STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

EDMUND G. BROWN JR., *Governor*

June 27, 2013

GA2013-01

Ms. Jane Yura, Vice President
Pacific Gas and Electric Company
Gas Operations – Standards and Policies
6121 Bollinger Canyon Road, Office # 4460A
San Ramon, CA 94583

Subject: General Order 112-E Audit, PG&E's Operation, Maintenance, and Emergency Plans

Dear Ms. Yura:

On behalf of the Safety and Enforcement Division (SED), of the California Public Utilities Commission (Commission), Aimee Cauguiran, Matt Epuna, Alin Podoreanu, Maria Solis, Carolina Contreras, Balraj Sandhu, and Banu Acimis conducted an audit of Pacific Gas and Electric Company's (PG&E) Operation, Maintenance, and Emergency Plans (OM&E) from February 4 through 7, 2013.

A Summary of Audit Findings (Summary), which contains probable violations and areas of concerns and recommendations identified by SED staff, is included as an attachment to this letter. Additionally, SED staff tabulated the findings discovered as a result of annual reviews of PG&E's guidance documents and presented the findings in Attachment A.

Please provide a written response indicating the measures taken by PG&E to address the probable violations and areas of concerns and recommendations within 30 days from the date of this letter. SED will notify PG&E of the enforcement actions it plans to take in regard to each of the violations found during the audit, pursuant to Commission Resolution ALJ-274, after it has an opportunity to review PG&E's response to the findings included in the Summary.

For any questions related to this matter, please contact Banu Acimis at (916) 928-3826 or by email at banu.acimis@cpuc.ca.gov.

Sincerely,

Michael Robertson, Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: Summary of Inspection Findings

cc: Larry Berg, PG&E
Brian Leary, PG&E

Summary of Audit Findings

Areas of Violations:

I- Title 49, Code of Federal Regulations (CFR), § 192.605 Procedural manual for operations, maintenance, and emergencies.

(a) *General.* Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least once each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.

On 12/31/12, PG&E revised and published its Gas Guidance Document Review and Update Procedure,TD-4001P-02, Revision 02. Revision 2 of TD-4001P-02 states the following:

"This procedure provides steps that PG&E follows to review, update, and track gas maintenance, operations, and emergency response guidance documents to ensure compliance with Code of Federal Regulations (CFR) Title 49, Part 192, §§ 603, "General provisions," and 605, "Procedural manual for operations, maintenance, and emergencies.

These regulations require that gas guidance documents covering gas maintenance, normal operations, emergency response, and abnormal operations (for transmission lines) be reviewed and updated as necessary at intervals of at least once each calendar year, not exceeding 15-months, to the date.

This procedure also contains steps to conduct gas guidance document reviews and update plans for all the gas guidance documents, including design and construction documents, using the Company's compliance document tracking system known as the Enterprise Compliance Tracking System (ECTS), in accordance with federal code and Company-required document reviews timeframes."

SED reviewed the latest edition of TD-4001P-02 and numerous Enterprise Compliance Tracking System (ECTS) records of guidance documents and identified the following deficiencies:

1. As a result of SED's, formerly the Consumer Protection and Safety Division, General Order (GO) 112-E audit of PG&E's manuals of written procedures for conducting Operation and Maintenance activities and Emergency response conducted in February 2012, SED issued a letter to PG&E which identified deficiencies requiring remedial actions.

   In the audit letter dated August 29, 2012, SED asked PG&E to explain how the prioritization of the changes identified during the reviews of the standards, procedures, gas standards and specification (GS&S) documents, bulletins, etc., is determined.

   In its response dated October 12, 2012, PG&E stated the following: *"...PG&E currently uses these priorities to formulate annual workload plans that are then assigned to various team members in the Codes and Standards Department within Gas Operations. Target dates are based both on the priority of the changes and the resources needed to implement the changes. Another factor is the planned publication of subject-based Gas T&D Manual volumes, where document changes of all priorities are completed to ensure the publication of an updated Gas Transmission and Distribution Manual."*

TD4001P-02 established the criteria to classify changes for High (H), Medium (M), and Low (L) priority levels. Job Aid, TD-4001P-02-JA01, Performing Gas Document Reviews in ECTS, effective 12/31/2012, Rev. 1 defines the priority levels as follows:

- High Priority: as required for Safety, Significant Operational changes and/or Code Compliance
- Medium Priority: as required by Minor Operational and Organizational changes
- Low Priority: as required for Format changes only

SED determined that PG&E's action to clarify prioritization ranking is not satisfactory. PG&E must clearly define operational changes in order to clarify the distinction between "significant" and "minor" operational changes since document stewards may classify these changes as either "High" or "Medium" priority, which may result in inconsistent priority designations.

As illustrated in Attachment A, SED found that even though some ECTS records documented in the last two annual reviews indicated high and medium priority changes, PG&E has not implemented the changes.

According to Title 49, CFR §192.605 (a), gas pipeline operators are required to review and **update** their manuals of written procedures for conducting operations and maintenance activities, for emergency response, and procedures for handling abnormal operations of transmission lines at intervals not exceeding 15 months, but at least once each calendar year (emphasis added).

SED noted that PG&E must specify the target completion dates assigned for each priority level to make the changes to the affected documents. PG&E should base its target dates on the priority of the changes, not its resources. PG&E should allocate sufficient resources to implement the changes in order to update the documents in a timely manner. PG&E must ensure that high priority changes affecting public and personnel safety are incorporated into its affected guidance documents by the next scheduled review, not exceeding 15 months from the previous review of the guidance documents as per Title 49, CFR §192.605 (a).

SED is also concerned that PG&E did not assign consistent priority levels to certain changes discovered during its reviews of the documents. SED noted this because in some cases, PG&E's priority designation for some changes were not consistent when different document stewards reviewed the guidance documents due to confusion caused by unclear definitions of significant and minor operational changes. PG&E must ensure that these definitions are clear and used in a consistent manner by its document stewards.

2. On October 12, 2012, in its response to SED's GO 112-E audit of PG&E's manuals of written procedures for Operation and Maintenance activities and Emergency Response conducted in February 2012, PG&E stated that *"TD-4001P-02, "Gas Guidance Document Review and Update," is being updated to include the requirement for document stewards to review all relevant attachments and bulletins as part of the process of reviewing a guidance document (e.g., Standard, Work Procedures, Gas Standard & Specification Document)..."*

SED staff did not find this requirement in procedure TD-4001P-02. Section 3.4, Document Review Steps of TD4001P-02, lists nine steps for reviewing the guidance documents such as checking for any changes to applicable federal and state code sections, reviewing PHMSA advisory bulletins or notices, reviewing any recent applicable Material Problem Reports, and considering changes needed to improve public and employee safety. However, the document review requirement does not mention that document stewards are required to review bulletins, attachments, forms, and job

aids at the same time with the guidance documents. The only part of this procedure that addresses the need to review all necessary relevant documents is the definition of "Document review" under definitions.

PG&E must explicitly list all the documents in its procedure TD 4001P-02 that it is required to review and update concurrently with the parent guidance document to ensure that all associated documents such as bulletins, attachments, forms, and job aids, are up-to-date to reflect the most recent changes. Therefore, PG&E must do the following:

A. Revise TD4001P-02 to define the priority levels clearly and assign target completion dates for each priority level to ensure that all code compliance and safety related changes are incorporated into guidance documents in a timely manner, not exceeding 15 months from the previous annual review date,

B. Instruct and train its document stewards to assign consistent priority levels for the revisions identified.

II- Title 49, CFR, § 192.605 Procedural manual for operations, maintenance, and emergencies.

SED staff conducted an assessment of ECTS records showing changes discovered during the last two annual reviews of numerous PG&E's guidance documents and identified the following deficiencies. Attachment A shows the details of the document revisions, assigned priorities along with the publication dates, and next planned revision dates.

1. On 2/15/12, PG&E published its Gas Leak and Odor Investigation Procedure, TD-6434P-01. According to the ECTS document review records, on 2/1/12, PG&E reviewed and identified medium priority changes to TD-643P-01. SED noted that PG&E did not review Attachment 1 of this procedure during the review of the guidance document. PG&E must review Attachment 1 of TD-6434P-01 and incorporate necessary changes by its next scheduled review date.

2. On 6/1/00, PG&E published its Compressor Building Gas Detection and Warning Systems Standard, S4291, which specifies the alarm levels for natural gas compressor building gas detection systems, personnel warning systems, and maintenance requirements. On 5/18/11, PG&E reviewed S4281 and identified code compliance changes, but did not prioritize them. PG&E did not incorporate the changes into the standard. PG&E was unable to provide any record that it reviewed the standard in 2012. Therefore, PG&E must review and revise S4291 to incorporate code compliance and other significant changes by its next scheduled review date.

3. On 11/22/04, PG&E issued its Hydrostatic Testing Procedure, A-37, which provides instructions on the use of proper equipment, precautions, and procedures to ensure safety during hydrostatic testing. According to the ECTS review plan record, PG&E reviewed this guidance document once in the last five years on 11/14/12. The document steward who reviewed the procedure identified code compliance, format, and significant operational changes and described the revisions as compliance to current standards and codes for operation. According to the ECTS records, PG&E is scheduled to review A-37 again by 10/31/17.

   On 10/17/11, PG&E published Utility Bulletin TD-A-37B-001, Changes to Hydrostatic Testing Procedure – Operator Qualifications, Test Instruments and Spike Testing to address some of the necessary changes to the procedure A-37.

   SED determined that if this procedure is referenced for any requalification testing done to uprate a pipeline per Title 49, CFR §192.611(a)(3), then PG&E must review A-37 annually, and any

changes identified in 2012 need to be incorporated into the latest revision by the next scheduled review date.

4. On 9/5/12, PG&E published Utility Procedure, TD-4100P-05, Selection of Steel Gas Pipeline Repair Methods, which provides criteria for assessing damage levels of steel transmission and distribution pipelines on pipe body, girth welds, and threaded connections, and provides a selection guide for repair options for these facilities to facilitate public and personnel safety and effective repairs. Under Section 3, Work Procedures and Design Requirements for Allowable Repair Methods, Section 3.3 defines a clock spring repair as an allowable repair method; however, PG&E does not provide information on how to install clock springs in the guidance document.

   Since installation of clock spring is an allowable repair method by PG&E, it needs to reference the manufacturer's procedure for completing clock spring repairs in TD-4100P-05. PG&E must also review the clock spring installation procedure annually to ensure that the most recent manufacturer procedure is available and followed. Additionally, since pipe replacement is always an option instead of making repairs, PG&E should reference the pipe replacement procedure in TD-4100P-05.

   PG&E must update TD-4100P-05 and add the clock spring repair procedure reference and pipe replacement option by its next scheduled review date.

5. PG&E provided SED its Code of Safe Practices, Section 13: Gas Distribution and Transmission Systems as one of the guidance documents that contains procedures and necessary steps to minimize the danger of accidental ignition of gas in any structure or area where gas constitutes a hazard of fire or explosion as required by Title 49, CFR §192.751 (b) and (c), Prevention of accidental ignition.

   SED staff noted that this document is not in the ECTS nor is it reviewed annually. PG&E must review its Code of Safe Practices, Section 13, and include it into ECTS for reviewing and updating as required by Title 49, CFR §192.605 (a).

6. On 1/1/10, PG&E published its Gas Transmission Stations Inspections, Testing, and Maintenance Procedures, TD-4430P-02, which provides direction for inspecting, testing, and maintaining equipment in its gas transmission stations that include major gas facilities and regulator stations. According to the ECTS document review records, PG&E reviewed the procedures on 3/22/11. The review indicated that PG&E identified code compliance, minor operational, and format changes, but did not prioritize them. During the next two reviews, PG&E recorded medium and high priority revisions on 2/29/12 and 12/6/12; however, PG&E did not incorporate them into TD-4430P-02. PG&E must ensure that it implements all necessary revisions to update TD-4430P-02 by its next scheduled review date.

7. On 12/9/03, PG&E published Piping Design and Test Requirements, Standard A-34, which establishes a uniform procedure for designing and testing gas piping systems. According to the ECTS records, PG&E reviewed the standard on 5/11/11 and identified significant operational and organizational changes.

   In 2011, PG&E neither prioritized nor incorporated into the standard the following changes it identified:

   - Add 8-hr maximum for plastic testing
   - Incorporate GIB TD-A34B-001 contents

- Clarify in the document the need (per 192.517 section) to identify the operator's employee is responsible for making the pressure test
- Consider adding extra steps and forms to document TP pressure test
- Review Attachment F; paragraph L for the need to report hydro test failures

On 7/25/12, PG&E reviewed A-34 and identified some additional revisions that it marked as "High" priority. Some of the high priority changes PG&E noted in the 2012 ECTS document review record are as follows:

- Incorporate Bulleting 1 & 2
- Design provisions for safeguarding the pipelines against probable integrity threats
- Corrosion control, flood and seismic protection requirements
- Safeguard against damage by vehicles and other hazards for pipelines crossing highways and railroads
- Soap test requirements
- Revise Attachment A, Note 12 regarding test requirements for various class locations
- Add CPUC pressure test failure report form as Attachment I

The ECTS document review sheet also indicated that PG&E was currently revising Gas Standard and Specification (GS&S) A-34 with the target completion date of 10/2/2012. However, SED noted that PG&E had not revised the guidance material in its Standard A-34 to incorporate the high priority changes it identified in its last two reviews. PG&E also determined that the guidance document was not acceptable for use without the update. PG&E plans to revise the standard by 12/31/15.

PG&E must incorporate the major revisions and publish A-34 by its next scheduled review date.

8. On 4/1/99, PG&E published Gas Mapping Standard, S0457, which established uniform methods and procedures for making and maintaining gas distribution maps. According to the ECTS document review record, PG&E reviewed S0457 on 8/19/11 and identified Medium priority level organizational and format changes. The PG&E document steward stated *"Major work needs to be done on this, as it's completely outdated. It either needs to be completely revised, or cancelled to be replaced with a more current and relevant document. This document is still needed, but not with the current outdated content or in its current format. This document references supplements that are no longer attached to it."*

   Even though PG&E identified the same changes as in the previous years during its review conducted on 8/7/12, the ECTS document record indicates that the next revision date for this guidance document is 12/1/15.

   SED determined that PG&E must revise the Gas Mapping Standard, S0457 by 12/31/13 to incorporate the necessary changes it identified as a means to create and maintain accurate maps which it provides to its operating personnel to safely operate PG&E's gas pipeline system.

9. In April, 2004, PG&E published Operating Maps and Operating Diagrams Standard, S4460, which contains the requirements and responsibilities relating to preparing operating maps and diagrams. On 7/18/11, PG&E reviewed Standard S4460 and identified some low priority organizational and minor operational changes. On 7/2/12, a different PG&E document steward reviewed the standard again and did not identify any changes even though PG&E did not revise the Standard to incorporate the modifications it found in 2011.

SED recommends documenting all suggested changes from previous reviews on the current review forms if PG&E does not incorporate any of its earlier edits. Moreover, SED is also concerned about the inconsistent priority levels assigned by different document stewards during their reviews. It is important that PG&E prioritizes changes consistently so that it updates the guidance documents based on its priorities and the target completion dates.

PG&E must ensure that its Standard S4460 is updated to include all suggested changes and incorporate requirements given in Attachment 1 and RP 4460.1 by its next scheduled review date since it is an important standard for maintaining accurate operating maps and operating diagrams that are necessary to ensure the safe and reliable operation of its gas transmission facilities.

10. On 3/31/10, PG&E published Utility Standard: TD-4125S, Maximum Allowable Operating Pressure Requirements for Gas Distribution Systems and Transmission and Gathering Lines, which specifies requirements for establishing, revising, and documenting the maximum allowable operating pressure (MAOP), the maximum operating pressure, and future design pressure of transmission, gathering, and distribution pipelines. PG&E reviewed the standard on 6/16/11 and 3/27/12 and identified high priority changes that it did not incorporate into the guidance document. PG&E's next scheduled revision date for this guidance document is 12/31/15.

    PG&E must update TD-4125S to incorporate necessary revisions it identified by its next scheduled review date.

11. In August 2008, PG&E published its Hot and Cold Work Methods for Natural Gas Transmission Pipeline Shutdown and Tie-in Procedure, WP-4100-01, as satisfying the requirements of Title 49, CFR, §192.629 (a) & (b), Purging of pipelines. WP-4100-01 establishes procedures for working on natural gas pipelines during shutdowns, cut offs, and tie-ins and references the "Clearance Training Manual" under Pipeline Shutdown Requirements and Responsibilities, to be followed by Maintenance, Construction, and Operations employees when performing work requiring a clearance on gas transmission equipment, facilities, or pipelines.

    SED staff found that this reference is incorrect because such a manual does not exist. PG&E explained that WP-4100-01 should reference Gas Clearance Procedures for Facilities Operating over 60 psig, TD-4100P-10, instead of the Clearance Training Manual.

    According to the ECTS records for this guidance document, PG&E reviewed the document on 12/21/11 and 11/15/12, and identified high priority changes. The ECTS records indicate that PG&E plans to update the document on 12/31/15.

    PG&E must revise WP-4100-01 to correct the reference in the document and incorporate all the changes identified by document stewards by its next scheduled review date.

12. SED also noted that PG&E does not have a procedure defining the clearance required for a pipeline shutdown, isolation, cut-off, tie-in, and return to service or operation for facilities operating under 60 psig. PG&E informed SED that it is currently working on establishing such a procedure. PG&E must publish a clearance procedure for facilities operating under 60 psig and reference this document in its related procedures and provide training to all personnel who perform work on natural gas facilities that operate under 60 psig by 12/31/13. Additionally, PG&E must include the new procedure into the ECTS to be reviewed and updated according to Title 49, CFR §192.605 (a).

13. On 3/1/09, PG&E published guidance document Gas Valve Maintenance Requirements and Procedures, WP-4430-04, which provides maintenance requirements and procedures for plug, ball,

and gate valves (referred to as "valves") necessary for the safe or emergency operation of PG&E's gas systems and facilities as required by Title 49, CFR §192.745 (a) & (b), Valve maintenance: Transmission lines.

According to the ECTS records, PG&E reviewed this document on 8/12/12 and identified required code and other types of changes that it prioritized as Medium. Additionally, the document steward also noted that the incorporation of a few utility bulletins affecting the body and attachments of the document were necessary. Although PG&E asserts that revisions to the document are underway and publication expected soon, ECTS records indicate that PG&E scheduled the revision date for 12/31/15.

PG&E must revise and publish WP-4430-04 by its next scheduled review date.

III- Title 49, CFR, § 192.605 Procedural manual for operations, maintenance, and emergencies.

(b) Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(8) Periodically reviewing the work done by operator personnel to determine the effectiveness, and adequacy of the procedures used in normal operation and maintenance and modifying the procedures when deficiencies are found.

SED noted that PG&E does not currently have a written quality control (QC) and quality assurance (QA) procedures which its personnel follow for normal operation and maintenance activities conducted to assure safe and reliable gas service. PG&E explained that it is in the process of establishing a Gas Compliance Assurance Program (GasCAP) Procedure to provide a uniform process for implementing the Gas Compliance Program for the Distribution and Transmission Divisions and Districts within the Gas Maintenance and Construction Organization.

PG&E must establish written QC and QA procedures and implement the GasCAP to ensure that all necessary normal operations, maintenance, inspections, and testing activities it performs are in accordance with the applicable rules and standards and within allowed timeframes. Moreover, PG&E must ensure that it properly trains all of its affected employees to execute the GasCAP effectively and efficiently throughout the organization.

During the audit, PG&E also explained that it reviews the root causes of past incidents and self-identified non-compliances to not only identify deficiencies but to also improve procedures as a means to prevent similar incidences from recurring. PG&E must incorporate what it has learned from these reviews into its QC and QA procedures to prevent similar non-compliances and deficiencies.

The QC activities should include supervisory field reviews in a systematic way that PG&E tracks and documents throughout all its divisions and districts to ensure the implementation of the QC activities in a uniform manner.

PG&E must also ensure that that it communicates all deficiencies, recommendations, and concerns from the field personnel and their supervisors with the groups who are in charge of verifying the effectiveness and adequacy of the procedures used in normal operations and maintenance so that the affected procedures are modified based on feedback.

PG&E must implement this program throughout the company consistently and document the outcome of QC activities and compliance of the rules. Additionally, PG&E must ensure that corrective actions

are taken to improve the quality of all field activities and corresponding record keeping and that the affected programs, manuals, plans, rules, standards, and procedures are complied with.

IV- Title 49, CFR, § 192.605 Procedural manual for operations, maintenance, and emergencies. (a) & (b) (10)

(b) Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(10) Systematic and routine testing and inspection of pipe-type or bottle-type holders including

(i) Provision for detecting external corrosion before the strength of the container has been impaired;

(ii) Periodic sampling and testing of gas in storage to determine the dew point of vapors contained in the stored gas which, if condensed, might cause internal corrosion or interfere with the safe operation of the storage plant; and

(iii) Periodic inspection and testing of pressure limiting equipment to determine that it is in safe operating condition and has adequate capacity.

1. On 8/1/98, PG&E issued Standard, Inspection of Underground Gas Holders, S4411, which established the requirements for monthly, annual, and ten-year inspection of bottle-type high pressure underground gas holders.

   On 4/29/11, PG&E reviewed S4411 and identified organizational and format changes, but it did not prioritize the updates.

   In February 2012, SED reviewed the standard and determined that it was deficient in terms of providing sufficient details about the periodic inspections of underground gas holders. In particular, SED determined that monthly (Exhibit A) and annual (Exhibit B) inspection forms were lacking details about the specific steps that are necessary to take in order to perform inspections adequately. Moreover, SED also required PG&E to change the record retention period for monthly and annual inspection reports from three years to 10 years to allow SED inspectors to review the inspection reports during scheduled audits.

   In its response to SED's audit findings, PG&E agreed with SED on the identified changes and indicated that the expected publication date of this guidance material, including the SED requested changes, would be 12/31/13.

   According to the ECTS review plan record, PG&E reviewed the Standard again on 7/13/12 and recorded *"the document is not OK as is"*. In addition to the changes SED identified during the 2012 audit, PG&E recorded other high priority operational, organizational, and format changes. The document steward noted the following: "*Recent discussion with Corrosion Engineering and PLE'ing regarding the North Sac Holder 10-yr inspection revealed that the standard isn't quite clear as to what is meant by inspecting at "the cap". Need to provide more clarity and specifity as to what type of inspection should be required."*

Even though PG&E has identified this document for major revisions, it has not published a guidance document as of the date of the audit and the ECTS record shows that the next revision date will occur on 2/31/15.

PG&E must complete its revision of this guidance document and publish it by 12/31/13 as it originally indicated since it is lacking guidance to its personnel on how to perform inspections of underground gas holders.

2. On 3/30/11, PG&E published Utility Bulletin, Relief Capacity Review and Reporting Process for Regulating Stations,TD-H-70B-001, which describes a new annual Relief Capacity Review process and the engineer capacity review for corrective work outside of annual maintenance. According to the ECTS record review of this document, PG&E reviewed it on 5/14/12 and identified high priority changes such as clarification of relief valve set and cracking pressure definitions and adding thermal relief valves on pressure vessels calculation requirement. Even though the ECTS record shows that PG&E found the guidance document to be "Not OK" by the document steward, the next revision date appears to be 12/31/15.

   PG&E needs to modify this document to incorporate the high priority changes and bring it to compliance by its next scheduled review date.

3. In August 2009, PG&E issued Gas Pressure Regulation Maintenance Requirements Utility Standard, S4540, which describes the maintenance requirements for district regulator stations. Although the ECTS records show that PG&E identified high priority code compliance and significant operational changes during its annual reviews conducted on 11/23/11 and 12/6/12, PG&E scheduled the next revision of this standard to occur on 12/31/15.

   PG&E must revise S4540 to incorporate necessary changes by the next scheduled review date.

V- Title 49, CFR, § 192.605 (c) Abnormal Operations for Transmission Lines

(c) Abnormal operation. For transmission lines, the manual required by paragraph (a) of this section must include procedures for the following to provide safety when operating design limits have been exceeded:

(1) Responding to, investigating, and correcting the cause of:

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

(2) Checking variations from normal operation after abnormal operation has ended at sufficient critical locations in the system to determine continued integrity and safe operation.

(3) Notifying responsible operator personnel when notice of an abnormal operation is received.

(4) Periodically reviewing the response of operator personnel to determine the effectiveness of the procedures controlling abnormal operation and taking corrective action where deficiencies are found.

PG&E refers to its Gas Safety and Emergency Response Plan (GERP) as addressing the requirements of abnormal operation procedures for transmission lines required by Title 49, CFR §192.605(c). As the document's title suggests, the GERP provides "detailed information about PG&E's planned response to gas transmission or distribution emergencies", also addressing the Emergency Plan procedure requirements required by Title 49, CFR §192.615. PG&E's GERP addresses emergency response procedures; however, it does not satisfy the procedural requirements of transmission line abnormal operations per Title 49, CFR §192.605(c).

PG&E also provided the following procedures that address abnormal operations:

- TD 1645P-02 Gas Event Reporting;
- TD-4436P-01 Control Room Information Management Procedure;
- TD-4436P-03 Alarm Management Procedure;
- TD-4551P-01 (formerly S4431) Operating and Maintenance Instructions for Major Gas Facilities, (Attachment 4 – Operation and Maintenance Instruction Preparation Guide);
- TD-4110P-08 Leak Survey after Significant Events;
- TD-4436P-01 Control Room Information Management Procedure;
- TD-4436P-03 Control Room Alarm Management Procedures;
- Gas Compliance Assurance Process (GasCAP) in draft form, and
- TD-4022S Gas Operations Quality Control Assessment Standard in draft form.

SED staff evaluated the procedures contained in the documents listed above and determined the following:

1. None of the guidance documents clearly describe the procedures for responding to, investigating, and correcting the cause of the following:

    - Unintentional closure of valves or shutdowns as required by Title 49, CFR §192.605(c)(1)(i),
    - Increase or decrease in pressure or flow rate outside normal operating limits as required by Title 49, CFR §192.605(c)(1)(ii),
    - Operation of any safety devices as required by Title 49, CFR §192.605(c)(1)(iv).

Therefore, SED determined that the guidance materials provided by PG&E do not specifically and adequately address each type of abnormal operation defined by Title 49, CFR §192.605(c), nor do they clearly provide the appropriate response based on the situation and facilities involved.

2. The procedures are insufficient to comprehensively address checking for variations after an abnormal operation has ended per Title 49, CFR §192.605(c)(2)

3. The procedures do not describe a process for notifying responsible personnel of an abnormal operation per Title 49, CFR §192.605(c)(3).

4. Although PG&E standards describe control room personnel duties to include reporting of abnormal operations and conditions, the specific process is not included in the procedures. The procedures PG&E cited as addressing reviews of operating personnel's response to abnormal operations and correction of deficiencies in procedures controlling abnormal operations, as contained per Title 49, CFR §192.605(c), are inadequate to specifically address abnormal operations requirements or they are in draft forms, (i.e. have not been published); therefore, not currently part of the operations and maintenance manuals.

5. PG&E's proposed guidance documents GasCAP and TD-4022S, Gas Operations Quality Control Assessment Standard appear to satisfy the intent of the code requirement by Title 49, CFR §192.605(c)(4); therefore, PG&E should publish these guidance documents promptly and train its employees accordingly by 12/31/13.

As a result of SED's evaluation of PG&E's GERP, standards, and procedures that address responding, investigating, and correcting the cause of abnormal operations; checking variations from normal operations, notifying responsible personnel when abnormal operations occur; and verifying the effectiveness of the procedures controlling abnormal operations, SED determined that PG&E must take the following actions:

1. PG&E must include in its operations and maintenance manual a robust set of procedures that clearly and adequately address each type of abnormal operation listed in Title 49, CFR §192.605(c). PG&E must ensure that abnormal operations have a separate set of procedures for emergency situations.

2. The procedures must address all the minimum requirements as required by §192.605(c), to at least include procedures for continued integrity and safe operation per Title 49, CFR §192.605(c)(2), and adequate notification to responsible operator personnel per Title 49, CFR§192.605(c)(3). The procedures must also specify documentation requirements, and include a process to specifically evaluate the effectiveness of abnormal operation procedures, along with the corresponding process for correction of deficiencies per Title 49, CFR §192.605(c)(4).

3. The guidance documents required for abnormal operations should be stand-alone documents that are easy for PG&E employees to follow and reference (hyperlink) applicable sections of other PG&E guidance materials.

4. In addition to operations and maintenance functions performed by field personnel, tasks performed by operations control, engineering, integrity management, and other functions associated with an office facility require written procedures for abnormal operations that must be included in the operations and maintenance manual.

VI- Title 49, CFR, § 191.5 Immediate notice of certain incidents.

(a) At the earliest practicable moment following discovery, each operator shall give notice in accordance with paragraph (b) of this section of each incident as defined in §191.3.

(b) Each notice required by paragraph (a) of this section must be made to the National Response Center either by telephone to 800-424-8802 (in Washington, DC, 202 267-2675) or electronically at http://www.nrc.uscg.mil and must include the following information:

(1) Names of operator and person making report and their telephone numbers
(2) The location of the incident
(3) The time of the incident
(4) The number of fatalities and personal injuries, if any
(5) All other significant facts that are known by the operator that are relevant to the cause of the incident or extent of the damages

On 3/8/11, PG&E published Utility Bulletin: TD-4413B-001, Changes to the Gas Incident Reporting Requirements to revise the criteria for reporting CPUC and DOT reportable gas incidents as specified

in Procedure for Reportable Gas Incidents, TD-4413P-01, and Gas Event Reporting Requirements, TD-4413S, to reflect changes in federal codes, Title 49 CFR 191, 192, and 193.

According to the ECTS review records, PG&E reviewed TD-4413P-01 on 10/7/2011 and 10/10/12, and identified code compliance changes in both reviews. Similarly, PG&E document stewards reviewed TD-4413-S on 4/1/11, 10/7/11, and 12/4/12, and also identified code compliance changes. On 5/25/10, PG&E published TD-4413-S, which established criteria, requirements, and procedures for reporting and documenting gas events. According to ECTS, PG&E is to revise TD-4423-S on 12/31/15.

Some of the significant changes PG&E identified in TD-4413B-001 are as follows:

- *"Revise the reporting criteria in Section 1.1, CPUC Reportable Criteria, Section, 1.2 DOT Reportable Criteria, and Section 1.3 Criteria for Internal Notification of Major Gas Events.*
- *Add to the definition for "DOT Form", form PHMSA F 7100-3 for reporting of incidents involving LNG facilities.*
- *Add definition for "major news media"*
- *Adds a guideline (Attachment 2 to TD-4413S) for determining whether an incident meets the reportable criteria based on volume of gas lost.*
- *Changes to CPUC Reportable Criteria, Events that involve a release of gas from a transmission or distribution pipeline (up to and including the meter set) or a liquid natural gas (LNG) facility and that result in one or more of the following:*
    - *Estimated property damage of $50,000 or more, including loss to the Company and others, but excluding cost of gas lost.*
    - *Unintentional estimated gas loss of three million cubic feet or more. Use attachment 2 to determine if this gas lost criterion has been reached for pipeline punctures and complete severing of the pipeline.*

SED determined that even though PG&E made several major revisions to both TD-4413P and TD-4413S, through TD-4413B-001, PG&E has not revised these documents to incorporate the necessary changes since 2011.

PG&E must revise its procedures TD-4413P and TD-4413S to accurately reflect the most recent incident reporting changes by their next scheduled review dates.

Areas of Concern and Recommendations

I- Title 49 CFR § 192.605 Procedural manual for operations, maintenance, and emergencies.

(c) Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.

(2) Controlling corrosion in accordance with the operations and maintenance requirements of subpart I of this part.

SED noted that PG&E has some copper services mixed with steel. PG&E follows Appendix D of Part 192 Section I (4) D, which addresses monitoring procedures for mixed metal systems that have metals of different anodic potentials. PG&E stated that it uses the -0.850 volt pipe-to-soil potential criteria for systems that include copper and steel since steel is the most anodic metal of the two.

SED found that neither PG&E's Corrosion Control Standard O-16 or any other of PG&E procedures specify the criteria used for mixed metals such as copper and steel systems. SED recommends that PG&E should describe the types of different mixed metals pipeline systems that exist in its system and specify the criteria used for each mixed metal systems for Cathodic Protection monitoring in its written procedures.

II- Title 49 CFR §§ 192.605 (e) and 192.613 Continuing surveillance.

As a result of SED's audit of PG&E's OM&E plans conducted in February 2012, SED documented the following:

"PG&E currently does not have a specific written procedure addressing Continuing Surveillance. PG&E has certain standards and work procedures such as patrolling, class location study, leak survey, etc. which describe PG&E's performance of the various operations and maintenance tasks, but it remains unclear how or whether the various tasks relate to PG&E's continuing surveillance efforts. PG&E must clearly describe how it uses and coordinates the various operations and maintenance tasks in its continuing surveillance. PG&E's written procedure should describe how findings from failure investigations, leak surveys, cathodic protection monitoring, and other operating and maintenance tasks are gathered and analyzed as part of its continuing surveillance. The written procedure must also describe the actions to take if changes are found as a result of its data gathering and analysis."

In its response to SED's 2012 GO 112-E audit letter, PG&E stated "*PG&E agrees with this finding and will publish a specific work procedure to address the Company's continuing surveillance of its gas facilities as required by §192.613.*"

SED noted that PG&E has not published the procedure to date; therefore, PG&E's response to this item from the previous audit remains unsatisfactory until it publishes the new work procedure.

III- Title 49 CFR § 192.615 Emergency plans.

(a) Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures must provide for the following:

(8) Notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them both planned responses and actual responses during an emergency.

On 1/30/13, PHMSA's issued advisory bulletin, ADB-2013-01 addressing "Accident and Incident Notification Time Limit". ADB-2013-01 advised owners and operators of Gas and Hazardous Liquids Pipeline Systems and LNG Facilities that they should contact the National Response Center within one hour of discovery of a pipeline incident and should also file additional telephonic reports if there are significant changes in the number of fatalities or injuries, product release estimates or the extent of damages.

PG&E asserts that it is currently revising TD-4430P-01 "Procedures for Reportable Incidents" to incorporate the 1-hour time frame specified by ADB-2103-01, and expects publication of the document on the second quarter of 2013.

PG&E should incorporate the most recent change stated in ADB-2013-01 into all relevant procedures by 12/31/13 and train its personnel to follow the most up-to-date procedures about reporting incidents.

Attachment A

Table 1- ECTS Document Review Records of PG&E's Guidance Documents

Document Number	Document Title	Publication Date	2011 Review Date Priority (L, M, H)	2012 Review Date Priority (L, M, H)	Document updated (Y/N)	Next revision date
TD-6434P-01	Gas Leak and Odor Investigation Procedure	2/15/12	N/A	2/1/13- M Attachment not reviewed	N/A	N/A
S4291	Compressor Building Gas Detection and Warning Systems	6/1/00	5/18/11- NP	NR	N	N/A
A-37	Hydrostatic Testing Procedure	11/22/04	Reviewed once in 5 years	11/14/12 NP	N ARN	10/31/17
TD-4100P-05	Selection of Steel Gas Pipeline Repair Methods	9/5/12	N/A	Clock Spring: review cycle is 60 months	ARN	N/A
TD-4430P-02	Gas Transmission Stations Inspections, Testing, and Maintenance Procedures	1/1/10	3/22/11 NP	2/29/12- M 12/6/12- H	N	12/31/13
A-34	Piping Design and Test Requirements	12/09/03	5/11/11 NP	7/25/12- H	N	12/31/15
S0457	Gas Mapping Standard	04/01/99	8/19/11- M	8/7/12- M	N	12/01/15

Document Number	Document Title	Publication Date	2011 Review Date Priority (L, M, H)	2012 Review Date Priority (L, M, H)	Document updated (Y/N)	Next revision date
S4460	Operating Maps and Operating Diagrams	04/01/04	7/18/11- L	7/2/12	N	12/01/15
TD-4125S	MAOP Requirements for Gas Distribution Systems and Transmission and Gathering Lines	03/31/10	6/16/11- H	3/27/12- H	N	12/31/15
WP 4100-01	Hot and Cold Work Methods for Natural Gas Transmission Pipeline Shutdown and Tie-in Procedure	08/01/08	12/21/11-H	11/15/12 – H	N	12/31/15
WP- 4430-04	Gas Valve Maintenance Requirements and Procedures	3/1/09	N/A	8/13/12- M	N	12/31/15
S4411	Inspection of Underground Gas Holders	08/01/98	4/29/11 NP	7/13/12- H SEDF	N	12/31/15
TD-H-70B-001	Relief Capacity Review and Reporting Process for Regulating Stations	3/30/11	N/A	5/14/12- H	N	12/31/15
S4540	Gas Pressure Regulation Maintenance	8/1/09	11/23/11- H	12/6/12- H	N	12/31/15

Document Number	Document Title	Publication Date	2011 Review Date Priority (L, M, H)	2012 Review Date Priority (L, M, H)	Document updated (Y/N)	Next revision date
TD-4413P-01	Procedure for Reportable Gas Incidents	08/11/10	10/7/11- NP	10/10/12 - M	N	06/30/13
TD-4413S	Gas Event Reporting Requirements	05/25/10	4/1/11- NP 10/7/11- NP	12/4/12 - M	N	12/31/15

Priority Levels: H: High, M: Medium, L: Low
NP: No priority assigned
NC: No changes identified
NR: No review recorded
N/A: Not available or not applicable
SEDF: SED 2012 finding
ARN: Annual review necessary