



Q&A with Environmental Health and Safety Manager Korby Bracken: Self-Proclaimed “Air Quality Nerd”

Korby Bracken is an Environmental Health and Safety Manager, specializing in air quality, for Anadarko Petroleum Corporation’s Rockies assets. He is a graduate of the University of Wyoming with a Bachelor of Science in Chemical Engineering. In addition to his Chemical Engineering degree he holds a Professional Environmental Engineer certification. Since graduation he has worked in many business sectors, including the New Source Review permitting group at the Wyoming Department of Environmental Quality. Working for the State of Wyoming is where Korby found his interest in the air quality field. Prior to working for Anadarko, Korby worked for consulting firms emphasizing the oil and gas sector permitting and compliance. He serves as the co-chair for Colorado Oil & Gas Association’s air quality subcommittee and is an active member of Western Energy Alliance, Petroleum Association of Wyoming and Rocky Mountain EHS Peer Group.

COGA: What’s driving federal and state regulatory concern with air quality (in non-technical terms)?

It is probably more appropriate for EPA to answer that question directly. Although, in general terms, the EPA is being tasked with assessing and developing standards to maintain air quality, regulate emissions from stationary and mobile sources, and protect the public health. EPA develops standards and rules that focus on criteria pollutants, which consist of carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), Lead (Pb) and Particulate Matter (PM). After proposing these standards, EPA will publish the standards in the Federal Register for public comment. States may then be called upon to regulate these rules. Currently ground level ozone is a primary focus for standard and rule development. This proves to be tricky as ozone is not actually released from an emission source; it is photochemically generated with NO₂ and VOCs. VOC emissions are volatile organic compounds consisting of carbon compounds with a three or more carbons in their chemical make-up (e.x. propane (C₃H₈), butane (C₄H₁₀), and octane (C₈H₁₈)).

COGA: How significant is oil and gas air emissions when compared with other air emission sources?

Studies indicate the main emission sources for ozone in Colorado’s Front Range come from on-road mobile and background transient emissions from other regions, while on a facility-by-facility basis, oil and natural gas emissions are below those of other industries. Technology and regulations are constantly evolving with the goal of achieving ever greater reductions with regard to emissions in all sectors. In the oil and gas sector specifically, engine technology has been greatly enhanced through the years.

Today, industry utilizes engines specifically designed for natural gas compression, catalysts, and computers to reduce emissions by an order of magnitude. Other industry sectors have also benefitted from technology, such as clean coal, natural gas, low emission boilers, diesel combustion technology. And though mobile sources are among the most significant contributors to ozone formation, this area has also seen drastic reductions in tail pipe emissions.





It is encouraging to see industries working together with the goal of helping reduce the environmental impact in the region. A great example is Colorado's Clean Air Clean Jobs Act, which is expected to have a tremendous benefit for air quality in the Denver area. Clean air is important to all of us, and it is important for industries and individuals to take appropriate actions and steps to conserve whenever feasible.

COGA: What are the most significant Air Quality regulations coming down the pipeline?

The first likely regulation change is a national one from EPA, which is proposing to further lower the ground-level ozone standard. The current standard of 0.075 parts per million (ppm) was established March 27, 2008 from the previous standard 0.08 ppm set July 18, 1997. In the first quarter of 2011, EPA proposed to lower the standard further to a standard between 0.060 and 0.070 ppm. Available monitoring data shows this proposed standard will be extremely difficult to meet across the country, with potentially serious negative economic impacts, especially at the state level. Under this proposed standard, even the pristine Yellowstone National Park would not meet the requirements, due to emissions of naturally occurring terpenes from natural sources, such as pine trees. The standard has been delayed a few times, and EPA continues to look at studies. One very important consideration that must be taken into account with any proposed standard is the cost associated with meeting that standard. A strong economy and healthy economic activity is essential in addressing environmental concerns. It enables research, scientific studies and appropriate investments in protective measures. Damaging the economy to reduce emissions can have significant, unintended consequences.

EPA has also recently proposed New Source Performance Standards (NSPS) for additional sources in the oil and natural gas industry. These standards regulate completion practices and control requirements for small producing wells. Stakeholders are making comments to these proposed rules to potentially modify the rule before it becomes final. For instance, the proposed rule will require control, mainly flares, on production facilities, which produce 1 barrel of condensate per day or more. This will be very costly and difficult to maintain all of the combustion devices required at numerous remote and unmanned facilities.

Neither of these will be easily obtainable for the industry, which is why we must work closely with EPA and state governments, to establish rules that are scientifically based and economically viable to implement.

COGA: I've heard that our industry has invested significantly in reducing ozone-forming constituents along the Front Range. Can you describe what industry has done and how much industry has invested?

In the Front Range, we have invested tens of millions of dollars to reduce emissions. Stakeholders were proactive in forming the Early Action Compact (EAC) which developed a strategy to control ozone precursors from emission sources. These reductions have been accomplished through installation of production facility control, operational practices, automation, voluntary inspection and maintenance programs, and facility design, to name a few.





COGA: What significant improvements has industry made to reduce air emissions?

Industry has demonstrated its commitment to developing and using state-of-the-art technology to reduce emissions. We are utilizing technology to capture VOC emissions and transport down a pipeline in situations where we have controlled those emissions with flares. We've also been successful working with other industries: Colorado's Clean Air Clean Jobs is a testament to that. A technique called "green completions" or "reduced emission completions" is a proactive step to eliminate most of the VOC emissions and recover valuable natural gas during flowback and well testing. Completion technology advancement has made this possible. And automated tracking of wells has kept a close eye on data. Our oil polishing facility is another improvement, where we have built local facilities that send oil via a pipeline, removing trucks from the highway and saving millions of miles of traffic. We also have a trained team that uses infrared cameras to detect fugitive emissions and quickly address those situations. It is also worth noting this industry is one of the largest users of solar panels.

COGA: Anything else you think our readers should know?

As technology evolves and regulations change, it is in our best interest to leverage that technology, implement best practices, and consistently work to become more efficient. We are also keenly aware of how technology and talent can be transferred from one operating area to another, dramatically reducing the learning curve and accelerating efforts to operate more safely and in a manner that protects the environment.