



API RP 1175 Pipeline Leak Detection Overall Performance Evaluation

Performance Evaluation of the Leak Detection Program (LDP)

- Overall performance evaluation of the Operator's LDP should:
 - Capture noteworthy results of the performance of the LDP
 - Benchmarking company and industry performance
 - Involve management in an annual review & sign-off of the overall performance of the LDP
 - Use Key Performance Indicators (KPIs) to facilitate this performance evaluation



Internal & External Perspective

■ Internal

- Measures all aspects of the LDP implementation
- Used to identify strengths & weakness, including predictive (leading) measures to improve the overall program

■ External

- Accomplished through voluntary reports to industry-wide database (API PPTS)
- Will facilitate overall industry evaluation of the state of Leak Detection performance
- Will facilitate a single operator's evaluation against industry averages for benchmarking purposes



Periodic Reporting

■ Internal

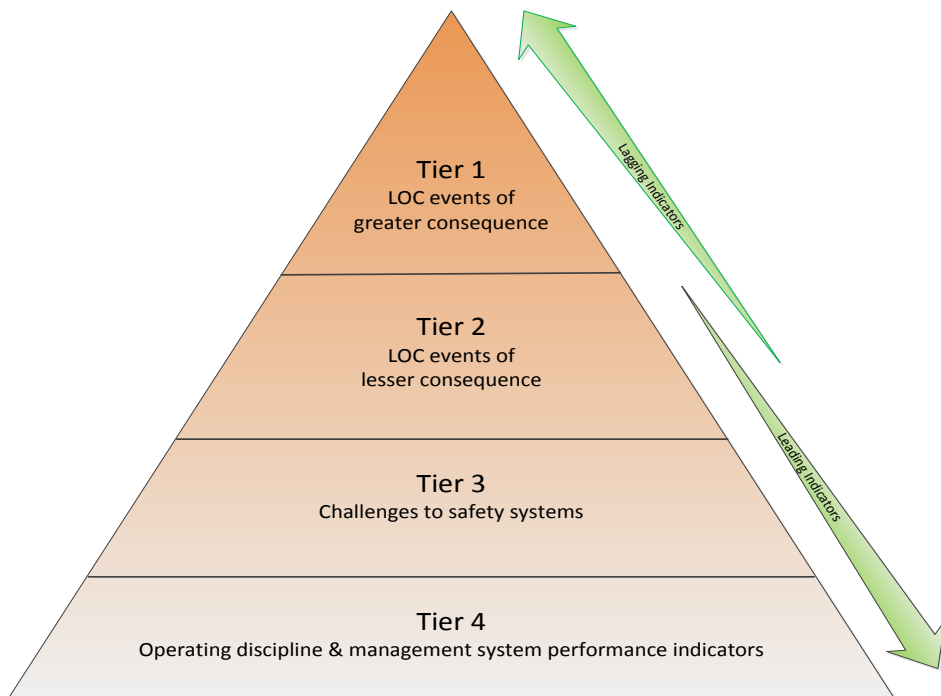
- Annual report and sign-off by senior management
- Only most significant internally developed KPIs included
- Demonstrates management's commitment to the corporate leak detection strategy

■ External

- Annual reporting to API PPTS of key KPIs
- Facilitates industry review and individual operator benchmarking
- Recommended KPIs discussed in upcoming slide



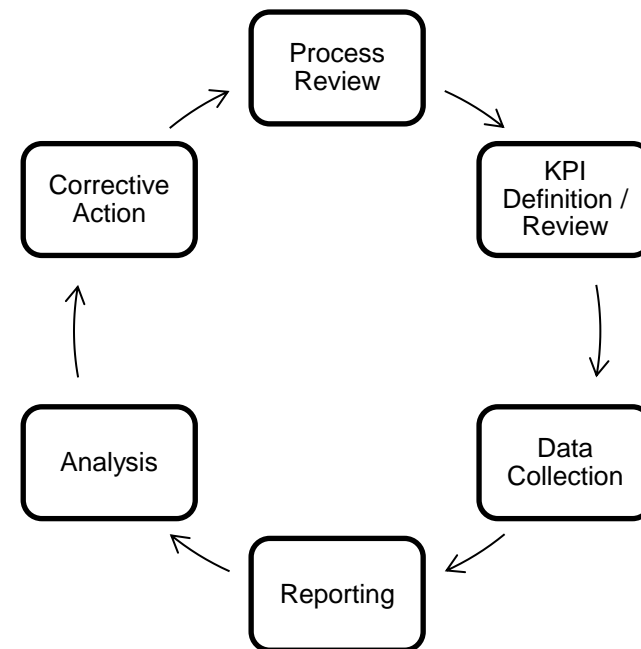
Leading and Lagging Indicators



- Leading indicators are used to predict a future outcome of a process
 - Internally defined & collected KPIs should focus here to improve future performance
- Lagging indicators are those KPIs which measure an event once it has already occurred
 - Externally defined & reported KPIs are located here to understand overall performance of industry

Key Performance Indicators (Internal)

- Internal KPIs should be defined by individual operators to monitor and improve their own LDP
- Annual review should be conducted to make sure KPIs are of value
- KPIs should address programmatic issues, not individual pipeline performance
- Examples:
 - Percentage of non-leak alarms
 - Amount of time LDS is in alarm state
 - Percentage of pipeline miles where LDS performance meets design criteria
 - Number of tests conducted on an LDS in a year



Key Performance Indicators (External)

- External KPIs are lagging indicators and therefore outcome focused
- Should be included on annual report to API PPTS
- Will measure industry performance & facilitate benchmarking
 - Barrels/leak where LDS was designed to identify leak
 - Estimated cleanup cost where LDS was designed to identify leak
 - Average time between leak and leak alarm
 - Shutdown percentage in response to leak alarm
 - Number of large leaks where LDS provided alarm
 - Average percentage error in identifying leak location
 - Number of false negative leak alarms



Summary

■ **Shoulds:**

- **Should establish KPIs to measure program performance**
 - Should establish internally defined set to measure, monitor and continuously improve the program
 - Should adopt externally defined KPIs presented in API 1175
- **Should develop annual review and improvement cycle to maintain strength of program**

■ **Reporting:**

- **Should report to senior management**
- **Should report to API PPTS**

■ **Timing:**

- **Annual cycle**