

Antero Resources DRAFT HIA Comment Review Meeting

January 7, 2011

10:00am – 12:00pm

Antero Resources Denver office

Attendees:

Antero Resources- Mark Kachmar, Robert Mueller, Kevin Kilstrom, Lars Inman, Rick Blankenship, Jerry Alberts, David Simon, Jon Black (by telephone)

Robert Strode – C & IH, technical consultant to Antero Resources

Colorado School Of Public Health (CSPH)- Dr. Roxana Witter, Dr. John Adgate, Dr. Lee Newman, Dr. Lisa McKenzie,

Jim Rada, Garfield County Public Health (GCPH)

Meeting Notes:

Dr. Witter began the meeting with introductions and thanks to Antero Resources for the time and effort they took in reviewing the draft HIA and providing thoughtful and useful comments for CSPH consideration.

Dr. Witter expressed that the anticipated outcome for the meeting would be a discussion of the key points in Antero Resources comments about the HIA so that all parties would gain a better understanding of the unique stakeholder perspectives so that responses to all stakeholder comments would adequately reflect that understanding.

Dr. Witter pointed out that this extended stakeholder effort is at the direction of the Garfield County Board of County Commissioners (BOCC). CSPH intends to meet individually with Antero Resources, Colorado Department of Public Health and Environment (CDPHE), Battlement Mesa citizens and the West Slope Colorado Oil and Gas Association. Meeting notes will be shared with the BOCC and the other smaller stakeholder groups throughout this interim stakeholder meeting period. Once the smaller meetings are completed, CSPH intends to hold a larger, full stakeholder meeting to share an overview of the meetings, gather any additional input, and set forth the planned process for the remaining drafting, public comment, and final reporting stages of the project.

Dr. Newman asked if there were any other items that needed to be discussed during this meeting. Mr. Alberts suggested some discussion about Antero's current air sampling efforts. Mr. Alberts gave a quick overview of the sampling indicating that the hope to continue to work with CSPH, CDPHE, and GCPH to ensure that the air monitoring results are defensible. Dr. Witter expressed her interest in continuing to work with Antero on air monitoring efforts. Dr. McKenzie indicated that although the Antero air sampling methods include slightly different list of analytes and slightly higher detection limits, the data should be useful in future analytical efforts. She also indicated that Quality Assurance Project Plans (QAPP) related to both Antero and CSPH air sampling efforts are available for review.

Dr. Witter continued with a discussion of planned modifications to the Draft HIA based on overall comments received including:

1. Numerous editorial comments presented by all reviewers. These were not discussed during the meeting but will be incorporated in the next draft.
2. Due to confusion raised by the ranking system used as part of the individual impact assessments, the numerical ratings will be removed and replaced with a qualitative rating.
3. A variety of changes to the Human Health Risk Assessment (Appendix D) are planned in response to technical comments including:
 - a. Average time of acute exposure will be reduced to 7 days from 365 days based on standard risk assessment protocols
 - b. Subchronic toxicity values will be used instead of chronic toxicity values for the acute exposure scenario
 - c. An elderly person receptor model will be added
 - d. The definition of "adjacent to a well pad" as less than ½ mile will be added based on last summer's odor issues at the Watson Ranch pad and the distance of farthest effected individuals
 - e. More recent air quality data will be incorporated including air quality data from GCPH air monitoring station in Battlement Mesa, VOC estimates from Antero's Watson Ranch air sampling, etc.

Discussion revealed additional available data that Antero agreed to provide including background ambient air samples from the Monument Ridge well pad, well water quality data from the area around Battlement Mesa, Watson Ranch air sampling data during production, and Watson Ranch noise monitoring data.

Dr. Witter continued with a discussion of the proposed Best Management Practices (BMP) information that Antero submitted with their comments. Dr. Witter suggested that although the information was useful, it was not presented in a manner that clearly stated what BMP will be used for the Battlement Mesa project or how they will be used on a site by site basis. This makes it difficult for the HIA team to determine the effectiveness of the various BMP in reducing the potential health impacts. Antero agreed to evaluate all BMP against the site specific plans for the project and provide more specific list of BMP to be used at each site to mitigate health impacts. Mr. Kilstrom expressed concern that much effort might be made to develop BMP that may have an overall minimal effect on reducing health impacts at certain sites. Therefore, not all BMP may be needed at all sites. It was suggested that specific information on BMP by site would help the HIA team evaluate BMP against priority health impacts and therefore allow the HIA Team to incorporate BMP into recommendations with more specificity. By prioritizing BMP to gain the greatest health impact reductions, this provides the greatest community health protection while giving Antero the greatest benefit for their investment. CSPH requested to work closely with Antero to prioritize the BMP for each site and Antero accepted the offer. As next steps, Antero asked that CSPH suggest specific health impact priorities so that Antero can focus on prioritizing their BMP efforts toward those things. CSPH agreed to work with Antero over the next two weeks to help establish health impact priorities. Antero agreed to target January 31 for getting all requested information regarding specific BMP to CSPH. Mr. Rada suggested that Antero provide information as to the relative impacts/emissions from ongoing, long-term maintenance work (i.e. pigging, workover, recompletion, etc) so that CSPH can address these processes in the overall health impact assessment. Antero agreed to provide any information they have available.

The discussion moved to the HHRA. As time was short, Antero said they would be attending the January 31 meeting with the WSCOGA for a more thorough discussion of the HHRA. There was concern that the two hours allotted for this meeting may be too short. CSPH agreed to consider this concern and evaluate whether more time would be needed or if the meeting focus would be on limited specific issues.

Mr. Strode briefly stated that his instructions to his own technical staff regarding the HHRA was to focus on the big picture issues, not on technical details with minor impact on the overall assessment. Dr. McKenzie raised a question about the estimates of typical time needed for well development that provide the duration and frequency inputs for risk scenarios in the HHRA. There was general agreement that different drilling scenarios really did not amount to a significant time difference so they would not really result in significant changes to the risk calculations. However, if Antero provides specific time estimates for well development, the HHRA will be revised accordingly. Mr. Strode suggested that he would arrange an offline meeting with WSCOGA to gain a better understanding of their positions regarding the HHRA and the methods their consultant used during the review of the draft HIA. CSPH also said that it was important for them to meet with WSCOGA to review the HHRA.

Dr. Witter moved on to discuss the references in the Antero comments to rules and regulations that govern oil and gas development and protection of public health. She indicated that CSPH understands that Antero intends to follow all applicable regulations with regard to this development project. She emphasized that some of the identified potential health impacts may not be adequately addressed in the rules and regulations. Additional considerations may be warranted considering the significance of the potential health impacts and site conditions. Mr. Mueller asked that recommendation reflect that Antero is conducting mitigation activities and that CSPH agrees with the impact of those specific mitigation efforts.

RECAP:

ASAP but no later than January 31 - Antero to provide background air quality sampling data from the Monument Ridge well pad, well water quality data from the area around Battlement Mesa, Watson Ranch air sampling data during production, and Watson Ranch noise monitoring data.

By January 24 - CSPH to work closely with Antero to prioritize the BMP for each site.

By January 31 - Antero target date for getting all requested information regarding specific BMP to CSPH including any information available as to the relative impacts/emissions from ongoing, long-term maintenance work (i.e. pigging, workover, recompletion, etc)

Before January 31 - Mr. Strode will arrange an offline meeting with WSCOGA to gain a better understanding of their positions regarding the HHRA and the methods their consultant used during the review of the draft HIA.

For next HIA draft - Mr. Mueller asked that recommendation reflect that Antero is conducting mitigation activities and that CSPH agrees with the impact of those specific mitigation efforts.

Remaining HIA Steps:

January – Small stakeholder group meetings

January 7, Antero and CDPHE

January 19, Battlement Mesa Citizens/Community representatives

January 31, West Slope COGA

February – Full Stakeholder meeting, update BOCC, meeting dates TBD
February 28 - 2nd draft HIA Release for Public Comment
March BOCC update, Stakeholder update
March 31, public comment period closes,
April 30, Final HIA release
May BOCC Briefing, Public meeting regarding final report