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Colorado Study Emerges As Model For Assessing Health Effects Of Drilling

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Local officials and researchers in Garfield County, CO, are seeking to finalize a first-time health impact assessment (HIA) showing potential adverse health effects from a planned natural gas production facility, a study that could provide a model for how EPA and other researchers assess the health risks of drilling operations.

A [draft version](#) of the HIA released this year found that exposure to air pollutants associated with the well pads posed a greater risk to residents than exposure to chemicals through water or soil contamination, therefore "methods to reduce air pollution and monitor the air should be the focus of current and future pollution prevention."

But the researchers say a number of significant data gaps about human health impacts surrounding natural gas development, and a lack of health and environmental data, especially related to drinking water, hampered the authors' ability to forecast specific predictions about how great a portion of the community might be exposed or the magnitude of changes in disease rates due to the proposed Battlement Mesa project.

"There were a lot of unanswered questions raised," one researcher says.

Although the researchers are still struggling to complete the study, one source familiar with the Antero Resources' Battlement Mesa project says it has garnered a significant amount of attention, including from EPA and other federal agencies who appear to be eyeing HIAs as possible regulatory tools. "A number of different federal agencies seem interested in it as a direction the country is going," the source says.

One activist group, the Friends of the Upper Delaware River, are weighing use of the Battlement Mesa HIA as a model for launching one to study the health impacts of drilling in the Delaware River Basin, the source says.

Some environmentalists are also calling on the Obama administration to conduct a broader review of both human health and environmental impacts of drilling in the six Chesapeake Bay watershed states, warning that the drilling activities could undermine the administration's EPA-led efforts to protect the Bay.

A host of groups filed an April 4 petition to the White House Council on Environmental Quality (CEQ) seeking a comprehensive study to examine cumulative impacts and human health risks of gas extraction, as well as an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA).

And the study is also serving as a model for plaintiffs seeking damages and other legal remedies against drilling operators. One attorney has already approached Garfield County officials about using the study in a pending lawsuit, *Baker et al v. Anschutz Exploration Corporation et al*, where 15 residents of Horseheads, NY, are suing the gas company Anschutz in U.S. District Court for the Western District of New York for alleged contamination of drinking water and other health implications the plaintiffs argue were caused by drilling activities in the area.

And the draft HIA could likely to become ammunition in another piece of pending litigation where a western Colorado family is suing Antero and two of its subcontractors for contaminating their drinking water at their residence in Silt, CO, according to press reports.

While the study is already driving opposition to drilling operations around the country, one local official cautions that the study should not serve as a model in regions with different conditions. "You can't take this health impact assessment and apply it directly to another region to get the same effect -- people are trying to broaden the scope to block oil and gas development projects," one county official involved in the HIA says.

"Unfortunately, it's become a political instrument," the official says.

Citizens Petition

In response to a petition from local citizens' groups, Garfield County's commissioners in 2009 asked the Colorado School of Public Health researchers to lead the HIA to identify possible human health impacts associated with Antero Resources' plans to drill approximately 200 wells from 10 well pads within a planned unit development (PUD) at Battlement Mesa, CO.

The draft HIA included a human health risk assessment, crafted using EPA risk values for chemicals associated with natural gas production, such as benzene, toluene, xylene and formaldehyde, which finds that residents living within half a mile of a well pad would be exposed to air emissions at levels that caused increased risks of cancer, anemia, birth defects, and impaired lung function.

In addition to assessing health risks the project posed to citizens in eight different areas of concern, including air pollution, economic impacts, and water and soil contamination, the draft HIA lists a lengthy series of "priority" recommendations for mitigating risk, such as tight emissions control technology and full disclosure of all drilling chemicals used to a publicly accessible website.

Researchers completed a first draft of the HIA in 2010, but revised the assessment and released a second draft last February after the board of county commissioners requested that the study include more detailed recommendations for minimizing risk. The board of commissioners extended a comment period on the revised draft through April 27.

According to the draft HIA, "Currently, there is not enough information to determine whether or not current federal, state and Colorado Oil and Gas Conservation Commission regulations and rules are sufficient to protect public health from air pollution resulting from natural gas development and production in high population density areas such as the Battlement Mesa PUD."

The revised draft assessment is suggesting a bevy of measures Garfield County officials should require Antero to include in its development plans before granting them a special use permit authorizing the project.

For example, the draft HIA says the company should be required to launch a pilot test of emissions control technology the gas company is developing to prove that 24-hour ambient air samples of air pollutants like benzene, measured at specific distances from the well pad perimeter, do not exceed those measured at the Battlement Mesa monitoring station. Results of the test should be made public at least three months before commencing the drilling, the draft assessment says.

The draft study also calls for Antero to craft a quality assurance project plan to both the county commissioners and state regulators for review and approval of all monitoring proposals to assure their adequacy prior to drilling, and lays out a detailed monitoring program that would involve collection of 24-hour ambient air samples and real-time monitoring of volatile organic compounds (VOCs) and comply with EPA's Natural Gas STAR program, a voluntary program to limit releases, and Colorado state "green completion practices" to reduce VOC emissions to the "lowest level technically possible at all well pads within the PUD."

Antero should also be required to obtain a separate emissions permit from the state for every well pad production tank, though the state only requires permitting for tanks within a quarter mile of an occupied structure with the capacity for 5 tons per year of VOC emissions, which would only apply to some of the proposed tanks. "The ¼ mile distance in the rule is not based on a health-based air pollution standard, and the permit provides a mechanism for the establishment of inspection and monitoring requirements," the draft HIA says.

The draft recommendations also call for Antero to construct a fully functional water storage facility and water pipeline network prior to any drilling, and use the permitted tanks rather than a pond at the water storage facility to better control air emissions, as well as route tank emissions through a VOC combustor operated with auto-igniters on all of the well pads and use vapor recovery technology where available.

The draft HIA also suggests that the county appoint an inspector to monitor Antero's compliance with the special use permit, and that the permit contain provisions for regulatory action if Antero is found in non-compliance. -- *Bridget DiCosmo*

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