Gas Pipeline Encroachment Management

SUMMARY

This utility standard establishes the roles and responsibilities and the requirements for managing vegetation and structures encroachments of Pacific Gas and Electric Company (Company or PG&E) natural gas transmission (GT) pipeline facilities operating over 60 pounds per square inch gauge (psig).

With limited exception, this utility standard does not apply to commercial agricultural land use areas such as orchards or vineyards.

TARGET AUDIENCE

All personnel responsible for patrolling, leak survey, Transmission gas pipeline operations and maintenance (GPO&M), pipeline engineering and design, integrity management (IM), and GT vegetation management.

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REQUIREMENTS

1 General

1.1 This utility standard extends the continued commitment of PG&E to public safety and safe operational practices to manage the vegetation and structures encroachments near the gas pipeline. This commitment includes the following:

1. Reducing risk to pipeline integrity occurring from the presence of vegetation near the pipeline and structural intrusions in the right-of-way (ROW).

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1.1 (continued)

2. Providing safe access to Company natural gas pipeline facilities in order to conduct pipeline O&M activities required by regulatory code, for the following:
    - Leak surveys
    - Patrolling
    - Inspections
    - Testing
    - Pipeline repairs
    - Pipeline replacements
3. Clearing obstructions in pipe zone allowing access to safely operate, maintain, and respond in the event of an emergency.
4. Creating a line-of-sight corridor of the pipe zone. This gives the ability for aerial or foot patrol, leak survey, GPO&M, and the public to locate the GT pipeline without vegetation obstructions.
5. Emphasizing pipeline markings.
6. Increasing public awareness and presence of pipeline facility locations.
7. Reducing damage to the pipeline from excavation on or near the pipeline.
8. Enhancing the ability of emergency responders to identify and access pipeline facilities.
9. Eliminating or mitigating the negative impact of vegetation (e.g., roots) and structures (e.g., buildings and carports) on underground natural gas pipelines.
10. Conducting vegetation management operations in a safe, effective manner, AND in conformity with all federal and state laws, regulations, and permit conditions, with special attention to addressing environmental concerns.

2 Roles and Responsibilities

2.1 Patrol personnel provide approval when determining an exemption for removal of trees, vegetation, or structural encroachments.

2.2 Leak survey personnel provide approval when determining an exemption for removal of trees, vegetation, or structural encroachments.

2.3 GT vegetation management personnel:

- Identify locations where incompatible vegetation exists AND schedule the work to be in compliance with this standard and associated procedure.
- Using the site-specific risk analysis, determine the threat level of trees near the GT pipeline, per Utility Procedure TD-4490P-03, "Vegetation Encroachment Site-Specific Risk Analysis."
- Maintain vegetation within the GT ROW, in compliance with this standard.

2.4 Integrity management (IM) personnel:

- Perform the full site-specific risk analysis per TD-4490P-03.
- Perform the risk prioritization and analysis used in determining the threat level of structural encroachments near the GT pipeline, per Utility Procedure TD-4490P-05, "Structural Encroachments Risk Analysis."
- Provide support when determining an exemption for removal of trees, vegetation, or structural encroachments.

2.5 Transmission GPO&M personnel identify vegetation and structural encroachments impeding work being performed.

2.6 Pipeline engineering and design personnel adheres to this standard when creating engineering designs for new construction.

3 Vegetation Control Zones

3.1 Vegetation Zone Design

The vegetation zone design sets the requirements of permitted vegetation within the Pipe Safety zone, Border zone, and Outer zone. This allows the landscape to incorporate an environmentally balanced gradual transition ("feather cut") from the pipe zone as it moves outward to the border zone. This design avoids severe transitions ("hard cuts") on the Pipe Zone and expands to the outer edges beyond the pipe zone ("border zone.")

Figure 1, "Illustration of the Pipe Zone and Border Zone," shows the relationship of the trees and foliage in the pipe zone and border zone, and the manner prescribed to create a "feather cut" to the edge of the border zone.

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3.1 (continued)

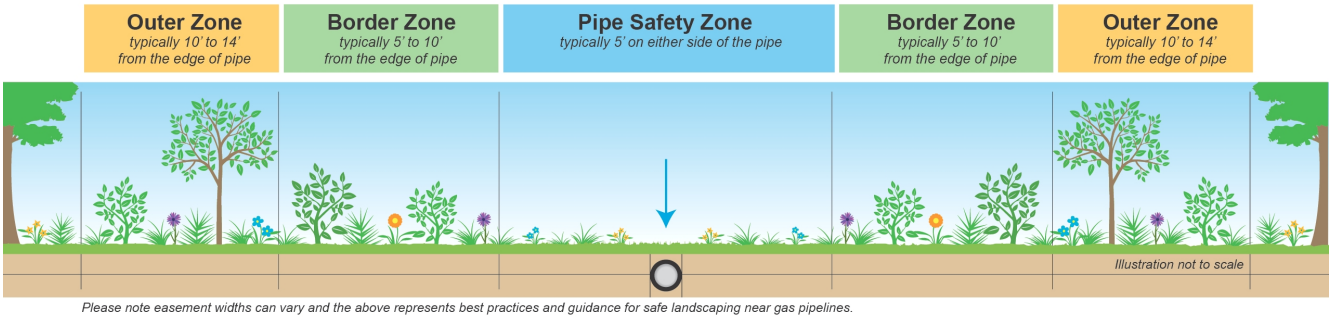

Figure 1. Illustration of the Pipe Safety Zone and Border Zone

NOTE

A pipeline may not always be located in the center of the easement.

1. The vegetation control zone consists of the following 3 zones:

   a. The **Pipe Safety Zone** area around the pipe extends from the edge of the pipe 5 feet (ft) to the border zone.

      (1) Per the criteria in Section 3.2, any trees and vegetation (e.g. brush or shrubs) obstructing the line of sight and access to the pipeline must be removed AND are not permitted to be planted in the pipe zone.

      (2) Lawns, flowers, low-profile grasses, and low-growing plants are permitted within the pipe zone.

   b. The **Border Zone** extends from the edge of the pipe zone out an additional 5 ft on each side of the pipeline. Per the criteria in Section 3.2, incompatible vegetation found in the Border Zone include the following:

      - Trees and vegetation exceeding 8 inches (in.) in diameter, OR of a species likely to exceed 8 in. in diameter at breast height (DBH) at maturity at 4.5 ft above ground, AND the trunk or main branch is more than 5 ft to 10 ft from the outer edge of the pipeline, must be removed AND not permitted to be planted in the border zone.

   c. The **Outer Zone** extends from the edge of the border zone out an additional 4 ft on each side of the pipeline.

      - Trees, exceeding 36 in. in DBH, OR of a species likely to grow to and exceed 36 in. in DBH at maturity, AND the trunk or main branch is 10 ft to 14 ft from the outer edge of the pipeline, must be removed AND are not permitted to be planted in the outer zone.

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3.2 Tree Risk Management

1. WHEN application of Section 3.1 requirements cannot be met,

   THEN GT vegetation management personnel AND IM personnel must conduct a risk assessment to determine the threat levels of vegetation within the pipe safety zone.

2. GT vegetation management personnel must assess the location of the tree in question, as it relates to vehicular access, to assign the correct risk assessment model as follows:

   a. IF the tree meets one of the following criteria:

   - Located on franchise location (public rights-of-way such as City/County roads and highways but not freeways), AND adjacent to road,
   - Located on private location AND an emergency vehicle can drive within 25 ft of the tree,
   - Located within 25 ft of parking lot, trail, or any drivable area,
   - Does not restrict access for emergency vehicles,

   THEN use the IM site-specific risk analysis (otherwise known as the integrity management model) per TD-4490P-03.

   b. IF the tree meets one of the following criteria:

   - Located on private location in a customer backyard where emergency access is obstructed,
   - On location that is more than 25 ft from drivable access point,
   - Location obstructs emergency access vehicles,

   THEN use the site-specific risk analysis (otherwise known as the private property assessment model) per TD-4490P-03.

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4 Structures Control

4.1 All structures located in the ROW are considered an encroachment.

NOTE

Vegetation encroachments are addressed in TD-4490P-03.

1. IF the structure interferes with pipeline maintenance activities OR causes a delay in accessing its pipeline facilities in an emergency,

   THEN the following must be completed per GO-112F 143.5, “Encroachments:”

   a. The Company determines, within 90 days after discovering the encroachment, whether the structural encroachment can be resolved within 180 days.

      - IF the structural encroachment can NOT be resolved within 180 days,

        THEN the Company submits a plan to resolve the encroachment to the CPUC,

        AND creates a Corrective Action Program (CAP) item to address the encroachment assigned to land management.

   b. IF the Company does not submit a plan, AND the structural encroachment is NOT resolved within 180 days of discovery,

      THEN the Company isolates AND discontinues service to the section of pipeline on which the encroachment exists.

   c. The Company must provide written notice of any service discontinuance to the CPUC 30 days prior to discontinuing the service.

2. IF IM personnel determine the encroachment does not interfere with O&M, does not endanger the facilities, AND does not compromise the safety of the public,

   THEN the Company land management personnel may enter into an encroachment agreement with the property owner. The agreement must comply with California Public Utility Code (CPUC), Section 851 and General Order 69-C.

   - General Order 69-C Summary

     CPUC General Order 69-C sets forth the type and nature of real property rights a public utility may convey without further approval of the CPUC. Specifically, it authorizes public utilities to grant easements, licenses, and permits for the use or occupancy of operating property.

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4.2 Permissible Structures Found in the Border Zone

Construction of buildings and structures is restricted by the terms of the easements creating the ROW; however, there are times when some types of structures may be acceptable.

- Personnel identifying encroachment contact land management personnel for assistance in determining if a structure or use is acceptable within the Border Zone.

4.3 Refer to TD-4490P-05, for performing risk prioritization and analysis in determining the threat level of structural encroachments within the ROW.

5 Permissible Uses of ROW

5.1 The following uses are typically permitted within ROW boundaries:

- Some patios or concrete slabs (subject to limits)
- Flower beds, vegetable gardens, lawns, low shrubbery, and certain crops
- Livestock grazing
- Some sports and game fields, parks, and golf courses (subject to limits)

6 Prohibited Uses of ROW

6.1 The following are examples of prohibited uses within the ROW boundaries:

- Buildings, structures, foundations, overhanging roofs and balconies, garden sheds, or signs
- Wells, swimming pools, or boreholes
- Storage of flammable materials, heavy equipment, or bulk goods
- Burning materials, such as waste, scrap lumber, or slash
- Pile-driving or blasting

6.2 See exemption process as described below in Section 7 and refer to TD-4490P-05, regarding the detailed site-specific risk analysis process.

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7 Exemption Process

7.1 Exemptions for removal of trees, vegetation, or structural encroachments must document the following in writing:

1. Justification for the exemption.

2. Approval from IM, Patrols, AND Leak Survey.

7.2 The exemption document must be reviewed and approved by Director of IM or their designees in Electronic Document Routing System (EDRS).

8 Exemptions for Environmentally Sensitive Areas

8.1 Exemptions in environmentally sensitive areas, such as an endangered species habitat, an area of historical or cultural significance, OR similar designations are determined as follows:

1. On a case-by-case basis.

2. The following conditions must exist prior to allowing the trees and other vegetation to remain:

   a. The pipeline depth of cover is greater than 20 ft.

   b. A walking path is available above the pipeline.

8.2 IF the conditions listed in Section 8.1 exist,

THEN the trees and vegetation may remain.

OTHERWISE the exemption must follow the approval process outlined in Section 7.

9 Outside the Vegetation Control Zones

9.1 Patrols, vegetation management, and GT O&M personnel take appropriate action to identify, assess, AND mitigate the potential risks of trees and vegetation located outside the vegetation control zones that are capable of producing limbs and roots impacting the pipeline integrity.

- Identify trees in poor health (hazard trees) for the risk of falling and potential damage to exposed portions of pipeline (e.g., stream crossings).

9.2 Company personnel must reach a written agreement with the property owners before the removal OR trimming of vegetation, trees, or limbs outside the easement.

10 Record Retention Requirements

10.1 Retain records per the Record Retention Schedule.

END of Requirements

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DEFINITIONS

Border zone: An area extending from the edge of the pipe zone out an additional 5.

Corridor: A tract of land forming a passageway.

Diameter at breast height (DBH): A standard method of expressing the diameter of the trunk or bole of a standing tree at a height of 4.5 ft from the ground.

Easement: The limited right to make use of property owned by another. Pipeline ROW is documented in a written easement. The easement may grant the right to install and maintain a pipeline across another person's property. The rights and restrictions are usually defined in the easement document. The easement is usually recorded to provide notice of the rights and restrictions that apply to the property, even when it transferred or sold.

Encroachment: Anything located on or near the pipeline that would either pose integrity management risk, hinder maintenance activities, OR cause a lengthy delay in accessing pipeline facilities during an emergency.

Pipe zone: An area around the pipeline extending from the edge of the pipe on either side out 5 ft. to the border zone.

Right-of-way (ROW): The right to cross property to go to and from another parcel. The ROW may be a specific grant of land or an "easement," which is a right to pass across another's land.

Transmission line: A pipeline, other than a gathering line, that meets ANY one of the following criteria:

1. Transports gas from a transmission line, gathering line, or storage facility to any of the following:
    a. Distribution Center.
    b. Storage Facility.
    c. Large Volume Customer that is not downstream of a Distribution Center.
2. Operates at or above a hoop stress of 20% SMYS, OR is upstream of a segment of pipe operating at or above a hoop stress of 20% SMYS.
3. Transports gas within a storage field.

Tree(s): Any plant life with a measureable DBH as defined in TD-4490P-03, Appendix A or by vegetation management personnel.

Vegetation: All plant life in a particular region taken as a whole.

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IMPLEMENTATION RESPONSIBILITIES

This utility standard will be communicated via a Gas Technical Document Management (TDM) Communications Monday morning email announcement.

Supervisors will tailboard with the impacted audience to communicate the publication and changes in the standard.

Vegetation Management will set up a WebEx session with the target audience to discuss changes to this utility standard.

GOVERNING DOCUMENT

NA

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

Code Of Federal Regulations (CFR), Title 49, “Transportation,” Part 192—Transportation Of Natural And Other Gas By Pipeline: Minimum Federal Safety Standards, Subpart L, “Operations.”

49 CFR Part 192, Subpart M, “Maintenance”

49 CFR Part 192, Subpart O, “Gas Transmission Pipeline Integrity Management”

CPUC, Section 851

CPUC General Order 69-C, “Easements on Property of Public Utilities Resolution No. L-230”

GO-112F 143.5, “Encroachments”

REFERENCE DOCUMENTS

Developmental References:

NA

Supplemental References:

Utility Procedure TD-4490P-03, “Vegetation Encroachment Site-Specific Risk Analysis”

Utility Procedure TD-4490P-05, “Structural Encroachments Risk Analysis”

APPENDICES

NA

ATTACHMENTS

NA

Gas Pipeline Encroachment Management

DOCUMENT RECISION

Utility Standard TD-4490S, “Gas Pipeline Rights-of-way Management,” Rev. 2, issued 11/2014.

DOCUMENT APPROVER

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REVISION NOTES

Where?	What Changed?
Revision 3a	
Substep 3.2.2a	Changed “ALL” to “one of”
Substep 3.2.2b	• Changed “ALL” to “one of” • Changed “Located on private location in a customer backyard” to "Located on private location in a customer backyard where emergency access is obstructed" • Changed “Located on private location and is more than…” to “On location that is more than…”
Revision 3	Publication Date: 04/27/2016; Effective Date: 01/01/2017
Section 2	Added Roles and Responsibilities section.
Section 3	Updated the risk assessment models.
Section 4	Added reference to TD-4490P-05, which details the process for performing risk prioritization and analysis in determining the threat levels of structural encroachments within the ROW.
Section 4.1.2	Added new GO-112F requirements for submitting plans to the CPUC.
Section 6	Added reference to TD-4490P-05.
Section 7	Added Integrity Management, Patrols, and Leak Survey to provide approvals in the exemption process.
Section 8.1.2	Added requirements for exemptions for environmentally sensitive areas.
Definitions	Updated definition of encroachment.