.
- C. Do not store portable gas cylinders or containers in direct sunlight or expose to heat sparks or flames.
- D. Oxygen and breathable air (D) cylinders in storage must be separated from fuel gas cylinders (hydrogen, butane, propane, acetylene etc.), or combustible materials (especially oil or grease) a minimum distance of 20 feet. This distance may be reduced only if a properly designed and constructed fire-resistant barrier is used.
- E. All connections to piping, regulators and other appliances must be kept tight to prevent leakage. Use only soap and water solution or equivalent to make leak test; never use open flame. Keep valves tightly closed when cylinders are not in use.
- F. Do not use compressed gases from a cylinder or cylinder manifold unless an acceptable pressure-regulating device is installed to safely control the pressure of the gases being used.

- G. Compressed oxygen should never be used as a source of breathing air for ventilation purposes.
- H. Compressed oxygen should never be used to operate pneumatic tools.

4114. **EXCAVATIONS AND TRENCHES**

- A. All protective systems should be installed and maintained under the guidance of a competent person.
- B. The competent person should be responsible for all trenching and shoring, sloping or bench activities.
- C. Any employee required to enter an excavation should be protected from all hazards, including cave-in and atmospheric hazards by an adequate protective system.
- D. All excavations should have a protective system such as sloping, shoring and/or trench shields unless they are:
 - 1. Excavations that are made entirely in stable rock (fissured rock is not stable rock).
 - 2. Excavations less than 5' in depth and examination of the ground by a competent person provide no indication of a potential cave-in.
- E. Employees should be protected from excavated soil, other material or equipment that could pose a hazard by falling or rolling into excavations. Protection should be provided by placing and keeping such materials or equipment at least 2' from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.
- F. While the excavation is open, underground installations should be protected, supported or removed as necessary to safeguard employees and the underground installation. Refer to Gas Standard.
- G. A stairway, ladder, ramp or other safe means of egress should be located in trench excavations that are 4' or more in depth so as to require no more than 25' of lateral travel for employees.

- H. Where employees are required or permitted to cross over excavations more than two feet wide (24") and seven and one-half feet (7-1/2') deep, walkways or bridges with standard guardrail should be provided.
- I. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of the excavation and the operator does not have a clear view of the edge of the excavation, a warning system should be utilized, such as barricades, hand or mechanical signals or stop logs. If possible, the grade should be away from the excavation.
- J. Whenever excavation activities in any way affect vehicular or pedestrian traffic, appropriate devices must be placed so as to effectively warn and safely guide the public. The traffic control system must be continuously observed for effectiveness and changed as required by the job progress or traffic conditions.
- K. Specific instructions regarding types of warning devices and their use under varying conditions are found in:
 - 1. **Caltrans:** Manual of Traffic Controls for Construction and Maintenance Work Zones.
 - 2. **APWA:** "WATCH" Work Area Traffic Control Handbook.
- L. Where pedestrian or vehicular traffic requires it, a properly trained flagman must be stationed to warn traffic; however, he should not "direct" or assume unnecessary control of traffic.
- M. Employees (on foot) exposed to vehicular traffic including off-highway, private roads or job sites shall be provided with, and shall wear; warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

4115. **SHORING OF EXCAVATIONS AND TRENCHES**

See Cal OSHA Trenching and Shoring Manual: Requirements for employees working in or around excavations.

4116. **STEEL TRENCH PLATES FOR EXCAVATIONS AND TRENCHES**

See Cal OSHA Trenching and Shoring Manual: Requirements for employees working around steel trench plates.

4117. **PLASTIC MAINS AND SERVICES**

- A. Only employees qualified in heat fusion techniques may perform heat fusions on plastic pipe.
- B. Employees must wear approved eye and hand protection when, tapping and purging energized plastic gas pipelines.
- C. Only employees qualified to operate motorized hydraulic equipment may perform heat fusions, re-rounding and straightening of plastic pipe. All other employees must be kept clear of the equipment while it is in operation.
- D. Pipe ends must be adequately secured to avoid the hazard of spring action when cutting coil bindings.
- E. To avoid development of noxious fumes, overheating of the plastic must be avoided. Scrap material may not be disposed of by burning.
- F. The possibility of ignition due to a static electric discharge whenever gas is escaping or a line is being purged, must be guarded against.
 - 1. Spray plastic gas pipe and surrounding soil with a solution of detergent and water. The plastic pipe must be wet to provide an adequate grounding effect.
 - 2. At purge points and locations where the atmosphere could be considered potentially hazardous, wrap all exposed plastic pipe in the work area with cloth (such as, burlap or rags) soaked in a solution of detergent and water if possible. The wet cloth should be in contact with the soil where the plastic pipe enters the earth. If the soil is dry, spray the soil with a solution of detergent and water.
 - 3. Install a grounded purge-blowing stack.

Note: The plastic pipe and cloth must remain wet to maintain the grounding effect.

- G. Whenever purge/blowing stacks are utilized, they shall be of metallic pipe, grounded and extend a sufficient distance in the air to ensure control of the flame should ignition occur. Refer to Gas Standards.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.

Brief: Per request from Gas Management and to improve safety, made revisions to section 4100. Added information on Static charge management. A Safety Bulletin was also developed for distribution on October 14th to communicate the changes.

Document Profile Summary	
Responsible Person:	Heramb, Brian
Published On:	10/11/2019
Last Full Review Completed On:	10/10/2019
Writer:	Karimi, Majid
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
OpQual Tasks	
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (DOGGR)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01497

DEFINITIONS

Accessible Location

A location which can be safely reached by an employee standing on a floor, platform, runway or other permanent working area.

Actual slope

The slope to which an excavation face is excavated.

Adequate Measures

All necessary steps or procedures to perform the job safely.

Adequate Ventilation

Ventilation which, under normal operating conditions, is sufficient to keep the concentration of a hazardous gas, vapor, mist, fume, or dust below the amount which will produce harmful effects, or below 10% of the lower explosive limit, whichever is lower, and the oxygen concentration above 19.5% by volume.

Aerial Lift

A mechanical device used to raise employees to an elevated position.

Aluminum Hydraulic Shoring

A pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such system is designed, specifically to support the sidewalls of an excavation and prevent cave-ins.

Anchorage

Is a secure point of attachment for lifelines, lanyards or deceleration devices which meets 5400 pound impact loading as part of the fall arrest system.

Approved

Referring to products, materials, devices, methods, systems, or installations that have been approved, listed, labeled, or certified as conforming to corporate or applicable governmental or other nationally recognized standards.

A.N.S.I.

The American National Standards Institute, founded in 1918, serves as a clearing house for nationally coordinated voluntary standards for fields ranging from information technology to building construction.

Approved Containers

A container designed for the specific material involved.

Approved Testing Device

A device used to confirm the status or condition of electrical conductors, apparatus, or equipment to be worked on.

Arresting Force

Is the force generated by arresting the weight that is transmitted through the fall arresting system components to the anchorage.

A.S.T.M.

The American Society for testing and Materials, founded in 1898, is a developer and publisher of technical information designed to promote the understanding and development of technology and to ensure the quality of commodities and services and safety of products.

Authorization

A formal statement between the switching centers and field personnel which allows work to be performed on SDG&E's electrical system.

Authorized Person

A qualified employee designated to perform specific duties under the conditions existing.

Authorized Representative

An employee that has been designated by reason of training and experience to represent SDG&E.

Automatic

A state in which equipment will operate when required without manual aid.

Automatic Circuit Recloser

A self-controlled device for automatically interrupting and reclosing an alternating current circuit, with a predetermined sequence of opening and reclosing followed by resetting, had closed, or lock-out operation.

Backfeed

A source of supply from the load side of the electrical system to a de-energized section of line, apparatus, or equipment.

Barricade

A physical obstruction such as tapes, screens, or cones, etc. intended to warn and limit access to a hazardous area.

Barrier

A physical obstruction which by design, is intended to prevent accidental contact with exposed energized lines or equipment, or other hazards.

Bell Hole

A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

Belt (body)

A simple or compound strap with means for securing it about the waist and for securing a lanyard to it.

Belt (lineman's)

A leather or webbed material (cotton or nylon) belt designed specifically for employees working on poles or structures. It consists of a waist belt with a front buckle, and two D rings for attaching a safety strap.

Benching

Benching system is a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Body Harness

Is an approved system of straps that are secured about an employee in a manner that distributes the arresting forces over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline or deceleration device.

Bonding

The joining of metallic parts to form an electrically conductive path which will ensure electrical continuity and the capacity to conduct any current likely to be imposed.

Cave-in

The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Clearance

The formal authorization, officially issued to a qualified person, at that person's request, to work on an electrical line or some piece of operating equipment which is inherently hazardous to work on while in service, and which has been de-activated or de-energized, in a prescribed manner and placed in a safe condition to be worked on.

Competent Person

One who is capable of identifying existing and predictable hazards in the surrounding area, or capable of identifying working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Conductive Object

A wire, cable, or other conducting material capable of carrying current.

Confined Space

Confined Space - A space that:

- 1) Has limited access or egress.
- 2) Is not intended for continuous human occupancy.
- 3) Large enough to enter and work.
- 4) Has the potential for serious safety or health hazards.

Note: Natural gas utility operation within distribution and transmission facility vaults and electric utility operations within underground vaults are exempt from permit requirements if pre-entry tests have been made and there is continuous forced ventilation.

Consensus

Judgment arrived by most of those concerned.

“Contact Area”

Any location in or from which any part of a worker's body, or any conductive extension thereof, is within reach of unprotected conductors or equipment energized in excess of 600 volts phase to phase.

Cutout

An assembly of a fuse support with either a fuse holder, fuse carrier, or disconnecting blade. The fuse holder or fuse carrier may include a conducting element (fuse link), or may act as a disconnecting blade by the inclusion of a nonfusible member.

Dead-Front

So designed, constructed, and installed that no energized parts are normally exposed on the front.

Deceleration Device

Is a mechanism which serves to dissipate energy during a fall, e.g., shock absorbers.

Defective

Any characteristic or condition which tends to weaken or reduce the electrical/mechanical strength or safety of a tool, machine, object, or structure of which it is a part.

Distribution Tap Line

A line normally energized above 600 volts having but one source of supply which has been disconnected from this source at field location. Not included in the above is a line which has not been disconnected from its single source of supply at a substation or generating station.

“Double Insulation”

This double insulation will consist of the protective rubber gloves and the insulated protective cover-up device being applied.

Emergency

An unexpected situation or occurrence that has or may result in serious personal injury or property damage.

Employee in Charge

Any employee who is responsible for the work procedures and accident prevention.

Enclosed

Surrounded by a fence, wall, case or housing which will prevent employees from accidentally contacting exposed electrical wiring, equipment or energized parts.

Energized Conductors/Lines or Equipment

Conductors or equipment which are connected to an energized electrical source.

Equipment (electrical)

A general term which includes fittings, devices, appliances, fixtures, apparatus, and the like, used as part of, or in connection with, an electrical power transmission and distribution system, or a communication system.

Excavation

Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal. Trenches are excavations.

Exposed (as applied to energized parts)

Energized parts that can inadvertently be touched or approached nearer than a safe distance by employees. Parts not suitably guarded, isolated or insulated.

Fall Arrest/Restraint Class Equipment

Is the equipment defined by ANSI A 10.41 as meeting the criteria to be used when a fall may be likely. The system is used to arrest a wearer's fall from a work level. It consists of an anchorage(s), hardware, body harness, lanyard or deceleration device and may include a lifeline, or a device that subsequently allows the employee to be lowered to the ground or work level. Equipment used for fall arrest shall not be used for any other type of rigging.

Fall Protection Equipment (FPE)

Personal protective equipment worn by a worker to prevent, restrain, restrict, arrest and/or rescue the worker when exposed to a potential fall from elevated work. FPE includes work positioning equipment (such as lineman's body belt and pole strap), fall restriction device (such as a pole choker), and fall arrest equipment (such as harness and shock-absorbing lanyard).

Ferroresonance

An electrical condition which can occur when the capacitive reactance of the conductors is approximately equal to the inductive reactance of the transformer.

First Aid

The recognition of, and prompt care for, injury or sudden illness prior to the availability of medical care by licensed health care personnel.

Flagger

An employee who has been properly instructed in the fundamentals of flagging traffic and the use of approved flagging equipment.

Flammable Liquid

A liquid having a flash point below 100F (37.8C), i.e. gasoline.

Free Fall Distance

Is the potential fall distance which is limited to 6 feet maximum.

Ground

A conducting connection between an electrical circuit or equipment and earth, or to some conducting body which serves in place of the earth.

Grounded Effectively

Permanently connected to earth through a ground connection of sufficiently low resistance and having sufficient capacity that fault current which may occur cannot build up to voltages dangerous to personnel.

Grounding Medium

Approved means in the proper order of preference by which something may be used for grounding.

Guarded

Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers or casings, barriers, barricades, rails or screens, mats, or platforms intended to prevent or impede the approach of persons or objects to a point of danger.

Hazardous Substance

One in which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritant or otherwise harmful is likely to cause injury.

High Voltage

A sustained voltage of more than 600 volts, phase to phase.

“Hold” Authorization

An authorization ensuring that a change of state of an electrical device will not occur.

Insulated

Separated from other conductive surfaces by a dielectric substance (including air space) offering a high resistance to the passage of current.

“Insulated”

The worker is “insulated” by using approved rubber gloves.

Insulated Aerial Device

An approved insulated mechanical device used to raise employees to an elevated position.

Immediately Dangerous to Life and Health (IDLH)

An atmosphere that could cause severe injury on death or short exposure.

Insulated Tools

An approved tool designed with an insulating value great enough to protect the employee from exposed energized conductors or equipment.

“Isolated”

The worker is “isolated” by using an approved insulating aerial device with bucket liners or insulated work platform, which is also an additional layer of insulation.

Kill Switch

Remote mechanism used to stop the operation of a piece of equipment.

Lanyard

An approved flexible line used to secure the wearer of a body harness, to a drop line lifeline, or fixed anchorage.

Lifeline

Is a line provided for direct attachment to a worker's body harness, lanyard or deceleration device. The lifelines may be horizontal or vertical in application.

Line Clearance Tree Trimming Operations

Operations which include the trimming, repairing, chemical treatment or removal of trees, brush, and miscellaneous vegetation, performed in the vicinity of exposed energized overhead conductors and equipment.

Live Line Tools

Approved tools which are especially designed for work on exposed energized high-voltage lines and equipment.

Lower Explosive Limit (LEL)

The minimum concentration of gas, vapor, or dust in air that will burn or explode if an ignition source is present.

Manhole

A chamber in an underground system containing working space large enough for a person to enter by vertical means, which provides space and access for installation and maintenance of cables, transformers or other equipment or apparatus.

Maximum Rated Load

The total of all loads, including the working load, the weight of the employee and such other loads that may be reasonably anticipated.

Neutral Conductor

A conductor which carries only the unbalanced current from other related conductors of the same current.

Nominal Voltage

The actual voltage at which a circuit operates. Can vary from the nominal within a range that permits satisfactory operation of equipment.

Nonautomatic

A state in which equipment which normally operates without manual intervention has been made temporarily nonresponsive.

On-Or-Near

A formal authorization to perform work on or near energized conductors with an assurance that the conductors will not be re-energized from known sources in the event of relay action.

Oxygen Deficient

Oxygen concentration less than 19.5 percent at sea level.

Oxygen Enriched

Oxygen concentration more than 23.5 percent at sea level.

Permission

The authorization issued to qualified persons, at their request, to work on a piece of equipment, only when the equipment cannot be de-activated.

Permissible Exposure Limit

The highest air concentration of a specific substance to which an employee may be exposed over eight hours. Short Term Exposure Limits (STEL) and Ceiling Limit are established for some substances for 15 minutes and instantaneous exposures.

Personal Protection Equipment

Approved equipment designed to eliminate, preclude or mitigate personal injury.

Platform

An elevated working area or surface used for supporting personnel, materials and equipment.

Practicable

Capable of being accomplished by reasonably available and workable means.

Primary Contact Zone

When workers are working on energized circuits or equipment using the rubber glove method, any location in or from which any part of a worker's body or any tool or material the employee is carrying or handling is within four feet (4') of conductors or equipment energized at greater than 600 volts, regardless of whether protective cover-up is used.

Primary Fall Prevention

Investigating the potential of using resources to engineer out a fall hazard that may exist prior to the use of fall arrest equipment.

Properly Trained Personnel

An employee who has demonstrated that he/she knows the correct methods and procedures required to safely perform a specific task.

Protective Equipment

All approved safety equipment used to protect employees from a known hazard.

Proximity

A specific distance where an employee may be accidentally or inadvertently exposed to a hazard.

Qualified Electrical Worker

A qualified employee who has a minimum of two years training and experience with exposed high-voltage circuits, and equipment, and who has demonstrated by performance familiarity with the work involved and has obtained a journeyman status.

Qualified Observer

An electrical worker capable of identifying nominal voltages, energized components, minimum approach distances, and proper safe work practices while crew members are working on energized lines and equipment, give warning, and initiate the emergency ac-

tion plan. Qualified Observers include Qualified Electrical Workers and apprentice linemen who successfully completed 12kV Hot Stick and Rubber Glove School and other appropriate company training.

While performing the functions of a Qualified Observer, that person shall not perform any other tasks and has the authority to stop a job if he/she observes any hazards or unsafe work practices.

Qualified Person/Employee

An employee who by reason of experience or instruction is familiar with the operation to be performed and the hazards involved.

Reasonable

What an employee, exercising prudence and good judgment, would do under similar circumstances.

Retracting Line

Is an automatic tensioning system that pays out and retracts a line at a certain speed and locks when the speed is exceeded.

Safety Factor

Ratio of the ultimate breaking strength of a member or piece of material or equipment to the actual working stress or safe load when in use.

Safety Line

A vertical line from a fixed anchorage, independent of the work surface, to which the lanyard is affixed.

Safety Strap

A web strap designed specifically for use in conjunction with a lineman's body belt to secure an employee to a pole or structure in a manner that permits work with both hands.

Secondary Fall Protection

Is the implementation of an adequate fall arrest system where implementation of engineering controls is unfeasible.

Shield (Shield system)

A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields used in trenches are usually referred to as "trench boxes" or trench shields.

Shall

Mandatory.

Shock Absorbers

Is a component of a system that allows dissipation of energy by extending the deceleration distance.

Shoring System

A temporary structure for the support of earth surfaces formed as a result of excavation work.

Should

Recommended.

Snap-Hook

Is a self-closing device with a keeper, latch or other similar arrangement that will remain closed until manually opened. This includes self-closing, single action, double action, and double locking snap-hooks.

Soil classification

The method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the environmental conditions of exposure.

Sources of Supply

Electrical lines and equipment capable of energizing de-energized lines or equipment. This would include open switches, open taps, open fuses, potheads (made up), induction, energized high-voltage lines crossing over a de-energized line, unprotected energized lines which cross under a de-energized line, and backfeed.

Spiking

The intentional short circuiting with approved devices, of a normally energized high-voltage UG cable to prove it de-energized.

Suitable

Capable of safely performing the particular function specified.

Suitable Clothing

Appropriate for the job being done to reduce or eliminate any hazards.

Tag

A system or method of identifying circuits, systems or equipment for the purpose of alerting that the circuit, system or equipment is being worked on.

Third Party

Any non-employee.

Total Fall Distance

Is the maximum vertical distance between a wearer's body harness attachment point before and after the fall is arrested, including lanyards extension and/or deceleration distance.

Trench (Trench excavation)

A narrow excavation (in relation to its length) made below the surface of the ground. Trenches are excavations.

Vault (manholes included)

An isolated fire resistant enclosure, either above or below ground, or in a building, large enough for a person to enter, and containing working space, in which transformers or other equipment may be installed and maintained.

Voltage (or volts)

The highest effective electrical potential between any two conductors of the circuit concerned except where, in certain rules, reference is made to the term "voltage (or volts) to ground."

Walk-In Enclosure or Vault

An isolated enclosure, either above or below ground, or in a building large enough for a person to enter horizontally by means of a doorway or gate, and containing working space, in which transformers or other equipment may be installed and maintained.

Within Reach

Where an employee can touch an unprotected energized conductor from an immediate work position with any part of their body.

Working Load

Load imposed by workers, materials, and equipment.

NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Added definition of Fall Protection Equipment, Primary Contact Zone, and Qualified Observer

Document Profile Summary	
Responsible Person:	Karimi, Majid
Published On:	04/01/2017
Last Full Review Completed On:	04/01/2017
Writer:	Williamson, Willy
Document Status:	Active
Document Type:	MANUALS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document (if applicable):	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	ESHSD
NOP Learning Module (LM) Training Code:	NOP01498

Environmental and Safety Compliance Management Policy (ESCMP)

Responsible Dept.: Environmental Services
Responsible Officer: VP of Operations Support
and Chief Environmental Officer
Applicability: **All Employees of SDG&E**

1. POLICY:

San Diego Gas & Electric (SDG&E) is committed to protecting and conserving the environment and the health and safety of our employees, customers and people in the communities where we operate. We will comply with all applicable federal, state and local environmental and safety laws, rules and regulations. This policy establishes the requirement to have a documented compliance program that ensures adherence to all applicable environmental and safety laws, rules and regulations.

SDG&E maintains an Environmental and Safety Compliance Management Program (ESCMP) to help ensure compliance with all applicable environmental, health and safety laws, rules and regulations. ESCMP addresses compliance with the following:

- **Requirements** - the identification of laws, rules and regulations applicable to SDG&E operations and the development and implementation of internal policies, practices, and procedures to help ensure ongoing compliance. These internal compliance tools include designation of responsibility and accountability for compliance.
- **Awareness** - the implementation of employee environmental, health and safety training programs that comply with applicable legal requirements and internal procedures to provide an understanding of how employees are to perform their jobs in a safe and compliant manner.
- **Goals** - the establishment of environmental and safety performance goals and targets consistent with the purpose of this policy and the reporting of measurable results.
- **Monitoring and Verification** - the implementation of inspection and self-assessment programs for company facilities and operations to help ensure compliance with the applicable environmental, health and safety legal requirements and internal company policies. This includes conducting due diligence and requiring contractors who work on behalf of the company to comply with all applicable environmental and safety laws.

In accordance with ESCMP all Responsible Persons and Approvers are required to annually certify their environmental and safety compliance to the SDG&E Chief Compliance Officer. Upon completion, the SDG&E Chief Compliance Officer will then certify the company's overall compliance status to the Semptra Energy Chief Compliance Officer.

2. RELATED DOCUMENTS

For more information, see the following policies: [Semptra Energy Environment Policy](#) and [Semptra Energy Safety Policy](#).

3. INFORMATION RETENTION GUIDANCE

For guidance as to the appropriate retention period for records related to this policy, please refer to the Standard Records Series in the [Records & Information Management](#) intranet site and the [Information Management and Retention Policy](#).

*You may raise questions or concerns about compliance or ethics issues by visiting our [anonymous Semptra Energy Ethics & Compliance Helpline website at \[www.SemptraEthics.com\]\(http://www.SemptraEthics.com\)](#) or
by calling one of the Ethics & Compliance Helplines below:*

United States – 800-793-7723
Mexico – 001-770-582-5249

Chile: 600-320-1700
Peru: 0800-7-0690

Contractor Safety Standard G8308

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PURPOSE To set forth the responsibilities of San Diego Gas & Electric Company (“SDG&E” or “the Company”) employees with respect to SDG&E’s Contractor Safety Program.

1. POLICY AND SCOPE

- 1.1. This Standard applies to SDG&E employees who work with Class 1 Contractors and Subcontractors, interact with Class 1 Contractors and Subcontractors, and manage contracts with Class 1 Contractors on behalf of the Company (SDG&E). All references to “Contractor” in this standard apply to Class 1 Contractors. *See section 2.4 for the definition of Class 1 Contractor.*
- 1.2. SDG&E’s Contractor Safety Program requires Contractors to comply with Applicable H&S Laws (*see section 2.2 for the definition of Applicable H&S Laws*) SDG&E’s Class 1 Contractor Safety Manual (“Manual”), the Contractors’ own health and safety programs, and all contract terms as set forth in the contract entered into with the Company. If there is a conflict between the Manual, the contract entered into with the Company, or Applicable H&S Laws, the most specific standard applies, provided that such standard is not in direct conflict with any Applicable H&S Laws or other applicable laws.
- 1.3. Contractors must ensure all employees and subcontractors working on their behalf meet or exceed the same requirements in section 1.2.
- 1.4. Contractors must provide a safe working environment for their employees and subcontractors and ensure their operations do not adversely impact the safety of SDG&E employees or the public.
- 1.5. It is the Company’s policy to maintain an independent owner-contractor relationship with all Contractors providing labor and other services to the Company.
- 1.6. SDG&E employees have various responsibilities, as described below, to ensure Contractors and Subcontractors comply with SDG&E’s Contractor Safety Program.

2. DEFINITIONS

- 2.1. Agency Involvement: Contact by a federal, state, or local agency that regulates utility operations to evaluate compliance.
- 2.2. Applicable H&S Laws: All federal, state, and local health and safety laws, ordinances, rules, executive orders, and regulations that are applicable to the Contractor, the Company, the work, the project, or the jobsite.
- 2.3. Business Unit: SDG&E group or unit established to perform designated functions for the Company.

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- 2.4. Contractor: A third party company, firm, or person that is engaged by Company pursuant to a written contract, such as a master services agreement (MSA) or a construction contract, and is conducting its work (construction, excavation, equipment or facility installation, repair, or maintenance, etc.) at a facility, property, or worksite owned, operated, or managed by Company (including leased premises and right-of-ways). *See [Contractor Matrix](#).*
- 2.4.1. A Class 1 Contractor is a contractor engaged to perform work that can reasonably be anticipated to expose the contractor's employees, subcontractors, or SDG&E employees to one or more hazards that have the potential to result in serious injury or illness. Examples of a Class 1 Contractor include contractors performing work involving energized equipment or hazardous chemicals.
- 2.4.2. A Class 2 Contractor is a contractor engaged to perform any other work. Examples of Class 2 Contractors include contractors engaged to perform administrative tasks or IT work.
- 2.5. Contractor Safety Oversight Procedures: Each Business Unit must develop and maintain specific procedures to ensure compliance with this Standard and the Contractor Safety Manual.
- 2.6. CPUC-Reportable Incident: Incident that meet any of the following criteria:
- Fatality or personal injury rising to the level of inpatient hospitalization
 - Is the subject of significant public attention or media coverage
 - Results in damage to property of the utility or others estimated to exceed \$50,000
 - Unintentional estimated gas loss of three million cubic feet or more
- 2.7. DOT-Covered Safety-Sensitive Functions: Operations, maintenance, or emergency response functions regulated by 49 CFR Parts 192, 193, 195, or 199 performed on a pipeline or an LNG facility.
- 2.8. DOT-Reportable Incident: An incident that occurs during the course of transportation in commerce (including loading, unloading, and temporary storage) where:
- As a direct result of a hazardous material:
 - A person is killed;
 - A person receives an injury requiring admittance to a hospital;
 - The general public is evacuated for one hour or more;
 - A major transportation artery or facility is closed or shut down for one hour or more;

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- The operational flight pattern or aircraft routine is altered;
 - Fire, breakage, spillage, or suspected radioactive contamination occurs involving a radioactive material;
 - Fire, breakage, spillage, or suspected contamination occurs involving an infectious substance other than a regulated medical waste;
 - A release of a marine pollutant in a quantity exceeding 450 liters (119 gallons) for a liquid or 400 kilograms (882 pounds) for a solid;
 - A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident) that, in the judgment of the person in possession of the hazardous material, it should be reported to the National Response Center even though it does not meet the criteria in this definition; or
 - During transportation by aircraft, a fire, violent rupture, explosion, or dangerous evolution of heat (i.e., an amount of heat sufficient to be dangerous to packaging or personal safety to include charring or packaging, melting of packing, scorching of packaging, or other evidence occurs as a direct result of a battery or battery-powered device.
- 2.9. Electric Incident: An unintended interruption in electric distribution or transmission service.
- 2.10. Environmental Incident: An incident where potentially hazardous material may threaten life, health, or the environment. Any action that violates federal, state, or local environmental laws or requires reporting to any federal, state, or local agency is an Environmental Incident.
- 2.11. Field Environmental Representative: The person from Environmental Services who is responsible for providing environmental support where the Contractor may be working.
- 2.12. First Aid: Any one-time treatment, and any follow-up visit, for the purposes of observation of minor scratches, cuts, burns, splinters, or other minor industrial injury, that does not ordinarily require medical care and that does not involve loss of consciousness, restriction of work or motion, or transfer to another job. First-aid treatment includes any of the following:
- Using nonprescription medications at nonprescription strength
 - Administering tetanus immunizations
 - Cleaning, flushing, or soaking wounds on the skin's surface

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- Using wound coverings, such as bandages, band-aids, and gauze pads, or using steri-strips or butterfly bandages
 - Using hot or cold therapy
 - Using any totally non-rigid means of support, such as elastic bandages, wraps, and non-rigid back belts
 - Using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards)
 - Drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters;
 - Using eye patches
 - Removing foreign bodies from the eye using only irrigation or a cotton swab
 - Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means
 - Using finger guards
 - Using massages
 - Drinking fluids to relieve heat stress
- 2.13. Gas Incident: Any condition, whether natural or human caused, involving a gas system or liquefied natural gas (LNG) facility that results in the unintended escape of: (1) gas or LNG outside a building; (2) gas inside or near a building; or (3) gas that presents a potential hazard to public safety.
- 2.14. Imminent Hazard: A hazard that presents an immediate serious threat to safety, health, or property.
- 2.15. Life-Altering Incident: A Work-Connected incident resulting in a permanent and significant loss of injury to a major body part or organ function that permanently changes or disables normal life activity, such as significant head injuries, spinal cord injuries, paralysis, major amputations, catastrophic fractured bones, and serious burns.
- 2.16. Life-Threatening Incident: A Work-Connected incident requiring immediate life-preserving rescue action, usually from emergency response personnel to provide life-saving support, that, if not applied in an immediate fashion, would likely result in the death of that person, such as significant blood loss, damage to the brain or spinal cord, use of CPR or AED, chest or abdominal trauma affecting vital organs, and serious burns.
- 2.17. Non-Serious Near Miss: A Work-Connected incident in which Property Damage less than \$50,000 or an injury or illness (other than a Serious Safety Incident) could have occurred, but did not.
- 2.18. Property Damage: A Work-Connected incident involving loss or damage to SDG&E-owned or non-SDG&E-owned property that occurs in the course of performing authorized contracted work or services on behalf of SDG&E.
- 2.19. Qualified Person: A Qualified Person as defined by OSHA is one who, “by possession of a recognized degree, certificate, or professional standing, or who by extensive

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knowledge, training and experience, successfully demonstrates the ability to solve/resolve problems relating to the subject matter the work or project.”

- 2.20. **Safety Concern:** Any non-compliance with Applicable H&S Laws, the Contractor Safety Manual, specific contract safety terms, or operating requirements, or any other act or failure to act on condition that could result in personal injury or property damage.
- 2.21. **SDG&E/Company Representative:** The person responsible for administering the contract or coordinating the work performed by the Contractor.
- 2.22. **SDG&E Safety Representative:** The person responsible for providing safety support where the Contractor may be working.
- 2.23. **Serious Near Miss:** A Work-Connected incident in which Property Damage, a Spill resulting in damages of \$50,000.00 or more, or a Serious Safety Incident could have occurred, but did not.
- 2.24. **Serious Safety Incident:** A Work-Connected injury or illness occurring in a place of employment or in connection with any employment that requires inpatient hospitalization for a period in excess of 24 hours for other than medical observation or in which an employee suffers a loss of any member of the body or suffers any serious degree of permanent disfigurement.
- 2.25. **Site Manager(s) and Supervisor(s):** The person responsible for the facility or Company property where the Contractor may be working.
- 2.26. **Spill/Release:** The discharge into the workplace or the environment of any material or substance that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or threatened hazard to human health and safety or to the environment. Hazardous materials include hazardous substances, hazardous wastes, and any material that a handler or the Business Unit has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment, if released into the workplace or the environment. Substances that are flammable, corrosive, reactive, oxidizers, combustible, or toxic are considered hazardous. Examples are oil, fuels, paints, thinners, compressed gases (e.g., acetylene, carbon dioxide, oxygen, nitrogen), radioactive materials, and pesticides.
- 2.27. **Subcontractor:** A third-party company, firm, or person that is engaged by a Contractor pursuant to a written contract, such as a master services agreement (MSA) or a construction contract, and is working at a facility, property, or worksite owned, operated, or managed by the Company (including leased premises and right-of-ways).
 - 2.27.1. A Class 1 Subcontractor is a contractor engaged to perform work by a Contractor that can reasonably be anticipated to expose the Subcontractor’s employees, other Subcontractors, the Contractor’s employees, SDG&E employees, or the

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public to one or more hazards that have the potential to result in a Serious Safety Incident. Examples of a Class 1 Subcontractor include Subcontractors performing work involving energized equipment or hazardous chemicals.

2.27.2. A Class 2 Subcontractor is a subcontractor engaged by a Contractor to perform any other work. Examples of Class 2 Subcontractors include Subcontractors engaged to perform administrative tasks or IT work.

2.28. Work-Connected: Occurring in the place of employment or in connection with any employment.

3. PRE-QUALIFICATION OF CONTRACTORS

- 3.1. The Company uses ISNetwork ("ISN"), a third-party company, to assist with pre-qualifying Contractors and measuring Contractors' safety performance.
- 3.2. Contractors must be pre-qualified based on established [Pre-Qualification Criteria](#) before a contract can be executed for performance of Class 1 work.
- 3.3. The Business Unit seeking to retain the Contractor must ensure the Contractor uploads the required pre-qualification information to ISN.
- 3.4. ISN uses an "A," "B," "C," and "F" grading system to measure Contractors' safety performance based on criteria established by SDG&E. Contractors who receive an "A" or "B" grade, and continue to maintain an "A" or "B" grade, are deemed compliant and are approved to work for SDG&E. Contractors who receive a "C" or "F" grade, and those whose grade changes from "A" or "B" to a "C" or "F," are only allowed to perform work upon approval through SDG&E's Variance Request Process. **See section 5.**

4. RESPONSIBILITIES

- 4.1. SDG&E Business Unit Directors with Class 1 Contractors:
 - 4.1.1. Endorse, support, and mandate compliance with SDG&E's Contractor Safety Program.
 - 4.1.2. Work with Contractor Safety Services to determine if and how often safety observations of Class 1 Contractors will be performed, if applicable to include a process for periodic Contractor safety observations depending on the nature of the work. The safety observations must be documented in ISN or another applicable repository (Predictive Solutions) approved by the Contractor Safety Services Manager.

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- 4.1.3. Ensure clearly defined roles and responsibilities specific to their Business Unit's organizational structure and operational needs to facilitate compliance with SDG&E's Contractor Safety Program.
- 4.1.4. Participate in and support the SDG&E Variance Process for contractors that do not meet the requirements of SDG&E's Contractor Safety Program.
- 4.1.5. Ensure SDG&E representatives fulfill their responsibilities, as further described in section 4.2, and perform specified oversight of Contractor's work.

4.2. SDG&E Representatives:

- 4.2.1. Partner with Supply Management to determine whether Contractors are Class 1 or Class 2 Contractors.
- 4.2.2. Assist Contractor with determining whether Subcontractors are Class 1 or Class 2 Subcontractors.
- 4.2.3. Develop a clear scope of work to include in the RFP or in the pre-job meeting to Contractors.
- 4.2.4. Determine if the Contractor must submit a Site-Specific Safety Plan (SSSP) based on the [SSSP Matrix](#) and Contractor Safety Oversight Procedures. When an SSSP is required or otherwise warranted based on the nature of the work:
 - 4.2.4.1. Ensure the Contractor provides the SSSP using the [SSSP Form](#) to determine the minimum requirement before beginning work.
 - 4.2.4.2. Ensure the SSSP identifies the job steps, hazards, actions to eliminate or minimize hazards, emergency information, training qualifications necessary to complete the type of work, the Contractor's Qualified Person(s) assigned to the project to ensure sufficient Contractor safety oversight for the project, and any other relevant information.
 - 4.2.4.3. Review the qualifications of the Contractor's Qualified Person(s) to ensure the qualifications are compliant with the Business Unit Procedures.
 - 4.2.4.4. Ensure a Qualified SDG&E employee or third-party Qualified Person reviews the SSSP to ensure the identified hazards will be properly mitigated for the type of work to be performed.

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- 4.2.5. Notify the Contractor of any site specific known hazards not addressed in the Contractor Safety Manual using section 1 of the [Contractor Pre-Work Notification and Acknowledgement](#) form.
- 4.2.6. Before Contractor begins work, verify that the contractor is approved for use with a grade of A or B in ISNetworld or an approved variance is in place.
- 4.2.7. Ensure Class 1 Subcontractors engaged by Class 1 Contractors are approved for use with a grade of A or B in ISNetworld or an approved variance is in place.
- 4.2.8. Follow SDG&E's [Variance Request Process](#) (*see section 5*) to initiate a Contractor safety review when a contractor does not pass SDG&E's Contractor Safety Program pre-approval process (grade C or F in ISNetworld).
- 4.2.9. Ensure the [Variance Form](#), if necessary, is approved before Contractor begins work.
- 4.2.10. Before Contractor begins performing DOT-Covered Safety-Sensitive Functions, refer the Contractor to the Company's Drug and Alcohol (D&A) Testing Administrator (SDGEDER@Semprautilities.com) for instructions on registering with Veriforce, LLC, to initiate the D&A compliance review process. Also, notify the D&A Testing Administrator if the Contractor's scope of work changes from non-covered services to covered-services (or vice versa).
- 4.2.11. Before Contractor begins performing DOT-Covered Safety-Sensitive Functions, refer the Contractor to the Company's Operator Qualification Department (GasQualifications&Compliance@semprautilities.com) for initiation process. Also, notify the Operator Qualification Department if the Contractor's scope of work changes or has been revised.
- 4.2.12. Provide the Annual Asbestos Notification Letter, Asbestos List, and other asbestos sample results for the areas where the Contractor will be working, if not included in the letter and list or reviewed on ISN, with the Contractor Pre-Work Safety Meeting and Acknowledgement to Contractors who work in or on facilities with Asbestos Containing Materials (ACM). The asbestos letter/list can be found on SDG&E's Safety Website: [Lead Hazard Compliance Safety Standard](#), [SDG&E Asbestos Management Operations Standard](#), [SDG&E Annual Asbestos Notification Letter](#), [Asbestos List](#), and [Asbestos Posting Protocol](#).
- 4.2.13. Coordinate a pre-work meeting with the Contractor before the start of each project and pre-shift as needed to discuss all known site-specific hazards that are not addressed in the Contractor Safety Manual. Notify the appropriate Contractor Safety Services Team Lead for support in this meeting. One form may be used for multiple projects if the projects present similar hazards. The Contractor Pre-Work Meeting Notification and Acknowledgment form must be used to

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document the meeting. At a minimum, the following information must be discussed at the pre-work meeting:

- 4.2.13.1. The Contractor's obligation to comply with all Applicable H&S Laws, the SDG&E Contractor Safety Manual, the terms of the applicable contract with SDG&E, and the terms of the [Contractor Pre-Work Safety Meeting Notification and Acknowledgment](#).
- 4.2.13.2. The Contractor's obligation to share and communicate hazard information covered in the pre-work meeting with all of its employees and subcontractors before work begins in a language and manner readily understandable to those employees and subcontractors.
- 4.2.13.3. Specific known hazards present at Company facilities to which the Contractor's employees, subcontractors, or the public may be exposed, as well as Company procedures that have the potential to impact the Contractor's employees and subcontractors. These hazards may include, but are not limited to: asbestos, lead, confined spaces, equipment operation, energized electrical and gas systems, fall hazards, naturally occurring radioactive materials (NORM), specific hazardous substances, and Proposition 65 warnings.
- 4.2.13.4. Any specific safety rules and regulations pertaining to the project specific hazards referenced in 4.2.11.3.
- 4.2.13.5. The Stop the Job (STJ) Process and the authority of everyone onsite to stop a job or task if an unsafe work condition or activity is identified. All work must immediately cease in the area of concern once the STJ is declared until site supervision and the involved Contractor(s) have done an investigation, the identified situation is abated, controlled, or otherwise determined to be safe, and the situation and outcome are explained to affected personnel.
- 4.2.13.6. The emergency response procedures, such as evacuation alarms, evacuation routes, assembly areas, and interactions with emergency services.
- 4.2.13.7. Important phone numbers and general information, as provided in the Contractor Pre-Work Safety Meeting and Acknowledgment.
- 4.2.14. Following the pre-work meeting, document topics discussed during the pre-work meeting on the [Contractor Pre-Work Safety Meeting and Acknowledgment form](#) and send the completed form to the Contractor before the Contractor starts work.
- 4.2.15. Verify the Contractor has performed a hazard analysis of the specific work they are to perform before they start the task.

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- 4.2.16. Contact SDG&E's Safety Department at least five working days before use by the Contractor of any odor-producing substances (e.g., petroleum, chemical-based building materials, solvents, cleaners, paints, resins, or sealants) and dust or smoke-producing activities when there is the potential for SDG&E employees or the public to be exposed to hazardous materials unless these materials have been preapproved for use as part of the contract.
- 4.2.17. If questions arise about the Contractor's safety practices, discuss the concerns with the Contractor's site supervisor or designated safety representative and document the safety concern on the [Corrective Action Requirement form](#).
- 4.2.18. Ensure the Contractor immediately reports the following project-related incidents to the appropriate SDG&E Business Unit Representative.
- Non-Serious Near Misses
 - Serious Near Misses
 - Property Damage
 - Injuries and illnesses
 - Fires
 - Hazardous situations
 - Spill/Release
 - Environmental Incident
 - Significant adverse chemical reactions or injuries
 - Electric Incident
 - Gas Incident
 - Stop-the-Job/Stop-the-Task situations
 - Agency Involvement

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4.2.19. Ensure the Contractor promptly investigates such incidents involving its employees and subcontractors and completes the investigation within 10 calendar days. For the type of incidents identified below, the investigation report must be provided to SDG&E in ISNetwork as part of the [Contractor Incident Form](#) and include photographs from the incident as well as information regarding corrective and preventive measures taken by the Contractor to prevent recurrences. In cases where more time is needed to complete the investigation, a preliminary written investigation report must be submitted within 10 calendar days to the SDG&E Representative followed by a final report within a reasonable time thereafter.

- Serious Near Misses
- Property Damage over \$500.00
- Injuries requiring treatment beyond First Aid
- Fires
- Hazardous situations
- Spill/Release
- Environmental Incident
- Significant adverse chemical reactions or injuries
- Electric Incident
- Gas Incident
- Stop-the-Job/Stop-the-Task situations
- Agency Involvement

4.2.20. Notify the Safety Department:

4.2.20.1. When the Contractor is not enrolled and approved in ISN.

4.2.20.2. When the Contractor [Pre-Work Safety Meeting Notification and Acknowledgment form](#) has not or cannot be completed before the start of work.

4.2.20.3. When a Serious Safety Incident, Serious Near Miss, CPUC-Reportable Incident, DOT Reportable Incident, Environmental Incident, Imminent Hazard, Life-Altering Incident, Life Threatening Incident or, Property Damage \$50,000.00 or more occurs.

4.2.20.4. When Agency Involvement at a Contractor's jobsite is reasonably determined to result in a fine, citation, job shutdown, or unfavorable outcome and whenever Cal/OSHA is notified of a contractor incident.

4.2.21. Ensure all incidents are investigated properly in accordance with the SDG&E [Review & Investigation of Contractor Incidents procedure \(CSP-013-2\)](#)

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- 4.2.22. Notify the Field Environmental Representative of any environmental related issue involving a Contractor.
- 4.2.23. Notify potentially impacted Company departments of planned construction or maintenance activities by Contractors, as appropriate.
- 4.2.24. In cases where SDG&E purchases hazardous materials for Contractors to use, coordinate with SDG&E's Safety, Wellness, and ECS Department to ensure the materials go through the [SEPA – Safety & Environmental Product Approval Process](#).
- 4.2.25. In cases where the Contractor will be storing hazardous materials at Company facilities or project locations, inspect that area for proper storage of compatible materials.
- 4.2.26. In cases where the Contractor will be transporting hazardous materials or waste, ensure an approved SDG&E transporter is used and all proper laws, regulations, and permits are in place.
- 4.2.27. Ensure Contractor personnel are familiar with the scope of work they are assigned to perform.
- 4.2.28. Partner with Supply Management and Contractor Safety Services before issuing a change order that will affect the scope of work a contractor is to perform to ensure the contractor is qualified to perform the task change.
- 4.2.29. Ensure the selected Contractors report monthly hours and injuries in ISN by the 15th of the following month.
- 4.2.30. Ensure the [Post-Job Evaluation Form](#) is completed at the end of all major projects or annually for multi-year and MSA projects.
- 4.2.31. Assume the responsibilities of the SDG&E Site Manager(s) and Supervisor(s) requirements when the SDG&E Site Manager(s) or Supervisor is absent.
- 4.3. Supply Management:
 - 4.3.1. Ensure Class 1 Contractors have fully completed and are compliant with all pre-qualification requirements before awarding a contract. When circumstances do not allow compliance with pre-qualification requirements (e.g., emergency work where a specialized contractor must be used), the SDG&E's Variance Request Process (*see section 5*) must be initiated by the Business Unit requesting the use of a contractor.

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- 4.3.2. Ensure the procurement process and contractual agreements include SDG&E's safety requirements and compliance expectations pertaining to the SDG&E's Contractor Safety Program.
- 4.3.3. Participate in and support the Variance Process for contractors that do not meet the requirements of SDG&E's Contractor Safety Program.
- 4.3.4. Provide data on active agreements monthly and non-PO spend annually.
- 4.4. SDG&E Site Manager(s) and Supervisor(s):
 - 4.4.1. Require Company employees to stay out of any established construction zones for their own safety and the safety of the Contractor.
 - 4.4.2. Require Company employees to use proper PPE if they are required to be in a construction zone.
 - 4.4.3. Notify the SDG&E Representative and SDG&E Contractor Safety Services of any hazardous working conditions at the site that may impact the Contractor or Sub-Contractors.
 - 4.4.4. Notify the SDG&E Representative and SDG&E Contractor Safety Services of any observed or reported Safety Concerns involving a Contractor using the [Corrective Action Requirement](#) form.
 - 4.4.5. Take the following action if a Contractor's work creates an Imminent Hazard:
 - 4.4.5.1. Require the Contractor to Stop the Job or Task until the hazard is mitigated.
 - 4.4.5.2. Immediately report the concern to the SDG&E Representative and to SDG&E Contractor Safety Services to address the situation.
 - 4.4.6. When applicable perform and document field safety observations according to the Business Unit Oversight Procedures to verify compliance with the Contractor Safety Program as directed.
 - 4.4.7. Assist in Post-Job Evaluations of contractors.
 - 4.4.8. Support internal or external personnel with incident investigations as directed.
- 4.5. SDG&E Contractor Safety Services:
 - 4.5.1. Updates and maintains this standard and the Contractor Safety Manual as needed.

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- 4.5.2. Maintains the agreement with the third-party administrator and acts as the primary liaison for the ongoing functioning and implementation of the SDG&E Contractor Safety Program.
- 4.5.3. Aids the SDG&E Representative when developing contract language for a specific project.
- 4.5.4. Supports Supply Management and the Business Unit during the contractor selection process.
- 4.5.5. Assists Supply Management and the Business Unit with SDG&E's Variance Request Process when contractors do not meet SDG&E's Contractor Safety Program requirements.
- 4.5.6. Assists Business Units as a subject matter expert for identifying specific hazards and appropriate methods to mitigate hazards.
- 4.5.7. Verifies implementation of the SDG&E Contractor Safety Program across all Business Units.
- 4.5.8. Supports the SDG&E Business Units with safety observations when determined applicable by the Business Unit.
- 4.5.9. Ensures all Cal/OSHA reportable incidents are timely reported to Cal/OSHA by the Contractor or SDG&E, as required.
- 4.5.10. Contacts Cal/OSHA when notified of an imminent hazard created by a contractor who refuses to rectify or self-report it.
- 4.5.11. Provides safety support regarding any issues or concerns raised by the SDG&E Representative, Site Manager or Supervisor.
- 4.5.12. Tracks relevant Contractor injury data and hours worked for use in monitoring and evaluating safety performance of contractors.
- 4.5.13. SDG&E's Drug & Alcohol Testing Administrator monitors the Contractor's compliance with the DOT's drug and alcohol testing regulations, is the liaison between the Contractor and Veriforce LLC, Company's compliance review service agent, receives compliance notifications and communicates the Contractor's approved or non-approved statuses, and notifies internal Company representatives when Contractor must be removed from a job site due to failed or non-compliance status.

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4.6. SDG&E Employees:

- 4.6.1. Stay out of the Contractor's construction zones unless authorized to enter for required job duties.
- 4.6.2. Wear proper clothing, footwear, and all required PPE if authorized to enter construction zone.
- 4.6.3. Stop the job or task if a Safety Concern is observed.
- 4.6.4. Immediately report unsafe acts or conditions to an SDG&E supervisor who will relay the information to the SDG&E Representative.
- 4.6.5. Take action to prevent any person from entering a situation that poses an imminent risk of serious injury or death.

5. Variance Request Process

- 5.1. The [Variance Request Form](#) (CSP-009-1) must be used to initiate requests for an internal review of contractors that do not meet the requirements of SDG&E's Contractor Safety Program. For guidance, use the [Variance Request Process](#) form.
- 5.2. Managers directly responsible for the execution of contractor work must have the authority to initiate a Variance Request.
- 5.3. Director-level approval is required for a Variance Request for a Class 1 Contractor with a "C" grade per the Variance Request Process form.
- 5.4. Vice President-level approval is required for a Variance Request for a Class 1 Contractor that is not in ISN or has an "F" grade per the Variance Request Process form.
- 5.5. If required Directors or VPs are unavailable to sign the Variance Request, a proxy may be identified to sign on behalf of the approver.
 - 5.5.1. If no Director or VP is in the organizational structure, the Contractor Safety Services Manager will determine the appropriate signee for the situation.
- 5.6. Supply Management, the Business Unit, and Safety must collaborate to collect all supporting documentation to facilitate the Variance Request. This must include but is not limited to: Scope of work, most recent three years of safety performance historical data (TRIR, DART, and EMR), OSHA citation history and most recent five years of fatality data. Additionally, supporting documentation must include a summary of events, corrective actions and safety improvement plans specific to the work being performed and areas of concern or noncompliance.

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5.7. If approval cannot be agreed upon, the Chief HR & CAO will have the deciding vote.

6. REVIEW PROCESS

- 6.1. This safety standard was reviewed by Construction Services, Environmental Services, Electric Regional Operations, Facilities, Gas Distribution, Gas Operations Training, Gas Technical Services, Gas Transmission, Legal, Major Projects, Project Management, Supply Management, and approved by Safety.

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NOTE: Do not alter or add any content from this page down; the following content is automatically generated.

Brief: Fully review. Changes to update the housing of safety observations and changes to the variance approval process to accommodate organizational change at SDG&E.

Document Profile Summary	
Responsible Person:	Duncan, Raymond
Published On:	03/05/2020
Last Full Review Completed On:	03/02/2020
Writer:	Duncan, Raymond
Document Status:	Active
Document Type:	STAND
If Merged, Merged To Document Number:	
Utility:	SDG&E
Department:	Safety & Wellness
Number of Common Document:	167.04
Confidential Sections:	
Part of SoCalGas O&M Plan:	No
Part of SDG&E O&M Plan:	No
Contains OPQUAL Covered Task:	No
Last O&M Review date:	
O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Non-O&M Parts 191-193 Plan	No
Non-O&M 49 CFR Codes & Impacted Sections of Document	
Part of Distribution IMP (DIMP)	No
Part of Transmission IMP (TIMP)	No
Part of Storage IMP (SIMP)	No
Impacts GO112F	No
GO112F Codes & Impacted Sections of Document	
Impacts Underground Gas Storage Projects (CalGEM)	No
14 CCR Codes & Impacted Sections of Document	
Impacts GO58A	No
GO58A Codes & Impacted Sections of Document	
Impacts GO58B	No
GO58B Codes & Impacted Sections of Document	
Indices/Binders in Which Document is Filed:	CFSD, SAFESD
NOP Learning Module (LM) Training Code:	NOP01196

ATTACHMENT 3

SDG&E Advice Letter 3461-E



Clay Faber - Director
Federal & CA Regulatory
8330 Century Park Court
San Diego, CA 92123
cfaber@semprautilities.com

November 5, 2019

**ADVICE LETTER 3461-E
U902-E)**

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**SUBJECT: QUARTERLY ADVICE LETTER RELATED TO PUBLIC UTILITIES CODE
SECTION 8389(e)(7)**

Per Public Utilities Code Section 8389(e)(7), San Diego Gas & Electric Company (SDG&E) hereby submits to the California Public Utilities Commission (Commission) this Tier 1 Advice Letter (AL) that details the implementation of both its approved wildfire mitigation plan and recommendations of the most recent safety culture assessment, and a statement of recommendations of the board of directors safety committee meetings that occurred during the quarter.¹

PURPOSE

The purpose of this AL is to comply with the requirements of Section 8389(e)(7), which were added to the Public Utilities Code by Assembly Bill (AB) 1054 on July 12, 2019. That statutory provision requires that SDG&E file a Tier 1 AL "on a quarterly basis that details the implementation of both its approved wildfire mitigation plan and recommendations of the most recent safety culture assessment, and a statement of recommendations of the board of directors safety committee meetings that occurred during the quarter." While Section 8389(e)(7) also requires that the AL "shall summarize the implementation of safety committee recommendations from the electrical corporation's previous advice letter filing," this is SDG&E's first AL filing and so there are no recommendation from a previous advice letter filing to summarize at this time.

BACKGROUND

Governor Newsom signed AB 1054 into law on July 12, 2019. AB 1054 contains numerous statutory provisions and amendments designed to enhance the mitigation and prevention of catastrophic wildfires – including wildfires linked to utility equipment – in California. AB 1054 added Section 8389 to the Public Utilities Code. Section 8389(e) establishes the requirements for annual safety certifications² and, *inter alia*, requires electrical corporations to establish a safety committee of its board of directors composed of members with relevant safety experience,

¹ This AL includes information relating to activities that occurred in the third quarter of 2019, as well as some activities that occurred in the fourth quarter of 2019. SDG&E will also file a subsequent AL that will include information relating activities that occurred in the fourth quarter of 2019.

² SDG&E received its initial safety certification from the Commission via a letter from the Executive Director dated July 26, 2019.

establish board-of-director-level reporting to the Commission on safety issues, and file quarterly Tier 1 ALs as described above.

DISCUSSION

Implementation of SDG&E's Approved Wildfire Mitigation Plan

SDG&E is currently tracking 54 different mitigations proposed in its 2019 Wildfire Mitigation Plan.³ These mitigations involve situational awareness, which informs SDG&E's risk models and helps prioritize infrastructure replacement; vegetation management activities; as well as provide tools for real time decision making during emergency response or Power Safety Power Shutoff (PSPS) events. SDG&E is tracking mitigations like inspection and maintenance programs, infrastructure replacement programs, and vegetation management programs which all mitigate the risk of ignitions due to a fault on the electric system. SDG E has also proposed mitigations that reduce the impact of a wildfire once an ignition has occurred, including high definition cameras, ground and aerial fire suppression resources, and a fuels management program. In addition, SDG&E has proposed mitigations to the customer impacts associated with PSPS events including the installation of remote switches to limit the customers exposed to PSPS, the establishment of customer resource centers during PSPS events, and SDG&E's customer outreach programs.

In Attachment A hereto, SDGE provides a detailed breakdown of the current progress on all these individual mitigations. In summary, SDG E has fire hardened 110 miles of the electric system and replaced 2,250 structures within the high fire threat district from January 1, 2019 through October 31, 2019.

Implementation of SDG&E's Most Recent Safety Culture Assessment

SDG&E has not yet undergone a Commission-initiated safety culture assessment. Accordingly, SDG E has no information to report regarding implementation. Once SDG&E's safety culture assessment is completed, SDG&E will include implementation information in future advice letters.

Recommendations of the Board of Directors Safety Committee in the Third Quarter of 2019

The SDG&E Board of Directors Safety Committee (Safety Committee⁴ advises and assists the Board of Directors in the oversight of safely providing electric and natural gas services to the Company's customers. The Safety Committee held meetings on September 9, 2019 and November 4, 2019 in which it received presentations from SDG&E management and employees. In the course of both meetings, the Safety Committee asked questions and engaged with SDG&E management and employees regarding the subjects of their presentations.

At the September 9 meeting, the Safety Committee received presentations from SDG&E management and employees regarding safety issues. Caroline Winn, SDG E's Chief Operating Officer, presented an update on the Community Wildfire Safety Advisory Council (Community Advisory Council). SDG&E established the Community Advisory Council, comprised of independent community members who possess extensive public safety and wildfire experience, to advise the Safety Committee. The Community Advisory Council will meet two to four times per year. Ms. Winn discussed the composition of the Community Advisory Council and indicated that the first meeting would be held on September 10, 2019.

³ SDG&E's 2019 Wildfire Mitigation Plan was approved in D.19-05-039.

⁴ The Safety Committee members include Erbin B. Keith, Chairman; Robert J. Borthwick; and Trevor I. Mihalik.

Jonathan Woldemariam, SDG&E's Director of Wildfire Mitigation Vegetation Management, briefed the Safety Committee on vegetation management activities in the high fire threat district. Mr. Woldemariam reviewed the significant work performed in the first half of the year, vegetation management enhancements in the Wildfire Mitigation Plan, and continued advancements in technology, community, safety and recognition.

Brian D'Agostino, SDG&E's Director of Fire Science and Climate Adaptation, provided the Safety Committee with background on weather technology enhancements to meteorological operations and mobile situational awareness. Mr. D'Agostino also reported that the Company has conducted several community events to increase stakeholder awareness and stated that new CPUC requirements for customer notifications have been incorporated into processes and technologies.

Lastly, Ms. Winn and Mr. D'Agostino provided an outlook on the 2019 summer and fire season outlook, as well as preparation efforts, including engaging in simulation drills and preparing emergency communications.

The Safety Committee also discussed the Safety Committee Charter, which the SDG E Board of Directors adopted on July 17, 2019.

At the November 4 meeting, the Safety Committee received presentations from SDG&E management and employees regarding safety issues. Ron Kiralla, SDG E's Director of Safety, provided an update on contractor safety issues.

Caroline Winn provided after action reports from key events, including a gas event in Pacific Beach, and October Red Flag events in SDG&E's service territory. Ms. Winn also provided an update on the Community Advisory Council.

John Jenkins, SDG&E's Vice President for Electric System Operations, provided a status update on SDG&E's implementation of its Wildfire Mitigation Plan.

Karen Sedgwick, SDG E's Chief Human Resources and Chief Administrative Officer, discussed the SDG&E safety incentive compensation plan measures and weightings.

Lastly, Erbin Keith, Chair of the Safety Committee, discussed the Safety Committee recommendations to be adopted and included in this letter. Those recommendations include the following:

1. SDG&E should inform the Safety Committee Members of any significant safety event affecting SDG&E's customers or its workforce.
2. SDG&E should establish regular reporting from its executives with safety-related responsibilities or oversight to the Safety Committee.
3. SDG&E should study, to the extent possible based on available information, the causes of the recent catastrophic wildfire ignitions linked to PG&E or SCE equipment for purposes of developing "lessons learned."
4. SDG&E should continue its practice of holding a series of Emergency Operations drills simulating major catastrophic events, including a wildfire ignition.

SDG E's Board of Directors have recently adopted revisions to the Safety Committee Charter. See Attachment B hereto. The revisions are intended to sharpen and streamline the Charter. Among other changes, the revisions enhanced the specificity of the "Purpose" statement; clarified the Safety Committee's duties and responsibilities, including vis-à-vis the full Board of Directors; and made clear that the Safety Committee will annually review and revise the Charter.

Implementation of Recommendations of the Board of Directors Safety Committee in the Prior Quarter

As noted above, this is the first quarterly AL that SDG&E is filing in compliance with Section 8389(e)(7), and it covers activities that occurred in the third quarter of 2019. Accordingly, there is no implementation information to provide at this time. SDG&E will, however, provide implementation information in future quarterly ALs.

EFFECTIVE DATE

SDG&E believes this submittal is subject to Energy Division disposition and should be classified as Tier 1 (effective pending disposition) pursuant to GO 96-B. SDG&E respectfully requests that this AL become effective on November 5, 2019, which is the date of submittal.

PROTEST

Anyone may protest this Advice Letter to the California Public Utilities Commission. The protest must state the grounds upon which it is based, including such items as financial and service impact, and should be submitted expeditiously. The protest must be made in writing and must be received no later than November 25, 2019, which is within 20 days of the date this Advice Letter was filed with the Commission. There is no restriction on who may file a protest. The address for mailing or delivering a protest to the Commission is:

CPUC Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Copies of the protest should also be sent via e-mail to the attention of Energy Division at EDTariffUnit@cpuc.ca.gov of the Energy Division. A copy of the protest should also be sent via e-mail to the address shown below on the same date it is mailed or delivered to the Commission.

Attn: Megan Caulson
Regulatory Tariff Manager
E-mail: MCaulson@semprautilities.com

NOTICE

A copy of this filing has been served on the utilities and interested parties shown on the attached list, including interested parties to service lists R.18-10-007 and R.18-12-005, by either providing them a copy electronically or by mailing them a copy hereof, properly stamped and addressed.

Address changes should be directed to SDG&E Tariffs by e-mail at SDG&ETariffs@semprautilities.com.

CLAY FABER
Director – Federal & CA Regulatory

cc: Elizaveta Malashenko, CPUC Deputy Director for Safety and Enforcement



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: San Diego Gas & Electric (U902)

Utility type:

☒ ELC ☐ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Megan Caulson

Phone #: 858-654-1748

E-mail: MCaulson@sdge.com

E-mail Disposition Notice to: SDG&ETariffs@sdge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 3461-E

Tier Designation: 1

Subject of AL: Quarterly Advice Letter Related to Public Utilities Code Section 8389(e)(7)

Keywords (choose from CPUC listing): Compliance

AL Type: ☐ Monthly ☒ Quarterly ☐ Annual ☐ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: PUC 8389(e)(7)

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: N/A

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? ☐ Yes ☒ No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? ☐ Yes ☒ No

Requested effective date: 11/5/19

No. of tariff sheets: None

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Megan Caulson
Title:
Utility Name: San Diego Gas & Electric
Address: 8330 Century Park Court, CP32C
City: San Diego
State: California Zip: 92123
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email: MCaulson@sdge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

Clear Form

General Order No. 96-B
ADVICE LETTER SUBMITTAL MAILING LIST

cc: (w/enclosures

<u>Public Utilities Commission</u>	<u>Clean Power Research</u>	<u>NLine Energy</u>
<u>Office of Ratepayer Advocates (ORA)</u>	T. Schmid	M. Swindle
R. Pocta	G. Novotny	<u>NRG Energy</u>
<u>Energy Division</u>	<u>Davis Wright Tremaine LLP</u>	D. Fellman
M. Ghadessi	J. Pau	<u>Pacific Gas & Electric Co.</u>
M. Salinas	<u>Douglass & Liddell</u>	M. Lawson
L. Tan	D. Douglass	M. Huffman
R. Ciupagea	D. Liddell	Tariff Unit
Tariff Unit	<u>Ellison Schneider Harris & Donlan LLP</u>	<u>RTO Advisors</u>
<u>CA Energy Commission</u>	E. Janssen	S. Mara
B. Penning	C. Kappel	<u>SCD Energy Solutions</u>
B. Helft	<u>Energy Policy Initiatives Center (USD)</u>	P. Muller
<u>Advantage Energy</u>	S. Anders	<u>Shute, Mihaly & Weinberger LLP</u>
C. Farrell	<u>Energy Regulatory Solutions Consultants</u>	O. Armi
<u>Alcantar Kahl LLP</u>	L. Medina	<u>Solar Turbines</u>
M. Cade	<u>Energy Strategies, Inc.</u>	C. Frank
K. Harteloo	K. Campbell	<u>SPURR</u>
<u>AT&T</u>	<u>EQ Research</u>	M. Rochman
Regulatory	General	<u>Southern California Edison Co.</u>
<u>Barkovich & Yap, Inc.</u>	<u>Goodin, MacBride, Squeri, Day LLP</u>	K. Gansecki
B. Barkovich	B. Cragg	<u>TerraVerde Renewable Partners LLC</u>
<u>Braun & Blaising, P.C.</u>	J. Squeri	F. Lee
S. Blaising	<u>Green Charge</u>	<u>TURN</u>
D. Griffiths	K. Lucas	M. Hawiger
<u>CA Dept. of General Services</u>	<u>Hanna and Morton LLP</u>	<u>UCAN</u>
H. Nanjo	N. Pedersen	D. Kelly
<u>California Energy Markets</u>	<u>JBS Energy</u>	<u>US Dept. of the Navy</u>
General	J. Nahigian	K. Davoodi
<u>California Farm Bureau Federation</u>	<u>Keyes & Fox, LLP</u>	<u>US General Services Administration</u>
K. Mills	B. Elder	D. Bogni
<u>California Wind Energy</u>	<u>Manatt, Phelps & Phillips LLP</u>	<u>Valley Center Municipal Water Distr</u>
N. Rader	D. Huard	G. Broomell
<u>City of Poway</u>	R. Keen	<u>Western Manufactured Housing</u>
Poway City Hall	<u>McKenna, Long & Aldridge LLP</u>	<u>Communities Association</u>
<u>City of San Diego</u>	J. Leslie	S. Dey
F. Ortlieb	<u>Morrison Foerster LLP</u>	<u>Interested Parties</u>
B. Henry	P. Hanschen	R.18-10-007
L. Azar	<u>MRW & Associates LLC</u>	R.18-12-005
Y. Lu	General	
D. Heard		
<u>Clean Energy Renewable Fuels, LLC</u>		
P. DeVille		

ATTACHMENT A

SDG&E'S 2019 WILDFIRE MITIGATION PLAN PROGRESS UPDATE

SDG&E's 2019 Wildfire Mitigation Plan (WMP) Progress Update

All data as of October 31, 2019

Wildfire Mitigation Plan Activities Summary

Operational Practices			Vegetation Management			Situational Awareness			
4.1.1 – Operate based on normal, elevated, and extreme conditions	4.1.2 – Disable reclosing during elevated or higher conditions	4.1.3 – Restrict high risk work during elevated or higher conditions	4.4.1 – Create a tree database for analysis	4.4.2 – Increase inspections within the HFTD	4.4.3 – Increase post trim clearance to 25’ within the HFTD	4.5.1 – Creates a Fire Science and Climate Adaptation department	4.5.2 – Perform analysis of weather data to inform circuit risk	4.5.3 – Publish Fire Potential Index to inform Operations	
4.1.4.1 – Send fire suppression crews to support electric crews	4.1.4.2 – Aerial resources available for CalFire Dispatch year round	4.1.4.3 – Ground fire suppression resources available for dispatch year round	4.4.4 – Utilize technology to prioritize trimming and hardening efforts	4.4.5 – Audit the trimming to ensure quality and compliance	4.4.6 – Inspect and remove “hazard trees” that could fall into lines	4.5.4 – Utilize SAWTI to gauge severity of Santa Ana Wind events	4.5.5 – Utilize wildfire simulation model to understand the impacts of ignitions	4.5.6 – Utilize camera networks to improve response times to fires	
4.1.4.5 – Create ignition database and perform root cause analysis	4.1.4.6 – Clear fuels on BLM land and 13 priority circuits		4.4.7 – Clear vegetation at the base of poles with equipment	4.4.8 – Jointly inspect facilities with CalFire	4.4.9 – Perform inspections in high risk areas prior to red flag events	4.6.1 – Collaborate with stakeholders to better understand the impacts of climate change	4.6.2 – SDG&E will install 500 wireless fault indicators	4.6.3 – Add 13 weather stations to SDG&E’s weather network	
Plans for Inspection				Public Safety Power Shutoff					
4.2.1 –Complete distribution Inspections	4.2.2 – Complete substation inspections	4.2.3 – Complete transmission inspections	4.2.3 – Complete GIS portal to share data	4.7.1 – SDG&E utilizes PSPS as a last resort mitigation	4.7.2 – SDG&E patrols lines before re-energizing after PSPS events	4.7.4 – SDG&E notifies its customers in five languages of impeding PSPS events	4.7.5 – SDG&E continues to collaborate with key community stakeholders		
System Hardening									
4.3.1 – Leverage design and construction standards	4.3.2 – SDG&E looks to apply new technologies to mitigate wildfire risk	4.3.3 – SDG&E performs facility analysis to inform risk models and prioritization	4.3.4 – SDG&E has created a formal wildfire mitigation strategy and governance team	4.3.5 – SDG&E has formed a centralized asset management group	4.3.6 – SDG&E plans to harden 10 miles of transmission lines (outside of CNF)	4.3.7 – SDG&E plans to underground 1.25 miles of overhead in 2019	4.3.8 – SDG&E plans to harden 68 miles of overhead lines within the CNF	4.3.9 – SDG&E plans to harden 80 miles of distribution lines within the HFTD	4.3.10 – SDG&E plans to replace 700 wood pole structures within the HFTD
4.3.11 – SDG&E plans to replace 2250 fuses within the HFTD	4.3.12 – SDG&E plans to replace 500 hot line clamps within the HFTD	4.3.13 – SDG&E plans to harden 5.7 miles of distribution lines in the wildland urban interface	4.3.14 – SDG&E will develop standards and work methods for covered conductor	4.3.15 – SDG&E will enable falling conductor protection on 8 circuits	4.3.16 – SDG&E will install LTE equipment and fiber backhaul within the HFTD	4.3.17 – SDG&E has installed over 200 remote switching devices within the HFTD	4.3.18 – SDG&E will install seven additional remote switching devices	4.3.19 – SDG&E replaces poles as part of its inspections and maintenance program	4.3.20 – SDG&E installs back up generation to mitigate the impacts of PSPS

Q3 Activity Status vs 2019 Goals

Operational Practices

Operating Conditions

112 days

Operated in elevated or higher condition

Operating Conditions (4.1.1)

Volume vs 2019 Goal: SDG&E has operated in elevated or higher condition 112 days in 2019.

Key Actions: SDG&E continues to define and change it's operating procedures based on its conditions which are defined by SDG&E's fire potential index. These are defined as normal, elevated, and extreme.

Other Special Work Procedures

Complete

Other Special Work Procedures (4.1.3)

Volume vs 2019 Goal: 100% of days elevated or higher, SDG&E has implemented special work procedures.

Key Actions: SDG&E ensures that on elevated days, electric crews are accompanied by fire suppression crews to ensure safety. On extreme days, certain activities are stopped altogether within the HFTD.

Aviation Firefighting Program

3

Aerial fire suppression resources available

Aviation Firefighting Program (4.1.4.2)

Volume vs 2019 Goal: SDG&E has three aerial fire suppression resources available year-round in 2019.

Key Actions: These assets have made a combined 239 drops of including 182,734 gallons of water. This does not include the October 24th – 26th red flag event where they were instrumental in suppressing multiple fires in San Diego County

Ignition Management Program

On Track

Ignition Management Program (4.1.4.5)

Volume vs 2019 Goal: SDG&E has secured a resource for this role in June and the database has been developed.

Key Actions: The ignition management program lead has begun to collect data and perform root cause analysis on ignitions.

Recloser Protocols

Complete

Recloser Protocols (4.1.2)

Volume vs 2019 Goal: 100% of days elevated or higher, SDG&E has disabled reclosing and enabled sensitive protections on it's reclosers within the HFTD in an effort to mitigate the risk of wildfire.

Wildfire Infrastructure Protection Teams

Complete

Wildfire Infrastructure Protection Teams (4.1.4.1)

Volume vs 2019 Goal: 100% of days elevated or higher, wildfire infrastructure teams join SDG&E electric crews to provide fire suppression capabilities during high risk work. These crews are also there to support re-energization during PSPS events.

Industrial Fire Brigade

Complete

Industrial Fire Brigade (4.1.4.3)

Volume vs 2019 Goal: Industrial fire brigade resource has been secured and is available year-round in 2019.

Key Actions: This fire suppression resource responds to active fire events caused by SDG&E equipment. They are equipped with a liquid foam truck which can extinguish oil fires caused by transformers

Fuels Management Program

58%

Surveys complete

100%

Fuels cleared

Fuel Management (4.1.4.6)

Volume vs 2019 Goal: 211/372 (58%) surveys complete. 111/111 (100%) fuels cleared around surveyed structures.

Key Actions: SDG&E has initiated fuels management on BLM land and 13 priority circuits.

Q3 Activity Status vs 2019 Goals

Plans for Inspection

Distribution System Inspection

100%
QA/QC

99%
Detailed

Distribution System Inspection (4.2.1)

Volume vs 2019 Goal: 10,000 of 10,000 poles completed QA/QC inspection (100%), 47,598 of 47,850 poles completed for detailed inspection (99%)

Key Actions: SDG&E completes remediations within 6 months in tier 3 HFTD per general orders, and within 12 months in the tier 2 HFTD

Transmission System Inspection

100%

Structures inspected

Transmission System Inspection (4.2.3)

Volume vs 2019 Goal: 6,730 of 6,730 OH Structures inspected (100%)

Key Actions: Transmission inspections and remediations are completed in accordance with general orders and the filed maintenance plan with the California ISO.

Substation System Inspection

87%

Substations inspected

Substation System Inspection (4.2.2)

Volume vs 2019 Goal: 260 of 300 substation inspected (87%)

Key Actions: SDG&E completes substation inspections and remediations in accordance with general order 174

Geographic Information Data System

Complete

Geographic Information System Data (4.2.4)

Volume vs 2019 Goal: The GIS portal to share information with CALOES during emergency and PSPS events has been implemented.

Key Actions: SDG&E has successfully shared GIS information through the portal on multiple activations in 2019

Q3 Activity Status vs 2019 Goals

System Hardening (1 of 3)

Design and
Construction
Standards

Complete

Design and Construction Standards (4.3.1)

Key Actions: SDG&E designs and constructs its transmission and distribution system in accordance with its standards.

Facility Analysis

Complete

Facility Analysis (4.3.3)

Key Actions: SDG&E has completed the actions performed in the facilities analysis section of the WMP. This information informs SDG&E's risk models and helps with the prioritization of wildfire mitigation

Asset Management

On Track

Asset Management (4.3.5)

Key Actions: The asset management group has been stood up, and they are in the process of publishing asset strategies and are developing asset health index tools.

Undergrounding
Circuit Line Segments

120%

Undergrounded

Underground Circuit Line Segments (4.3.7)

Volume vs 2019 Goal: 1.5 of 1.25 miles undergrounded (120%)
Key Actions: SDG&E has exceeded its goal for the year and plans to begin construction on an additional mile of underground in November

Testing and
Deploying Emerging
Technologies

Complete

Testing and Deploying Emerging Technologies (4.3.2)

Key Actions: SDG&E continues to evaluate and implement emerging technologies. Examples this year include the installation of falling conductor protection, the installation of the Cal Fire approved fuses, and the completion of vendor selection and standards for covered conductor.

Oversight of
Activities in the
Rural Areas

Complete

Oversight of Activities in the Rural Areas (4.3.4)

Key Actions: This governance and strategy role has evolved in 2019 with the creation of the Wildfire Mitigation Department.

Overhead Trans. and
Dist. Fire Hardening

Trans.

Dist.

70%

62%

Hardened

Overhead Transmission and Distribution Fire Hardening (4.3.6)

Volume vs 2019 Goal: 7 of 10 miles of transmission hardened (70%); 49 of 80 miles of distribution hardened (62%)

Key Actions: SDG&E continues the hardening of its 69kV transmission system and is on track to finish all transmission circuits within the HFTD by 2025.

Cleveland National
Forest Fire Hardening

69%

Hardened

Cleveland National Forest Fire Hardening (4.3.8)

Volume vs 2019 Goal: 47 of 68 miles hardened (69%)

Key Actions: Includes both transmission and distribution fire hardening of lines within the Cleveland National Forest

Q3 Activity Status vs 2019 Goals

System Hardening (2 of 3)

Fire Risk Mitigation

62%

Complete

Fire Risk Mitigation (4.3.9)

Volume vs 2019 Goal: 49 of 80 miles complete (62%)

Key Actions: FiRM continues to replace small high-risk conductor with high tensile strength conductor, it's replaced 370 miles program to date.

Expulsion Fuse Replacement

61%

Fuses replaced

Expulsion Fuse Replacement (4.3.11)

Volume vs 2019 Goal: 1369 of 2250 fuses replaced (61%)

Key Actions: Program is on track to meet goal by 4th quarter

Wire Safety Enhancement

75%

Enhanced

Wire Safety Enhancement (4.3.13)

Volume vs 2019 Goal: 4.3 of 5.7 miles enhanced (75%)

Key Actions: Installation have been completed in the wild land urban interface in Rancho Santa Fe, and in the costal canyons of La Jolla.

Fire Threat Zone Advanced Protection

75%

Enabled

Fire Threat Zone Advanced Protection (4.3.15)

Volume vs 2019 Goal: 6 of 8 circuits enabled with falling conductor protection (75%)

Pole Risk Mitigation and Engineering

71%

Hardened

Pole Risk Mitigation and Engineering (4.3.10)

Volume vs 2019 Goal: 495 of 700 poles hardened (71%)

Key Actions: Program is ahead of schedule, PRiME plans to replace over 800 poles in 2019.

Hotline Clamps

53%

Hotline clamps removed

Hotline Clamps (4.3.12)

Volume vs 2019 Goal: 263 of 500 hotline clamps removed (53%)

Key Actions: Program is on track to meet goal by 4th quarter.

Covered Conductor

On Track

Covered Conductor (4.3.14)

Key Actions: Distribution Standard have selected covered conductor vendors and are on track to complete standards and work methods for this new equipment by the 4th quarter of 2019

LTE Communication Network

On Track

LTE Communication Network (4.3.16)

Key Actions: LTE equipment and fiber back haul installations have begun in 2019.

Q3 Activity Status vs 2019 Goals



System Hardening (3 of 3)

Automated Reclosers

200
Installed

Automated Reclosers (4.3.17)

Key Actions: SDG&E has over 200 remote reclosers installed within the HFTD and continues to install more in an effort to be more targeted in PSPS events

Pole Replacement and Reinforcement

587
Poles replaced

Pole Replacement and Reinforcement (4.3.19)

Volume vs 2019 Goal: SDG&E has replaced 587 poles found through the GO165 visual and intrusive inspections within the HFTD.

PSPS Engineering Enhancements

57%
Installed

Public Safety Power Shutoff Engineering Enhancements (4.3.18)

Volume vs 2019 Goal: 4 of 7 switches installed (57%)

Key Actions: SDG&E continues to expand switch installations within the HFTD to mitigate the impacts of PPS

Backup Power for Resilience

On Track

Backup Power for Resilience (4.3.20)

Key Actions: 8 of 9 Community Resource Centers (CRC) have been fitted with a transfer switch allowing for generator hookup during PPS. 48 of 79 medical baseline customers identified have been offered generators. 36 of 48 have received the generator, been trained on its use, and are considered complete. Upgrades to HPWREN systems in backcountry fire stations are on target for completion by end of year.

Q3 Activity Status vs 2019 Goals

Vegetation Management (1 of 2)

Tree Database

455,000

Trees inventoried

Tree Database (4.4.1)

Volume vs 2019 Goal: YTD 455,000 trees in inventory

Patrol and Pruning

Complete

Patrol and Pruning (4.4.2)

Key Actions: Bamboo and Century Plant off cycle Patrols are Complete

Enhanced Inspections, Patrols, and Trimming

On Track

Enhanced Inspections, Patrols, and Trimming (4.4.3)

Volume vs 2019 Goal: 81,000 trees targeted for enhanced 25-foot post prune clearance or complete removal. Post Red flag Warning patrols in specified HFTD Circuits.

Key Actions: 28 of 28 circuits completed off cycle patrols and trimming (100%)

Technology

On Track

Technology (4.4.4)

Key Actions: Utilized Meteorological data to completed first phase of Vegetation Risk Index (VRI).

Quality Assurance

65%

HFTD audits complete

Quality Assurance (4.4.5)

Key Actions: Slight impact to Schedule as a result of Red Flag Warning and fires keeping crews safe and outside the affected areas. Currently one-month delay. Working voluntary OT and weekends. HFTD audits are 65% complete.

Hazard Tree Removal and Right Tree-Right Place

7,458

Removed

400

Replaced

Hazard Tree Removal and Right Tree-Right Place (4.4.6)

Key Actions: YTD completed 7,458 tree removals and replacing 400 trees

Pole Brushing

100%

Mech. brushing & chem app.

96%

Re-clear cycle complete

Pole Brushing (4.4.7)

Key Actions: 100% Mechanical brushing and Chem applications are complete. Currently 96% Complete in re-clear cycle (Red Flag is delaying schedule)

Electrical Equipment Training

Off Track

Electric Equipment Training (4.4.8)

Key Actions: Cal Fire is not available for training or joint inspections in 2019. Cal Fire did commit to scheduling training in 2020.

Q3 Activity Status vs 2019 Goals



Vegetation Management (2 of 2)

Red Flag Operations
On Track

Red Flag Operations (4.4.9)
Key Actions: Tree Trim Crews have been staged during each Red flag Warning event at the request of the EDO.

Q3 Activity Status vs 2019 Goals

Situational Awareness (1 of 2)

Fire Science and
Climate Adaptation
Department
Complete

Fire Science and Climate Adaptation Department (4.5.1)
Volume vs 2019 Goal: This department was formed in 2018
Key Actions: This department forms the foundation for situational awareness, emergency response, and hardening prioritization

Fire Potential Index
Complete

Fire Potential Index (4.5.3)
Volume vs 2019 Goal: SDG&E has published an FPI every business day in elevated or higher conditions 112/112 days (100%)
Key Actions: SDG&E leverages the FPI to inform it's operating conditions and procedures

WRRM - Operational
System
29
Simulations published

Wildfire Risk Reduction Model – Operational System (4.5.5)
Key Actions: SDG&E has published 29 fire simulations which inform impact analysis of fires without suppression to get an idea of the structures, customers, and SDG&E infrastructure that is at risk due to an ignition. This tool is used to prioritize hardening efforts.

Climate Change
Adaptation
On Track

Climate Change Adaptation (4.6)
Key Actions: SDG&E collaborates with the San Diego Association of Governments(SANDAG) and educational institutions to better understand the impacts of climate change, and how to best mitigate these impacts. SDG&E has an internal climate advisory group that advices on climate-based decisions.

Meteorological
Cap. and Tech.
On Track

Meteorological Capabilities and Technologies (4.5.2)
Volume vs 2019 Goal: SDG&E's weather network has grown from 177 to 190 in 2019.
Key Actions: Leveraging SDG&E's dense weather network, SDG&E performs statistical analysis to model risk on individual electric circuits

Santa Ana Wildfire
Threat Index
Complete

Santa Ana Wildfire Threat Index (4.5.4)
Volume vs 2019 Goal: SDG&E developed in conjunction with US Forest Service and UCLA, and it's published every business day
Key Actions: This tool allows SDG&E to gauge the severity of Santa Ana wind events

Camera Networks
and Fire Detection
107
Cameras

Camera Networks and Fire Detection (4.5.6)
Volume vs 2019 Goal: SDG&E has a total of 107 cameras across the service territory
Key Actions: The primary use to improve fire suppression response time by triangulating locations of ignitions as soon as they occur

Wireless Fault
Indicators
10%
Complete

Wireless Fault Indicators (4.6.2)
Volume vs 2019 Goal: 53/500 (10.1%)
Key Actions: It took longer than anticipated to ramp up this program. See appendix for more detail.

Q3 Activity Status vs 2019 Goals



Situational Awareness (2 of 2)

Advanced Weather
Station Integration
and Forecast

Complete

Advanced Weather Station Integration and Forecast (4.6.3)
Volume vs 2019 Goal: Added 13 of 13 weather stations (100%)
Key Actions: This year, SDG&E has installed a software enhancement on 105 of it's 190 weather stations which allows for reads every 30 seconds, a significant improvement from reads every 10 minutes. This enables better real time decision making.

Q3 Activity Status vs 2019 Goals



Public Safety Power Shutoff

Strategy for
Minimizing Public
Safety Risk

Complete

Strategy for Minimizing Public Safety Risk (4.7.1)
Key Actions: SDG&E continues to use Power Safety Power Shutoff as a last resort mitigation during the most extreme weather events of the year. In 2019 SDG&E has activated PSPS protocols on three events, and have utilized PSPS twice

Communication
Practices

Complete

Communication Practices (4.7.4)
Key Actions: SDG&E has implemented notification procedures in five languages to keep our customers informed of potential and impending PSPS events utilizing multiple channels of communication as outlined in SDG&E's wildfire mitigation plan.

Public Safety Power
Shutoff Protocols

Complete

Public Safety Power Shutoff Protocols (4.7.2)
Key Actions: Before re-energizing customers after a PSPS event, SDG&E confirms with meteorology that the peak winds have passed, and 100% of the circuit is patrolled by ground or helicopter to ensure no damage occurred during the event.

Mitigating the Public
Safety Impact of
PSPS Protocols

Complete

Mitigating the Public Safety Impact of PSPS Protocols (4.7.5)
Key Actions: SDG&E has and continues to communicate with key stakeholders as outlined in SDG&E's Wildfire Mitigation Plan

Appendix

Off Track Activity Details

2019 WMP Off Track Activities – Details

Off Track

(4.4.8) – Electric Equipment Training

Summary: This program was initiated as a collaboration with CalFire. Both SDG&E and CalFire are required to perform inspections in compliance with PRC 4292 and 4293. SDG&E and CalFire jointly perform these inspections so that CalFire better understands the electrical equipment and so that SDG&E better understands the wildfire risk of the area.

Progress/Challenges: SDG&E offered to train CalFire employees on electrical equipment at the beginning of 2019, but they didn't have resources available to complete the training. They plan on being available for this training in 2020.

Off Track

(4.6.20) Wireless Fault Indicators 53/500 (10%)

Summary: This program was initiated to improve response time to outages and potential ignitions once they occur on the system. On the rural lines, there are often many miles of distribution overhead downstream of sectionalizing devices. By installing wireless fault indicators, SDG&E can know very quickly what location the fault, and therefore the potential ignition occurred, providing information on where to aim our cameras so CalFire and dispatch fire suppression resources.

Progress/Challenges: As of today, all the jobs have been scoped, designed, and sent to construction services for installation. SDG&E anticipates seeing significant progress in this area over the last quarter, as this installation is very simple and requires no outages. But given SDG&E is only 10% complete with one quarter left, this program is given the off-track status. The challenges around this program were competing internal and external resources.

ATTACHMENT B

REVISED SAFETY COMMITTEE CHARTER

San Diego Gas & Electric Company

Safety Committee Charter

*The Safety Committee (the “**Committee**”) is a committee of the Board of Directors of San Diego Gas & Electric Company (the “**Company**”). Its original charter was adopted by the Board on July 17, 2019, and a revised charter was adopted by the Board on November 4, 2019.*

I

Purpose

The purpose of the Committee is to advise and assist the Company’s board of directors (the “**Board**”) in the oversight of safely providing electric and natural gas services to the Company’s customers (“**Safety Matters**”).

II

Structure

2.1 Membership

The Committee consists of not fewer than two members of the Board. The Committee’s members, including its chair, are appointed by the Board. The Board also may appoint one or more directors as alternate members of the Committee to replace any absent member at any Committee meeting.

All Committee members and alternate Committee members serve at the pleasure of the Board and any member or alternate member may be removed, with or without cause, by the Board.

2.2 Power and Authority

In addition to the powers and responsibilities expressly delegated to the Committee in this charter, the members of the Committee may exercise any other powers or authority as are not inconsistent with this charter or the parameters from time to time established by the Board and which are reasonably necessary to perform their duties and obligations and to carry out any other responsibilities as are from time to time delegated to it by the Board.

The powers and responsibilities delegated to the Committee may be exercised in any manner as the Committee deems appropriate (including delegation to subcommittees or working groups of the Committee) and without any requirement for Board approval, except as otherwise required by applicable law or the Company’s charter or bylaws or as otherwise is specified in this charter or the authority delegated by the Board. While acting within the scope of the powers and

responsibilities delegated to it, the Committee may exercise all the powers and authority of the Board and, to the fullest extent permitted by law, has the authority to determine which matters are within the scope of such delegated powers and authority.

The Committee will be provided by the Company the resources and authority necessary to discharge its purpose, responsibilities and duties. The Committee has the sole authority to retain and terminate its own independent consultants and other advisors and experts (“***Professional Advisors***”) and legal counsel (“***Legal Counsel***”) and also may use the services of the Company’s regular counsel (whether in-house or outside counsel) or other advisors to the Company as deemed appropriate by the Committee. The Company will provide appropriate funding, as determined by the Committee, for payment of compensation to Professional Advisors and Legal Counsel retained by the Committee.

2.3 Procedures

The Committee will determine its own rules of procedure with respect to the call, place, time and frequency of its meetings. In the absence of such rules, the Committee will meet at the call of its chair, or any member of the Committee, as appropriate to accomplish the purposes of the Committee. Meetings may be attended in person, by telephone conference or by video conference. Notice of meetings of the Committee will be given as provided in the Company’s bylaws.

A majority or, if an even number, fifty percent (50%), of the members of the Committee will constitute a quorum for the transaction of business.

Directors who are not members of the Committee may attend and observe meetings of the Committee, but shall not be entitled to vote. The Committee may, at its discretion, include in its meetings members of management or any other person, including, but not limited to, its Professional Advisors and Legal Counsel, whose presence the Committee believes to be desirable and appropriate.

In the absence of the Committee’s chair at a meeting, the Committee members in attendance may appoint an acting chair from the members attending the meeting.

The chair of the Committee or the acting chair will report on the Committee’s activities to the Board at appropriate times and as otherwise requested by the chairman of the Board or the lead independent director.

2.4 Committee Secretary

The Committee shall appoint a secretary for its meetings who shall keep minutes of the proceedings and carry out other functions as may be assigned from time to time by the Committee or the Committee chair.

III

Duties and Responsibilities

The Committee will at the request of the Board recommend a course of action to the Board that the Committee believes is in the best interest of the Company and its shareholders, and shall independently:

- a) review and monitor (i) the Company's safety culture, goals, and risks; (ii) significant safety-related incidents involving employees, contractors, or members of the public; and (iii) the measures to prevent, mitigate or respond to safety-related incidents; and iv) periodic reports on safety audits;
- b) monitor the Company's safety performance metrics;
- c) report to the Board from time to time on the Committee's activities and recommendations and provide advice as may be requested by the Board;
- d) coordinate the Committee's efforts with the Company's senior management, as and when the Committee may deem necessary or advisable;
- e) be entitled, without further authorization from the Board, to consider such issues as it may consider relevant to the performance of its duties and responsibilities with respect to the Safety Matters;
- f) perform such other duties and responsibilities with respect to Safety Matters as may be assigned by the Board from time to time; provided, that the Committee shall not bind the Company in respect of any settlement or other similar agreement related to the Safety Matters unless such action is expressly authorized by the Board;
- g) oversee the management and resolution of issues relating to Safety Matters at the direction of the Board; and
- h) annually review and revise this charter, as appropriate.

SDG&E Advice Letter 3496-E



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Federal & CA Regulatory
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January 16, 2020

**ADVICE LETTER 3496-E
(U902-E)**

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**SUBJECT: QUARTERLY ADVICE LETTER RELATED TO PUBLIC UTILITIES CODE
SECTION 8389(e)(7)**

Per Public Utilities Code Section 8389(e)(7), San Diego Gas & Electric Company (SDG&E or Company) hereby submits to the California Public Utilities Commission (Commission) this Tier 1 Advice Letter (AL) that details the implementation of both its approved Wildfire Mitigation Plan and recommendations of the most recent safety culture assessment; a statement of recommendations of the Board of Directors Safety Committee (Safety Committee) meetings that occurred during the quarter;¹ and a summary of the implementation of the Safety Committee recommendations from SDG&E's previous advice letter.²

PURPOSE

The purpose of this AL is to comply with the requirements of Section 8389(e)(7), which were added to the Public Utilities Code by Assembly Bill (AB) 1054 on July 12, 2019. That statutory provision requires that SDG&E file a Tier 1 AL "on a quarterly basis that details the implementation of both its approved wildfire mitigation plan and recommendations of the most recent safety culture assessment, and a statement of recommendations of the board of directors safety committee meetings that occurred during the quarter." Section 8389(e)(7) also requires that the AL "shall summarize the implementation of safety committee recommendations from the electrical corporation's previous advice letter filing."

BACKGROUND

Governor Newsom signed AB 1054 into law on July 12, 2019. AB 1054 contains numerous statutory provisions and amendments designed to enhance the mitigation and prevention of catastrophic wildfires – including wildfires linked to utility equipment – in California. AB 1054 added Section 8389 to the Public Utilities Code. Section 8389(e) establishes the requirements for annual safety certifications³ and, *inter alia*, requires electrical corporations to establish a safety committee of its board of directors composed of members with relevant safety experience,

¹ This AL includes information relating to activities and events that occurred in the fourth quarter of 2019.

² SDG&E AL 3461-E (November 5, 2019).

³ SDG&E received its initial safety certification from the Commission via a letter from the Executive Director dated July 26, 2019.

establish board-of-director-level reporting to the Commission on safety issues, and file quarterly Tier 1 ALs as described above.

DISCUSSION

Implementation of SDG&E's Approved Wildfire Mitigation Plan

SDG&E tracks the progress of the 54 different mitigations proposed in its 2019 Wildfire Mitigation Plan.⁴ These mitigations involve a wide-array of topic areas such as: inspection and maintenance programs, infrastructure replacement programs, and vegetation management programs which all mitigate the risk of ignitions due to a fault on the electric system, as well as situational awareness, which informs SDG&E's risk models and helps prioritize infrastructure replacement; and strategies and tools for real time decision making during emergency response or Power Safety Power Shutoff events. SDG&E also has mitigations that reduce the impact of a wildfire once an ignition has occurred, including high definition cameras, ground and aerial fire suppression resources, and a fuels management program. In addition, SDG&E has implemented mitigations to the customer impacts associated with Power Safety Power Shutoff events including the installation of remote switches to limit the customers exposed to Power Safety Power Shutoff, the establishment of customer resource centers during Power Safety Power Shutoff events, and SDG&E's customer outreach programs.

In Attachment A hereto, SDGE provides a detailed breakdown of the 2019 year-end progress on all these individual mitigations. In summary, SDG&E has fire hardened 160 miles of its electric system and replaced over 3,600 structures within the high fire threat district from January 1, 2019 through December 31, 2019.

Implementation of SDG&E's Most Recent Safety Culture Assessment

SDG&E has not yet undergone a Commission-initiated safety culture assessment. Accordingly, SDG&E has no information to report regarding implementation. Once SDG&E's safety culture assessment is completed, SDG&E will include implementation information in future advice letters.

January 10, 2020 Safety Committee Meeting

The SDG&E Board Safety Committee⁵ advises and assists the Board of Directors in the oversight of safely providing electric and natural gas services to the Company's customers. The Safety Committee held a meeting on January 10, 2020 in which it received presentations from SDG&E management and employees. In the course of the meeting, the Safety Committee asked questions and engaged with SDG&E management and employees regarding the subjects of their presentations.

At the January 10 meeting, the Safety Committee received presentations from SDG&E management and employees regarding safety issues.

Caroline Winn, SDG&E's Chief Operating Officer, presented an update on the implementation status of SDG&E's 2019 Wildfire Mitigation Plan. Ms. Winn also discussed SDG&E's preparation of its 2020 Wildfire Mitigation Plan, pursuant to the December 16, 2019 Administrative Law Judge's ruling establishing a plan template and related evaluative materials. As discussed below,

⁴ SDG&E's 2019 Wildfire Mitigation Plan was approved in D.19-05-039.

⁵ The Safety Committee members include Erbin B. Keith, Chairman; Robert J. Borthwick; and Trevor I. Mihalik.

Ms. Winn also explained SDG&E's follow-up to the recommendations issued by the Safety Committee at its previous meeting. Next, along with John Jenkins, SDG&E's Vice President for Electric System Operations, Ms. Winn provided an After Action Report on the 2019 Red Flag Warning events in SDG&E's service territory.

Mr. Jenkins then provided a review of the Safety and Enforcement Division's November 26, 2019 Incident Investigation Report for the 2018 Camp Fire. Mr. Jenkins summarized the report and explained SDG&E's transmission inspection procedures, as well as salient differences in the equipment SDG&E uses on its transmission facilities.

Will Speer, SDG&E's Vice President of Electric Engineering and Construction, made a presentation to the Safety Committee on SDG&E's Serious Injury and Fatality Prevention Assessment Initiative. This initiative seeks to reduce and mitigate the potential for serious injuries.

Kirstie Raagas, Business Manager in SDG&E's Regulatory Affairs department, then provided an overview of Public Safety Power Shutoffs in California, discussing SDG&E's experience from the aftermath of the 2007 fires through the present, as well as the recent de-energization events in the fall of 2019 and related regulatory proceedings.

Ms. Winn and Mike Schneider, SDG&E's Vice President of Risk Management and Compliance, explained SDG&E's recent accountability reporting concerning spending and safety performance metrics.

Lastly, Mr. Keith provided the following Safety Committee recommendations to SDG&E:

1. The Safety Committee should meet with one or more outside consultants on safety issues in 2020.
2. SDG&E should study whether there are improvements that can be made to its processes and procedures regarding Public Safety Power Shutoff events to further leverage technology to enhance the Company's internal and external distribution of information.

Implementation of Recommendations of the Board of Directors Safety Committee in the Prior Quarter

As noted in AL 3461-E, SDG&E's Safety Committee provided the following recommendations to the Company at the November 4, 2019 meeting:

1. SDG&E should inform the Safety Committee Members of any significant safety event affecting SDG&E's customers or its workforce.
2. SDG&E should establish regular reporting from its executives with safety-related responsibilities or oversight to the Safety Committee.
3. SDG&E should study, to the extent possible based on available information, the causes of the recent catastrophic wildfire ignitions linked to PG&E or SCE equipment for purposes of developing "lessons learned."
4. SDG&E should continue its practice of holding a series of Emergency Operations drills simulating major catastrophic events, including a wildfire ignition.

At the January 10 meeting, Ms. Winn provided an update on SDG&E's progress regarding these recommendations. Specifically, Ms. Winn reported as follows:

1. SDG&E will provide updates to the Safety Committee on any significant safety events affecting SDG&E's customers or its workforce. In the fourth quarter of 2019, there were no such events to report.
2. SDG&E executives with safety responsibilities will report to the Safety Committee at each Safety Committee meeting. At the January 10 meeting, Ms. Winn described some of the important safety meetings and briefings in which she participated over the past 6 months as the Company's chief safety officer.

First, SDG&E's executives regularly discuss and receive briefings on safety matters within the context of the Company's Executive Safety Council. The Safety Council meets on an approximately monthly basis.

Second, SDG&E's executives and various subject matter experts regularly discuss and receive briefings on wildfire-related issues affecting the Company within the context of SDG&E's Wildfire Council. The Wildfire Council also meets on an approximately monthly basis.

Third, SDG&E holds numerous exercises and preparedness events. Recent examples include: (1) Sempra Energy's 2019 Emergency Preparedness Stand Down; (2) Annual Contractor Safety Summit; (3) Public Safety Power Shutoff exercise; (4) Operation Fire Safe Day kick off; (5) the 2019 Safety Congress; and (6) the Sempra Energy Safety Summit.

Fourth, SDG&E developed the Wildfire Safety Community Advisory Council to solicit input from various community leaders on wildfire issues.

3. As noted, at the January 10 meeting, SDG&E reviewed a recent report issued by the Safety and Enforcement Division on the 2018 Camp Fire with the Safety Committee. SDG&E will continue to review additional information as it becomes available.
4. SDG&E has scheduled four major drills for its Emergency Operations Center personnel in 2020, involving wildfire events (two drills), an earthquake event, and a cybersecurity event. SDG&E also continues to plan and perform training events for safety officers on an approximately quarterly basis.

EFFECTIVE DATE

SDG&E believes this submittal is subject to Energy Division disposition and should be classified as Tier 1 (effective pending disposition) pursuant to GO 96-B. SDG&E respectfully requests that this AL become effective on January 16, 2020, which is the date of submittal.

PROTEST

Anyone may protest this Advice Letter to the California Public Utilities Commission. The protest must state the grounds upon which it is based, including such items as financial and service impact, and should be submitted expeditiously. The protest must be made in writing and must be received no later than February 5, 2020, which is within 20 days of the date this Advice Letter was filed with the Commission. There is no restriction on who may file a protest. The address for mailing or delivering a protest to the Commission is:

CPUC Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Copies of the protest should also be sent via e-mail to the attention of Energy Division at EDTariffUnit@cpuc.ca.gov of the Energy Division. A copy of the protest should also be sent via e-mail to the address shown below on the same date it is mailed or delivered to the Commission.

Attn: Megan Caulson
Regulatory Tariff Manager
E-mail: MCaulson@sdge.com

NOTICE

A copy of this filing has been served on the utilities and interested parties shown on the attached list, including interested parties to service lists R.18-10-007 and R.18-12-005, by either providing them a copy electronically or by mailing them a copy hereof, properly stamped and addressed.

Address changes should be directed to SDG&E Tariffs by e-mail at SDG&ETariffs@sdge.com.

CLAY FABER
Director – Federal & CA Regulatory



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: San Diego Gas & Electric (U902)

Utility type:

☒ ELC ☐ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Megan Caulson

Phone #: 858-654-1748

E-mail: MCAulson@sdge.com

E-mail Disposition Notice to: SDG&ETariffs@sdge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 3496-E

Tier Designation: 1

Subject of AL: Quarterly Advice Letter Related to Public Utilities Code Section 8389(e)(7)

Keywords (choose from CPUC listing): Compliance

AL Type: ☐ Monthly ☒ Quarterly ☐ Annual ☐ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: PUC 8389(e)(7)

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: N/A

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? ☐ Yes ☒ No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? ☐ Yes ☒ No

Requested effective date: 1/16/20

No. of tariff sheets: None

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Megan Caulson
Title:
Utility Name: San Diego Gas & Electric
Address: 8330 Century Park Court, CP32C
City: San Diego
State: California Zip: 92123
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email: MCaulson@sdge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

Clear Form

General Order No. 96-B
ADVICE LETTER SUBMITTAL MAILING LIST

cc: (w/enclosures)

<u>Public Utilities Commission</u>	<u>Clean Power Research</u>	<u>NLine Energy</u>
<u>Office of Ratepayer Advocates (ORA)</u>	T. Schmid	M. Swindle
R. Pocta	G. Novotny	<u>NRG Energy</u>
<u>Energy Division</u>	<u>Davis Wright Tremaine LLP</u>	D. Fellman
M. Ghadessi	J. Pau	<u>Pacific Gas & Electric Co.</u>
M. Salinas	<u>Douglass & Liddell</u>	M. Lawson
L. Tan	D. Douglass	M. Huffman
R. Ciupagea	D. Liddell	Tariff Unit
Tariff Unit	<u>Ellison Schneider Harris & Donlan LLP</u>	<u>RTO Advisors</u>
<u>CA Energy Commission</u>	E. Janssen	S. Mara
B. Penning	C. Kappel	<u>SCD Energy Solutions</u>
B. Helft	<u>Energy Policy Initiatives Center (USD)</u>	P. Muller
<u>Advantage Energy</u>	S. Anders	<u>Shute, Mihaly & Weinberger LLP</u>
C. Farrell	<u>Energy Regulatory Solutions Consultants</u>	O. Armi
<u>Alcantar & Kahl LLP</u>	L. Medina	<u>Solar Turbines</u>
M. Cade	<u>Energy Strategies, Inc.</u>	C. Frank
K. Harteloo	K. Campbell	<u>SPURR</u>
<u>AT&T</u>	<u>EQ Research</u>	M. Rochman
Regulatory	General	<u>Southern California Edison Co.</u>
<u>Barkovich & Yap, Inc.</u>	<u>Goodin, MacBride, Squeri, & Day LLP</u>	K. Gansecki
B. Barkovich	B. Cragg	<u>TerraVerde Renewable Partners LLC</u>
<u>Braun & Blaising, P.C.</u>	J. Squeri	F. Lee
S. Blaising	<u>Green Charge</u>	<u>TURN</u>
D. Griffiths	K. Lucas	M. Hawiger
<u>CA Dept. of General Services</u>	<u>Hanna and Morton LLP</u>	<u>UCAN</u>
H. Nanjo	N. Pedersen	D. Kelly
<u>California Energy Markets</u>	<u>JBS Energy</u>	<u>US Dept. of the Navy</u>
General	J. Nahigian	K. Davoodi
<u>California Farm Bureau Federation</u>	<u>Keyes & Fox, LLP</u>	<u>US General Services Administration</u>
K. Mills	B. Elder	D. Bogni
<u>California Wind Energy</u>	<u>Manatt, Phelps & Phillips LLP</u>	<u>Valley Center Municipal Water Distr</u>
N. Rader	D. Huard	G. Broomell
<u>City of Poway</u>	R. Keen	<u>Western Manufactured Housing</u>
Poway City Hall	<u>McKenna, Long & Aldridge LLP</u>	<u>Communities Association</u>
<u>City of San Diego</u>	J. Leslie	S. Dey
F. Ortlieb	<u>Morrison & Foerster LLP</u>	<u>Interested Parties</u>
B. Henry	P. Hanschen	R.18-10-007
L. Azar	<u>MRW & Associates LLC</u>	R.18-12-005
Y. Lu	General	
D. Heard		
<u>Clean Energy Renewable Fuels, LLC</u>		
P. DeVille		

SDG&E Advice Letter 3496-E
January 16, 2020

ATTACHMENT A

SDG&E'S 2019 WILDFIRE MITIGATION PLAN PROGRESS UPDATE

SDG&E's 2019 Wildfire Mitigation Plan (WMP) Progress Update

(All data is as of December 31st, 2019)

Wildfire Mitigation Plan Activities Summary

Operational Practices				Vegetation Management			Situational Awareness		
4.1.1 – Operate based on normal, elevated, and extreme conditions	4.1.2 – Disable reclosing during elevated or higher conditions	4.1.3 – Restrict high risk work during elevated or higher conditions		4.4.1 – Create a tree database for analysis	4.4.2 – Increase inspections within the HFTD	4.4.3 – Increase post trim clearance to 25’ within the HFTD	4.5.1 – Creates a Fire Science and Climate Adaptation department	4.5.2 – Perform analysis of weather data to inform circuit risk	4.5.3 – Publish Fire Potential Index to inform Operations
4.1.4.1 – Send fire suppression crews to support electric crews	4.1.4.2 – Aerial resources available for CalFire Dispatch year round	4.1.4.3 – Ground fire suppression resources available for dispatch year round		4.4.4 – Utilize technology to prioritize trimming and hardening efforts	4.4.5 – Audit the trimming to ensure quality and compliance	4.4.6 – Inspect and remove “hazard trees” that could fall into lines	4.5.4 – Utilize SAWTI to gauge severity of Santa Ana Wind events	4.5.5 – Utilize wildfire simulation model to understand the impacts of ignitions	4.5.6 – Utilize camera networks to improve response times to fires
4.1.4.5 – Create ignition database and perform root cause analysis	4.1.4.6 – Clear fuels on BLM land and 13 priority circuits			4.4.7 – Clear vegetation at the base of poles with equipment	4.4.8 – Electric Equipment Training through joint inspections with CalFire	4.4.9 – Perform inspections in high risk areas prior to red flag events	4.6.1 – Collaborate with stakeholders to better understand the impacts of climate change	4.6.2 – SDG&E will install 500 wireless fault indicators	4.6.3 – Add 13 weather stations to SDG&E’s weather network
Plans for Inspection				Public Safety Power Shutoff					
4.2.1 –Complete distribution Inspections	4.2.2 – Complete substation inspections	4.2.3 – Complete transmission inspections	4.2.3 – Complete GIS portal to share data		4.7.1 – SDG&E utilizes PSPS as a last resort mitigation	4.7.2 – SDG&E patrols lines before re-energizing after PSPS events	4.7.4 – SDG&E notifies its customers in five languages of impeding PSPS events		4.7.5 – SDG&E continues to collaborate with key community stakeholders
System Hardening									
4.3.1 – Leverage design and construction standards	4.3.2 – SDG&E looks to apply new technologies to mitigate wildfire risk	4.3.3 – SDG&E performs facility analysis to inform risk models and prioritization	4.3.4 – SDG&E has created a formal wildfire mitigation strategy and governance team	4.3.5 – SDG&E has formed a centralized asset management group	4.3.6 – SDG&E plans to harden 10 miles of transmission lines (outside of CNF)	4.3.7 – SDG&E plans to underground 1.25 miles of overhead in 2019	4.3.8 – SDG&E plans to harden 68 miles of overhead lines within the CNF	4.3.9 – SDG&E plans to harden 80 miles of distribution lines within the HFTD	4.3.10 – SDG&E plans to replace 700 wood pole structures within the HFTD
4.3.11 – SDG&E plans to replace 2250 fuses within the HFTD	4.3.12 – SDG&E plans to replace 500 hot line clamps within the HFTD	4.3.13 – SDG&E plans to harden 5.7 miles of distribution lines in the wildland urban interface	4.3.14 – SDG&E will develop standards and work methods for covered conductor	4.3.15 – SDG&E will enable falling conductor protection on 8 circuits	4.3.16 – SDG&E will install LTE equipment and fiber backhaul within the HFTD	4.3.17 – SDG&E has installed over 200 remote switching devices within the HFTD	4.3.18 – SDG&E will install seven additional remote switching devices	4.3.19 – SDG&E replaces poles as part of its inspections and maintenance program	4.3.20 – SDG&E installs back up generation to mitigate the impacts of PSPS

Q4 Activity Status vs 2019 Goals

Operational Practices

Operating Conditions

137 days

Operated in elevated or higher condition

Operating Conditions (4.1.1)

Volume vs 2019 Goal: SDG&E has operated in elevated or higher condition 137 days in 2019.

Key Actions: SDG&E continues to define and change it's operating procedures based on its conditions which are defined by SDG&E's fire potential index. These are defined as normal, elevated, and extreme.

Other Special Work Procedures

Complete

Other Special Work Procedures (4.1.3)

Volume vs 2019 Goal: 100% of days elevated or higher, SDG&E has implemented special work procedures.

Key Actions: SDG&E ensures that on elevated days, electric crews are accompanied by fire suppression crews to ensure safety. On extreme days, certain activities are stopped altogether within the HFTD.

Aviation Firefighting Program

3

Aerial fire suppression resources available

Aviation Firefighting Program (4.1.4.2)

Volume vs 2019 Goal: SDG&E has three aerial fire suppression resources available year-round in 2019.

Key Actions: These assets have made a combined 279 drops including 220,453 gallons of water.

Ignition Management Program

Complete

Ignition Management Program (4.1.4.5)

Volume vs 2019 Goal: SDG&E has secured a resource for this role in June and the database has been developed.

Key Actions: The ignition management program lead has begun to collect data and perform root cause analysis on ignitions.

Recloser Protocols

Complete

Recloser Protocols (4.1.2)

Volume vs 2019 Goal: 100% of days elevated or higher, SDG&E has disabled reclosing and enabled sensitive protections on it's reclosers within the HFTD in an effort to mitigate the risk or wildfire.

Wildfire Infrastructure Protection Teams

Complete

Wildfire Infrastructure Protection Teams (4.1.4.1)

Volume vs 2019 Goal: 100% of days elevated or higher, wildfire infrastructure teams join SDG&E electric crews to provide fire suppression capabilities during high risk work. These crews are also there to support re-energization during PSPS events.

Industrial Fire Brigade

Complete

Industrial Fire Brigade (4.1.4.3)

Volume vs 2019 Goal: Industrial fire brigade resource has been secured and is available year-round in 2019.

Key Actions: This fire suppression resource responds to active fire events caused by SDG&E equipment. They are equipped with a liquid foam truck which can extinguish oil fires caused by transformers.

Fuels Management Program

808

Poles surveyed

511

Poles treated

Fuel Management (4.1.4.6)

Volume vs 2019 Goal: Baseline surveys were completed for 808 poles including BLM, Priority 13, Tier 3, and CNF poles. 511 of the surveyed poles were treated. The remaining poles did not meet the habitat requirements for fuel work, or the landowner denied access.

Key Actions: SDG&E has completed fuels management on 100% of the poles surveyed that met the program criteria and were able to be accessed.

Q4 Activity Status vs 2019 Goals

Plans for Inspection

Distribution System Inspection

100% QA/QC
100% Detailed

Distribution System Inspection (4.2.1)

Volume vs 2019 Goal: 10,000 of 10,000 poles completed QA/QC inspection (100%), 47,813 of 47,850 poles completed for detailed inspection (100%)

Key Actions: SDG&E completes remediations within 6 months in tier 3 HFTD per general orders, and within 12 months in the tier 2 HFTD

Transmission System Inspection

100%

Structures inspected

Transmission System Inspection (4.2.3)

Volume vs 2019 Goal: 6,730 of 6,730 OH Structures inspected (100%)

Key Actions: Transmission inspections and remediations are completed in accordance with general orders and the filed maintenance plan with the California ISO.

Substation System Inspection

100%

Substations inspected

Substation System Inspection (4.2.2)

Volume vs 2019 Goal: 301 of 300 substation inspected (100%)

Key Actions: SDG&E completes substation inspections and remediations in accordance with general order 174

Geographic Information Data System

Complete

Geographic Information System Data (4.2.4)

Volume vs 2019 Goal: The GIS portal to share information with CALOES during emergency and PSPS events has been implemented.

Key Actions: SDG&E has successfully shared GIS information through the portal on multiple activations in 2019

Q4 Activity Status vs 2019 Goals

System Hardening (1 of 3)

Design and Construction Standards

Complete

Design and Construction Standards (4.3.1)

Key Actions: SDG&E designs and constructs its transmission and distribution system in accordance with its standards.

Facility Analysis

Complete

Facility Analysis (4.3.3)

Key Actions: SDG&E has completed the actions performed in the facilities analysis section of the WMP. This information informs SDG&E's risk models and helps with the prioritization of wildfire mitigation

Asset Management

Complete

Asset Management (4.3.5)

Key Actions: The asset management group has been stood up, and they are in the process of publishing asset strategies and are developing asset health index tools.

Undergrounding Circuit Line Segments

208%

Undergrounded

Underground Circuit Line Segments (4.3.7)

Volume vs 2019 Goal: 2.6 of 1.25 miles undergrounded (208%)
Key Actions: This program has exceeded its goal for 2019.

Testing and Deploying Emerging Technologies

Complete

Testing and Deploying Emerging Technologies (4.3.2)

Key Actions: SDG&E continues to evaluate and implement emerging technologies. Examples this year include the installation of falling conductor protection, the installation of the Cal Fire approved fuses, and the completion of vendor selection and standards for covered conductor.

Oversight of Activities in the Rural Areas

Complete

Oversight of Activities in the Rural Areas (4.3.4)

Key Actions: This governance and strategy role has evolved in 2019 with the creation of the Wildfire Mitigation Department.

Overhead Trans. and Dist. Fire Hardening

Trans.	Dist.
100%	98%
Hardened	

Overhead Transmission and Distribution Fire Hardening (4.3.6)

Volume vs 2019 Goal: 10 of 10 miles of transmission hardened (100%); 83 of 85 miles of distribution hardened (98%)

Key Actions: SDG&E continues the hardening of its 69kV transmission system and is on track to finish all transmission circuits within the HFTD by 2025.

Cleveland National Forest Fire Hardening

90%
Hardened

Cleveland National Forest Fire Hardening (4.3.8)

Volume vs 2019 Goal: 61 of 68 miles hardened (90%)

Key Actions: Includes both transmission and distribution fire hardening of lines within the Cleveland National Forest

Q4 Activity Status vs 2019 Goals

System Hardening (2 of 3)

Fire Risk Mitigation

96%

Complete

Fire Risk Mitigation (4.3.9)

Volume vs 2019 Goal: 82 of 85 miles complete (96%)

Key Actions: FiRM continues to replace small high-risk conductor with high tensile strength conductor, it's replaced 403 miles program to date.

Expulsion Fuse Replacement

111%

Fuses replaced

Expulsion Fuse Replacement (4.3.11)

Volume vs 2019 Goal: 2490 of 2250 fuses replaced (111%)

Key Actions: Program has exceeded its goal for 2019.

Wire Safety Enhancement

100%

Enhanced

Wire Safety Enhancement (4.3.13)

Volume vs 2019 Goal: 5.7 of 5.7 miles enhanced (100%)

Key Actions: Installation have been completed in the wild land urban interface in Rancho Santa Fe, and in the costal canyons of La Jolla.

Fire Threat Zone Advanced Protection

100%

Enabled

Fire Threat Zone Advanced Protection (4.3.15)

Volume vs 2019 Goal: 8 of 8 circuits enabled with falling conductor protection (100%)

Pole Risk Mitigation and Engineering

99%

Hardened

Pole Risk Mitigation and Engineering (4.3.10)

Volume vs 2019 Goal: 695 of 700 poles hardened (99%)

Hotline Clamps

132%

Hotline clamps removed

Hotline Clamps (4.3.12)

Volume vs 2019 Goal: 660 of 500 hotline clamps removed (132%)

Key Actions: Program has exceeded its goal for 2019.

Covered Conductor

Substantially Complete

Covered Conductor (4.3.14)

Key Actions: Distribution Standards have selected covered conductor vendors, installed the conductor at a controlled test site, attached new hardware to SDG&E, and are in route to publish standards in January of 2020.

LTE Communication Network

Complete

LTE Communication Network (4.3.16)

Key Actions: LTE equipment and fiber back haul installations have begun in 2019.

Q4 Activity Status vs 2019 Goals



System Hardening (3 of 3)

Automated Reclosers

200
Installed

Automated Reclosers (4.3.17)

Key Actions: SDG&E has over 200 remote reclosers installed within the HFTD and continues to install more in an effort to be more targeted in PSPS events

Pole Replacement and Reinforcement

725
Poles replaced

Pole Replacement and Reinforcement (4.3.19)

Volume vs 2019 Goal: SDG&E has replaced 725 poles found through the GO165 visual and intrusive inspections within the HFTD.

PSPS Engineering Enhancements

100%
Installed

Public Safety Power Shutoff Engineering Enhancements (4.3.18)

Volume vs 2019 Goal: 7 of 7 switches installed (100%)
Key Actions: SDG&E completed its 2019 goal to expand switch installations within the HFTD to mitigate the impacts of PSPS

Backup Power for Resilience

Complete

Backup Power for Resilience (4.3.20)

Key Actions: All Community Resource Centers requiring a transfer switch to facilitate backup generation were fitted with manual transfer switches by year end. 79 medical baseline customers were identified and offered generators. 65 of 79 received the generator, were trained on its use, and are considered complete. The remaining 14 customers did not participate in the program: 3 were unresponsive to outreach efforts, 8 refused to participate, and 3 had relocated. All targeted HPWREN system upgrades were completed by December 31, 2019.

Q4 Activity Status vs 2019 Goals

Vegetation Management (1 of 2)

Tree Database

455,000

Trees inventoried

Tree Database (4.4.1)

Volume vs 2019 Goal: YTD 455,000 trees in inventory

Patrol and Pruning

Complete

Patrol and Pruning (4.4.2)

Key Actions: Bamboo and Century Plant off cycle Patrols are Complete

Enhanced Inspections, Patrols, and Trimming

Complete

Enhanced Inspections, Patrols, and Trimming (4.4.3)

Volume vs 2019 Goal: 81,000 trees targeted for enhanced 25-foot post prune clearance or complete removal. Post Red flag Warning patrols in specified HFTD Circuits.

Key Actions: 28 of 28 circuits completed off cycle patrols and trimming (100%)

Technology

Complete

Technology (4.4.4)

Key Actions: Utilized Meteorological data to complete first phase of Vegetation Risk Index (VRI).

Quality Assurance

80%

HFTD audits complete

Quality Assurance (4.4.5)

Key Actions: Slight impact to schedule as a result of Red Flag Warning and fires keeping crews safe and outside the affected areas. Completed 80% of HFTD audits by year end.

Hazard Tree Removal and Right Tree-Right Place

9884

Removed

260

Replaced

Hazard Tree Removal and Right Tree-Right Place (4.4.6)

Key Actions: YTD completed 9,884 tree removals and replacing 260* trees.

**Replacement trees revised downward due to recalculation.*

Pole Brushing

100%

Mech. brushing & chem app.

100%

Re-clear cycle complete

Pole Brushing (4.4.7)

Key Actions: 100% Mechanical brushing and Chem applications are complete. Currently 100% Complete in re-clear cycle. Notification process for the next cycle is 80% complete.

Electrical Equipment Training

Off Track

Electric Equipment Training (4.4.8)

Key Actions: Cal Fire was not available for training or joint inspections in 2019. Cal Fire did commit to scheduling training in 2020.

Q4 Activity Status vs 2019 Goals



Vegetation Management (2 of 2)

Red Flag Operations
Complete

Red Flag Operations (4.4.9)
Key Actions: Tree Trim Crews have been staged during each Red flag Warning event at the request of the EDO.

Q4 Activity Status vs 2019 Goals

Situational Awareness (1 of 2)

Fire Science and Climate Adaptation Department

Complete

Fire Science and Climate Adaptation Department (4.5.1)

Volume vs 2019 Goal: This department was formed in 2018
Key Actions: This department forms the foundation for situational awareness, emergency response, and hardening prioritization

Fire Potential Index

Complete

Fire Potential Index (4.5.3)

Volume vs 2019 Goal: SDG&E has published an FPI every business day in elevated or higher conditions 137/137 days (100%)
Key Actions: SDG&E leverages the FPI to inform it's operating conditions and procedures

WRRM - Operational System

29

Simulations published

Wildfire Risk Reduction Model – Operational System (4.5.5)

Key Actions: SDG&E has published 29 fire simulations which inform impact analysis of fires without suppression to get an idea of the structures, customers, and SDG&E infrastructure that is at risk due to an ignition. This tool is used to prioritize hardening efforts.

Climate Change Adaptation

Complete

Climate Change Adaptation (4.6)

Key Actions: SDG&E collaborates with the San Diego Association of Governments(SANDAG) and educational institutions to better understand the impacts of climate change, and how to best mitigate these impacts. SDG&E has an internal climate advisory group that advices on climate-based decisions.

Meteorological Cap. and Tech.

Complete

Meteorological Capabilities and Technologies (4.5.2)

Volume vs 2019 Goal: SDG&E's weather network has grown from 178 to 191 in 2019.
Key Actions: Leveraging SDG&E's dense weather network, SDG&E performs statistical analysis to model risk on individual electric circuits

Santa Ana Wildfire Threat Index

Complete

Santa Ana Wildfire Threat Index (4.5.4)

Volume vs 2019 Goal: SDG&E developed in conjunction with US Forest Service and UCLA, and it's published every business day
Key Actions: This tool allows SDG&E to gauge the severity of Santa Ana wind events

Camera Networks and Fire Detection

107

Cameras

Camera Networks and Fire Detection (4.5.6)

Volume vs 2019 Goal: SDG&E has a total of 107 cameras across the service territory
Key Actions: The primary use to improve fire suppression response time by triangulating locations of ignitions as soon as they occur

Wireless Fault Indicators

119%

Complete

Wireless Fault Indicators (4.6.2)

Volume vs 2019 Goal: 594 of 500 wireless fault indicators (119%)
Key Actions: This program exceeded its goal for 2019.

Q4 Activity Status vs 2019 Goals



Situational Awareness (2 of 2)

Advanced Weather
Station Integration
and Forecast

Complete

Advanced Weather Station Integration and Forecast (4.6.3)
Volume vs 2019 Goal: Added 13 of 13 weather stations (100%)
Key Actions: This year, SDG&E has installed a software enhancement on 105 of it's 190 weather stations which allows for reads every 30 seconds, a significant improvement from reads every 10 minutes. This enables better real time decision making.

Q4 Activity Status vs 2019 Goals



Public Safety Power Shutoff

Strategy for
Minimizing Public
Safety Risk

Complete

Strategy for Minimizing Public Safety Risk (4.7.1)
Key Actions: SDG&E continues to use Power Safety Power Shutoff as a last resort mitigation during the most extreme weather events of the year. In 2019, SDG&E activated PSPS protocols on three events and utilized PPS all three times. One of the PPS protocol activations included three separate Red Flag Warnings, of which PPS was only utilized for two of the three RFWs.

Communication
Practices

Complete

Communication Practices (4.7.4)
Key Actions: SDG&E has implemented notification procedures in five languages to keep our customers informed of potential and impending PPS events utilizing multiple channels of communication as outlined in SDG&E’s wildfire mitigation plan.

Public Safety Power
Shutoff Protocols

Complete

Public Safety Power Shutoff Protocols (4.7.2)
Key Actions: Before re-energizing customers after a PPS event, SDG&E confirms with meteorology that the peak winds have passed, and 100% of the circuit is patrolled by ground or helicopter to ensure no damage occurred during the event.

Mitigating the Public
Safety Impact of
PPS Protocols

Complete

Mitigating the Public Safety Impact of PPS Protocols (4.7.5)
Key Actions: SDG&E has and continues to communicate with key stakeholders as outlined in SDG&E’s Wildfire Mitigation Plan

Appendix

Off Track Activity Details

2019 WMP Off Track Activities – Details



Off Track

(4.4.8) – Electric Equipment Training

Summary: This program was initiated as a collaboration with CalFire. Both SDG&E and CalFire are required to perform inspections in compliance with PRC 4292 and 4293. SDG&E and CalFire jointly perform these inspections so that CalFire better understands the electrical equipment and so that SDG&E better understands the wildfire risk of the area.

Progress/Challenges: SDG&E offered to train CalFire employees on electrical equipment at the beginning of 2019, but they didn’t have resources available to complete the training. CalFire confirmed there was a county staffing issue, and that the county will provide additional staffing in 2020. They have plans to resume joint inspections with SDG&E in 2020.

SDG&E Advice Letter 3535-E



Clay Faber - Director
Federal & CA Regulatory
8330 Century Park Court
San Diego, CA 92123
cfaber@semprautilities.com

April 27, 2020

**ADVICE LETTER 3535-E
(U902-E)**

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**SUBJECT: QUARTERLY ADVICE LETTER RELATED TO PUBLIC UTILITIES CODE
SECTION 8389(e)(7)**

Per Public Utilities Code Section 8389(e)(7), San Diego Gas & Electric Company (SDG&E or the Company) hereby submits to the California Public Utilities Commission (Commission) this Tier 1 Advice Letter (AL) that details the implementation of both its approved Wildfire Mitigation Plan and recommendations of the most recent safety culture assessment; a statement of recommendations of the Board of Directors Safety Committee (Safety Committee) meetings that occurred during the quarter;¹ and a summary of the implementation of the Safety Committee recommendations from SDG&E's previous advice letter.²

PURPOSE

The purpose of this AL is to comply with the requirements of Section 8389(e)(7), which were added to the Public Utilities Code by Assembly Bill (AB) 1054 on July 12, 2019. That statutory provision requires that SDG&E file a Tier 1 AL "on a quarterly basis that details the implementation of both its approved wildfire mitigation plan and recommendations of the most recent safety culture assessment, and a statement of recommendations of the board of directors safety committee meetings that occurred during the quarter." Section 8389(e)(7) also requires that the AL "shall summarize the implementation of safety committee recommendations from the electrical corporation's previous advice letter filing."

BACKGROUND

Governor Newsom signed AB 1054 into law on July 12, 2019. AB 1054 contains numerous statutory provisions and amendments designed to enhance the mitigation and prevention of catastrophic wildfires – including wildfires linked to utility equipment – in California. AB 1054 added Section 8389 to the Public Utilities Code. Section 8389(e) establishes the requirements for annual safety certifications³ and, *inter alia*, requires electrical corporations to establish a safety committee of its board of directors composed of members with relevant safety experience, establish board-of-director-level reporting to the Commission on safety issues, and file quarterly Tier 1 ALs as described above.

¹ This AL includes information relating to activities and events that occurred in the first quarter of 2020.

² AL 3496-E.

³ SDG&E received its initial safety certification from the Commission via a letter from the Executive Director dated July 26, 2019.

DISCUSSION**Implementation of SDG&E's Approved Wildfire Mitigation Plan**

SDG&E is tracking 42 progress metrics on 29 different mitigations proposed in its Wildfire Mitigation Plan. These mitigations involve a wide-array of topic areas such as: inspection and maintenance programs, infrastructure replacement programs, and vegetation management programs which all mitigate the risk of ignitions due to a fault on the electric system. SDG&E has mitigation programs to enhance situational awareness, which informs SDG&E's risk models and helps prioritize infrastructure replacement; and strategies and tools for real time decision making during emergency response or Power Safety Power Shutoff events. SDG&E also has mitigations that reduce the impact of a wildfire once an ignition has occurred, including high definition cameras, ground and aerial fire suppression resources, and a fuels management program.

In addition, SDG&E has implemented mitigations to the customer impacts associated with Power Safety Power Shutoff events including the installation of remote switches to limit the customers exposed to Power Safety Power Shutoff, the establishment of customer resource centers during Power Safety Power Shutoff events, and SDG&E's customer outreach programs.

In Attachment A hereto, SDG&E provides a detailed breakdown of the progress on all these individual mitigations. In summary, SDG&E has fire hardened 31 miles of its electric system and replaced over 600 structures within the high fire threat district from January 1, 2020 through March 31, 2020.

Implementation of SDG&E's Most Recent Safety Culture Assessment

SDG&E has not yet undergone a Commission-initiated safety culture assessment. Accordingly, SDG&E has no information to report regarding implementation. Once SDG&E's safety culture assessment is completed, SDG&E will include implementation information in future advice letters.

April 1, 2020 Safety Committee Meeting

The SDG&E Board Safety Committee⁴ advises and assists the Board of Directors in the oversight of safely providing electric and natural gas services to the Company's customers. The Safety Committee held a meeting on April 1, 2020 in which it received presentations from SDG&E management and employees. In the course of the meeting, the Safety Committee asked questions and engaged with SDG&E management and employees regarding the subjects of their presentations.

At the April 1 meeting, the Safety Committee received the following presentations from SDG&E management and employees regarding safety issues.

Caroline Winn, SDG&E's Chief Operating Officer, presented an update on the COVID-19 pandemic, and SDG&E's response to it. Ms. Winn and Tyson Swetek, SDG&E's Wildfire Mitigation Program Manager, then discussed the status of SDG&E's 2020 Wildfire Mitigation Plan, which includes 55 activities to mitigate wildfire risks, divided into 10 major categories. As discussed in further detail below, Ms. Winn then updated the Safety Committee on the status of SDG&E's follow-up actions with respect to the prior Safety Committee recommendations.

⁴ The Safety Committee members include Erbin B. Keith, Chairman; Robert J. Borthwick; and Trevor I. Mihalik.

Mike Schneider, SDG&E's Vice President of Risk Management & Compliance, and Ron Kiralla, SDG&E's Director of Safety, then presented SDG&E's 2020 Safety Management System Plan, which will establish a systematic enterprise-wide framework to manage and reduce risk and promote continuous improvement in safety performance through deliberate, routine, and intentional processes.

Will Speer, SDG&E's Vice President of Electric Engineering and Construction, provided an update on Pole Loading. After discussing how pole loading requirements have evolved over time, Mr. Speer discussed SDG&E's current approach to pole loading, and major company programs in which these issues are implicated.

Next, Rodger Schwecke, SDG&E's Senior Vice President – Gas Construction & Operations, made a presentation regarding SDG&E's Gas Safety Plan. Mr. Schwecke described the legislative mandates behind Gas Safety Plans, features of the plan, as well as updates to the plan.

Lastly, Mr. Keith provided the following Safety Committee recommendations to SDG&E:

1. SDG&E should study and report back on the effects of a communications network failure in its service territory during a major disaster, and how such a failure might be mitigated in order to ensure internal communications and coordination with emergency disaster relief officials.
2. SDG&E should make a presentation at the next Safety Committee meeting on the 2020 Utility Wildfire Mitigation Maturity Model Survey.
3. SDG&E should keep the Safety Committee apprised of its response to the COVID-19 pandemic, including the steps SDG&E is taking to ensure employee and customer safety.

Implementation of Recommendations of the Board of Directors Safety Committee in the Prior Quarter

As noted in AL-3496-E, SDG&E's Safety Committee provided the following recommendations to the company at the January 10, 2020 meeting:

1. The Safety Committee should meet with one or more outside consultants on safety issues in 2020.
2. SDG&E should study whether there are improvements that can be made to its processes and procedures regarding Public Safety Power Shutoff events to further leverage technology to enhance the company's internal and external distribution of information.

At the April 1 meeting, Ms. Winn provided an update on SDG&E's progress regarding these recommendations. Specifically, Ms. Winn reported as follows:

1. SDG&E understands that the Safety Committee has been considering consultants and that SDG&E management has been working to identify potential candidates on various issues. To date, this work remains ongoing.
2. SDG&E is working on technological innovations with respect to Public Safety Power Shutoff procedures. SDG&E hopes to have improvements in place ahead of the traditional fall onset of fire season in its service territory, although shelter-in-place

requirements and the response to the COVID-19 pandemic could impact timing. SDG&E currently has two teams working on innovations to further minimize the facilities that need to be de-energized and to enhance customer experiences.

At the April 1 meeting, Ms. Winn also referenced a prior Safety Committee Recommendation – that SDG&E should inform the Safety Committee Members of any significant safety event affecting SDG&E's customers or its workforce – and discussed the COVID-19 pandemic. The pandemic is a significant safety event affecting SDG&E's workforce and customers, and SDG&E continues to monitor the pandemic and develop best practices towards maintaining the health of its workforce and customers.

EFFECTIVE DATE

SDG&E believes this submittal is subject to Energy Division disposition and should be classified as Tier 1 (effective pending disposition) pursuant to GO 96-B. SDG&E respectfully requests that this AL become effective on April 27, 2020, which is the date of submittal.

PROTEST

Anyone may protest this Advice Letter to the California Public Utilities Commission. The protest must state the grounds upon which it is based, including such items as financial and service impact, and should be submitted expeditiously. The protest must be made in writing and must be received no later than May 18, 2020, which is within 21 days of the date this Advice Letter was filed with the Commission. There is no restriction on who may file a protest. The address for mailing or delivering a protest to the Commission is:

CPUC Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Copies of the protest should also be sent via e-mail to the attention of Energy Division at EDTariffUnit@cpuc.ca.gov of the Energy Division. A copy of the protest should also be sent via e-mail to the address shown below on the same date it is mailed or delivered to the Commission.

Attn: Megan Caulson
Regulatory Tariff Manager
E-mail: MCaulson@semprautilities.com

NOTICE

A copy of this filing has been served on the utilities and interested parties shown on the attached list, including interested parties to service lists R.18-10-007 and R.18-12-005, by either providing them a copy electronically or by mailing them a copy hereof, properly stamped and addressed.

Address changes should be directed to SDG&E Tariffs by e-mail at SDG&ETariffs@semprautilities.com.

CLAY FABER
Director – Federal & CA Regulatory



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: San Diego Gas & Electric (U902)

Utility type:

☒ ELC ☐ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Megan Caulson

Phone #: 858-654-1748

E-mail: MCaulson@sdge.com

E-mail Disposition Notice to: SDG&ETariffs@sdge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 3535-E

Tier Designation: 1

Subject of AL: Quarterly Advice Letter Related to Public Utilities Code Section 8389(e)(7)

Keywords (choose from CPUC listing): Compliance

AL Type: ☐ Monthly ☒ Quarterly ☐ Annual ☐ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: PUC 8389(e)(7)

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: N/A

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? ☐ Yes ☒ No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? ☐ Yes ☒ No

Requested effective date: 1/16/20

No. of tariff sheets: None

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Megan Caulson
Title:
Utility Name: San Diego Gas & Electric
Address: 8330 Century Park Court, CP32C
City: San Diego State: California
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email: MCaulson@sdge.com

Name:
Title:
Utility Name:
Address:
City: State: District of Columbia
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

Clear Form

General Order No. 96-B
ADVICE LETTER SUBMITTAL MAILING LIST

cc: (w/enclosures)

Public Utilities Commission

Office of Ratepayer Advocates (ORA)

R. Pocta

Energy Division

M. Ghadessi

M. Salinas

L. Tan

R. Ciupagea

Tariff Unit

CA Energy Commission

B. Penning

B. Helft

Advantage Energy

C. Farrell

Alcantar & Kahl LLP

M. Cade

K. Harteloo

AT&T

Regulatory

Barkovich & Yap, Inc.

B. Barkovich

Braun & Blasing, P.C.

S. Blasing

D. Griffiths

CA Dept. of General Services

H. Nanjo

California Energy Markets

General

California Farm Bureau Federation

K. Mills

California Wind Energy

N. Rader

City of Poway

Poway City Hall

City of San Diego

F. Ortlieb

B. Henry

L. Azar

Y. Lu

D. Heard

Clean Energy Renewable Fuels, LLC

P. DeVille

Clean Power Research

T. Schmid

G. Novotny

Davis Wright Tremaine LLP

J. Pau

Douglass & Liddell

D. Douglass

D. Liddell

Ellison Schneider Harris & Donlan LLP

E. Janssen

C. Kappel

Energy Policy Initiatives Center (USD)

S. Anders

Energy Regulatory Solutions Consultants

L. Medina

Energy Strategies, Inc.

K. Campbell

EQ Research

General

Goodin, MacBride, Squeri, & Day LLP

B. Cragg

J. Squeri

Green Charge

K. Lucas

Hanna and Morton LLP

N. Pedersen

JBS Energy

J. Nahigian

Keyes & Fox, LLP

B. Elder

Manatt, Phelps & Phillips LLP

D. Huard

R. Keen

McKenna, Long & Aldridge LLP

J. Leslie

Morrison & Foerster LLP

P. Hanschen

MRW & Associates LLC

General

NLine Energy

M. Swindle

NRG Energy

D. Fellman

Pacific Gas & Electric Co.

M. Lawson

M. Huffman

Tariff Unit

RTO Advisors

S. Mara

SCD Energy Solutions

P. Muller

Shute, Mihaly & Weinberger LLP

O. Armi

Solar Turbines

C. Frank

SPURR

M. Rochman

Southern California Edison Co.

K. Gansecki

TerraVerde Renewable Partners LLC

F. Lee

TURN

M. Hawiger

UCAN

D. Kelly

US Dept. of the Navy

K. Davoodi

US General Services Administration

D. Bogni

Valley Center Municipal Water Distr

G. Broomell

Western Manufactured Housing

Communities Association

S. Dey

Interested Parties

R.18-10-007

R.18-12-005

SDG&E Advice Letter 3535-E
April 27, 2020

ATTACHMENT A

SDG&E'S 2019 WILDFIRE MITIGATION PLAN PROGRESS UPDATE

SDG&E's 2020 Wildfire Mitigation Plan 1st Quarter Progress Update

(All data as of March 31, 2020)

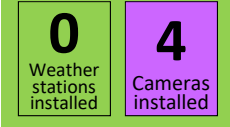
2020 Wildfire Mitigation Plan Activities Summary

5.3.2 – Situational Awareness & Forecasting		5.3.4 – Asset Management & Inspections			5.3.5 – Vegetation Management & Inspections	
5.3.2.1 Camera network and advanced weather station integration	5.3.2.3 Wireless fault indicators	5.3.4.1 Detailed corrective maintenance program inspections	5.3.4.2 Transmission system inspections	5.3.4.4 Infrared inspections of distribution infrastructure	5.3.5.2 Detailed inspections of vegetation around distribution infrastructure – tree trimming	5.3.5.5 Fuels Management
	5.3.2.4.1 Fire science and climate adaptation department	5.3.4.9.1 HFTD Tier 3 inspections	5.3.4.9.2 Drone assessments of distribution infrastructure	5.3.4.15 Substation system inspection	5.3.5.9 Other discretionary inspection of vegetation around distribution infrastructure – Enhanced inspections, patrols, and trims	5.3.5.20 Vegetation management to achieve clearances around electric infrastructure – Pole brushing
5.3.3 – Grid Design & System Hardening						
5.3.3.1 SCADA Capacitors	5.3.3.2 Advanced protection	5.3.3.3 Distribution overhead system hardening	5.3.3.6 Pole replacement and reinforcement	5.3.3.7 Expulsion fuse replacement	5.3.3.8.1 PSPS sectionalizing enhancements	5.3.3.8.2 Microgrids
5.3.3.11.1 Customer resiliency programs	5.3.3.11.2 Expanded generator grant program	5.3.3.11.3 Whole house generator program	5.3.3.16 Strategic undergrounding	5.3.3.17.1 Overhead transmission fire hardening	5.3.3.17.2 Cleveland National Forest fire hardening	5.3.3.18.1 Distribution communications reliability improvements
						5.3.3.18.2 Lightning arrestor removal and replacement

Q1 Activity Status vs 2020 Goals

5.3.2 – Situational Awareness and Forecasting

5.3.2.1



Camera network and advanced weather station integration
Volume vs 2020 Goal: 0 of 20 weather stations installed (10%), 4 of 4 cameras installed (100%)
Key Actions: Current weather stations are being fielded before further installation.

5.3.2.3



Wireless fault indicators
Volume vs 2020 Goal: 0 of 500 WFI's installed (0%)
Key Actions: Construction scheduled to start in May 2020.

5.3.2.4.1



Fire science and climate adaptation department
Volume vs 2020 Goal: 1 of 1 fire science and innovation lab
Key Actions: 2020 goal has been met in Q1 by the establishment of key academic collaborators in the innovation lab and beginning the development of our SOWs with UC San Diego and San Jose State University.

All data is up to date as of March 31, 2020

Q1 Activity Status vs 2020 Goals

5.3.3 – Grid Design and System Hardening (1 of 2)

5.3.3.1

0

SCADA capacitors installed

SCADA Capacitors

Volume vs 2020 Goal: 0 of 30 SCADA capacitors installed (0%)
Key Actions: Jobs in design. Issue for construction is scheduled for July 2020.

5.3.3.3

0
CC

6.8
OH

Distribution overhead system hardening

Volume vs 2020 Goal: 0 of 1 mile hardened with covered conductor (0%), 6.8 of 102 miles hardened (7%)
Key Actions: Covered conductor project to start in late 2020 on circuit 78. Approximately 43 miles currently under construction between the FiRM and PRiME programs.

5.3.3.7

637

Fuses replaced

Expulsion fuse replacement

Volume vs 2020 Goal: 637 of 3,000 fuses replaced (21%)
Key Actions: Program is on time and on target for completion before end of 2020.

5.3.3.8.2

0

Microgrids installed

Microgrids

Volume vs 2020 Goal: 0 of 3 microgrids installed (0%)
Key Actions: Two projects in execution, and one project in development. Substantial progress was made on the Cameron Corners Micro Grid Project in 2019, it will be completed in 2020.

5.3.3.2

0

Cir.

0

Subs.

Advanced protection

Volume vs 2020 Goal: 0 of 8 circuits enabled (0%), 0 of 6 substations enabled (0%)
Key Actions: Ongoing work in advanced protection may put project projections ahead of schedule by year end. Currently 8 substations and 13 circuits are in the construction phase.

5.3.3.6

180

Poles replaced

Pole replacement and reinforcement

Volume vs 2020 Goal: 180 of 670 poles replaced (27%)
Key Actions: Program is on time and on target for completion before end of 2020.

5.3.3.8.1

0

Switches installed

PSPS sectionalizing enhancements

Volume vs 2020 Goal: 0 of 7 sectionalizing devices installed (0%)
Key Actions: 5 of 7 switches are currently in construction.

5.3.3.10

72

HLC's replaced

Hotline clamps

Volume vs 2020 Goal: 72 of 1,650 hotline clamps replaced (4%)
Key Actions: Program is on time and on target for completion before end of 2020.

Q1 Activity Status vs 2020 Goals

5.3.3 – Grid Design and System Hardening (2 of 2)

<p>5.3.3.11.1</p> <p>0 MBL</p> <p>8 CRC 0 CCI</p>	<p><u>Customer resiliency programs</u> Volume vs 2020 Goal: 0 of 1250 medical baseline generators, 8 of 8 Community Resource Centers, and 0 of 4 community and critical infrastructure generators leased Key Actions: Medical baseline generators are scheduled for delivery to SDG&E in June 2020. Contract negotiations are underway in the leasing of generators for community and critical infrastructure.</p>	<p>5.3.3.11.2</p> <p>0</p> <p>Generators</p>	<p><u>Expanded generator grant program</u> Volume vs 2020 Goal: 0 of 130 generators Key Actions: This project is in scope development. An update will be available in the Q2 report.</p>
<p>5.3.3.11.3</p> <p>0</p> <p>Generators</p>	<p><u>Whole house generator program</u> Volume vs 2020 Goal: 0 of 300 generators Key Actions: This project is in scope development. An update will be available in the Q2 report.</p>	<p>5.3.3.16</p> <p>.1</p> <p>Miles UG</p>	<p><u>Strategic undergrounding</u> Volume vs 2020 Goal: .1 of 10 miles undergrounded (1%) Key Actions: 3.4 mi of trenching work has been completed.</p>
<p>5.3.3.17.1</p> <p>8.1 OH</p> <p>0 UG 4 UB</p>	<p><u>Overhead transmission fire hardening</u> Volume vs 2020 Goal: 8.1 of 20 OH miles (41%), 0 of 6 UG miles (0%), 4 of 9 miles distribution underbuilt (43%) Key Actions: Pending advice letter approval UG construction will begin in late 2020.</p>	<p>5.3.3.17.2</p> <p>4.4 T OH 0 D OH</p> <p>7.2 D OH w/ T 0 D UG</p>	<p><u>Cleveland National Forest fire hardening</u> Volume vs 2020 Goal: 4.4 of 26 transmission OH miles (17%), 0 of 28 distribution OH miles (0%), 7.2 of 25 distribution OH with associated transmission miles (29%), and 0 of 14 distribution UG miles (0%) Key Actions: The 7.2 miles of distribution Overhead that has been installed is underbuilt associated with the 4.4 miles of transmission installed.</p>
<p>5.3.3.18.1</p> <p>6</p> <p>Base Stations installed</p>	<p><u>Distribution Communications Reliability Improvements</u> Volume vs 2020 Goal: 6 of 25 base stations installed Key Actions: Program is on time and on target for completion before end of 2020.</p>	<p>5.3.3.18.2</p> <p>0</p> <p>Lightning Arrestors removed and replaced</p>	<p><u>Lightning arrestor removal and replacement</u> Volume vs 2020 Goal: 0 of 0 lightning arrestors removed and replaced. Key Actions: This program will begin construction in 2021 and will replace approximately 2,772 lightning arrestors by the end of 2022.</p>

All data is up to date as of March 31, 2020

Complete
 Ahead of Plan
 On Track
 Off Track

Q1 Activity Status vs 2020 Goals

5.3.4 – Asset Management and Inspections

5.3.4.1

5,244

Detailed Inspections

Detailed corrective maintenance program inspections

Volume vs 2020 Goal: 5,244 of 17,500 inspections (30%)

Key Actions: Program is on time and on target for completion before end of 2020.

5.3.4.2

27

Visual

0

Infrared

16

Detailed

0

Aerial

Transmission system inspections

Volume vs 2020 Goal: 27 of 117 visual inspections (23%), 0 of 113 infrared inspections (0%), 16 of 41 detailed inspections (39%), and 0 of 27 aerial inspections (0%)

Key Actions: Infrared and Aerial inspections are expected to be performed between July-September 2020.

5.3.4.4

0

Infrared Inspections

Infrared inspections of distribution infrastructure

Volume vs 2020 Goal: 0 of 8,500 inspections (0%)

Key Actions: Inspections scheduled to begin in late March 2020.

5.3.4.9.1

11,372

HFTD Tier 3 Inspections

HFTD Tier 3 inspections

Volume vs 2020 Goal: 11,372 of 11,864 inspections (96%)

Key Actions: Remaining HFTD Tier 3 inspections scheduled to be completed prior to the start of fire season.

5.3.4.9.2

9,371

Drone Inspections

Drone assessments of distribution infrastructure

Volume vs 2020 Goal: 9,371 of 40,500 inspections (23%)

Key Actions: Program is on time and on target for completion before end of 2020.

5.3.4.15

83

Substation Inspections

Substation system inspection

Volume vs 2020 Goal: 83 of 330 inspections (25%)

Key Actions: 52 HFTD Tier 2 and 19 HFTD Tier 3 substations have been inspected YTD. Program is on time and on target for completion before end of 2020.

Q1 Activity Status vs 2020 Goals



5.3.5 – Vegetation Management and Inspections

5.3.5.2
97,672
Trees Inspected

Detailed inspections of vegetation around distribution infrastructure – Inventory Tree Inspections
Volume vs 2020 Goal: 97,672 of 455,000 tree inspections (22%)
Key Actions: This goal is specific to Inventory Tree Inspections. Program on target for 2020.

5.3.5.9
2,031
Trees trimmed or removed

Other discretionary inspection of vegetation around distribution infrastructure – Enhanced inspections, patrols, and trims
Volume vs 2020 Goal: 2,031 of 17,000 trees trimmed or removed (12%)
Key Actions: Enhanced Vegetation Management HFTD (trim or remove) - on time and on target for 2020

5.3.5.5
0
Pole vegetation thinned

Fuels Management
Volume vs 2020 Goal: 0 of 545 pole vegetation thinned
Key Actions: This project is in scope development and may cause a shift in the goal of 545 poles. An update will be available in the Q2 report.

5.3.5.20
10,400
Poles brushed

Vegetation management to achieve clearances around electric infrastructure – Pole brushing
Volume vs 2020 Goal: 10,400 of 35,500 poles brushed (29%)
Key Actions: Program is on time and on target for completion before end of 2020.

All data is up to date as of March 31, 2020