Working Group # 2
Remote Sensing/
Leak Detection-Mitigation

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Attendance Breakdown

Approximate total attendance	36
Federal Regulators	3
State Regulators	1
International Regulators	0
Pipeline Industry/Service Providers	15
Standard Developing Organizations	1
Researchers	6
Academics	5
1st Responders & Manufacturers	5

Top 3 Identified R&D Gaps

Gap #1 – Develop Remote Sensing and Leak Detection Platforms that can deploy multiple sensor types. (Technology and General Knowledge)

Gap #2 – Further Validation of Remote Sensing and Leak Detection Technologies under realistic and differing operating conditions. (Technology and General Knowledge)

Gap #3 – Improving Data Collection, Normalization and Integration methods to enhance risk assessment tools for decision-making. (Technology and General Knowledge)

NOTE: Identify gaps with* that may be addressed with University Partnerships

Associated Details
(Gap #1)

Develop Remote Sensing and Leak Detection Platforms that can deploy multiple sensor types. (Technology and General Knowledge)

- Maximize platforms of various types to provide for the most opportunity to collect and integrate multiple data sets.
- Fixed deployment and mobile, airborne (low or high altitude) or satellite
- Consider power consumption and other key variables
- Identify hazards and integrity threats. Scalable to accommodate inspection vs monitoring considerations.
- Data visualization to include geospatial, pinpoint, grade, quantify threats/leaks - real time/actionable

Associated Details
(Gap #2)

Further Validation of Remote Sensing and Leak Detection Technologies under realistic and differing operating conditions. (Technology and General Knowledge)

- Factor considerations and deployment strategies for urban, suburban and rural areas. Remote detection inside structures?
- Factor different operational considerations for commodity and pressures.
- Discuss communication of data and security
- Remote sensing side – factor how threat type can be identified or characterized.
- Methodology to take into account uncertainties in the data
- Discuss performance and KPIs – bundle by platform type and use case.
- Considerations to national industry standards or practices

Associated Details
(Gap #3)

Improving Data Collection, Normalization and Integration methods to enhance risk assessment tools for decision-making. (Technology and General Knowledge)

- Utilize and enhance (if needed) analytics or machine learning to support transparency and quality considerations.
- Further develop or enhance risk assessment methodologies
- Develop performance metrics and evaluate reliability of the tools/methods
- Ensure integrity of telemetry
- Considerations to national industry standards or practices
- Methodology to take into account uncertainties in the data
- For data collection, consider block chain methodology to help stakeholders determine which data is most relevant. Allowing end users to determine what data is most important. Traceability.

Other Items as Applicable

“Consumer Report” type catalog for identifying and itemizing test beds (capabilities, limitations) in the US and internationally to include all factors/variables tested in these facilities.

Additional Identified Gaps

1. Data collection or output types should be standardized to support future data sharing endeavors.
2. Solutions both technical and data management to improve remote sensing capabilities.
3. Integrating multiple sources of large data sets from monitoring to drive actionable recommendations. Visual and integrity data.
4. Geohazards: Support more field demonstrations and validation testing of various technologies from wide ranging deployment platforms.
   - River, streams and creeks
     - Better modeling of stress/strain on pipe based on above ground data
   - Other bodies of water.

NOTE: Identify gaps with* that may be addressed with University Partnerships