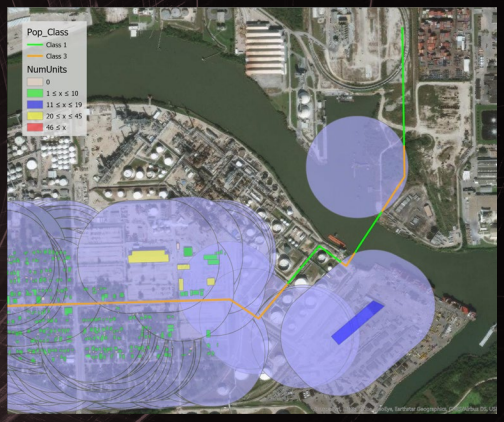
INTEGRITY SOLUTIONS

GAS PIPELINE RELEASE CONSEQUENCE ANALYSIS FOR HCAs & MCAs

PHMSA 49 CFR 192 regulations require gas pipeline operators to assess moderate consequence areas (MCAs) and class locations, in addition to high consequence areas (HCAs). Potential impact radius, building unit counts, "identified sites," principal arterial roadways—there's a lot to consider!

MCAs may require integrity assessments and MAOP reconfirmation. Class location drives requirements for depth of cover, leak surveys, and ROW patrols. HCAs must be identified per Method 1 or Method 2. Integrity Solutions® Ltd can make the determinations.



300+
Combined Years of HCA Analysis Experience

150+
Satisfactory PHMSA/State Audits

100,000+
Miles of Pipeline Analyzed

Our release consequence area analysis for gas pipeline facilities effectively identifies each specific transmission pipeline segment or station facility with potential impacts on Part 192-classified population areas and identified sites.

Using the Part 192 HCA and MCA definitions, as well as the methodologies described in 49 CFR 192, the experts at Integrity Solutions® can complete a thorough and comprehensive analysis of your facilities.

RELEASE CONSEQUENCE ANALYSIS

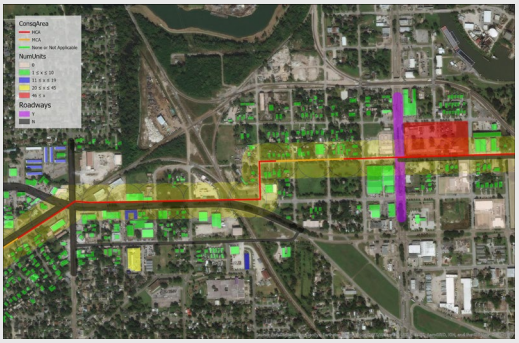
Class Location Analysis
- Pipeline centerlines
- Class location units
- Sliding mile method
- Areas within 100 yards
- Cluster rule adjustments
- Class 1 through 4 designations

HCA Analysis
- Pipeline specifications
- Method 1 and Method 2
- Determine HCA segments/facilities
- Potential impact radius
- Potential impact circles - 20 building units
- Identified Sites

MCA Analysis
- Potential impact circles - 5 building units
- Review interstates, expressways, principal roadways
- Determine MCA segments/facilities

CLASS LOCATION, HCA, & MCA ANALYSIS

DETAILED LOOK



ISltd® analysis considers all applicable and available factors to produce reliable, repeatable results.
In addition to regulatory requirements, we consider PHMSA guidance and the latest industry thinking and practices.

1 CLASS LOCATION ANALYSIS

Class location designations range from Class 1 (least critical) to Class 4 (most critical), as defined by PHMSA regulations, and those designations drive multiple requirements for operators. ISltd has the expertise and the software needed to confirm these designations.

- ISltd applies the continuous-sliding-mile method and utilizes cluster rule adjustments.
- Our software generates class location unit data to apply the continuous-sliding-mile concept.
- We evaluate building-unit count within sliding class location units, as well as identified sites, within 100 yards, per regulations.

2 HCA ANALYSIS

Gas pipeline operators must identify pipeline facilities that are located in HCAs using either Method 1 or Method 2, as defined in 49 CFR 192.903. Each method requires calculation of the potential impact radius, based on pipeline attributes such as pressure, diameter, and the product's heat of combustion factor.

- **Method 1** - Identifies possible gas release areas with potential to impact an HCA through Population Class 1-4 location analysis, using digitized building points and potential impact circles to capture and assess identified sites.
- **Method 2** - Identifies a gas release potential impact circle that define the areas with the potential to impact an HCA, using digitized building density and identified sites analysis.

ISltd provides a comprehensive report outlining the results of our analysis, along with detailed supporting documentation as needed, for your record-keeping and audit-readiness needs.

3 MCA ANALYSIS

Operators were required to determine which pipelines affect MCAs and document procedures for these pipelines by July 1, 2021. Such pipelines must be assessed within 14 years, with reassessments at least once every 10 years. Certain MCA segments are subject to integrity assessment data analysis, discovery, and remediation requirements. ISltd has performed a rigorous review of MCA requirements and is ready to put our expertise to work to ensure your compliance.

- Conduct building count analysis
- Conduct paved surface / roadways analysis
  - Principal arterial roadways, including their shoulders

An Integrity Solutions analysis confirms which of your pipeline segments and facilities are subject to the class location and consequence area regulations.

Comprehensive, Expert Analysis • Complete Class Location/HCA/MCA Study • Data Integration
Systematic Review • Regulatory Compliance • Documentation for Your Files

TURNING KNOWLEDGE INTO INTEGRITY®

WE ARE ANALYSTS. WE ARE PROBLEM SOLVERS. WE ARE PIPELINE EXPERTS.

We are a devoted group of uniquely qualified and knowledgeable professionals who deliver specialized integrity management services and software solutions to the U.S. oil and gas pipeline industry. Our customers rely on us to guide them through the complicated, and always changing, integrity management process from the initial jurisdictional reviews to ongoing risk analysis and integrity management.

INTEGRITY SOLUTIONS

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