

Potential Exposure-Related Human Health Effects of Oil and Gas Development:

A White Paper

General Conclusions/Recommendations:

1. The literature review conducted in parallel with this white paper yielded important information regarding the impact of exposure on human health and welfare. A more comprehensive literature review that includes foreign language literature, older studies, reviews, formal assessment of quality of evidence, conflict of interest considerations, would be expected to yield additional useful information.
2. The available data and lines of evidence indicate that there is an acute problem with toxic emissions of uncertain proportions and a possible emergent problem for the health of the citizens of Garfield County.
3. The available data regarding the health and social impact of oil and gas development need further analysis.
4. Data, such as air and water quality data collected by the oil and gas companies, that may have been collected but are not in the public domain should be made available for analysis and publication.
5. In the interest of public health, the credible evidence currently available about the impact on the health and welfare of the population by oil and gas development requires action now as outlined in this white paper. It is important not to ignore what is already known.
6. There is an immediate need for specific information on exposures and the impact from oil and gas development on all aspects of human health. This white paper and literature review indicate a number of fertile areas for further study.
7. An adequate monitoring program should be developed through a rigorous scientific process that addresses all currently recognized data gaps and health risks. This process should be developed in a transparent and explicitly unbiased way.
8. A Health Impact Assessment (HIA) is a practical tool to evaluate future impacts, alternatives and appropriate strategies to promote and protect human health. An integrated HIA/EIS published in 2007 described the impact of oil development on Alaska's North Slope on the local Inupiat populations. (Werham 2007) The HIA findings predicted impact on health and social structure. The report provided recommendations for mitigation of these effects, thereby improving the probability that oil development could proceed with less adverse impact on the people who live in the region.
9. An HIA could provide framework for exposure assessment (from air and water quality monitoring), health data collection and monitoring (for example asthma, COPD incidence and prevalence, birth outcomes), and recommendations for mitigation of potential adverse effects.
10. Given that oil and gas extraction activities are known to use and produce chemicals that are hazardous to human health, and that these activities are occurring in close proximity to human populations in Garfield County a Health Impact Assessment of oil and gas development in Colorado should be done. At the present time there is no systematic collection of air or water quality data, assessment of exposure, nor of health or social

outcomes. Through an HIA, air and water quality monitoring systems and health and social outcome monitoring systems could be established. Given that even limited air and water quality studies revealed dangerous levels of benzene and other chemicals of potential concern, continued ignorance of the status of the air and water quality and the potential health impacts in Garfield County should not be considered acceptable. An HIA should be a critical component of planning for future expansion of oil and gas activities, so that these activities do not put local residents at risk. Because an Environmental Impact Statement is intended to consider the effects of the development in question on the “human environment” an HIA should be considered a necessary part of a complete Environmental Impact Statement. An HIA, or a similar assessment, should be a part of any oil and gas permitting process that occurs near human populations.. Without an HIA a comprehensive EIS should be considered incomplete.

11. While this white paper focuses on Garfield County, Colorado as an illustration of the potential exposure-related health impact of oil and gas development, the principles of exposure and the related health issues should be considered generally applicable wherever oil and gas development is occurring.

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