

# PROTECTION OF THE SURFACE ENVIRONMENT



The energy renaissance of the past decade has been the result of an unprecedented level of drilling and production activity in areas with plentiful oil and natural gas resources. The industry's dedication to delivering environmental stewardship on a project-by-project basis is a central component of their license to operate.

## BACKGROUND:

The oil and natural gas industry is committed to continuously improving the sustainability and safety of their operations while developing energy resources that supply customers with high-quality products and services. That's why they work with the public, government and experts to determine the best ways to engage with natural resources in an environmentally sound manner.

To reduce the impact associated with gas and oil development, the industry employs a variety of environmental mitigation measures. A commonly stated concern about drilling and production operations is the risk of habitat fragmentation, but there are means to address it. Mitigation measures to reduce fragmentation associated with oil and gas exploration and development include avoiding additional fragmentation up front by concentrating disturbance (or siting operations) near pre-existing edges or openings, using methods for seismic surveys and site development that minimize disturbance, using revegetation as a means of reducing current fragmentation, establishing a monitoring program to track potential problems associated with fragmentation, and directly managing potential problems such as increased levels of disturbance and spread of invasive species.

The industry also develops and adapts technologies and strategies to reduce the impacts of their operations on the surrounding environment. An example of this is hydraulic fracturing and horizontal drilling. This innovative process shrinks the surface footprint of drilling operations. Corresponding water management strategies, along with advanced technologies, make it possible to reuse up to 90 percent of produced fluids from the fracturing process. In addition, the industry remotely monitors natural gas and oil-well production through wireless sensor networks. <sup>1</sup> The data provides real-time information so that field operations are more focused and efficient, reducing vehicle trips and disturbance of wildlife.

Once the period of industrial activity is complete, companies care for the environment through a reclamation process, which involves renewing and repurposing sites.

## FAST FACTS:

- » In some instances, as much as 90 percent of the produced fluids from hydraulic fracturing can be reused, saving many millions of gallons of fresh water, and also reducing the need for disposal wells.
- » With natural gas and oil development and production occurring at more than 860,000 sites in 33 states, the industry is working hard to manage waste, water, land and air quality in compliance with a wide range of federal and state regulations. <sup>2</sup>

## REFERENCES:

1. ["Applications of Wireless Sensor Networks in the Oil, Gas and Resources Industries,"](#) IEEE Xplore.
2. ["E and P Environmental Stewardship,"](#) API.

