Surge Arrester Grounding

Briefing for SED

April 22, 2014

Background

- 1974: PG&E met with the CPUC to discuss the grounding of surge arresters. PG&E made a change to standards to allow a common ground wire and ground rods for distribution transformer secondary neutral conductors and surge arresters.

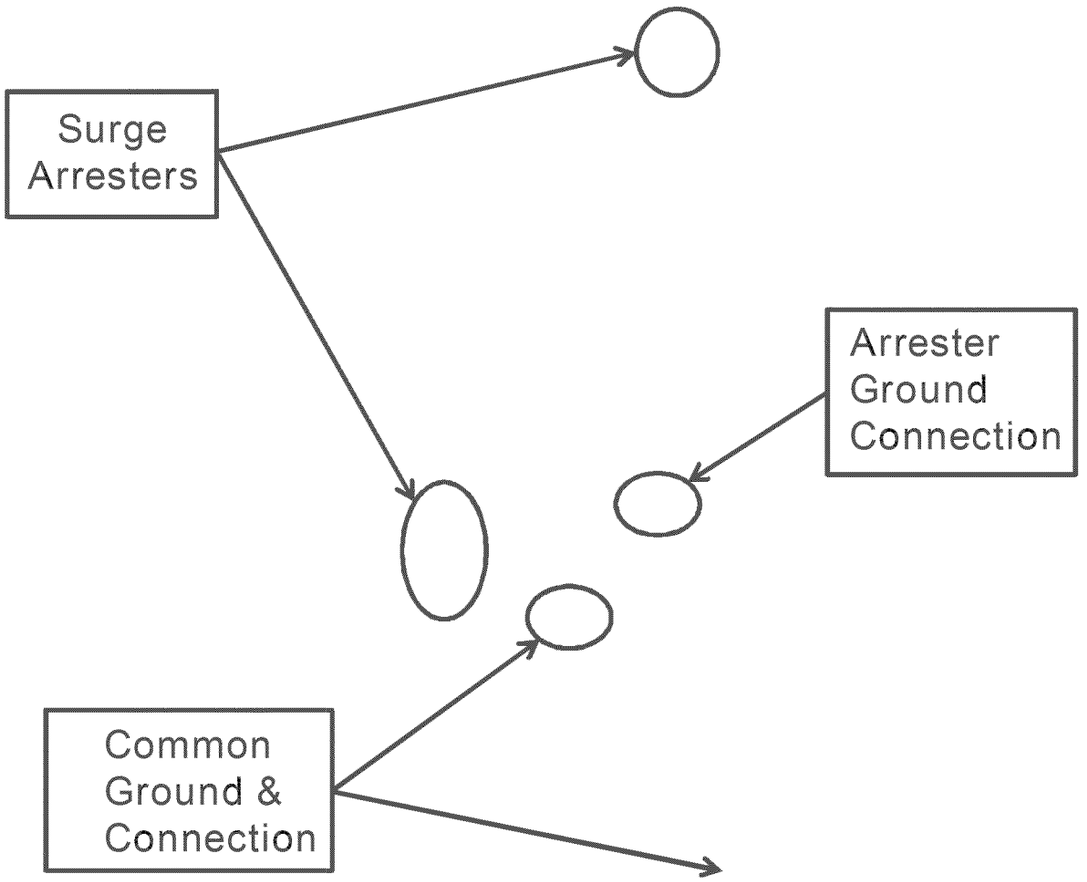
- 2007: PG&E contacted CPUC for clarification on the interpretation of Rule 33.3 of General Order 95. On October 12, 2007 the CPUC informed PG&E after reviewing Rule 33.3B that "Lightning arrester grounds may not be interconnected with secondary neutral grounds on single grounded secondary systems."

- 2008: PG&E took steps to address surge arrester grounding.
  - PG&E issued Bulletin 2008-15 addressing the grounding of surge arresters and transformers and revised Document 021904 Installation of Grounds on Wood Pole Transmission and Distribution Lines which requires a separate ground for surge arresters installed on distribution transformers.
  - PG&E decided to make corrections following normal work practices at any location where the common ground condition exists.

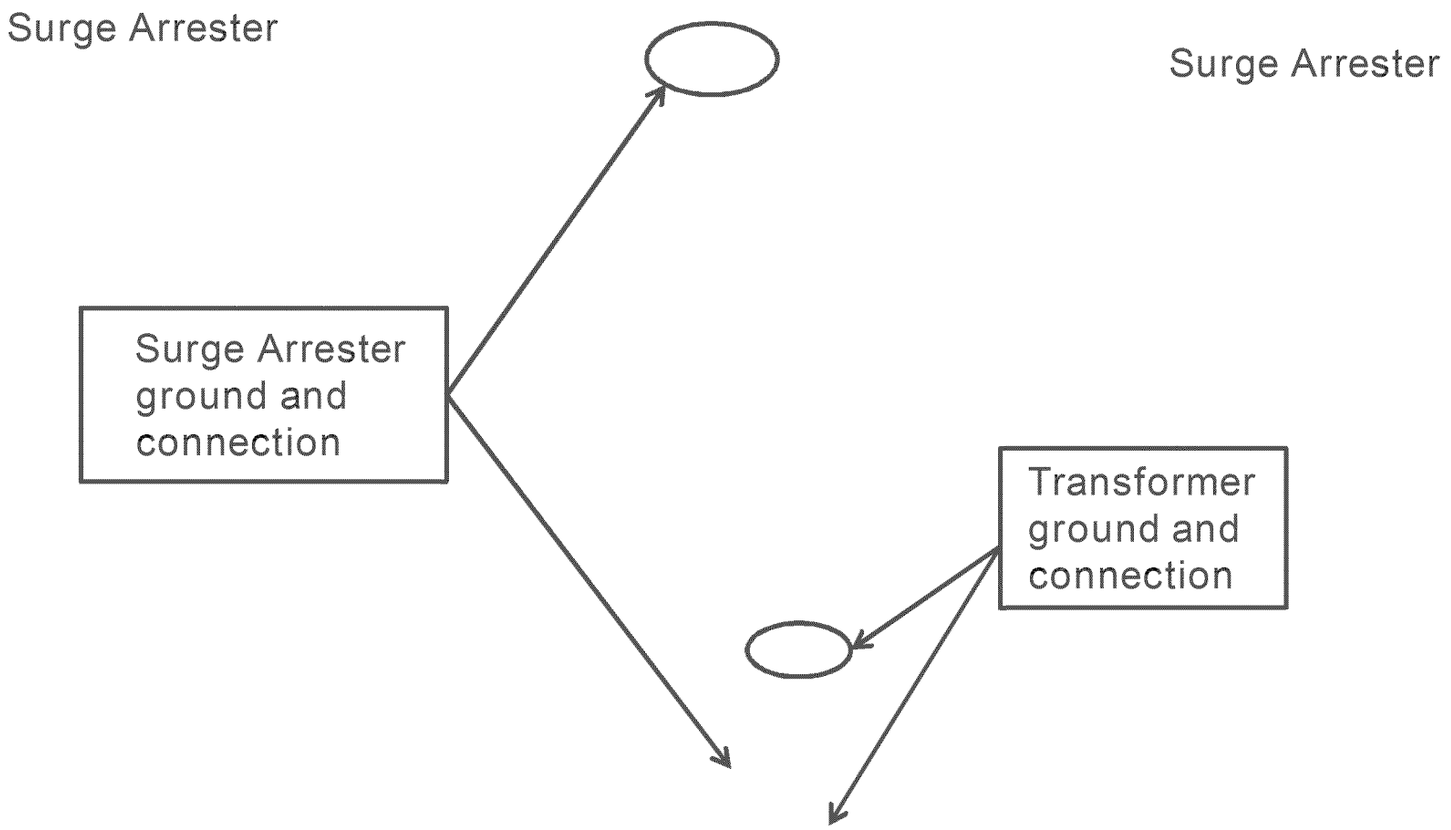
- 2010: PG&E evaluated and decided to continue with approach instituted in 2008 to make corrections following normal work practices.

- 2014: PG&E is enhancing efforts to address surge arrester grounding.
  - Accelerating work to address existing surge arrester grounding issues. In late 2013, realized that failed surge arrester may have caused a November 2010 house fire.
  - Establishing tracking mechanism to measure our progress

Common Transformer Neutral Conductor and Surge Arresters Ground

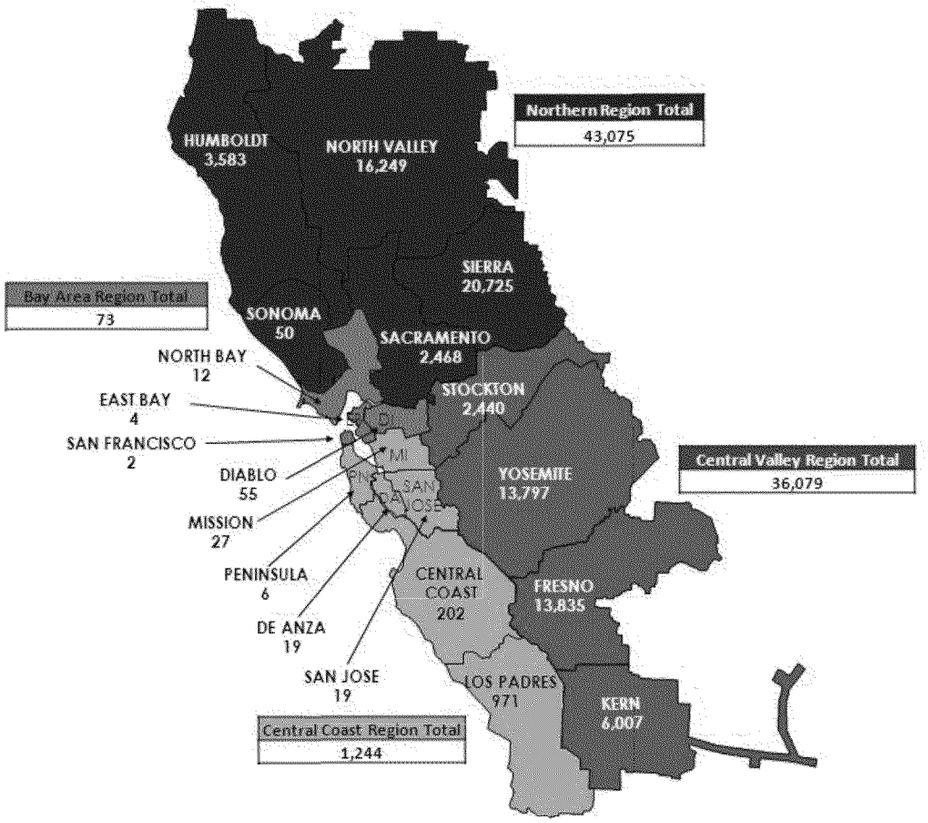


Separate Transformer Neutral Conductor and Surge Arresters Grounds



Transformers with Surge Arresters Installed 1975 - 2008

80,471 transformer locations with surge arrester installed in 1975 – 2008 were identified in the Centralized Electric Distribution System Assets (CEDSA) data base.



Corrective Action Plan

Utilize Public Safety & Regulatory (PS&R) overhead inspections to identify locations and create EC notifications to comply with GO 95 grounding requirements.

- Incorporate with GO 165 inspection requirements to identify locations that are grounded incorrectly.
- EC notifications then utilized to inventory and track corrective actions.
- Corrective actions performed to separately ground existing surge arresters.
- Plan would result in accurate inventory of locations and all existing surge arresters having a compliant ground within 6 years.
- Estimated total cost - $70 million - $80 million