

Detecting Pipeline Leaks



How do pipeline operators know if a pipeline has a leak?

Pipeline operators monitor their pipelines from central control rooms 24 hours a day looking for signs of leaks and shutting down the pipeline if necessary.

24/7 Pipeline Monitoring

Pipeline operators monitor their pipelines from a central control center 24 hours a day, 7 days a week, 365 days a year. Specially trained controllers keep a watchful eye over systems monitoring pipeline pressure, flow and volume. Operator personnel patrol along the pipeline route and personnel in airplanes or helicopters travel overhead the length of the pipeline on a regular schedule looking for signs of leaks.

Leak Detection Technology

Pipelines are equipped with sensors and gauges along their route. Sensors can detect a drop in pressure, potentially indicating a leak. Flow gauges monitor product passing through the pipeline ensuring everything remains inside the pipe. Pipeline sensors and gauges feed their data into central control rooms where operator personnel constantly monitor operations on computer displays.

Computational monitoring systems account for changes in temperature, terrain or distance from a pump station, all variables affecting product volume and potentially indicating a leak. Pipeline operators are also researching and developing new technologies that can “smell” trace amounts of hydrocarbons in the soil, “see” their chemical signature in the air or “hear” tiny acoustic vibrations produced by a hole in the pipe.

Rapid Shutdown

Pipeline operators can quickly shut down a pipeline if monitoring technology indicates a potential leak. From their central control centers, pipeline operators will remotely stop pumps and close isolation valves. Pipeline control personnel are trained to shut down their systems, diagnose whether an alarm is showing a leak, and not restart until personnel confirm the pipeline is operating safely.

