

## **5 Next Steps**

This HIA used the compiled baseline health characteristics of Battlement Mesa, current ambient environmental conditions in Garfield County and Antero's proposed gas development and production plans to evaluate probable and possible health impacts of Antero's project to the residents of Battlement Mesa. Through this process the CSPH has attempted to address the concerns of the citizens outlined in the BCC petition.

At the end of each assessment recommendations aimed at decreasing potential negative health impacts are provided. However, CSPH identified numerous gaps in information that limited this evaluation and may limit future evaluations of health in Battlement Mesa.

In order to fill the information gaps identified in this HIA, investigation is needed in the following areas. The immediate next step will be development of an environmental and health monitoring study (EHMS) that addresses some but not all, of these issues.

### **AIR**

1. Conduct baseline measurement of ambient air concentrations for air toxics within the Battlement Mesa PUD. Continue ambient air monitoring through out the development of Antero's natural gas project. Detection limits should be at or below EPA Regional Screening Levels and air quality standards, when available and technically possible.
2. Conduct air sampling at COGCC setbacks (150 feet, 300 feet), Antero setback (500 feet) and set back requested by citizens (1000 feet) during well installation, completion, and production operations and at the proposed water storage facility.
3. Further characterize constituents of odors during odor events.
4. Determine how to enhance public health response should emission levels exceed health based standards.

### **WATER**

1. Establish hydrogeological characteristics of the four back up groundwater wells and the well pads, the proposed central water storage facility in Battlement Mesa and in other areas of gas development in Garfield County.
2. Develop estimates of environmental fate and transport of chemicals used in natural gas development

### **TRAFFIC**

1. Use Geographical Information System technology to overlay proposed truck routes on a map of Battlement Mesa with location of schools, school zones, school bus routes, bike and walking paths to determine if alternative truck routes will improve community safety.
2. Conduct baseline pedestrian/bike route survey to establish current use and to identify where these routes overlap with haul routes. Monitor use through out the five year development phase.
3. Identify existing traffic “hot spots” within the PUD and along the haul routes that will be susceptible to increased traffic.

### **NOISE**

1. Conduct background noise monitoring for Battlement Mesa residential areas, schools, and along main traffic routes.
2. Conduct noise monitoring at COGCC setbacks (150 feet, 300 feet), Antero setback (500 feet), and set back requested by citizens(1000 feet) during well installation, completion, and production operations and at the proposed water storage facility.

### **COMMUNITY WELLNESS**

1. Determine number of workers needed for various development operations, including operator and subcontractor employees.
2. Establish methods to monitor measures of community well-being (i.e., mental health, suicide, substance abuse, crime, educational opportunities) specific to Battlement Mesa/Garfield County.
3. Monitor access and use of public health and social services.

### **ECONOMY**

1. Monitor economic effects of natural gas development in Battlement Mesa/Garfield County.

### **HEALTH CARE INFRASTRUCTURE**

1. Convene county level health care forum with private and public health providers to assess health care services and anticipated needs related to the natural gas development and production.

### **ACCIDENTS AND MALFUNCTIONS**

1. Use Geographical Information System technology to overlay pipelines, pigging stations, well locations within Battlement Mesa community to determine relationship to residences, schools, assisted living facility, etc.

2. Determine if standards of practice for gas line placement within residential communities exists.

The Antero project described in this HIA involves approximately 200 wells, which is only a fraction of the natural gas development that is occurring in Garfield County. Furthermore, natural gas development is and will continue to grow in other parts of the region and state, as well as other parts of the country. The results of the EHMS will likely have application beyond the study area and will contribute to filling some of the knowledge gaps about natural gas development and production and health.