

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**CONSUMER SERVICES DIVISION
UTILITIES SAFETY BRANCH**

**RESOLUTION SU-50
DATE: July 22, 1999**

RESOLUTION

RESOLUTION SU-50, ORDER AUTHORIZING DEVIATION FROM GENERAL ORDER NO. 112-B, SECTION 192.327(a), ALLOWING PACIFIC GAS AND ELECTRIC TO REDUCE THE DEPTH OF THE GROUND COVER OVER A SECTION OF TRANSMISSION LINE 310.

SUMMARY

By letter dated November 3, 1998, Pacific Gas and Electric (PG&E) requested the California Public Utilities Commission (Commission) to authorize a deviation from General Order No. 112-B (GO112B), Section 192.327(a), requiring transmission pipeline installed in a Class I location to have a minimum ground cover of 30 inches. This deviation would allow PG&E to reduce the ground cover over a section of its transmission pipeline, Line 310 at Mile Point (M.P.) 8.8, to 18 inches. This Resolution authorizes PG&E the deviation to reduce the depth of the ground cover.

BACKGROUND

Public Utilities (P.U.) Code Sections 702 and 768 grant the Commission the authority to establish and enforce standards of construction, maintenance, and operation of utility systems. Rules governing design, construction, testing, maintenance, and operation of utility gas piping systems are codified in GO112B. These rules are incorporated in addition to the Federal Pipeline Safety Regulations, specifically, Title 49 Code of Federal Regulations (49CFR) Part 192. The Utilities Safety Branch (USB) oversees utility compliance with GO112B.

49CFR, Section 192.327(a) requires that transmission pipelines within a Class I location must be installed with a minimum ground cover of 30 inches. A Class I location is a class location unit that has 10 or fewer buildings intended for human occupancy. A class location unit is an onshore area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline.

GO112B, Subpart A, Section 101.3, authorizes the Commission to grant deviations from the General Order. PG&E must also seek a waiver from the Department of Transportation under section 190.339 or applicable section of 49CFR.

*

DISCUSSION

Line 310 traverses a remote rugged inland mountain range. The pipeline is used as a single feed to one large customer. Line 310 has a maximum allowable operating pressure of 890 psig and normally operates at 525 psig. The pipeline is composed of a Grade B Seamless pipe and operates at 37.4% of the specified minimum yield strength. The pipeline diameter is 10 inches with wall thickness of 0.365 inches. A section of the pipeline, at M.P. 8.8, is located in a slide area. The slide area is in a Class I location that is not readily accessible to the public.

Due to extreme rains in the area, on February 25, 1998, PG&E detected a landslide at M.P. 8.8. The pipeline was exposed for approximately 20 feet and had a horizontal offset of 7 feet over a distance of 250 feet. As a result of the landslide, PG&E performed a Finite Element Analysis to determine whether the pipeline was fit for service. The results of the analysis were as follows:

1. An elbow located 117 feet above the slide area was subjected to unacceptable levels of stress. The elbow had not failed but had experienced substantial yielding.
2. By raising the pipeline to a more shallow depth, the soil forces acting on the pipeline would be reduced in the event another slide did occur in the area. PG&E determined that a ground cover of 18 inches would allow the pipeline to survive a worse slide than the one experienced in 1998.

USB's initial concerns with the pipeline were the hazards the pipeline posed being located within a slide area. PG&E informed USB that it had explored alternate routes for Line 310, but no better route existed in the area due to extensive slides on all the adjacent hillsides. Because it was not practicable to relocate Line 310, PG&E engaged in the following activity and established precautionary measures to ensure the integrity and safety of the pipeline:

1. The damaged elbow was replaced with an extreme long radius bend. Pipeline stress analysis indicates that the extreme long radius bend would not experience the stress concentrations that caused the original elbow to yield.
2. A second elbow, uphill from the elbow that had yielded, was also replaced with an extreme long radius bend as a precautionary measure.
3. The affected hillside was regraded and surface swales were installed to encourage runoff away from the slide area.
4. Pea gravel was installed adjacent to the pipeline at the downslope interface between the slide area and the stable ground to increase the survivability of the pipeline.
5. The pipeline was resurveyed and a final plan and profile were established to serve as a baseline to allow measurements of possible future pipeline movement.

*

6. PG&E will perform additional patrols of the pipeline after periods of extreme rainfall.

In addition, PG&E has line rupture controls at the Tres Piño Station which feeds Line 310. The station is equipped with a Supervisory Control And Data Acquisition (SCADA) device. The SCADA device continuously monitors the pressure and flow rate in Line 310. There is another SCADA point at the end of Line 310. If a break in the pipeline did occur, and the rupture controls failed to operate, PG&E would still be able to close the line inlet valves remotely using SCADA.

The draft resolution of USB regarding this matter was mailed to the parties in accordance with PU Code Section 311(g)(1). No comments were received.

FINDINGS

1. Line 310, at M.P. 8.8, is in a remote area and is not readily accessible to the public.
2. The results of PG&E's Finite Element Analysis indicated that reducing the ground cover over the pipeline from 30 inches to 18 inches would increase the survivability of the pipeline if another landslide were to occur.
3. PG&E has installed new pipeline components and established precautionary measures to ensure the integrity and safety of the pipeline.
4. PG&E has additional precautionary devices installed on Line 310 that would close down the pipeline if a rupture were to occur.
5. The USB staff, of the Consumer Services Division, has reviewed PG&E's petition and concurs with PG&E's request for a deviation of Section 192.327(a).

*

THEREFORE, IT IS ORDERED THAT:

1. PG&B may deviate from GO112B, Section 192.327(a), for Line 310 at M.P. 8.8 providing that the DOT approves the wavier and the following conditions are adhered to:

- a) The ground cover can not be less than 18 inches as requested.
- b) PG&B must conduct additional patrols of the slide area after periods of extreme rainfall and frequently monitor the movement of the pipeline.

2. This Resolution is effective today.

I hereby certify that this Resolution be adopted by the Public Utilities Commission at its regular meeting on July 22, 1999. The following Commissioners approved it:



WESLEY M. FRANKLIN
Executive Director

RICHARD A. BILAS
President
Henry M. Duque
Josiah L. Neeper
Joel Z. Hyatt
Carl W. Wood
Commissioners