



AMERICAN PETROLEUM INSTITUTE

---

# ANSI/API Recommended Practice 1173

## Pipeline Safety Management Systems

---

FIRST EDITION | JULY 2015 | 27 PAGES | \$85.00 | PRODUCT NO. D117301

---

This recommended practice (RP) establishes a pipeline safety management systems (PSMS) framework for organizations that operate hazardous liquids and gas pipelines jurisdictional to the US Department of Transportation. Operators of other pipelines may find this document applicable useful in operating to their systems.

This RP provides pipeline operators with safety management system requirements that when applied provide a framework to reveal and manage risk, promote a learning environment, and continuously improve pipeline safety and integrity. At the foundation of a PSMS is the operator's existing pipeline safety system, including the operator's pipeline safety processes and procedures. This RP provides a comprehensive framework and defines the elements needed to identify and address safety for a pipeline's life cycle. These safety management system requirements identify what is to be done, and leaves the details associated with implementation and maintenance of the requirements to the individual pipeline operators.

This RP presents the holistic approach of "Plan-Do-Check-Act" and is the American National Standard for pipeline safety management systems.

For ordering information:

Online: [www.api.org/pubs](http://www.api.org/pubs)

Phone: 1-800-854-7179  
(Toll-free in the U.S. and Canada)

(+1) 303-397-7056  
(Local and International)

Fax: (+1) 303-397-2740

API members receive a 30% discount where applicable.

## Contents

	Page
<b>Introduction . . . . .</b>	<b>vii</b>
<b>1 Scope . . . . .</b>	<b>1</b>
<b>2 Normative References . . . . .</b>	<b>1</b>
<b>3 Terms, Definitions, Acronyms, and Abbreviations . . . . .</b>	<b>1</b>
<b>3.1 Terms and Definitions . . . . .</b>	<b>1</b>
<b>3.2 Acronyms and Abbreviations . . . . .</b>	<b>6</b>
<b>5 Leadership and Management Commitment . . . . .</b>	<b>6</b>
<b>5.1 General . . . . .</b>	<b>6</b>
<b>5.2 Goals and Objectives . . . . .</b>	<b>6</b>
<b>5.3 Planning . . . . .</b>	<b>7</b>
<b>5.4 Responsibilities of Leadership . . . . .</b>	<b>7</b>
<b>5.5 Responsibility, Accountability, and Authority . . . . .</b>	<b>8</b>
<b>5.6 Making Communication, Risk Reduction, and Continuous Improvement Routine . . . . .</b>	<b>9</b>
<b>6 Stakeholder Engagement . . . . .</b>	<b>9</b>
<b>6.1 General . . . . .</b>	<b>9</b>
<b>6.2 Internal . . . . .</b>	<b>9</b>
<b>6.3 External. . . . .</b>	<b>10</b>
<b>7 Risk Management . . . . .</b>	<b>10</b>
<b>7.1 General . . . . .</b>	<b>10</b>
<b>7.2 Data Gathering . . . . .</b>	<b>10</b>
<b>7.3 Risk Identification and Assessment . . . . .</b>	<b>11</b>
<b>7.4 Risk Prevention and Mitigation . . . . .</b>	<b>11</b>
<b>7.5 Periodic Analyses . . . . .</b>	<b>11</b>
<b>7.6 Risk Management Review . . . . .</b>	<b>11</b>
<b>8 Operational Controls. . . . .</b>	<b>12</b>
<b>8.1 Operating Procedures. . . . .</b>	<b>12</b>
<b>8.2 System Integrity. . . . .</b>	<b>12</b>
<b>8.3 Management of Change (MOC) . . . . .</b>	<b>13</b>
<b>8.4 Use of Contractors . . . . .</b>	<b>14</b>
<b>9 Incident Investigation, Evaluation, and Lessons Learned . . . . .</b>	<b>14</b>
<b>9.1 Investigation of Incidents . . . . .</b>	<b>14</b>
<b>9.2 Follow-up and Communication of Lessons Learned . . . . .</b>	<b>15</b>
<b>9.3 Learning from Past Events. . . . .</b>	<b>15</b>
<b>9.4 Learning from External Events . . . . .</b>	<b>15</b>
<b>10 Safety Assurance . . . . .</b>	<b>15</b>
<b>10.1 General . . . . .</b>	<b>15</b>
<b>10.2 Audit and Evaluation. . . . .</b>	<b>15</b>
<b>10.3 Reporting and Feedback System . . . . .</b>	<b>17</b>
<b>10.4 Performance Measurement and Analysis of Data . . . . .</b>	<b>17</b>
<b>11 Management Review and Continuous Improvement . . . . .</b>	<b>18</b>
<b>11.1 Management Review. . . . .</b>	<b>18</b>
<b>11.2 Continuous Improvement. . . . .</b>	<b>19</b>
<b>11.3 Top Management Review . . . . .</b>	<b>19</b>

## Contents

	Page
<b>12 Emergency Preparedness and Response .....</b>	<b>19</b>
<b>13 Competence, Awareness, and Training .....</b>	<b>19</b>
<b>14 Documentation and Record Keeping .....</b>	<b>20</b>
<b>14.1 Control of Documents.....</b>	<b>20</b>
<b>14.2 Control of Records .....</b>	<b>20</b>
<b>14.3 Pipeline Safety Management System Documents.....</b>	<b>20</b>
<b>14.4 Procedures.....</b>	<b>20</b>
<b>15 Executing a Pipeline Safety Management System Strengthens Safety Culture .....</b>	<b>21</b>
<b>15.1 General .....</b>	<b>21</b>
<b>15.2 Contribution of Leadership and Management Commitment .....</b>	<b>21</b>
<b>15.3 Contribution of Stakeholder Engagement .....</b>	<b>21</b>
<b>15.4 Contribution of Risk Management.....</b>	<b>21</b>
<b>15.5 Contribution of Operational Controls .....</b>	<b>22</b>
<b>15.6 Contribution of Incident Investigation, Evaluations, and Lessons Learned .....</b>	<b>22</b>
<b>15.7 Contribution of Safety Assurance.....</b>	<b>22</b>
<b>15.8 Contribution of Management Review .....</b>	<b>22</b>
<b>15.9 Contribution of Emergency Preparedness and Response.....</b>	<b>22</b>
<b>15.10 Contribution of Competency, Awareness, and Training.....</b>	<b>23</b>
<b>15.11 Contribution of Documentation and Record Keeping.....</b>	<b>23</b>
<b>Bibliography .....</b>	<b>24</b>
<b>Figure</b>	
<b>1 Plan–Do–Check–Act (PDCA) Cycle.....</b>	<b>ix</b>