

API RP 1173 Pipeline Safety Management Systems

Implementation Tool User Guidance

This guidance document explains how to use the API RP 1173 Pipeline SMS Implementation Tool to evaluate, track, and summarize a pipeline Operator's development and implementation of programs and procedures to conform to API RP 1173. The Implementation Tool is modeled after the API RP 1173 Planning Tool (a.k.a. the Gap Analysis Tool), and contains the same Element / Sub-Element breakdown of 71 questions related to API RP 1173 requirements. Operators which have used the Planning Tool to develop their initial action plan for the development of pipeline safety management system programs and procedures can easily use the Implementation Tool to summarize their overall progress in implementation, using the same implementation levels as the Pipeline SMS Maturity Model.

The Maturity Model, Planning Tool, Implementation Tool, and other educational and guidance documents are available for free at www.pipelinesms.org.

Implementation Tool Spreadsheet

The Implementation Tool is an Excel Spreadsheet with 4 tabs: Implementation Level, Pie Chart, Stacked Bar Chart, and Progress Chart. The Implementation Level tab has the same questions as in the Planning Tool, organized by API RP 1173 Element and sub-element. It is laid out in rows, with each row containing a question concerning a requirement from API RP 1173 and a citation to the applicable RP sub-element. The columns C through G correspond with the potential implementation level for each question. Columns F and G contain additional guidance to assist the user in determining if a program is at Level 3 (Implemented) or Level 4 (Sustaining). Generic guidance which is common for every question is not included in the spreadsheet but is instead listed in this guidance document. The worksheet is protected, and the user can only edit Column H, to document the implementation level for each question. The worksheet is distributed with bogus implementation level assignments in Column H, so that the graphics in the other tabs have something to depict. The user should replace these bogus ratings with the Operator's actual ratings for every question. The ratings from Column H are summarized for the company overall in the Pie Chart tab, and by Element in the Stacked Bar Chart tab. The Progress Chart tab depicts the Operator's progress in achieving fully developed programs (Level 3 or 4), by Element. The results in the Pie Chart, Stacked Bar Chart, and Progress Chart can be trended over time to track the overall implementation of an Operator's program. Implementation of the original program is complete when the Progress Chart is at 100% for all Elements.

Each question contained in the Implementation Tool spreadsheet should be assigned a numeric rating from 0 to 4, consistent with the Pipeline SMS Maturity Model. Each level represents a different stage in the process of implementation for programs and procedures related to that question, from initial awareness of API RP 1173's requirements (Level 0) through the implementation and continuous improvement of the programs to comply with that part of the RP (Level 4).

The Implementation Tool's level assignments for each question can be used by an Operator to measure progress in its implementation of API RP 1173, but they should be used with caution when making comparisons between Operators – because Operators will start from different places and have different implementation plans. For example, one Operator may start with a comprehensive and mature set of management systems, and then develop an implementation plan to address the unique requirements of API RP 1173. That Operator's "Level 2" assignment may not be comparable to another Operator's "Level 2", that started with no formal management systems. Every Operator's systems should improve and mature over time.

Implementation Levels

The table below describes in general terms the expectations for each level. The right-hand column denotes the correlation of that level with the Plan-Do-Check-Act (PDCA) cycle of continuous improvement.

Maturity Model Level	Description	PDCA Stage
0 ¹	<p>Learning –This level should be selected when the organization is aware of the RP and is learning about the RP but Top Management has not yet decided to implement the programs, processes, or procedures to address that question within their pipeline organization. The organization is evaluating its costs and benefits, but has not yet made a commitment regarding implementation. This includes developing an understanding of the requirements within the RP, perhaps by reading the RP, attending workshops explaining the RP, and discussing the RP and its management system approach internally and with peers.</p>	Plan
1	<p>Planning – This level should be selected when the organization has evaluated its current management systems against the requirements of the RP, conducted and documented a gap analysis, and developed an action plan (with appropriate resources and timelines) to address any gaps for that question.</p> <p>The Planning Tool is designed to assist operators in getting to Level 1. A general intention to implement the RP without specific action plans does not satisfy Level 1 (Planning).</p>	Plan
2	<p>Developing –This level should be selected when the organization is approximately halfway towards full implementation of its action plan to address that question. The implementation of programs, processes, or procedures related to that question is in progress and is approximately halfway towards completion. This does not mean that the organization is halfway to perfection... only that its implementation plan is about half done.</p>	Do
3	<p>Implemented – This level should be selected when the organization’s implementation plan is complete, and the identified gaps have been closed. The organization has developed programs, processes, or procedures that are in conformance with the requirements of RP 1173 for that question. The programs are well documented and assign accountabilities and responsibilities for execution. Key Performance Indicators have been identified and are being tracked.</p> <p>A written program that is not actually implemented does not satisfy Level 3 (Implemented). For example, if Pipeline SMS processes are documented but there is little evidence of them being implemented in day-to-day activities, or interviewed personnel do not demonstrate knowledge of their roles in Pipeline SMS implementation, the organization is not at Level 3.</p>	Do

¹ Level 0 is implied, but isn’t shown on the Maturity Model graphic.

	Note that an organization might already have appropriate programs in place, and start at Level 3 for some questions.	
4	<p>Sustaining – This level should be selected when the Pipeline SMS programs for that question have been developed and implemented, and recommendations for continuous improvement are being generated and pursued as appropriate. The programs for that question have had at least one assessment to verify that they are being effectively implemented as designed by the operator. The assessments determine that the requirements of the RP are generally being met on a consistent basis (even if the assessments find some occasional deficiencies in implementation, or generate recommendations for further improvement). Interviews of personnel demonstrate that they understand the procedures and processes applicable to their job, and that the procedure/process is followed as designed when applicable.</p> <p>Level 4 does not require third-party assessments. Internal assessments which are documented and compliant with the RP are acceptable.</p> <p>This level requires that Key Performance Indicators have been identified and are being tracked and reviewed by Top Management, but does not require a demonstration of how well the Pipeline SMS program is working to improve Key Performance Indicators.</p>	Check Act

The maturity model has an additional maturity Level 5, which reflects the effectiveness of the Pipeline SMS in achieving its intended outcomes for safety performance and risk management. The overall effectiveness of an Operator’s programs and procedures can only be evaluated **after** they are developed and implemented. Demonstration of effectiveness (Level 5) is beyond the scope of the Implementation Tool. Evaluation of effectiveness can be done using the Evaluation Tool (available in June, 2018), once the Operator is at least at Level 3 for most Elements. A standardized audit process is also being developed by API’s Global Industry Services organization, which will provide a uniform evaluation and score for Operators that desire one.

Directions for Selecting an Implementation Level

The user of this tool must make decisions concerning how well a variety of programs and processes within an operating organization meet the requirements of API RP 1173, and to assign a single implementation level from 0 to 4 for each question. There are no simple yes / no answers to each question. Each question might have an implementation level of 4 for some portion of the organization, and 1 for another, and the person doing the evaluation must use judgement to determine an overall implementation level for that question. Operators may choose to use fractional points when assigning implementation levels for a question (for example, assigning a level of 2.5 instead of 2 or 3 for any given question). The tools can accommodate any level of numerical precision an operator desires, but most operators are expected to use no less than half-points (2, 2.5, 3, 3.5, etc.) when selecting an implementation level.

Some Pipeline SMS Elements are connected to others. For example, *Documentation and Record Keeping* is a part of all the Elements. The quality of documents and records generated by other Elements will help the user determine the implementation level of the *Documentation and Record Keeping* Element. Also, management involvement with the development and implementation of programs and procedures relevant to Elements 2 to

10 of the Pipeline SMS will be helpful in determining the implementation level of Element 1, *Leadership and Management Commitment*.

Users of the Implementation Tool who are not trained in the performance of systems evaluations may want to refer to the *API RP 1173 Guidance for Systems Evaluation*.