Pipeline Operational Status Determination

API Recommended Practice 1181
First Edition
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Background

The purpose of this API document is to provide liquid and natural or other gas Pipeline Operators ("Operators") with a guidance document for inspection and maintenance activities based on the operational status of a pipeline. At the time of this publication, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has pipeline operational status classified in two stages of either active or abandoned. Historically, Operators have modified their Company pipeline operational statuses to fit into additional status categories based on whether they intend to flow product routinely in the pipeline and the risk associated with operational activities.

The scope of this document does not include guidance necessary for easement determination. For the purpose of this document, the term status refers to operational status of a pipeline and pipeline system.
Pipeline Operational Status Determination

1 Scope

This document provides guidance for operations, inspection, and maintenance activities based on the operational status of a pipeline. This establishes:

- Operations, inspections, and maintenance recommendations for various pipeline operational statuses
- Pipeline status documentation requirements

For purposes of this document, the word “pipeline” refers to transmission and regulated gathering pipelines and pipeline systems, although the principles may be applied to non-regulated gathering and flow lines.

Regulations, permits, and easement requirements may supersede the guidance given in this document.

Table 1 provides an overview of pipeline operational statuses.

<table>
<thead>
<tr>
<th>Operational Status</th>
<th>Pipeline</th>
<th>ROW</th>
<th>Regulated by the Office of Pipeline Safety (OPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – Pre-Commissioned</td>
<td>No required maintenance</td>
<td>Limited</td>
<td>Limited</td>
</tr>
<tr>
<td>1 – Active / In-service</td>
<td>Maintained – normal operations. Includes no flow conditions with natural or other gas or hazardous liquid in the line.</td>
<td>Maintained</td>
<td>Yes</td>
</tr>
<tr>
<td>2 – Idle b</td>
<td>Shutdown, purged of hazardous contents, pipeline isolated and equipment maintained, except where modified by Section 6</td>
<td>Maintained</td>
<td>Yes, certain activities may be deferred</td>
</tr>
<tr>
<td>3 – Abandoned c</td>
<td>Left <em>in situ</em> or removed</td>
<td>ROW maintenance not required</td>
<td>No</td>
</tr>
</tbody>
</table>

Systems or segments in statuses 2, 3, and 4 cannot be returned to service until requirements of applicable regulations and company documents are fulfilled.

Abbreviations

For the purposes of this document, the following abbreviations apply.

API American Petroleum Institute

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*a* in the United States

*b* this status is similar to *Idle* in the NPMS

*c* this status is similar to *Abandoned* in the NPMS
### 3 Pipeline Status Program

#### 3.1 Roles and Responsibilities

Operators should define and communicate roles and responsibilities for the administration, management, and consistent implementation of their pipeline status program. A pipeline status program may not exist as a single document in every operator’s organization, but may refer to the integrity management program, the operations and maintenance procedures, or other internal documents. Responsibilities associated with the pipeline status program may include but are not limited to the following:

- Central management and oversight
- Status and status change approval
- Management of system integrity
- Management of right-of-way
- Management of risks

#### 3.2 Program Improvement

##### 3.2.1 General

An Operator should develop processes for the periodic review of the pipeline status program and auditing program implementation. Operators should determine the process for incorporating program improvements based on the findings.

##### 3.2.2 Written Program Review

The purpose of a periodic review of the written pipeline status program is to ensure that it meets current regulatory compliance and any additional needs of the Operator. The Operator has the flexibility to structure the review as formally or informally as necessary and should document the results and identify modifications, if any.
4 Pipeline Operational Statuses

This section outlines the various pipeline operational statuses which may be used throughout its life cycle.

4.1 Status 0 – Pre-Commissioned

<table>
<thead>
<tr>
<th>Operational Status</th>
<th>Pipeline</th>
<th>ROW</th>
<th>Regulated by the Office of Pipeline Safety (OPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – Pre-commissioned</td>
<td>Limited maintenance</td>
<td>Limited</td>
<td>Limited</td>
</tr>
</tbody>
</table>

* In the US

Table 2–Pre-commissioned Pipeline Status

4.1.1 General

Considered post construction, but prior to initiating operations; the pipeline is isolated from active assets and does not contain hazardous liquid or natural or other gas.

- Limited inspection and maintenance is required
- Upon pipeline installation the ROW should be surveilled
- Damage prevention activities, including One Call status and line-markers, should be established and maintained
- Consider CP and/or interference current mitigation for pipes in construction/pre-commissioning for extended periods

4.1.2 Documentation

- Maintain records of ROW activities and appropriate construction documents.

NOTE API RP 1177 provides considerations for appropriate construction quality management documents.

4.2 Status 1 – Active / In Service

<table>
<thead>
<tr>
<th>Operational Status</th>
<th>Pipeline</th>
<th>ROW</th>
<th>Regulated by the Office of Pipeline Safety (OPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Active / In Service</td>
<td>Maintained – normal operations.</td>
<td>Maintained</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* In the US

Table 3 – Active / In-service Pipeline Status

4.2.1 General

Considered normal operations; the pipeline contains hazardous liquid or natural or other gas and is operational.

- Pipeline may be out of service for repairs or inspection on a temporary basis
- Integrity Management Program requirements are applied
- Includes no flow conditions with hazardous liquid or natural or other gas in the line
Consider odorization (for gas pipelines), static condition leak detection capabilities, and precautions against internal corrosion or other potential threats for lines with no flow conditions for an extended period.

### 4.2.2 Documentation
- Maintain appropriate documents per the jurisdiction for in-service pipelines.

### 4.3 Status 2 – Idle

<table>
<thead>
<tr>
<th>Operational Status</th>
<th>Pipeline</th>
<th>ROW</th>
<th>Regulated by the Office of Pipeline Safety (OPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – Idle</td>
<td>Shutdown, purged of its contents, pipeline isolated, and equipment maintained, except where modified by this section</td>
<td>Maintained</td>
<td>Yes, certain activities may be deferred</td>
</tr>
</tbody>
</table>

* in the United States

* this status is similar to Idle in the NPMS: the pipeline or pipeline segment is maintained to a degree that it may, in the future, be potentially brought back into service.

### 4.3.1 General

Pipeline has been shut down, isolated from all sources of hazardous liquid or natural or other gas (capped or blinded), system purged of combustibles or maintain a blanket of natural gas at pressure and removed from service. An idled line may be returned to active service. A pipeline should be considered idle when the following activities are performed:
- Breakout tanks shall be physically isolated from the idle pipeline system or emptied of hazardous product
  - A breakout tank is considered idle when it is emptied of hazardous liquids and physically disconnected from any active pipeline system
- Removal of pipeline components is acceptable (i.e. motor operators, electrical components, etc.)
- Liquid pipelines shall be purged with an inert material, such as nitrogen or inhibited water.
- Natural gas pipelines may be purged with air or a blanket of natural gas at a low pressure where the volume of gas is so small that there is no potential hazard.
- Line should be cleaned based on the operators’ procedures
- Cathodic protection shall be maintained

### 4.3.2 Maintenance and Inspection Activities on Idled Pipelines

Maintenance and inspection activities which should be performed on idled pipelines include but are not limited to:
- Cathodic protection inspections and maintenance
- Atmospheric corrosion inspections
- Navigable waterway crossing inspections
- Damage prevention activities, including public awareness programs and One Call
  - Line markers shall be maintained
4.3.3 Deferred Maintenance and Inspection Activities on Idled Pipelines

Maintenance and inspection activities which can be deferred on idled pipelines until the line returns to active status or abandoned include but are not limited to:

- Overpressure and overfill safety device inspections
- Valve inspections
- Emergency shutdown device
- ROW maintenance
- ROW surveillance
- Integrity Management Program activities
- Internal corrosion control
- Management of cased pipeline sections
- Leak detection and leakage surveys
- Control Room Management activities associated with the idled pipeline
- Firefighting equipment inspection and maintenance
- Inspections of idled tanks
- Remedial maintenance, such as:
  - Atmospheric recoat
  - Exposure remediation
- Continual surveillance for class location changes of gas pipelines

4.3.4 Documentation

- Document details of the purging and cleaning activities as applicable
- Document inspection, maintenance, and repair activities being performed and those being deferred.
- Maintain Management of Change documentation showing pipeline is idled
- Document communication with the appropriate regulatory jurisdiction as applicable

4.3.5 Returning an Idled Line to Service

- Prior to returning an idled line to service, operators shall develop and implement a return-to-service plan, including a risk assessment.
- If a line was idled and is returned to active service, operators shall confirm the integrity of the pipeline
- Operators shall ensure that all deferred inspection and maintenance activities which could affect the safe operation of the line are addressed prior to returning the line to active service.
- Deferred activities that do not affect the safe operation of the line should be addressed as soon as practical after returning the line to active service.
- Appropriate notifications shall be made as required by the regulatory agency with jurisdiction over the pipeline
4.4 Status 3 – Abandoned

<table>
<thead>
<tr>
<th>Operational Status</th>
<th>Pipeline</th>
<th>ROW</th>
<th>Regulated by the Office of Pipeline Safety (OPS) a</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – Abandoned b</td>
<td>Left in situ or removed</td>
<td>ROW maintenance not required</td>
<td>No</td>
</tr>
</tbody>
</table>

a in the United States
b this status is similar to Abandoned in the NPMS: the pipeline or pipeline segment has been permanently removed from service according to PHMSA regulations

Table 6 – Abandoned Pipeline Status

4.4.1 General
Pipeline has been shut down, isolated from other in-service lines, connections to all sources of hazardous liquid or natural or other gas are capped or blinded, system purged of combustibles, sealed, and permanently removed from service.

Some or all the pipeline may have been physically removed.

Additionally:
- ROW and pipeline are not maintained
- Line is purged with an inert material, such as nitrogen or inhibited water
- Line is cleaned based on the operators’ procedures
- Line pressure is not maintained
- ROW maintenance (mowing, trimming, etc.) is not required
- Damage prevention activities, including public awareness programs and One-call status is determined through review of local requirements
  o See Common Ground Alliance Best Practice for further information
  o Line Markers are not required and may be removed
- Above ground equipment may be electrically and mechanically isolated and can be removed or demolished
- Cathodic Protection programs are ceased; consideration should be given for filling deep well anode beds
  o Ceasing cathodic protection may have deleterious impacts on other assets, and operators shall consider stray current issues and other issues when reducing or eliminating cathodic protection maintenance
- Consideration should be given to road, railroad, levees, and water crossings for long-term impacts on physical assets and environmental and public safety

4.4.2 Documentation
- Document details of the purging and cleaning activities as applicable
- Maintain Management of Change documentation showing it is abandoned
- Document location of pipe segments that are physically removed
- Document required notifications/reporting to State and Federal Agencies
• Document communication with other asset-operators of discontinuation of cathodic protection

• If a line was abandoned and is returned to active service, document that all aspects of the integrity management program have been met

Bibliography

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API RP 1177, Recommended Practice for Steel Pipeline Construction Quality Management Systems