

Mission and Objectives

Governance Structure Recommendations

Option A

The VIS should be created within the DOT, based on the DOT's authority, and maintained separately from other departments and divisions within PHMSA, including PHMSA's inspection and enforcement departments.

Recommendation 1: Governing Principles

The VIS should be comprised of four parts: (1) Federal leadership, (2) an executive board run by a government co-chair and an industry co-chair who will facilitate day-to-day organizational functions, (3) issue analysis teams that will support and deliver products to the VIS Executive Board and provide input and recommendations in response to voluntarily submitted data, and (4) a third-party data provider that will collect and manage voluntarily submitted data and maintain confidentiality protocols. There may be one or multiple information-sharing systems that share data with the national VIS. This recommendation is intended to encourage the implementation of other information-sharing systems. Participation in a VIS must not be required or mandated.

Recommendation 2: Federal Leadership

The Secretary should authorize a VIS program office within PHMSA that will be responsible for day-to-day leadership over the VIS, including budget administration, strategic and tactical decision making, and legislative and regulatory direction.

Recommendation 3: Executive Board

- The VIS Executive Board should be jointly co-chaired by an industry representative and a PHMSA government representative. The VIS Executive Board would have specific responsibilities for data governance, including data quality standards and oversight of VIS activities and products.
- *IS Executive Board membership should include representatives from key stakeholders, including industry, PHMSA, public safety advocacy groups, labor, and research and development organizations, as well as a State safety agent appointed by the National Association of Pipeline Safety Representatives (NAPSR). Most of the VIS Executive Board should be made up of pipeline industry representatives, as this would help motivate voluntary participation and provide a level of security for industry participants.
- The VIS Executive Board should meet at regular intervals and may be convened to discuss data trends or emergent issues on an ad hoc or emergency basis.
- The VIS Executive Board is responsible for the development of governing documents based on a collaborative model for self-governance rules. Examples of useful governing documents include the mission/charter, the stakeholder organization participant agreement, confidentiality policies, and the issue-resolution process.

Recommendation 4: Issue Analysis Teams

- The issue analysis teams should be made up of the third-party data provider, the NAPSR-appointed State agent (or designated representative), labor and technical experts from industry and PHMSA.
- The issue analysis teams should analyze data and make specific recommendations and lessons learned to the VIS Executive Board regarding non-regulatory actions to address data trends and identified risks.
- Issue analysis teams shall consider the use of other data outside of the VIS in their analyses and reports on lessons learned.
- Issue analysis teams, in coordination with the third-party data provider, should make recommendations to the VIS Executive Board on products for distribution. The VIS Executive Board should decide what information products are distributed to facilitate pipeline safety improvements.

Recommendation 5: Third Party Data Provider

- The third-party data provider will be an independent non-PHMSA entity that will receive, de-identify, analyze, manage voluntarily shared data, and utilize publicly available data. The third-party data provider shall not use or provide VIS data to any outside entity unless approved by the VIS Executive Board. The VIS Executive Board will develop requirements. PHMSA's acquisition process will be used to procure the system.
- The third-party data provider will be the only entity that is able to access all information, including the identity of information submitters; as such, the third-party data provider must work with information submitters on initial analysis. When analyzing or classifying reports, the third-party data provider may reach out to information submitters for clarification or additional information.
- The third-party data provider shall de-identify data with respect to individual submitters and PHMSA criteria and guidelines.
- The third-party data provider would also work with the issue analysis teams to provide input on potential protocols, including but is not limited to metrics, reporting format, and reporting form templates.

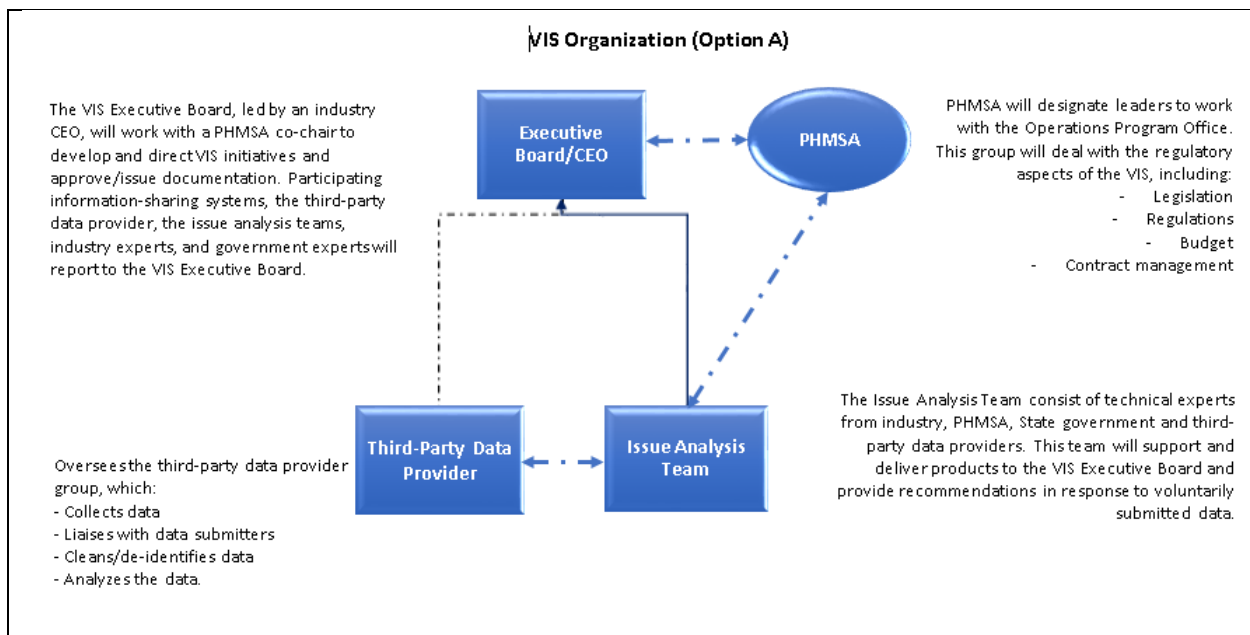
Recommendation 6: Confidentiality

- Confidentiality policies should include issues of redaction, security, and data and information dissemination.
- Confidentiality policies would also be included in contracts between participants and the third-party data provider.
- Individuals performing work in this environment would be required to sign Non-Disclosure Agreements in accordance with the policies established by the Executive Board to include Executive Board members.

Recommendation 6: Information Dissemination and Board Selection

The VIS should establish a tiered Information Sharing System. The Information Sharing System should consist of tiers of information dissemination, transparency and confidentially. One example might be as follows:

- Tier 1, unlimited access to all data. This level of access would require NDAs for all individuals with this access and would be limited to the Third-party Provider. * Tier 2, access to all data, except the name of the reporting company and geographical data, to the extent that it was not a direct contributor to the incident. This level of access would require NDAs for all individuals with this access and would be limited to the members of the issue analysis teams.
- Tier 3, access to all reports and data issued by the VIS. Operators would sign an agreement with VIS pledging not to disseminate this data. This level of access would be limited to the participant Operators who volunteer to share their data through the VIS process.
- Tier 4, access to select reports and data issued by the VIS (this data would consist of critical notices of specific individual risks, facility failures, or summaries of risks that constitute a potential threat to pipeline safety). This level of access would be limited to all industry Operators.
- Tier 5, any publicly disclosed information released by the Executive Board.



Option B

The VIS should be created as an Industry funded and managed VIS.

Recommendation 1: Governing Principles

The VIS should be comprised of four parts: (1) VIS Executive Board (Board). An industry chair will serve as the Chief Executive Officer (CEO) over VIS, (2) a VIS Operations Program Office reporting to the CEO that manages day to day operations (3) Issue Analysis Teams, reporting to

the Operations Program Office, and working with the third-party data provider, deliver recommendations to the Operations Program Office for consideration by the Board, (4) a third-party data provider reporting to the Operations Program Office that will collect and manage voluntarily submitted data and maintain confidentiality protocols.

There may be one or multiple information-sharing systems that share data with the national VIS system. This recommendation is intended to encourage the implementation of other information-sharing systems.

Participation in a VIS must not be required or mandated.

Recommendation 2: VIS Leadership

The Chief Executive Officer will be responsible for establishing an Operations Program Office and staff for the day-to-day leadership over the VIS, including budget administration, strategic and tactical decision making, leadership and support for the Issue Analysis Teams, oversight of the third-party contractor, and other necessary administrative & functions.

Recommendation 3: Executive Board

- The VIS Executive Board will have an industry Chief Executive Officer. The VIS Executive Board would have specific responsibilities including strategic oversight of VIS, budgeting, and policy development.
- VIS Executive Board membership ideally should include stakeholder groups including: Industry, PHMSA, Public Safety Advocacy Groups (groups whose primary missions and focus is to advance pipeline safety), Labor, Research and Development Organizations, as well as a State Safety Agent appointed by the National Association of Pipeline Safety Representatives (NAPSR). Most of the VIS Executive Board should be made up of pipeline industry representatives, as this would help motivate voluntary participation and provide a level of security for industry participants.
- The VIS Executive Board should meet at regular intervals and may be convened to discuss data trends or emergent issues on an ad hoc or emergency basis.
- The VIS Executive Board is responsible for the development of governing documents based on a collaborative model for self-governance rules. Examples of useful governing documents include the mission/charter, the stakeholder organization participant agreement, confidentiality policies, and the Board voting process (i.e. does a simple majority carry the issue, a super majority, other?).

Recommendation 4: Issue Analysis Teams

- The Issue Analysis Teams will be established by and report to the Operations Program Office. The Issue Analysis Teams will be populated by participants with expertise in the area being addressed as selected by the Operations Program Office.

- The issue analysis teams should analyze data and make specific recommendations and lessons learned to the Operations Program Office regarding non-regulatory actions to address data trends and identified risks.
- Issue analysis teams shall consider the use of other data outside of the VIS in their metrics reporting, analyses, and reports on lessons learned.
- Issue analysis teams, in coordination with the third-party data provider, should make recommendations to the VIS Operations Program on products for distribution, based on policies set by the Board. The VIS Executive Board should decide what information products are distributed to facilitate the advancement of pipeline safety.

Recommendation 5: Third Party Data Provider

- The third-party data provider will be an independent entity that will receive, de-identify, analyze, manage voluntarily shared data, and utilize publicly available data. The third-party data provider shall not use or provide VIS data to any outside entity unless approved by the VIS Executive Board. The VIS Executive Board with the support of the Operations Program Office will develop any necessary requirements to support this recommendation. The VIS (Board Identified) acquisition process will be used to procure the Third-Party Data Provider.
- The third-party data provider has access to all information. When analyzing or classifying reports, the third-party data provider may reach out to information submitters for clarification or additional information.
- The third-party data provider shall de-identify data, with respect to individual submitters and geographic data, to the extent it was not a direct contributor to the incident.
- The third-party data provider would also work with the issue analysis teams under the direction of the Operations Program Office to provide input on potential protocols, including but is not limited to metrics, reporting format, and reporting form templates.

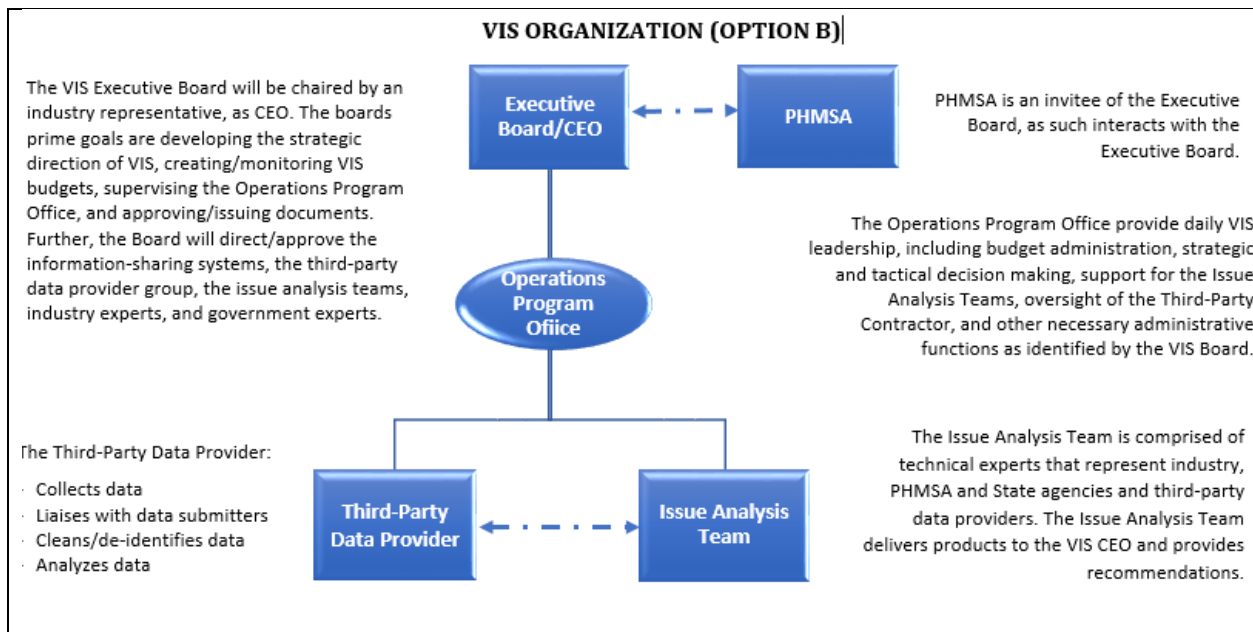
Recommendation 6: Confidentiality

- Confidentiality policies should include issues of redaction, security, and data and information dissemination.
- Confidentiality policies would also be included in contracts between participants and the third-party data provider.
- Individuals performing work in this environment would be required to sign NDA in accordance with the policies established by the Executive Board to include Executive Board members.

Recommendation 7: Information Dissemination & Board Selection

The VIS should establish a tiered Information Sharing System. The Information Sharing System should consist of tiers of information dissemination, transparency and confidentiality. One example might be as follows:

- Tier 1, unlimited access to all data. This level of access would require NDA for all individuals with this access and would be limited to the third-party provider.
- Tier 2, access to all data, except the name of the reporting company and geographic data, to the extent it was not a direct contributor to the incident.
- This level of access would require NDAs for all individuals with this access and would be limited to the members of the issue analysis teams.
- Tier 3, access to all reports and data issued by the VIS. Operators would sign an agreement with VIS pledging not to disseminate this data. This level of access would be limited to the participant Operators who volunteer to share their data through the VIS process.
- Tier 4, access to select reports and data issued by the VIS (this data would consist of critical notices of specific individual risks, facility failures, or summaries of risks that constitute a potential threat to pipeline safety). This level of access would be limited to all industry Operators.
- Tier 5, any publicly disclosed information released by the Executive Board.



Process Sharing Recommendations

PS-1: Define and develop a community of practice that fosters the voluntary sharing and exchange of information related to integrity assessments and risk management.

The term community of practice was selected to convey the importance of creating an environment where the stakeholders recognize the importance of information sharing and their interdependency. Each stakeholder group brings value that will improve the overall effectiveness of integrity assessments, managing risk and improving pipeline safety performance. Consider first building the community of practice with a “coalition of the willing,” that grows as successes are realized. Stakeholders should include operators, service providers, regulators, research organizations, organized labor and public representatives.

PS-2: Define the types and what information are to be shared to enhance integrity management including integrity assessments and risk management.

More detail will be defined based on recommendations made by the Best Practices and Technology and Research and Development Subcommittees.

PS-3: Develop a plan (design) for an information sharing center, hereafter referred to as a voluntary information sharing hub.

The VIS will share information defined in PS-2 among members of the community of practice define in PS-1 under governance defined by the Mission, Values and Governance Subcommittee.

PS-4: Adopt API RP 1163 as a starting framework for information sharing between operators and ILI service providers within the VIS HUB and foster its broader use.

a. Operators should formalize their use of API RP 1163 with each of their service providers ensuring that learnings can be recognized, documented and shared.

API RP 1163 provides a framework for operators and ILI service providers to work together to ensure that assessment results are valid and improvements in the use of ILI are identified. The Process Sharing Subcommittee found in discussions with operators and ILI service providers that RP 1163 is being used but there are opportunities to formalize and institutional its use within organizations and use it more broadly among organizations. The desired future state is one that reflects the integration among stakeholders creating the environment that fosters information sharing.

The process can be improved, evolved and matured over time to present the learnings in a manner that data is searchable and can be analyzed using technology identified by the Technology and Research and Development Subcommittee.

b. An operator’s use of API RP 1163 should be evaluated and audited periodically in conformance with their implementation of requirements of API RP 1173, Section 10, Safety Assurance.

Integrate the lessons learned process established herein into the management review process

PS-5: Develop a process for pipeline operators to share lessons learned from the planning, execution and evaluation of integrity assessments.

The process may start with operators providing case studies (use cases) of their findings from use of API RP 1163 for ILI, or more generally, other assessment technologies in managing risk and pipeline integrity. The process should produce information on pipe and material properties, coatings, the environment around the pipe, why the assessment was conducted including which threats were being addressed and consequential benefits of the work as applicable. Required information is defined in recommendation x.x (developed by the Technology and Research and Development Subcommittee).

PS-6: *Define the processes to be used in a VIS Hub to facilitate the sharing discrete data from integrity assessments using information management and sharing technology defined in recommendation x.x* (developed by the Technology and Research and Development Subcommittee).

PS-7: *Consider the evaluation of existing information sharing systems already in use for energy pipelines and select ones to adopt within the VIS Hub to accelerate development and maturity*. For example, consider the system developed by PRCI as the foundation for information sharing of ILI information among operators and service providers.

PS-8: *Develop a process for integrity assessment service providers to share lessons learned from the planning, execution and evaluation of integrity assessments; including in-line inspection, direct assessment, pressure testing and applications of other technology*.

The process may start with integrity assessment service providers providing case studies of their findings. The process can be improved, evolved and matured over time to present the learnings in a manner that data is searchable and can be analyzed using technology identified by the Technology and Research and Development Subcommittee. The process should produce information on pipe and material properties, coatings, the environment around the pipe, why the assessment was conducted including which threats were being addressed and consequential benefits of the work as applicable. Required information is defined in recommendation x.x (developed by the Technology and Research and Development Subcommittee).

PS-9: *Develop a process for non-destructive evaluation (NDE) service providers to share lessons learned from the planning, execution and evaluation of integrity assessment excavations*.

The process should produce information on pipe and material properties, why the assessment was conducted including which threats were being addressed, the NDE methods used including reference to specific published methods and consequential benefits of the work as applicable. Required information is defined in recommendation x.x (developed by the Technology and Research and Development Subcommittee).

The process can be improved, evolved and matured over time to present the learnings in a manner that data is searchable and can be analyzed using technology identified by the Technology and Research and Development Subcommittee.

PS-10: *Define a process for disseminating lessons learned:*

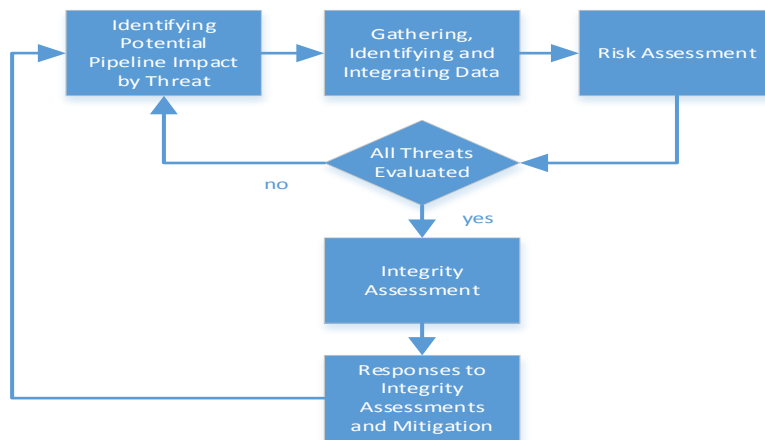
- a. *For operators and identify the operator organizations to receive the Lessons Learned, including AGA, AOPL, APGA, API, INGAA, as well as PRCI, GTI, NYSEARCH.***
- b. *For government stakeholders and agencies to receive the Lessons Learned, including PHMSA, state and local pipeline safety regulatory authorities.***
Define why and how the information shared with these organizations is different that the organizations in recommendation x.x. Examples include ...
- c. *For public stakeholder organizations to receive the Lessons Learned, including organized labor and public interest groups such as the Pipeline Safety Trust and the Pipeline Safety Coalition, as well as interested Federal, state and local officials.***
Define why and how the information shared with these organizations is different that the organizations in recommendation x.x. Examples include ...

PS-11: *Consider development and periodic update of an Integrity Assessment [Management] Compendium to share the state of the art with regard to integrity assessment technology, risk assessment, including data integration, and NDE technology.*

Best Practices Recommendations

BP-1: A Voluntary Information Sharing system for the energy pipeline industry should not be limited specifically to pipeline in-line inspection data. Considerable value and safety improvement is possible if the sharing is expanded to include all of the elements of an integrity management process including data, information and knowledge relative to the process steps as well as lessons learned from incidents or process improvements, technology deployment practices and solutions to common problems.

Pipeline integrity management as required by pipeline safety regulations and referenced within industry standards has been developed to be a comprehensive, systematic and integrated process. An effective pipeline integrity management program involves a very rigorous process that is applied to each pipeline system. See simplified pipeline integrity management process flow diagram¹ below.



The process of managing safety and integrity involves trained and qualified personnel, deployment of technology and analytical tools, management systems and defined processes. A VIS that would be focused on a single element or process step (ILI data and in-ditch data) is potentially limiting the value to be realized. While the threat assessment process step is a crucial one, many other aspects of integrity management lead one to selecting the right technology for the threats at hand and utilizing the data and information gained from that assessment to make decisions about repair, prevention and mitigation. Therefore, the recommendation is to expand the VIS to include the entire realm of the integrity management process and in this broader context the types of data and information to be shared likewise expands to include but not be limited to:

Data and Information Relative to IMP:

- Pipeline threat susceptibility data and information

¹ ASME B31.8S Supplement to B31.8 on Managing System Integrity of Gas Pipelines – Fig 2-2

- Threat assessment technology applicable to specific or interacting threats
- Threat assessment data - ILI Data
- In-the-ditch defect characterization and measurement data
- Specific threat or interacting threat characterization and examples/samples
- DA, locate information, leak and survey information
- Prevention and mitigative measures
- Repair methods

Information Relative to Process Improvement

- Operator Integrity Management and Operational Lessons Learned
- Enhancing the utilization of existing technology
- Sharing of enhanced processes and practices i.e. solutions to known problems including experience with new data/information technology to improve detection and characterization
- R&D Projects to address gaps
- Identification of current gaps in technology and/or analytics that need to be closed
 - Sharing occurs between technology providers and operators
- Training and education of lessons learned with respect to execution of the various integrity management and O&M processes
 - Individual contributor (SME) observations, near miss, safety moment
 - Improved analytics
 - Near misses
 - Unexpected outcomes/observations
- Near Miss Data and Information Operator Actions to Prevent Reoccurrence
- Operator and Service Provider Best Practices/Procedures
- Post incident related RCFA's and subsequent company/regulator learning
 - Systemic or acute process improvements
 - Cultural improvements

- Technology/Technology deployment improvements
- Operator and Engineering Service Provider Engineering Standards

Performance Metrics/Leading Indicators on VIS

- Number of active participants in the sharing process
- Quantitative statistics relative to data and information available
- How do you demonstrate improvement?
- Show impact in terms of pipeline safety improvement
- What did we learn from others that would be relevant for VIS?
- Etc.

BP-2: A Voluntary Information Sharing system for the energy pipeline industry should leverage existing practices, processes, procedures and governance models currently being utilized within the pipeline industry as well as those in other industries.

As a result of the VIS effort the BPSC is familiar with or has become aware of several existing and ongoing processes that focus on data and information sharing for the purpose of improving safety performance. In some cases, the level of sophistication and overall systems are quite elaborate and have been developed over time. The BPSC highly recommends that any future VIS effort consider adoption or development of processes and procedures based on best practices embodied in the programs highlighted below:

Aviation Safety Information Analysis and Sharing (ASIAS) - The Aviation Safety Information Analysis and Sharing (ASIAS) program connects approximately 185 data and information sources across government and industry, including voluntarily provided safety data. The ASIAS program works closely with the Commercial Aviation Safety Team (CAST) and the General Aviation Joint Steering Committee (GAJSC) to monitor known risk, evaluate the effectiveness of deployed mitigations, and detect emerging risk. The following characterizes this existing program:

- A collaborative Government – Industry initiative on safety data analysis and sharing
- A risk-based approach to aviation safety, identifying and understanding risks before accidents or incidents occur
- Timely mitigation and prevention
- Governing Principles
 - Voluntary Submission of safety sensitive data
 - Transparency for how data are managed and utilized
 - Analysis approved by an ASIAS Executive Board
 - Procedures and policies based on collaborative governance

- v. Operator/OEM/MRO data are de-identified
- vi. Data used solely for advancement of safety

The BPSC recognizes the ASIAs system as the leading example and best model to be emulated by the pipeline industry for information sharing; it can potentially provide initial studies and reports used as a catalyst for its formation. Considerable reference material is available including chronological development, process framework, governance framework, funding, lessons learned, etc. The BPSC highly recommends that any future Voluntary Information Sharing System for the pipeline industry consider and utilize to the fullest extent possible the information and knowledge available from the ASIAs program, its developers, managers and user community. Additionally, and equally useful, are existing governance documents, operating procedures, cooperative agreements, etc. that might be applicable to the pipeline industry model. This information is included in the appendices.

Center for Offshore Safety - The Center for Offshore Safety (COS) is designed to promote the highest level of safety for offshore drilling, completions, and operations through leadership and effective management systems addressing communication, teamwork, and independent third-party auditing and certification. The COS has developed tools for reporting and analyzing incidents and events that are applicable to the VIS effort and should be considered for adoption. The COS endeavors to achieve operational excellence by:

1. Enhancing and continuously improving industry's safety and environmental performance
2. Gaining and sustaining public confidence and trust in the oil and gas industry
3. Increasing public awareness of the industry's safety and environmental performance
4. Stimulating cooperation within industry to share best practices and learn from each other
5. Providing a platform for collaboration between industry, the government, and other stakeholders

Guiding Principles

1. COS Members demonstrate a visible commitment to safety
2. COS Members work together to create a pervasive culture of safety
3. Decision making at all levels will not compromise safety
4. Safety processes, equipment, training, and technology undergo continual improvement
5. Members share learnings and embrace industry Standards and best practices, to promote continual improvement
6. Open communication and transparency of safety information is utilized to build mutual trust among stakeholders and promote collective improvement in industry performance
7. Collaborative approaches are utilized to drive safe and responsible operations, and mutual accountability
8. Everyone is personally responsible for safety and empowered to take action

Pipeline Research Council International (PRCI) - PRCI is a research and technology-based consortium established by and for the energy pipeline industry. The organization was founded in the 1950's on the basis of a voluntary and collaborative approach to solving a very specific pipeline industry problem. Since that time the association has continued in a collaborative manner to solve common challenges via data and information sharing, knowledge transfer and technology development. In particular PRCI has recently endeavored to collaborate on an ILI data sharing project that is specifically synergistic to the VIS. Presentations by PRCI have been made to the VIS Committee and a report has been authored for the purposes of a reference document for both the BPSC and the Technology SC. This report provides an overview of the project (NDE-4E In-line Inspection Crack Tool Performance Evaluation) and offers recommendations and guidance for such an effort. The case study *NDE-4E* describes the performance of ILI tools as they relate to the measurement of crack-like features in pipelines. The recommendations contained in the report focus on process and technology gaps to be addressed to support information sharing.

Additionally, the report provides guidance relative to the implementation of an existing industry recommended practice; *API 1163 ILI Systems Qualification Standard*. API 1163 broadly describes the best-practice related to the use of in-line inspection technologies including data requirements, system validation, and qualification of technology and personnel and management systems. In practice, the broad nature of such a standard means that the possible range of implementations intended to satisfy the standard varies widely, increasing the chance for inconsistency and misinterpretation of data records. The recommendations contained in the report focus on improvements in the application of best practice(s) to meet the intention of the codes and standards (e.g. *CFR*, *API 1163*, etc.) which will facilitate information sharing across the industry.

Industry Associations - Build upon current trade association initiatives without disrupting or changing their current approaches. Guidance documents and workflow are available from the various associations (API, AOPL, PRCI, INGAA, SGA, AGA, APGA, CGA others) that describe their processes, best practices, protections, performance measures, etc. Industry-wide VIS would enable a broader context for sharing and allow them to share their own lessons but benefit from all lessons (cross-associations).

- Lessons Learned from failures (including near misses)
- Lessons from unique or unexpected situations and solutions
- Lessons Learned from routine assessments
 - Provide specific examples from each on how they help this effort? Use some examples. Develop chart with cross references. Who has good examples of information sharing? De-identification of data? funding models? (may be different examples for each)

Interstate Natural Gas Association of America/INGAA Foundation Lessons Learned

The COS system for sharing information relative to offshore oil and gas operations provides a possible best practice capturing, categorizing and prioritizing safety related information.

American Petroleum Institute Virtual Tailgate

American Petroleum Institute Pipeline Information eXchange (PIX) - The Annual Pipeline Information eXchange (PIX) provides operators with a learning and sharing opportunity about pipeline incidents.

BP-3: A Voluntary Information Sharing system for the energy pipeline industry should complement, build upon, and/or leverage existing information sharing that currently occurs at the operator level, within industry associations or between Operators and Service Providers. The VIS should provide a means to share information, knowledge and solutions relative to high value learning events from existing industry efforts and programs for the benefit of all Operators (regardless of affiliation or not with specific associations or interest groups) and broader audiences or stakeholders.

A graphical representation of the various information sharing processes currently in place is included in Figure 2 below.

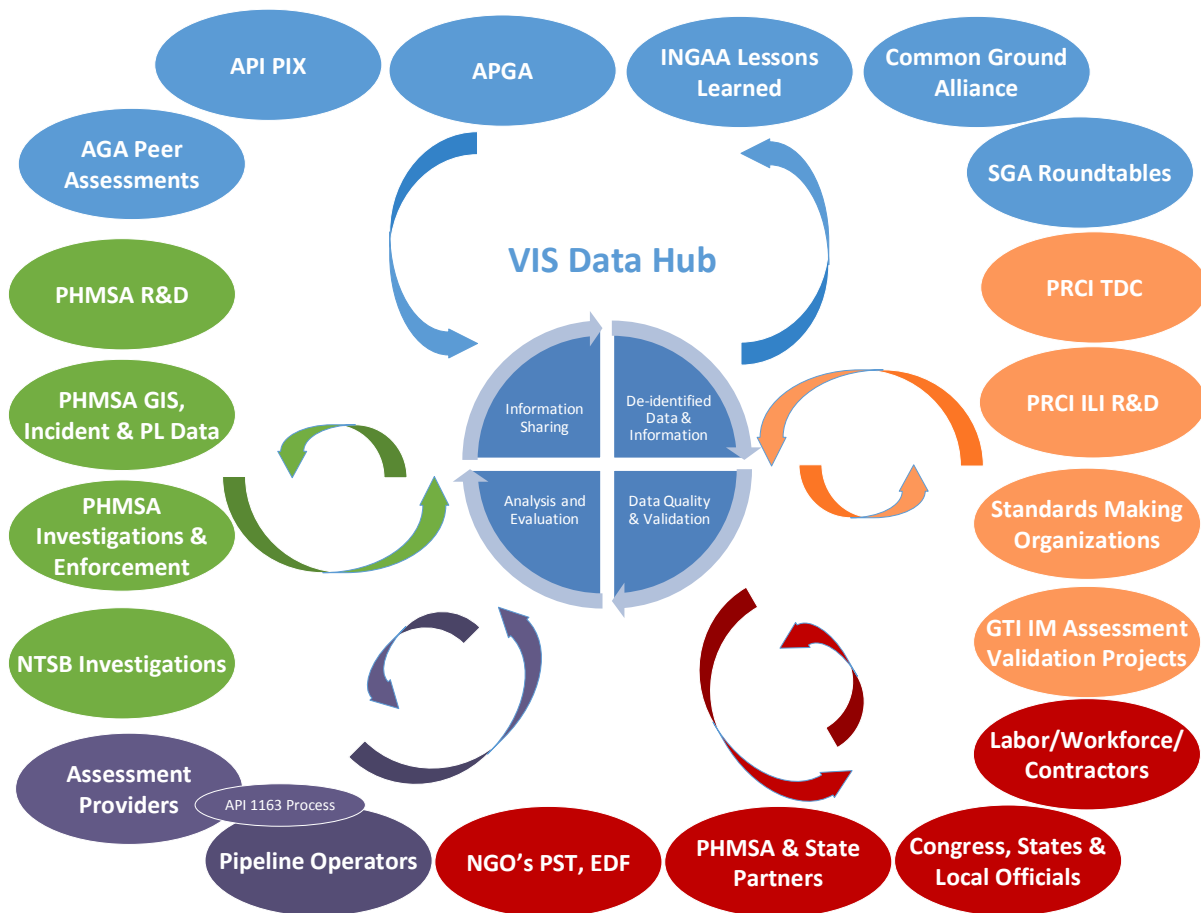


Figure 2 (Note: Reorganize Change De-Identified Data/Data Quality per figure 3)

This illustration captures the various industry segments relative to their primary function within the energy pipeline industry as follows:

Light Blue: Industry Associations

Orange: Standards Making Bodies and R&D Consortiums

Red: Non-governmental Organizations, Safety Advocacy Groups, Legislative Bodies, Labor Organizations

Dark Blue: Pipeline Operators and Service Providers

Green: Pipeline Safety Regulatory Agencies, Safety Boards.

The illustration suggests the concept that all of these organizations could or should potentially have an active role in a VIS system and/or at a minimum be a consumer of the available information and ongoing efforts and result of the process. The illustration also attempts to convey that there are various information sharing processes and activities within the entities represented by each oval as well as across common entities and to some extent across the functional groups. As an example, there is active and ongoing interaction and information sharing/collaboration amongst Operators, Service Providers, AOPL, PHMSA, GTI and PRCI relative to industry research and development to improve technology and in particular ILI technology. In the context of VIS and Figure 2, this activity and results would/should be more transparent to the entire universe and open up pathways for those not currently aware and not participating to do so.

VIS should include a means, processes and systems to share data, information, and knowledge amongst the above stakeholders and entities. Developing and disseminating lessons learned is aided by the appropriate learning taxonomy. A taxonomy that takes a wide range of learning opportunities into account in a purposeful manner should be the taxonomy objective. An example of such a taxonomy can be found in the appendices.

BP-4: A Voluntary Information Sharing system for the energy pipeline industry should provide a framework of best practices found in other information sharing contexts or industries to manage the sharing context and include fundamental elements found in various other businesses or entities including but not limited to:

- Governance, policies, procedures and recommended practice
- Quality Assurance/Quality Control of data, information and knowledge
- Security of Data and Information including methods to de-identify data and provide anonymity
- Recognition of potential barriers to participation and methods to mitigate
- Communication of results and performance measures

Examples and specific details for the above can be found in reference documents included herein or available as referenced. The core process of information sharing should embody a continuous improvement cycle:

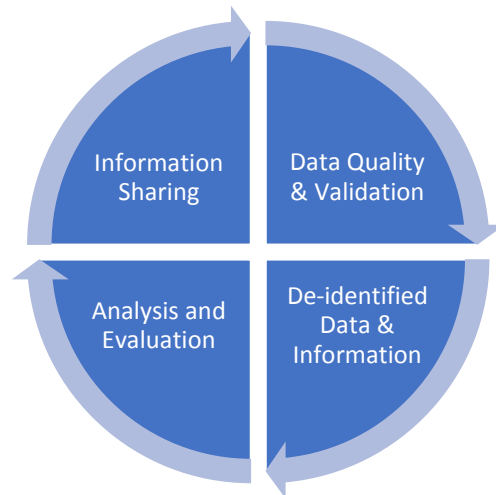


Figure 3

BP-5: A Voluntary Information Sharing system for the energy pipeline industry should provide for transparency and communication of industry capabilities, processes, procedures, technologies, improvements and safety results relative to the value that the sharing process generates.

- Define data, information and messaging for the industry and public communications
- Describe/define the state of the state not just in terms of what industry is capable of but how well we actually deploy that capability.
- Provide more details... similar to process sharing PS-12

Technology/R&D Recommendations

Tech 1 - To participate in VIS, operators and service providers must formally adopt and implement the current recommended practices/standards for In-Line Inspection (ILI). This includes API Standard 1163, 'ILI Systems Qualification Standard', NACE SP0102, 'Recommended Practice: ILI of Pipelines', and ASNT ILI-PQ, 'Personnel Qualification Standard' in their current versions (supports PS-9, PS-10).

- Specifically, common and consistent nomenclatures, data types, data formats and procedures/process flows will be adopted.
- This allows for the sharing of lessons learned (qualitative data) as well as discrete data (quantitative data) that directs us to continuous improvement and an overall increase in pipeline safety.
- Participants of VIS will adhere to the recommendation in Section 8.2.6 from API 1163 (consider 'should' as 'shall' for the purpose of VIS participation). From API 1163 8.2 "Validation data information from field measurements should be given to the service provider to confirm and continuously refine the data analysis processes. The information to be collected from the validation measurements should be agreed upon by both the operator and the service provider and shall include the measurement techniques used and their accuracies. Annex E lists the types of information that should be provided to the service provider."

Tech 2 - The operators and service providers should formally adopt and implement recommended practices/standards used for Safe Pipeline Operation and Integrity Management Programs. These include, but are not limited to NACE SP0502 ECDA, NACE SP0206 ICDA, NACE SP0204 SCCDA, API 1176 - 'Recommended Practice for Assessment and Management of Cracking in Pipelines', API 1178 - 'Integrity Data Management and Integration Guideline', API 1183 - 'Assessment and Management of Dents in Pipelines'. (supports BP-2)

- Formal use of such practice/standards will lead to effective data sharing and overall continuous improvement.
- These recommended practices/standards include common and consistent nomenclatures, data types, data formats and procedures/process flows.
- Formal adoption allows the sharing of lessons learned (qualitative data) as well as numerical data (quantitative data) that directs us to continuous improvement and overall an increase in pipeline safety.

Tech 3 - Voluntary Information Sharing system shall consist of defined qualitative and quantitative inputs that are required for meaningful analysis. (supports PS-4) Refer to Tech-4

- *Sharing the needed inputs for lessons learned (qualitative) and the needed discrete data (quantitative) shall provide for opportunities to analyze, compare in order to determine gaps and realize continuous improvement.*
- *Example, lessons learned are searchable by others with similar situations.*
- *Example, Statistical analysis of trends requires a minimum sized data set to provide confidence in the insights that that could lead to improvements or new research and development.*

Tech 4 - The Voluntary Information Sharing system shall consider a data specifications for use by all participants. *The specification shall define Qualitative parameters (e.g. lessons learned) and Quantitative parameters (e.g. numerical data from ILI and NDE). The specification will define the available options for categorical data types, attribute names, codes, acronyms, data formats, data types, measurement units, measurement process and the resolution of the data captured for profiles and volumetric parameters. (refer to Tech-1 and Tech-2, and the use of industry recommended practices/standards. If these are accomplished, then Tech-4 is better enabled.)*

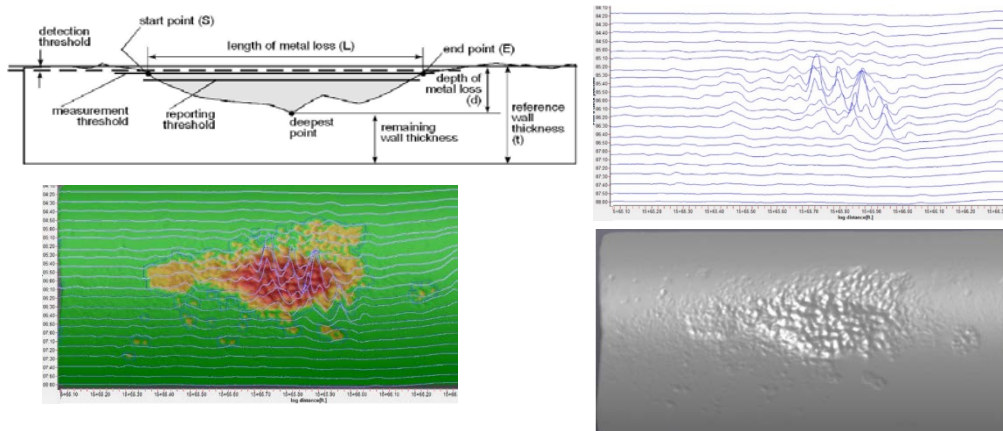
- ***4-2 The Voluntary Information Sharing system shall consider the minimum required ‘essential variables’ required for the data delivered in Tech-4-1.*** *The essential elements/variables will enable an understanding of quality and overall trust in the data delivered. It will also enable a tiered approach to quantifying the quality (trust) whereby the applicable learnings can be warranted and followed up on accordingly for applicable lessons learned or continuous improvement.*
- ***4-3 The Voluntary Information Sharing system shall consider the requirements for data quality/validation that will be required prior to delivery into the system.*** *This can be envisioned in a few ways. One is through implementation of the needed recommended practices/standards, having a dedicated resource (personnel) to vet the information prior to delivery to the system, and through automated routines of the architecture/IT. (supports PS-2). This is dependent on Tech-4-2. This will support the “meaningful analysis” in Tech-3 as well as assist with the **VIS Architecture/IT system** requirements.*
- ***4-4 The Voluntary Information Sharing system shall be very clear on how and when the De-Identification of Data occurs, who has access to the identified data, the governance of access rights and confidentiality requirements for access.*** *(Architecture/IT, Legal, Governance)*

Records often contain information that could be used to identify the operator/service provider from a single record. Examples may include pipeline name, geographic

coordinates, the names of personnel at the company, field comments identifying location, attributes and a naming convention used for dig sites, feature numbers, assessment naming, etc.

Tech 5 – The Voluntary Information Sharing system shall consider the input from defined In-The-Ditch (ITD) Standard for field verifications performed on pipe.

- **Tech-5-1 This includes a defined NDE (and other) Assessment standard for the appropriate Tool(s)/Technology(ies)**
 - A recommendation for the tools/technologies that to employ for a given threat/anomaly type.
 - A standard process to record measurements to allow for comparison with another measurement technology. A standard to group clustered features by measurement type (e.g. one-to-one or one-to-many)
 - Adherence to the POF, Guidance on Field Verification Procedures for In-Line Inspection’.



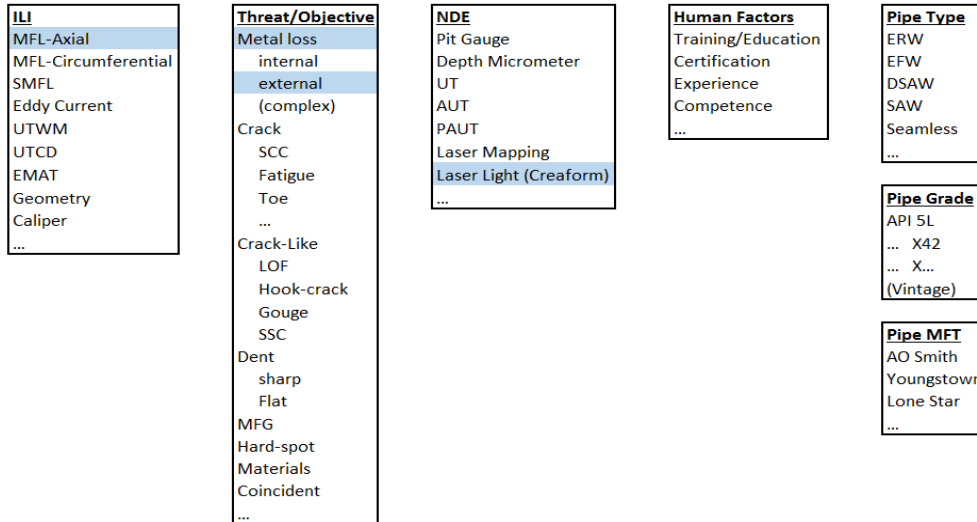
- 5-2

Reported Feature	Inspection methods*
External corrosion:	Depth gauge micrometer or <u>laser scanning</u>
Internal Corrosion	UT probes / <u>UT (C) scanning</u> , Radiography
External Crack measurement	Magnetic Particle, Angle UT probes or Phased arrays, ACFM (Alternating Current Field Measurement)
Internal Crack measurement	Angle UT probes or Phased Arrays, ToFD (Time of Flight Diffraction)

* Best methods are underlined.

pipe.

- This shall also be aligned with Tech-5-1

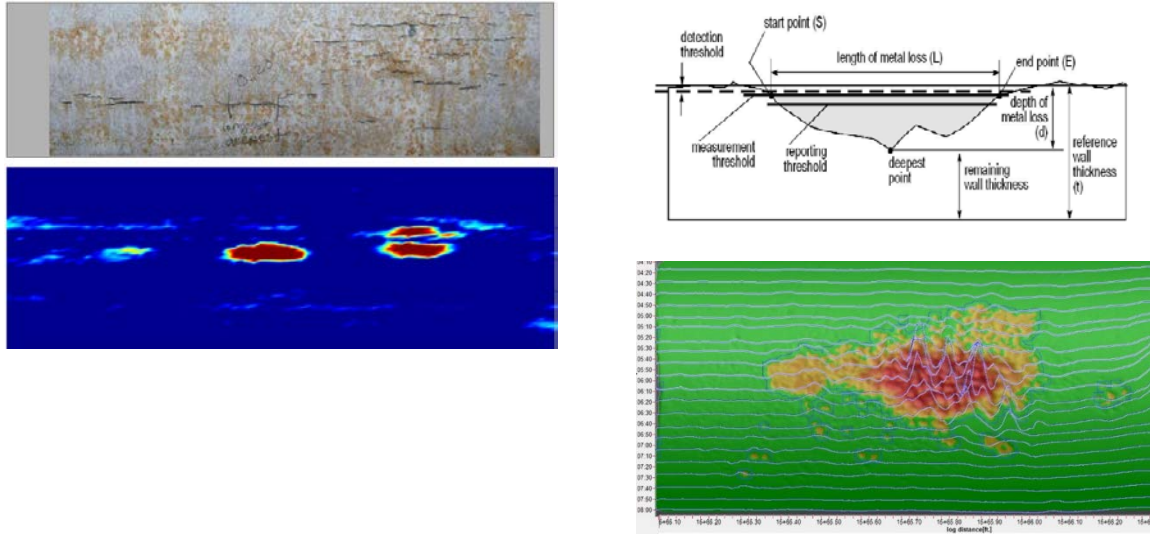


- **5-3 A definition for ITD/NDE Personnel competency.**
 - *ASNT has developed similar formats (e.g. SNT-TC-1A) training, education, and experience requirements per technology (e.g. UT, MPI, ...). This needs to be enhanced to cover pipeline safety and integrity needs. It is generally known that API is working together with ASNT to fulfill this before-mentioned. ILI has ASNT-ILI-PQ, ITD NDE needs something similar.*

Tech 6 - The Voluntary Information Sharing system shall consider a set of definitions for comparing one assessment tool/technology versus another, specifically considering the unique measures and uncertainties associated with each. In addition, the appropriate subject matter experts will be engaged on the use and resulting analysis of these data.

- *A simple comparison between field and ILI reported values is not sufficient to assess ILI tool performance.*
 - *One example for metal loss, the point at which an ILI tool detects, measures a metal loss anomaly can be completely different than the field measurements that are taken for the same.*
 - *Another would be that concerning the proper one-to-one (apples to apples approach) overlay comparison.*
 - *Another example is in comparison of crack lengths. The ILI tool has a threshold depth, above which, a crack is not measured or reported with consistency. Shallow portions along the axial length of the crack are not reported by the ILI tool. In contrast, the field technique used to measure*

cracks involves magnetic particle penetration of the crack. The surface breaking length is measured and reported in the field NDE report. As a result, the correlation between the field and the ILI tool reported lengths can differ significantly, even when both measurements are accurate.



Tech 7 - The Voluntary Information Sharing system shall consider methods for evaluating the performance of various integrity assessment methods.

- This includes, ILI, NDE, Hydrottest, Direct Assessment, etc.
- Some methods are defined (e.g. through API 1163 for ILI) while others may need more attention/consideration/development.
- Provide a consensus approach/method that can be maintained as the standard for all relevant measurement techniques.

Tech 8 - The Voluntary Information Sharing system shall consider a method, process, or system to provide communication (of the gaps identified/perspective improvements to be made) to the associated industry stakeholders.

- The communication must be directed to the;
 - Operators

- *Service Providers (e.g. ILI Service Providers, NDE, other)*
- *Research organizations (e.g. PRCI, GTI, NYSEARCH, etc.)*
- *Universities (working in the pipeline sector)*

Tech 9 - The Voluntary Information Sharing system shall be designed to allow for the expansion of the VISS to accommodate integrity assessment technologies other than ILI.

- *The VISS design shall be based on a platform that allows the expansion of data and information collection and analysis for other integrity assessment methods (Pressure testing, Guided Wave Ultrasonics (GWUT), ECDA, other technologies in the future, etc.).*
- *Using pressure testing as an example, there are many improvements which a VISS can offer this technology by evaluating the results with field observations. Areas of improvement include:*
 - *Statistical distribution of pipe material properties,*
 - *Accounting for the effects of pipe yielding during testing,*
 - *Criteria for acceptable limits on pipe expansion,*
 - *Re-assessment intervals for various time dependent defect growth mechanisms,*
 - *Longitudinal seam failure susceptibility analysis, and*
 - *Use of pressure testing to validate the results of ILI.*

Tech 10 - Establish process and training for personnel to manage the quality of data submitted to a VIS. Foundational to the success of a data sharing effort is the quality of the data gathered. If stakeholders cannot trust the data, the anticipated benefits are unlikely to follow. Therefore, the development of data quality assurance processes, standards to define data formats, and training for individuals performing quality control tasks will need to be implemented.

Tech 11 - Data needs to remain anonymous, but it is just as important for Operators and Service Providers to have access to their performance. Manage the anonymity of the data while ensuring that Operators and Service Providers are able to compare their results to the “Top Quartile”, “Bottom Quartile” and “Average” of all data provided. This is key to the “virtuous cycle” of Continuous Improvement.

Tech 12 - Create “Users Group” to identify gaps in technologies’ effectiveness or ability to identify known threats. The management of the VIS data should include the ability to assess

existing technologies' ability to identify pipeline integrity threats. These results should be reviewed by a VIS "Users Group" to validate the gaps and then clearly communicated so that research institutions or service providers are alerted to the issue and the magnitude of the opportunity. Clear communication could motivate R&D efforts at academic and research institutions.

Tech 13 - Define and publish key metrics that measure the effectiveness of the VIS. In order to build participation and strengthen trust, metrics need to be established to evaluate the performance of the VIS program. Some possible metrics include;

- *overall size of the VIS,*
- *number of inspections submitted*
- *number and variety of operators and service providers participating,*
- *number of 'lessons learned' shared through VIS*
- *size of operators participating,*
- *and documentation on any new threats or technologies improvements that were advanced because of the VIS.*

Tech 14 - The VIS hub will be an entirely cloud-based system.

Tech 15 - The VIS hub will consist of a data warehouse containing relational and non-relational data with multiple data marts for data integration and case-driven analysis.

Tech 16 - The governance committee will be the sole responsible party to define the authorized access of data in the data mart.

Tech 17 - The VIS hub will be protected following the NIST 800-53 standard.

Tech 18 - The VIS hub will utilize a role based access control mechanism to control dissemination from data marts. The 3rd party data manager would have full access to the data warehouse.

Tech 19 - The qualitative data should be qualified with domain validated values and ingested via a standard web portal or through JSON or XML formatted document submissions.

Tech 20 - The quantitative data sets should be normalized using automated routines before injection into a data warehouse.

Tech 21 - All data types should be categorized using the FIPS 199 framework to ensure confidentiality, integrity and availability.

Competency, Awareness, and Training Recommendations

CAT-1: **Recommend** that job descriptions be authored that define the education, knowledge, skills, abilities, and experience necessary for those working with confidential data and information. This will foster hiring criteria for third-party data administrator.

CAT-2: **Recommend** that a process be established to pair VIS analytical staff with Pipeline Operator and other industry subject matter experts (SMEs), including in-line-inspection (ILI) companies and in-the-ditch (ITD) assessment companies. The collaboration is intended to ensure those analyzing the data understand industry lore and discuss meaningful data. An objective of establishing this work environment for this community of practice is to create meaningful reports and metrics such that stakeholders can expand their knowledge and learn the advantages and disadvantages of various types of in-line inspection technologies and methodologies. (Section 10 mandate)

CAT-3: **Recommend** that an evaluation process be developed for employees working within the VIS (the “Hub”) to ensure they will:

- Protect data security
- Preserve member anonymity and confidentiality

The executive board, a third-party data administrator, will mutually agree upon and authorize the evaluation process.

CAT-4: **Recommend** that educational materials based on tenants of trust and leadership be developed to market the VIS with the intent motivate and compel stakeholders to join. A primary objective is to find ways to encourage the exchange of pipeline inspection information which will lead to the development of advanced pipeline inspection technologies and enhance risk analysis. (Section 10 mandate)

Institutions and stakeholders that will benefit from and utilize these materials include:

- Trade Associations – Websites, Literature and Conferences
- Labor Union - Websites, Literature and Conferences
- Contractor Associations - Websites, Literature and Conferences
- Regulatory Agencies - Websites, Literature and Conferences (e.g. PHMSA R&D)
- State Agency advocacy for intra-state participation
- Pipeline Safety Advocacy Conferences, Websites, Literature, Social Media
- Industry Websites and Public Relations

Content for the ‘Awareness’ aspect should include benefits of participation and emphasize a non-punitive environment that fosters collaboration among stakeholders. Examples for each stakeholder group follow:

- Industry
 - Opportunity to benchmark and compare performance with others in the industry.
 - Raising the pipeline safety bar for all those who participate (and those who don’t).
 - A common venue and program in a pursuit to prevent the next accident.
 - Raising the awareness for continuous improvement efforts that are more proactive and less reactive.
 - Discover system vulnerabilities

- Larger sets of data and information to identify systemic trends that an operator may not discover with their own set of data and information
- Enhance an Operator’s Pipeline Safety Management System
- PHMSA
 - Fulfilling Congressional mandate
 - Seen as formal proponent for sharing pipeline safety information
 - Builds trust with industry
- Safety Advocacy Groups
 - Forum for unifying safety advocacy membership and followers
 - Common source for data and information
- Research Institutions
 - Readily available statistics
 - A data and information rich environment for metrics and performance indicators
- State Stakeholders
 - Knowledge of new initiatives/innovation in their states
 - Identifying potential issues before an event occurs
- Labor Representatives
 - Safer work spaces for employees and the public
 - Proactive input into the process
 - Opportunity to engage the workforce into pipeline safety improvement
- Public
 - Greater sense of safety
 - Have an impact on decisions for the public
 - Public Portal allowing for interaction
 - Opportunity not just to look at data but to add to the data / aka reporting (similar to EPA’s Echo)

In the process of developing ‘Awareness’ materials, seek opportunities to:

- Leverage the outstanding safety improvements made by the FAA. Showcase FAA metrics.
- Leverage API 1163 as the framework for ILI Vendor / Operator collaboration
- Leverage the success that CGA has had marketing the 811 program
- Author a FAQ document that identifies barriers and how the VIS will overcome them
- Include a glossary of terms and acronyms

CAT-5: **Recommend** that initial training be developed to enable the development and implementation of VIS.

Distinct Audiences to be trained:

- Those who input data and information (ILI Companies, ITD Assessment Companies, Pipeline Operators, Employees, Public Advocacy Groups, Federal and State Community Liaisons ...)
- Those who work within the system or “the Hub” and are exposed to identified data

- Those who receive VIS output. It is the participants in these communities of practice that will expand their knowledge of the advantages and disadvantage of the different types of in-line inspection technology and methodologies. (Section 10 mandate)
 - Data Rich (ILI as-found versus as-called feature dimensions and feature signature calibration)
 - Information Rich (info sharing re: unwanted events and continuous improvement)
 - Regulatory Agencies (federal, state, local)
 - Portal for appropriate data available to the public

Types of Training:

- In-Person / Hands-On
- Computer Based Training Modules
- Train the Trainer

CAT-6: **Recommend** that training modules be developed that instruct participants utilizing a Systematic Approach to Training (SAT) which will address teaching the rights things to the right people, at the right time, and in the right way.

- Trainers could consist of SMEs from across the industry and regulatory agencies
- Train participants' methodology for data submission to include types of input, how to input, format, et cetera. If a form for data and information submittal is created, train to the form.
- Apply a 'code of conduct' recommended by the Governance sub-committee for handling both identified and de-identified data
 - Robust rules with degrees of separation to preserve anonymity
 - Training modules with certificate of successful completion before being allowed to work within the 'data room'
- Confidentiality Requirements
 - How to de-identify data
 - Methods to validate data integrity with rigorous and robust QA/QC prior to publishing reports

CAT-7: **Recommend** that workflow process for data and information be described and graphically illustrated (this might be output from PS or BP sub-committees). Then a training module should be developed to educate all stakeholders regarding the workflow process.

CAT-8: **Recommend** the development of training modules be tailored for the participants, specifically for those working with quantitative data and those working with qualitative information.

CAT-9: **Recommend** that funding be authorized and appropriated for the following: (Discuss)

- Developing a document that define the job criteria for those working within the VIS. This should include the process by which staff are hired.
- Curriculum development by qualified instructional designers.
- Implementation costs for web-based or instructor-led training courses.

- Training administration costs including enrollment, completion, and training record maintenance

Regulatory, Legal, Funding Recommendations

Option A

Recommendation 1: Authorize and establish a governance structure for a VIS.

Congress should enact legislation during the PHMSA reauthorization process in 2019 authorizing PHMSA to establish a secure, confidential Voluntary Information-Sharing System (VIS) for the purpose of encouraging the voluntary sharing of pipeline safety information by pipelines and distribution companies and their employees, labor unions, contractors, ILI vendors, and non-destructive evaluation experts, with PHMSA, representatives of state pipeline safety agencies, non-governmental organizations, and other pipeline stakeholders, for the purpose of improving pipeline safety for natural gas transmission, natural gas distribution and hazardous liquid pipelines. The proposed legislation should state clearly the intent of Congress with respect to the following:

- a) The VIS is intended to be an entirely new paradigm for analyzing pipeline safety issues that is separate and apart from, but complementary and additive to, existing PHMSA pipeline safety programs, in particular, Safety Management Systems.
- b) The VIS should be established and implemented to the maximum extent possible under existing PHMSA authority, with the goal of avoiding unnecessary and time-consuming rulemaking.
- c) Other than with respect to the VIS protections described below, the VIS is not intended to change current PHMSA enforcement, regulatory programs or other PHMSA initiatives.
- d) The VIS is intended to develop its own governance structure, and to create as many VIS programs as it deems necessary to address various areas of pipeline safety.
- e) The VIS is intended to allow PHMSA, all pipeline and distribution companies, and all pipeline stakeholders, to draw upon anonymous, de-identified safety related information that is currently kept confidential and utilized by individual operators to improve pipeline safety, but which information is not otherwise shared due to confidentiality concerns.
- f) The VIS system is intended to enable all industry participants to share the rich source of safety information often held only by an individual operator, which will enhance Safety Management Systems across the industry.
- g) The VIS system analysis of de-identified, voluntarily shared information is intended to deliver tangible, measurable safety benefits to industry participants, PHMSA, and other pipeline safety stakeholders.
- h) The VIS system's collaborative approach to collecting and analyzing safety related information is intended to enhance pipeline Safety Management Systems, delivering benefits to the public, including a reduction in pipeline releases and related personal injuries and damage to the environment.

- i) The VIS system is intended to be based solely on voluntary participation. The VIS system shall not be transformed into a mandatory program, in whole or in part.
- j) The VIS is intended to encourage the widest possible participation by industry. Such participation will only be achieved by providing confidentiality protection for all information submitted to the VIS, along with the additional VIS protections described below. It is the intent of Congress to ensure that those protections are in place. Without such assurance and protections, operators will not voluntarily share information, thereby depriving the nation of associated improvements in pipeline safety and Safety Management Systems.

Recommendation 2: Protect VIS Information from disclosure.

Congress should enact legislation providing for the protection of safety, security-related, proprietary and other sensitive pipeline safety information provided to the VIS system, for the purpose of encouraging and allowing voluntary safety information sharing by industry. The proposed legislation should clearly state the intent of Congress with respect to the following:

- a) It is intended that neither PHMSA, nor any federal, state, local or tribal agency, nor any person having or obtaining access to the information voluntarily submitted to the VIS system, shall release or communicate that information to any person outside the VIS governing body, with the sole exception being the publication of reports by the VIS or PHMSA based on analysis of de-identified information and safety related findings that the VIS governing body in its sole discretion determines to publish or authorize PHMSA to publish.
- b) The intent of Congress is to encourage wide-scale industry participation in the VIS system by entities and individuals in order to further the goal of improving pipeline safety in the United States, and that goal can only be accomplished by creating strong confidentiality protections for information voluntarily submitted by those entities and individuals to the VIS system.

Recommendation 3: Exempt VIS information from FOIA release.

Congress should enact legislation providing that PHMSA shall be exempt from releasing under the provisions of the Freedom of Information Act any information that was voluntarily disclosed by any company, organization or person to the VIS.

Recommendation 4: Protections for Voluntary Sharing of Information.

To encourage the voluntary submission of information to the VIS, Congress should enact legislation providing that neither PHMSA nor any other federal, state, local or tribal agency, nor any entity or person shall initiate enforcement action, punitive action, or litigation (Enforcement Actions) against a pipeline operator based on information that had been voluntarily provided to the VIS. This prohibition is not intended to limit PHMSA or other parties from Enforcement Actions against pipeline operators based on facts established independently and separate from

the VIS process, with the exception of facts arising out of the VIS protections outlined below, in which case no Enforcement Actions shall be permitted.

- a) **ILI, NDE, NDT and Dig Confirmation.** Facts arising out of collaboration of the pipeline operator and its ILI and NDE vendors that are voluntarily reported to the VIS, including if the facts reveal a safety related condition or violation of the operator's procedures, would not subject to any Enforcement Actions, provided that the operator promptly prepares and commences a written corrective action program within 30 days following discovery by the operator. In the event that PHMSA, or any other agency or party, during that 30 day period or at a later date, becomes aware of these facts through an inspection or otherwise, no Enforcement Actions shall be taken, provided that the operator is preparing or implementing its corrective action program during the 30 day period, or thereafter has implemented or completed its corrective action program.
- b) **Near Misses.** Facts arising out of or relating to near misses that are voluntarily submitted to the VIS.
- c) **Non-reportable Releases.** Facts arising out of or relating to non-reportable releases that are voluntarily submitted to the VIS.
- d) **Unusual Events or Conditions.** Facts arising out of or relating to non-reportable unusual events or circumstances that are voluntarily submitted to the VIS.

No Retaliation. Operators are prohibited from taking any retaliatory action against its employees or contractors who report to the operator any potential violation of PHMSA regulations, or any matter that may be related to facts arising out of the incentive scenarios described above. Employees and contractors are not eligible for this protection in cases involving reckless disregard of safety procedures, criminal activity, falsification, alcohol or substance abuse.

Recommendation 5: Prohibit the use of VIS information in litigation.

Congress should enact legislation providing that any information voluntarily submitted to the VIS shall not be subject to discovery or admitted into evidence in any federal, state, local, tribal, or private litigation or other proceedings. This prohibition does not limit discovery or admissibility into evidence in any civil or criminal proceedings based on facts independently and separate from the VIS process.

Recommendation 6: Provide adequate and sustainable funding for the VIS.

Congress should authorize and appropriate funding beginning in 2019 for establishing and sustaining the VIS at levels adequate to achieve the goals of the VIS system, with the intention of getting the VIS system established and operating as soon as possible for the purpose of improving pipeline safety in the United States. In the absence of a specific appropriation, the Secretary should redirect funding from within the Operations Program, Project and Activity (PPA) sufficient for implementation of the initial phases of the VIS.

Option B

Recommendation 1: Authorize and establish a governance structure for a VIS.

PHMSA should collaborate with and assist private industry to establish a secure, confidential Voluntary Information-Sharing System (VIS) for the purpose of encouraging the voluntary sharing of pipeline safety information by pipelines and distribution companies and their employees, labor unions, contractors, ILI vendors, and non-destructive evaluation experts, with PHMSA, representatives of state pipeline safety agencies, non-governmental organizations, and other pipeline stakeholders, for the purpose of improving pipeline safety for natural gas transmission, natural gas distribution and hazardous liquid pipelines. The intent of private industry and PHMSA should be the following:

- a) The VIS is intended to be an entirely new paradigm for analyzing pipeline safety issues that is separate and apart from, but complementary and additive to, existing industry and PHMSA pipeline safety programs, in particular Safety Management Systems.
- b) Other than with respect to the VIS protections described below, the VIS is not intended to change current PHMSA enforcement, regulatory programs or other PHMSA initiatives.
- c) The VIS is intended to develop its own governance structure, and to create as many VIS programs as it deems necessary to address various areas of pipeline safety.
- d) The VIS is intended to allow PHMSA, all pipeline and distribution companies, and all pipeline stakeholders, to draw upon anonymous, de-identified safety related information that is currently kept confidential and utilized by individual operators to improve pipeline safety, but which information is not otherwise shared due to confidentiality concerns.
- e) The VIS system is intended to enable all industry participants to share the rich source of safety information often held only by an individual operator, which will enhance Safety Management Systems across the industry.
- f) The VIS system analysis of de-identified, voluntarily shared information is intended to deliver tangible, measurable safety benefits to industry participants, PHMSA, and other pipeline safety stakeholders.
- g) The VIS system's collaborative approach to collecting and analyzing safety related information is intended to enhance pipeline Safety Management Systems, delivering benefits to the public, including a reduction in pipeline releases and related personal injuries and damage to the environment.
- h) The VIS system is intended to be based solely on voluntary participation. The VIS system shall not be transformed into a mandatory program, in whole or in part.

- i) The VIS is intended to encourage the widest possible participation by industry. Such participation will only be achieved by providing confidentiality protection for all information submitted to the VIS, along with the VIS protections described below. It is the intent of the Secretary, PHMSA, the pipeline industry, and all pipeline safety stakeholders to ensure that those protections are in place. Without such assurance and protections, operators will not voluntarily share information, thereby depriving the nation of associated improvements in pipeline safety and Safety Management Systems.

Recommendation 2: Protect VIS Information from disclosure.

PHMSA should collaborate and assist the VIS in negotiating and signing MOUs, NGAs or other agreements as necessary to provide for the protection of confidential, personal, safety, security-related, proprietary and other sensitive pipeline safety information provided to the VIS system, for the purpose of encouraging and allowing voluntary safety information sharing by industry, employees, contractors and other pipeline safety stakeholders. The Secretary intends that PHMSA work with the VIS to accomplish the following:

- a) It is intended that neither PHMSA, nor any person working in or on behalf of the VIS nor any person having or obtaining access to the information voluntarily submitted to the VIS system, shall release or communicate that information to any person outside the VIS governing body, with the sole exception being the publication of reports by the VIS or PHMSA based on analysis of de-identified information and safety related findings that the VIS governing body in its sole discretion determines to publish or authorize PHMSA to publish.
- b) The intent of the Secretary is to encourage wide-scale industry participation in the VIS system by entities and individuals in order to further the goal of improving pipeline safety in the United States, and that goal can only be accomplished by creating strong confidentiality protections for information voluntarily submitted by those entities and individuals to the VIS system.

Recommendation 3: Exempt VIS information from FOIA release.

Congress should enact legislation providing that PHMSA shall be exempt from releasing under the provisions of the Freedom of Information Act any information that was voluntarily disclosed by any company, organization or person to the VIS.

Recommendation 4: Protections for Voluntary Sharing of Information.

To encourage the voluntary submission of information to the VIS, PHMSA should enter into MOUs with the VIS and other necessary entities or representatives to provide assurances that PHMSA will not initiate enforcement action against a pipeline operator based solely on information that had been voluntarily provided to the VIS. Such agreements are not intended to limit PHMSA from initiating enforcement action against pipeline operators based on facts established independently and separate from the VIS process, with the exception of facts arising out of the VIS protections outlined below.

- a) **ILI, NDE, NDT and Dig Confirmation.** Facts arising out of collaboration of the pipeline operator and its ILI and NDE vendors that are voluntarily reported to the VIS, even the facts reveal a safety related condition or violation of the operator's procedures, would not lead to enforcement actions, fines, or penalties, provided that the operator promptly prepares and commences a written corrective action program. In the event PHMSA later is made aware of these facts through an inspection or otherwise, PHMSA will not take any enforcement action, provided that the operator is implementing or has completed its corrective action program.
- b) **Near Misses.** Facts arising out of or relating to near misses that are voluntarily submitted to the VIS.
- c) **Non-reportable Releases.** Facts arising out of or relating to non-reportable releases that are voluntarily submitted to the VIS.
- d) **Unusual Events or Conditions.** Facts arising out of or relating to non-reportable unusual events or circumstances that are voluntarily submitted to the VIS.

Operators should be prohibited from taking any retaliatory action against its employees or contractors who report to the operator any potential violation of PHMSA regulations, or any matter that may be related to facts arising out of the incentive scenarios described above. Employees and contractors are not eligible for this protection in cases involving reckless disregard of safety procedures, criminal activity, falsification, alcohol or substance abuse.

Recommendation 5: Provide adequate and sustainable funding for the VIS.

Private industry should establish and provide funding for the VIS beginning in 2019 sufficient to stand up and sustain the VIS at levels adequate to achieve the above-described mission, objective and governance of the VIS, with the intention of getting the VIS system established and operating as soon as possible for the purpose of improving pipeline safety in the United States.