



Colorado School of Mines, Payne Institute Continuous Monitoring Pilot Program Overview

Oil and gas operators are under increasing pressure from regulators, investors and the public to conduct continuous monitoring at their facilities in an effort to reduce fugitive emissions and further improve air quality. In addition, stakeholders in Colorado, and other states, are seeking reliable data for establishing a fact-based definition of what constitutes “continuous” monitoring.

Recent advances in technology now make continuous monitoring a cost-effective best practice that positions operators to provide reliable, objective data to inform regulatory initiatives. As a result, regulators can take an evidence-based approach. Continuous monitoring also benefits operators by helping them generate operational efficiencies, reduce emissions and achieve their environmental, social and governance (ESG) objectives.

In January 2020, Crestone Peak Resources was the first upstream oil and gas operator to commit to a first-of-its-kind continuous monitoring program in Colorado. Other operators quickly followed their lead and joined the program. Project Canary is the technology provider for this program.

Importantly, the Payne Institute for Public Policy at the Colorado School of Mines will serve the role of the honest broker, assuring data privacy, integrity and security for this multi-state program. To encourage the first operators to join, there will be no up-front programmatic cost during 2020.

This confidential and independently reviewed continuous monitoring pilot program gives participants the opportunity to collaborate, research and develop best practices and interact in an objective manner with local and state governments.

Program Overview

The continuous monitoring program is designed to hold collaboration, objectivity and data quality to the highest standard and it is:

- **Credible**
 - As a leading public policy institution, the Payne Institute of Public Policy at Colorado School of Mines has the credibility necessary to provide world-class scientific insights, helping to inform and shape public policy on earth resources, energy, and the environment
 - The Payne Institutes role as an honest broker and convener for the program’s research will provide the structure necessary to build a realistic view of emission reduction efforts
 - As the program grows, additional research institutions may join to aid in review
- **Confidential**
 - All data collected through the program is the exclusive property of the operator, and all parties must agree that it will be maintained in strict confidence
 - Operators can decide, on an individual basis, if they want their information shared with state or local regulatory bodies, such as the Colorado’s Department of Public Health and Environment or Colorado Oil and Gas Conservation Commission, among others
 - In any collaborative setting, all shared data will be anonymized to protect the operators, while still allowing for the development of best practices and shared learnings



- Upon receipt of request from the operator, the Payne Institute shall return all Confidential Materials, in written or other tangible form, including, without limitation, the samples used to conduct the program
- **Cooperative**
 - As an independent convener, the Payne Institute will hold meetings with any number of participants, researchers, additional educational institutions, or other interested parties. As more operators join in good faith, the program will create the opportunity for participants to develop more effective operations and processes, reducing emissions and improving Leak Detection and Repair efforts.
- **Technologically agnostic**
 - While Project Canary is the only company providing data to the program at this time, additional continuous monitoring technology providers are encouraged to join, so long as they meet the program's standards for high-quality data and rate of transmission
- **Solution Oriented**
 - Many operators are moving towards quantitative reviews of their ESG efforts. The program could operate as a successful nexus for environmental data and ESG ratings
 - As the first program to continuously monitor at scale, operators will be able to test market driven technologies that will allow for the credible sale of Responsibly Sourced Gas
 - Operators can decide, on an individual basis, if they want their information shared with state or local regulatory bodies

Operator Requirements for Participation

Project Canary and the Payne Institute for Public Policy are committed to providing accurate data and effective transparency for all upstream oil and gas and midstream operators that are interested in participating in the program. Due to the burden placed on both Payne Institute and Project Canary by the program, all operators are expected to commit to continuously monitoring a statistically significant portion of their overall production in a particular basin. For reference, as the first participant, Crestone Peak Resources has committed to initially monitor 80% of its production volumes in the DJ Basin in Colorado.

Operators are also expected to have a willingness to collaborate within the confidential environment that the Payne Institute can provide as an honest broker and convener. The operational benefits of the program will be the result of a larger shared and anonymized data pool. However, all parties acknowledge that operators are the ultimate arbiters over their data.

Operators will be required to submit all data gathered from the technology provider to the Payne Institute for third party review. Operators will have sole discretion to share their data with state and local regulatory bodies. Such data sharing will be managed by the Payne Institute and, if desired, can be anonymized. Current participants envision this partnership evolving into state, regional and/or national programs which seek to demonstrate greater monitoring and data transparency among operators, regulators and the public.

Technology Provider Requirements for Participation



The basis on which technology providers will be evaluated include emissions monitored, data quality, rate of transmission, etc. For inquiries about the technological requirements for the continuous air emissions monitoring program, please reach out to charlie.losche@projectcanary.com.

About Project Canary

Project Canary, based in Denver, Colorado, is a mission-driven B-Corporation accountable to a double-bottom-line of profit and social good. Its goal is to improve air quality by helping the oil and gas industry operate on a cleaner, more efficient, more sustainable basis. Project Canary provides trusted, independent and verifiable environmental data.

About the Payne Institute of Public Policy

The mission of the Payne Institute at Colorado School of Mines is to provide world-class scientific insights, helping to inform and shape public policy on earth resources, energy, and environment. The Institute seeks to link the strong scientific and engineering research and expertise at Mines with issues related to public policy and national security. For more information, visit PayneInstitute.MINES.edu.