

API RP 1175 Pipeline Leak Detection Control Center Procedures for Recognition and Response

Control Center Procedures for Recognition & Response

- The pipeline operator should provide a documented leak response procedure
 - Complementary to existing emergency response procedures
 - Provides additional guidance tailored to leak response
- Pipeline Controllers
 - Are the front lines of leak detection
 - Should know their level of authority and responsibility
 - Should reach out for additional support during a leak response – Think Teamwork!



Control Center Procedures for Recognition & Response

- The Pipeline Operator's response procedures should reinforce the idea that all potential leak alarms:
 - Have a cause
 - Need to be evaluated individually and as a whole
 - Require immediate attention
- Leak response procedures should:
 - Outline the processes, tools and actions used to recognize and respond appropriately to various leak indications
 - Be constructed with a consequence-based mindset with directives for taking action
 - Be simple to understand and implement
 - Be reinforced by the company's leak detection culture and regular training

Recognition of a Suspected Leak

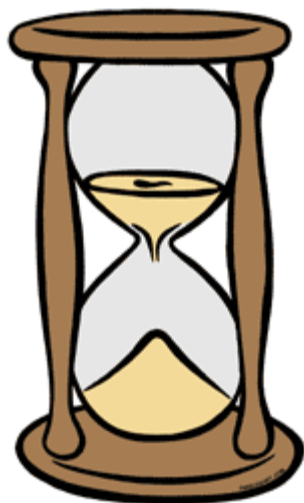


- Correct & timely response to a leak indication is dependent on the pipeline controller's successful recognition of the conditions that indicate a potential Loss of Containment (LOC).
- There are a number of leak indications that can initiate a leak response.
- The term "leak indication" does not necessarily mean that a leak has definitely occurred.
 - Alarm or other notifying event indicates the potential for a leak, requiring immediate action from the Pipeline Controller.
- The Pipeline Operator should develop a description & action protocol for individual indications/alarms or combination of indications/alarms.
 - Indicated magnitude of the leak, persistence of the leak indication, and level or risk involved are key factors in determining response.

Analysis of a Suspected Leak

- Procedures may specify different actions that are taken to respond to different leak indications.
 - Correct recognition is imperative!
- Depending on operating conditions and nature of the leak indication, it may not be immediately apparent that a LOC has occurred.
- For leak indications that do not require an immediate shutdown:
 - A limited period of analysis may be used to allow the Pipeline Controller to check a variety of conditions that could have triggered the indication.
 - Leak procedures should include methods and tools to aid in determining the cause of the indication.
 - During this time the Pipeline Controller may request team support to analyze the leak indication and document actions.

Analysis of a Suspected Leak



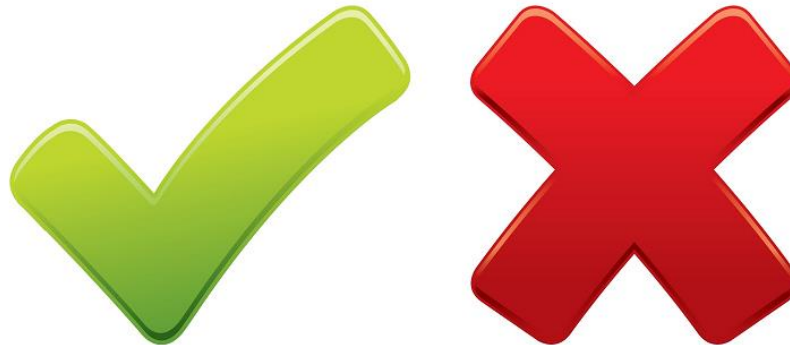
- For leak indications that do not require an immediate shutdown of the pipeline, the procedures may specify a predefined time or volumetric limit to investigate.
 - Different limits may be specified for each pipeline or standardized for all pipelines
 - In either case, the limit must be based on rational analysis of the pipeline LDS to ensure a safe and timely response.
- The Pipeline Controller is not required to wait for the limit to expire before taking additional action.
 - If they believe an actual leak is occurring, immediate action should be taken!

Response to a Suspected Leak

- The occurrence of a leak indication should compel a Pipeline Controller to take immediate action.
 - Some indications may require an immediate shutdown.
 - Others may require additional analysis before a shutdown.
 - In either case, once the initial analysis has concluded, or the time or volumetric limit has expired, the pipeline controller should take the appropriate action based on the analysis and understanding of the indication.
- Response procedures should include direction to take action that the Pipeline Operator deems to be the safest and most appropriate for the pipeline in question.
 - In most cases, the safest action is to initiate an immediate shutdown and isolation of the pipeline.
- Further investigation and analysis may continue until independent leak verification has been confirmed or disproved.

Validating the Potential Leak Indication

- Leak validation is triggered by the suspicion that a leak exists and examines the pipeline and/or analyzes pipeline operation data in order to verify and make a formal determination of the existence of a leak or alarm cause verification.
- The procedures should include tools and methods to be used to analyze the pipeline and operational data.



Reporting and Documentation



- During and/or after the leak indication all the actions taken should be logged.
- A standard form should be provided to the pipeline controller to assist with documenting the events and timeline from the initial indication through the shutdown and restart operations (if necessary).
- This log should be used by the pipeline operator's incident investigation team to thoroughly investigate the events and take the appropriate actions to identify and address the suspected leak.
 - Used in alarm management.

Pipeline Restart

- The restart procedure is not a part of detecting a leak but should be part of existing Control Center procedures.
- The procedures should cover requirements for:
 - Appropriate stakeholders authorizing the restart
 - Restarting the pipeline after the investigation finds no evidence of a leak
 - Restarting the pipeline after the leak has been repaired
- The Pipeline Controller should maintain a high level of awareness when a pipeline that has been shutdown is restarted.
 - Extra attention should be given by both field personnel and the Control Center staff during and after the restart process to help confirm the absence of a leak.