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MS. ARMSTRONG:

I'm Carol Armstrong. I live in the Delaware River Basin. I'm a neuropsychologist, scientist, and healthcare provider. I'm also a massive watershed steward and volunteer with the excellent environmental organizations that protect our clean water and biological diversity, which go hand-in-hand and without which, they would be lost.

My comments are in support of the DRBC's moratorium of all gas drilling, hydraulic fracturing, water controls, and discharges throughout the Delaware River Basin.

I am hopeful that the DRBC will rule that these bans are full and permanent in order to restore and conserve our

1 beautiful, exceptional,
2 congressionally designated
3 national wild and scenic river,
4 the Delaware, and the National
5 Delaware estuary, because of
6 their irreplaceable beauty,
7 source of drinking water, and
8 ecological productivity that
9 earned them protections from
10 commercial interests that
11 threaten them, despite
12 regulations.

13 Once this is damaged,
14 the balance cannot be restored
15 or recovered.

16 The DRBC has recognized
17 that water volumes needed for
18 fracking can adversely effect
19 aquatic ecosystems, river
20 channels, riparian resources
21 and wetlands.

22 The entire non-tidal
23 Delaware River is protected by
24 DRBC's federal protection water
25 regulations that state that the

1 water quality cannot be
2 diminished in any way. DRBC
3 policy is being broken by
4 permitting drilling and
5 fracking, such as the
6 importation of wastewater into
7 the Delaware Basin.

8 Further, drilling and
9 fracking could not be done
10 safely or without environmental
11 contamination. The method of
12 dilution and sequestration will
13 only --- will and have resulted
14 in slow and continuous decline
15 in groundwater and surface
16 water quality.

17 The EPA documents that
18 seven to nine percent of the
19 water projected for fracking is
20 permanently removed from the
21 water cycle.

22 Findings are that 80 to
23 90 percent more of water is
24 used in Marcellus and other
25 sites is fresh water and

1 developing methods for fracking
2 are requiring increasing
3 volumes of fresh water.

4 There is a shift in
5 social opinion, which is
6 merging most clearly in new
7 generations of voters, that the
8 value that comes from
9 environmental rights must not
10 take second place to the values
11 that come from commercial
12 development.

13 The risk for human
14 health and nature, the
15 concerned health professionals
16 of New York, and the Physicians
17 for Social Responsibility
18 reviewed at last count 685
19 peer-review papers
20 investigating gas drilling and
21 hydraulic fracturing.

22 The 2016 Fourth Edition
23 of their review showed a great
24 majority and growing consensus
25 of scientific evidence that the

1 risks of this type of activity
2 include earthquakes, adverse
3 impacts on water, on air, on
4 agriculture, on public health
5 and safety, on property values,
6 on claims, disability, and on
7 economic vitality.

8 They, quote, uncovered
9 no evidence that fracking can
10 be practiced in a manner that
11 does not threaten human health,
12 end quote.

13 The long-term effects
14 are unknown because government
15 resisted inquiries, especially
16 about long-term risks. For
17 example, the introduction of
18 hundreds of new chemicals in
19 fracking, most of which are not
20 now and never investigated for
21 long-term effects on humans and
22 ecology is extremely
23 concerning.

24 There needs to be
25 monitoring of the changes to

1 water supply in the hydrologic
2 cycle and analysis of how water
3 removal and discharge from
4 fracking is affecting our water
5 resources. A scientific study
6 with resulting knowledge about
7 the health of our environment
8 is one of the most important
9 contributions I can think of
10 for future generations.

11 HEARING OFFICER:

12 Jan Filios will be next.
13 And then Theresa Heinsler. And
14 then Wendy Goetz. Is this Ms.
15 Filios?

16 MS. FILIOS:

17 Yes.

18 HEARING OFFICER:

19 Whenever you're ready.

20 MS. FILIOS:

21 Thank you. Yes. Jan
22 Filios. I'm a Bucks County
23 resident and property owner. I
24 concur completely with the
25 previous speakers.