



U.S. Department of
Transportation
Pipeline and Hazardous Materials Safety Administration

Voluntary Information-sharing System Working Group Task Statement

Subcommittee: Technology/R&D

Alternate DFO: Chris McLaren

Subcommittee Chair: Bryce Brown

Task Statement: Support Committee by Recommending Secure System(s) Architecture. Make recommendations required for continuous improvement and/or needed development of Technologies and Methodologies

Subcommittee Task Number: 18-04

18-01 (Mission and Objectives)

18-02 (Process Sharing)

18-03 (Best Practices)

18-04 (Technology/R&D)

18-05 (Training and Qualifications)

18-06 (Regulatory, Funding, Legal)

18-07 (Reporting)

Primary Mandate Requirement(s) Addressed:

- (c)(1) The need for, and the identification of, a system to ensure that dig verification data are shared with in-line inspection operators to the extent consistent with the need to maintain proprietary and security-sensitive data in a confidential manner to improve pipeline safety and inspection technology.
- (c)(2) Ways to encourage the exchange of pipeline inspection information and the development of advanced pipeline inspection technologies and enhanced risk analysis.
- (c)(3) Opportunities to share data, including dig verification data between operators of pipeline facilities and in-line inspector vendors to expand knowledge of the advantages and disadvantages of the different types of in-line inspection technology and methodologies.
- (c)(4) Options to create a secure system that protects proprietary data while encouraging the exchange of pipeline inspection information and the development of advanced pipeline inspection technologies and enhanced risk analysis.
- (c)(5) Means and best practices for the protection of safety and security-sensitive information and proprietary information.
- (c)(6) Regulatory, security, funding, and legal barriers to sharing the information described in paragraphs (c)(1) through (4).



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SMS Alignment (API RP 1173, 1st edition): SMS-11

- SMS-5 (Leadership and Management Commitment)*
- SMS-6 (Stakeholder Engagement)*
- SMS-7 (Risk Management)*
- SMS-8 (Operational Controls)*
- SMS-9 (Incident Investigation, Evaluation, and Lessons Learned)*
- SMS-10 (Safety Assurance)*
- SMS-11 (Management Review and Continuous Improvement)*
- SMS-12 (Emergency Preparedness and Response)*
- SMS-13 (Competence, Awareness, and Training)*
- SMS-14 (Documentation and Record Keeping)*
- SMS-15 (Safety Culture)*

Task Purpose:

The subcommittee will pursue the identification of necessary components of a collaborative system (enterprise technology, information, and infrastructure) that can maintain proprietary and highly sensitive data and facilitate the seamless exchange and analysis of relevant pipeline inspection information (quantitative) across the industry from various assessment technologies/methods for improved pipeline safety, improved comprehension (capabilities/limitations), continuous improvement (need, functionality), further research and development, and threat/risk analysis purposes.

An Operator's perspective of what the desired outcome should be:

1. Improve (industry consistent/best in class) application and deployment of existing technology whether it be ILI tools, DA, hydrotesting, etc. Operators deploy a comprehensive, systematic and integrated process relative to integrity assessments:
 - a. Deploy right technology for the threat
 - b. Specify data and analytics appropriate for the threat(s)
 - c. Service provider sensor technology, delivery to the pipe, data analysis and reporting
 - d. Operator data integration and direct assessment decision making process
 - e. In-the-ditch measurement accuracy and comprehension
 - f. Integration and feedback of field data to ILI service providers and Operator knowledge base (Plan-Do-Check-Adjust)
2. Perfect existing technology capabilities via Operator/Industry gap analysis
 - a. How to improve existing tool and process technology for unique circumstances such as a certain morphology or interacting threats
3. Drive development of new and/or improved technology (sensors, analytical techniques) via Operator/Industry gap analysis



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4. Identify unique (low probability, high consequence) integrity threats and approaches to assess susceptibility and threats (Operator transparency relative to emerging/found threats – “I was not expecting to find this but we did, you might consider that”)
5. Improve transparency/communication of industry capabilities and confidence level with existing technology, pursuit of gap filling technology – define data, information and messaging for the industry and public communications – what is the state of the state not just in terms of what we are capable of but how well we actually deploy that capability

Task Description(s):

1. Identify Assumptions from other Subcommittees for our inputs and outputs (Process Sharing & Best Practices) and define Taxonomy.
2. Determine/Define and standardize the applicable pipeline inspection information (quantitative) and its native data format (tabular, geospatial, etc.)
3. Conduct historical studies that help in the understanding of current best practices for; managing and sharing pipeline inspection information and the associated areas for continuous improvement.
4. Analyze/define data security and protection to safeguard the proprietary nature of the pipeline inspection information shared (quantitative).
5. Determine the Quality Control Procedures required to facilitate the accurate exchange of the pipeline inspection information.
6. Determine the feasibility of integrating the pipeline inspection information with other relevant pipeline safety data that is already available or envisioned to be developed. Are there data format, completeness, and/or platform issues that need to be addressed?
7. Determine the needed interpretation of the pipeline inspection information shared and the areas that could be addressed;
 - a. understanding the capabilities/limitations, and best practices,
 - b. data maintenance, continuous improvement, and/or further research and development,
 - c. and perspective predictive analysis capabilities for threat and risk analysis purposes.

Deliverable(s):

1. Summary Recommendation Report to parent committee for approval
 - a. Appendix A: Deliverables Table
 - b. Executive level roadmap document with a collection of high level models and artifacts as described in Appendix A: Deliverables Table
 - c. List of acronyms and common terminology and definitions
2. Subcommittee Recommendation Report and Presentation(s) to the parent committee

Refer to/establish following the working group(s):

1. **Assumptions** (sit in on Process Sharing and Best Practices Subcommittee meetings to document the assumptions for our “Functional Specification(s)” and define Taxonomy)
2. **Architecture/IT** (IT, user authorization, accessibility, database/software, etc.)



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3. **Continuous Improvement/R&D** (considerations for improvements and/or developments)

Target Milestones and Dates:

1. Submit initial Recommendations to the parent committee (July 2018)
2. Initial Recommendation Report Drafted (Aug/Sept 2018)
3. Final Recommendation Report Approved (Dec 2018)

Establish contact and line of communication with the VIS Sub-committees on Best Practices and Process Sharing for collaboration purposes.

Date initially presented to VISWG:

2/28/2018

(By *in-person* or *electronic vote*)

Disposition:

<input checked="" type="checkbox"/>	Approved	2/28/2018
<input type="checkbox"/>	Disapproved	Click or tap to enter a date.
<input type="checkbox"/>	Returned to Subcommittee	Click or tap to enter a date.



Appendix A: Deliverables Table

Deliverable name	Purpose	Description
Pipeline Inspection Information WG: Assumptions	Need to understand the applicable information, that when shared, can be used to meet the purpose.	Explore and determine the types of information that can be shared to meet the purpose. This will include and is not limited to inspection information as well as any essential variable data that assists in understanding the relevance and/or quality.
Assessment Technology/Methods WG: Assumptions	Need to understand the associated assessment technologies and methods that provide the subject inspection information.	Explore and determine the different assessment (inspection) techniques/technologies and associated methods, e.g. ILI technology applied, Direct Assessment methodology, and the associated methods to validate (i.e. field verification NDE).
Other Pipeline Risk Analysis Technology WG: Assumptions (monitor) / Continuous Improvement/R&D	Need to understand the associated risk methods that can be enhanced by having available the shared inspection information.	Explore and determine the associated connectivity of the inspection information shared and the ability for it to be utilized in associated threat and risk analysis. This will include, as applicable, the understanding of the importance of the assessments, methods and quality procedures.



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Deliverable name	Purpose	Description
<p>Data standards and formats WG: Architecture/IT</p>	<p>To set a vision for how key processes and systems shall be integrated into enterprise infrastructure</p>	<p>Explore and determine the current (or needed) data standards and formats for both the sharing of the information as well as the needed data architecture to ensure that it can be used for continuous improvement and future development.</p>
<p>Quality Procedures WG: Assumptions</p>	<p>For the information shared, all need to have quality procedures established by which the usability is established and trusted.</p>	<p>Explore and determine the needed quality procedures for how the information can be qualified, trusted and used for its purpose(s). This will include understanding the current, or needed, procedures to collect the information and the method of collection, e.g. procedure for collecting information with ILI, the personnel analyzing the ILI information, the field measurement technique/technology procedure used and the personnel collecting and analyzing that information.</p>



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Deliverable name	Purpose	Description
Auditing and Monitoring WG: Architecture/IT	Need to consider the necessary QA/QC to ensure that the usability of the shared information is established and/or maintained.	Assessing the administration or actual audit of the systems, practices, and personnel associated with the information, software routines (and maintenance) that are applied to systems to ensure the quality is understood and/or preserved, etc.
Secure System(s), Development and Architecture WG: Architecture/IT	Provide clear input to Business or IT project SMEs on issues relevant to Enterprise Architecture	Explore and determine existing, or needed, systems and how they can be used for purpose. Outline the requirements in order to be successful.
User Interfaces (confidential/public viewers) WG: Architecture/IT	To demonstrate and communicate information shared to relevant end users for the appropriate purposes.	Explore and determine existing, or needed, systems and how they can be used for purpose. Outline the requirements in order to be successful. Consider dashboards that could provide compiled information to operators, public or government.
System Security Authorization and Access WG: Architecture/IT	To demonstrate and communicate information shared to relevant end users for the appropriate purposes.	Explore and determine existing, or needed, systems and how they can be used for purpose. Outline the requirements in order to be successful.



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Deliverable name	Purpose	Description
Software considerations WG: Architecture/IT	Provide clear basis for information collection.	Explore and determine existing, or needed, systems and how they can be used for purpose. Outline the requirements in order to be successful.
Integration/interoperability with other systems WG: Architecture/IT	Provide clear basis for information collection.	Explore and determine existing, or needed, systems and how they can be used for purpose. Outline the requirements in order to be successful.
Scalability (able to accommodate future information sharing needs) WG: Architecture/IT	As the amount of relevant information shared increases, ensure that the architecture is suitable as well as the connectivity is ensured so that the purpose is maintained or enhanced accordingly.	Explore and determine existing, or needed, systems and how they can be used for purpose. Outline the requirements in order to be successful.
Needed Interpretation of pipeline inspection information WG: Continuous Improvement/R&D	Information collected is interpreted. Understand the interpretation and how it meets the purpose.	Explore and determine the current, or needed, interpretations of the associated information and how these can be used to meet the intent of the purpose (e.g. interpretation of the difference between reported ILI results and the field verification measurement results, what does this tell us and how do we establish proper interpretation?). Consider dashboards that could provide compiled information to operators, public or government.



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Deliverable name	Purpose	Description
<p>Determination of “gaps” and associated needs WG: Continuous Improvement/R&D</p>	<p>Create a determination/analysis/communication for a “gap” analysis based on the interpretation of the associated information.</p>	<p>From the interpretation of the information shared, “gaps” may be recognized, establish guidelines for sharing these “gaps” and understand how needed improvements can be communicated and realized.</p>
<p>Determination of development needs, e.g. advances in technology or methods WG: Continuous Improvement/R&D</p>	<p>Create a determination/analysis/communication process based on the interpretation of the associated information that leads to perspective development needs.</p>	<p>From the interpretation of the information shared, and the “gaps” that may be recognized, establish guidelines for sharing and understand how perspective development or advances can be communicated and realized.</p>