Chart 1. Results of Rounds 1-3 for statements that recommend setbacks for UOGD infrastructure. Consensus = 70%

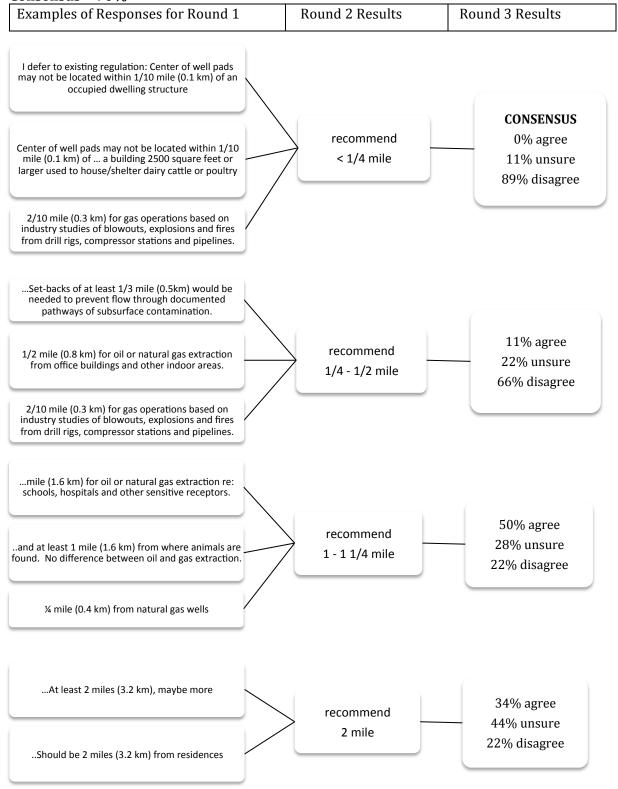


CHART 2. Results of Rounds 1-3 for statements on the feasibility of setbacks at any distance from UOGD infrastructure. Consensus = 70%

Examples of Round 1 Results Round 2 Results Round 3 Results

...These considerations apply equally to oil and gas production: Due to our inability, with current information, to predict dispersal pathways accurately, I do not think safe set-back distances can be determined.

response applies to both oil and gas. ...do not take a position on specific distances, in large part because there is no scientifically definitive distance beyond which health impacts would never occur. However, we believe that current setbacks from residential areas are much too short in all states. ...Clearly setbacks in residential areas should be longer than in industrial areas, where gas operations (and other polluting activities) would be clustered.

This is something that is difficult to determine because it depends on the hydrology and air currents

Do not have an opinion on an appropriate set-back distance because I don't believe there is enough evidence to inform an opinion.

There are no appropriate set-back distances for recreation areas near oil production. Ambient air quality is affected by VOCs. We have no proof of what constitutes a safe set-back distance. Cumulative effects have yet to be studied.

Again the distinction between oil and gas is not important. I think there are appropriate, science based setbacks that could be developed. I agree with the position that the ones that exist are not science based at all (or only limited science was used, e.g., 150 ft setback based on the height of a drill rig) and are based on political compromises.

It may not be feasible to recommend setback distances 67% agree 6% unsure 28% disagree

CHART 3. Results of Rounds 1-3 for statements that address the needs of vulnerable populations. Consensus = 70%

Round 1 Results Round 2 Results Round 3 Results

Populations that are particularly sensitive to the toxins known and suspected to be associated with fracking activities should have special protections; this includes children, neonates, fetuses, embryos, pregnant women, elderly individuals, and those with pre-existing medical or psychological conditions.

I would consider this a case where additional restrictions would be important. Oil and/or gas operations near hospitals and schools should simply not be allowed...

Yes, greater setback distances are warranted for schools, daycare centers, long-term care facilities, etc. for both oil and gas extraction.

Larger setback distances in gas extraction are critical to larger vulnerable groups because one must take into consideration evacuation time and route in case of a catastrophic well or related infrastructure event.

Setbacks (gas) should definitely be farther from schools, day care centers where children are located and long-term facilities where people who already have compromised health don't need it further compromised by poor air quality from unconventional gas development.

I am really unsure as to how to answer this because if air plumes travel and contribute to quality degradation of an entire region, it is likely that it would impact vulnerable populations regardless of physical proximity.

The distances mentioned above are set to protect vulnerable persons as they are all a significant part of every society.

Vulnerable populations are distributed throughout the environment. This is therefore an inadequate calculation to consider.

Regarding different set-backs for settings with vulnerable populations: Probably not. It appears that the most vulnerable populations are pregnant women and those with asthma, neither of which would necessarily be concentrated in specific facilities.

It makes sense to start with...longer setbacks on places used or inhabited by people with known vulnerabilities. However, there may be vulnerable individuals living, working, and spending time outdoors even in locations that are not specifically geared toward that population (for example, individuals with compromised immune systems, a history of cancer, or asthma).

recommend additional consideration for vulnerable groups **CONSENSUS**

89% agree 11% unsure 0% disagree

It may not be feasible to recommend additional considerations for vulnerable groups

39% agree 6% unsure 55% disagree