



# COMMUNITY AND THE ENVIRONMENT

## *Fact Sheet*

### Potential Environmental Impacts

### Regulations and Safeguards in Place to Protect the Environment and Communities

#### WHAT ACTIVITIES TAKE PLACE AT A SHALE GAS WELL SITE?

- Well site preparations include construction of well pads, access roads, drilling pits and erosion control measures.
  - Drilling of the well includes installing casing and cement to protect ground water and other natural resources, such as mineable coal seams, and confining drilling fluids and rock cuttings to storage tanks or pits for later disposal. Hydraulic fracturing is then used to break up the gas-bearing rock, allowing natural gas to flow to the well.
  - Stimulation of the well includes foam, cross-link or nitrogen fracing.
- For a producing well, flow lines and gathering lines and storage tanks are installed. Well site stabilization techniques are employed as needed, and eventually the well site is reclaimed with native vegetation.

#### WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS OF THIS DEVELOPMENT?

- Many of the potential environmental effects from shale gas are similar to those from other types of oil and gas development. For example, the construction of well pads, roads, and pipelines disturbs the landscape. Although improper well drilling and completion techniques can lead to potentially adverse impacts on ground water resources, regulatory requirements are designed to prevent this occurrence. Other impacts may involve surface water, air emissions, noise and dust.
- Shale gas development raises concerns because it often occurs in areas that previously experienced little or no oil and gas activity. In addition, the intensity of such development can result in the rapid proliferation of well sites and drilling activity.

#### HOW MIGHT THE COMMUNITY BE AFFECTED BY DEVELOPMENT?

- Like other types of development, shale gas development can increase traffic, potentially causing congestion and road damage. It can also raise concerns about safety, noise, and aesthetics.
- Shale gas development has raised special concerns about water availability because many wells require large volumes of water for hydraulic fracturing. These water demands may challenge existing supplies and infrastructure, but they generally represent less than one percent of the total water use in a basin.
- Shale gas development creates additional direct and indirect employment opportunities, while also providing tax revenues to state and local governments and royalties and fees to property owners. These employment and economic benefits can assist communities in responding to population increases and service and infrastructure demands.



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### WHAT SAFEGUARDS EXIST FOR THE ENVIRONMENT AND COMMUNITIES?

- Like other types of oil and gas development, shale gas wells are subject to various environmental and community safeguards through rigorous regulatory programs administered by the states. These programs require:
  - Installation of multiple layers of protective steel casing and cement in the well bore to protect fresh water aquifers and isolate the producing zone;
  - Technological controls and practices to reduce air emissions and noise;
  - Recycling and storage of wastes in specially designed pits and tanks;
  - Revegetation and storm water controls to limit erosion and runoff;
  - Special safety equipment, setbacks, and best management practices to address community concerns; and
  - Monitoring programs to determine whether impacts to water, air, and other resources are occurring so that proper and appropriate mitigation measures can be implemented.
- Shale gas development typically makes extensive use of horizontal wells and, often, multiple wells are drilled from a single pad, thereby consolidating facilities. Thus, sensitive areas can be avoided, surface disturbance is reduced, and environmental and community effects are decreased.

### WHAT IS THE ROLE OF STATE REGULATORY PROGRAMS?

- States review drilling permit applications for compliance with applicable regulations before drilling may commence.
- State inspectors monitor the construction of access roads and well sites and the drilling, completion, production, and plugging and abandonment of wells to ensure regulatory compliance, responsible resource development, protection of environment, and public safety.
- States require the filing of well records and production data, which are archived and available for public inspection along with inspection reports.