



National Transportation Safety Board

NTSB 2021–2022

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Pipeline Leak Detection and Mitigation

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Pipeline Leak Detection and Mitigation: Safety Item Elements

- Equip natural gas transmission pipelines with rupture detection technology
- Install automatic-shutoff valves (ASVs) and remote-control valves (RCVs) on natural gas transmission pipelines
- Install methane detectors in all residences with natural gas service

Technical Considerations

- Time to detect leak or rupture
- Shutdown capabilities
- Product transported
- Operating pressure
- Rate of release
- Profile of pipeline
- Ignition potential
- Emergency response personnel location

SPECIAL STUDY OF
EFFECTS OF DELAY IN SHUTTING DOWN
FAILED PIPELINE SYSTEMS AND
METHODS OF PROVIDING RAPID SHUTDOWN

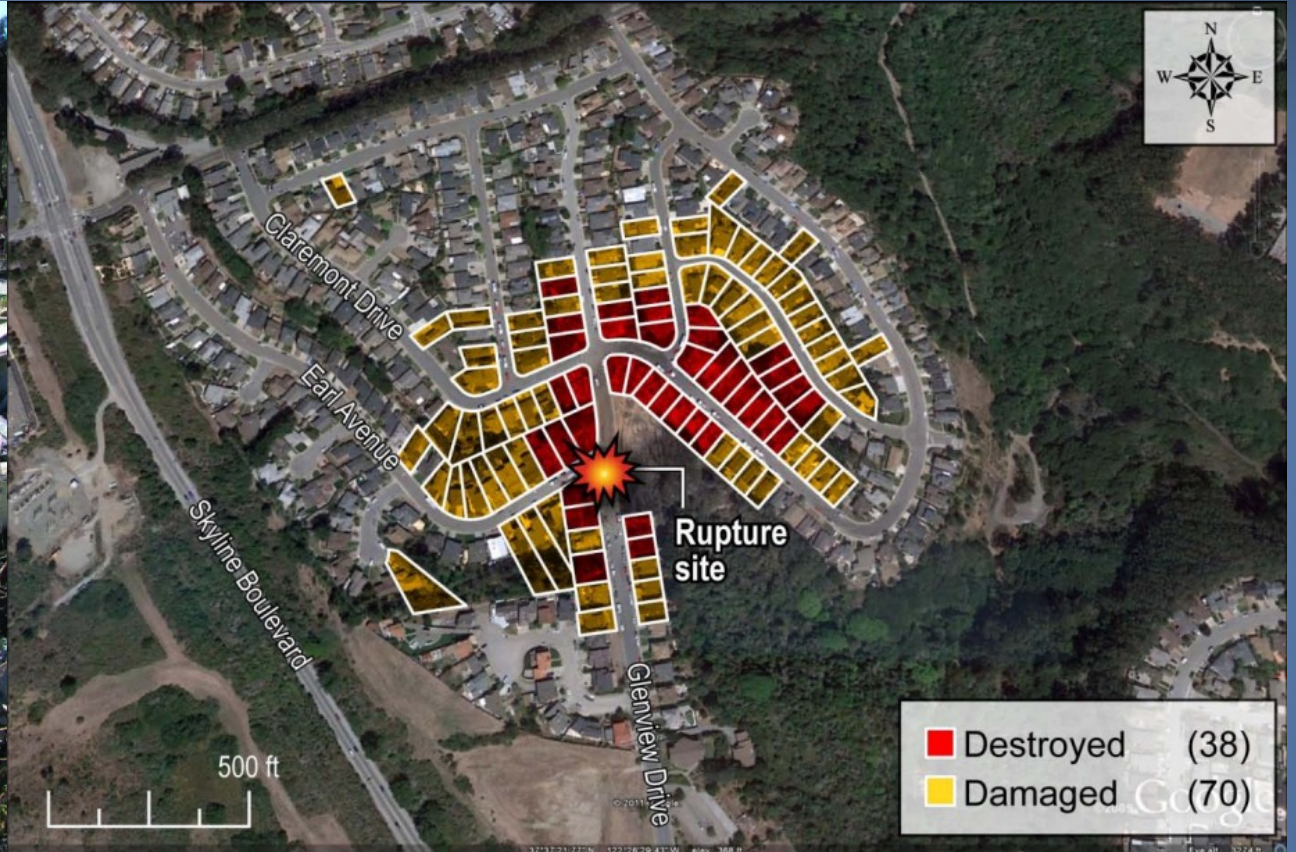
Approved: DECEMBER 30, 1970





← Earthen underflow dam

← Talmadge Creek



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Risk and Consequences

- Severe consequences nationwide across distribution and transmission pipelines, particularly in densely populated areas
- Leaks and ruptures will continue to have excessive response times without uniform leak detection installation, ASVs and RSVs

MWL Open Recommendations

- San Bruno, CA: P-11-10 and P-11-11
 - P-11-11: Amend Title 49 Code of Federal Regulations 192.935(c) to directly require that automatic-shutoff valves or remote-control valves in high consequence areas and in class 3 and 4 locations be installed and spaced at intervals that consider the factors listed in that regulation
- Silver Spring, MD: P-19-01, P-19-02, P-19-06, P-19-07, and P-19-08
- Dallas, TX: P-21-2, P-21-3, P-21-4, P-21-11, and P-21-13

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Open Rupture Investigations

- Danville, KY – August 1, 2019
- Hillsboro, KY – May 4, 2020
- Coolidge, AZ – August 15, 2021
- Edwardsville, IL – March 11, 2022

Questions?

- MWL-related recommendations:
 - <https://data.nts.gov/carol-main-public/query-builder/route/?t=published&n=13>
- Corpus Christi investigation materials:
 - <https://www.nts.gov/investigations/Pages/DCA20FM026.aspx>
- NTSB accident dockets:
 - <https://data.nts.gov/Docket/Forms/searchdocket>

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