

1 after Gail Domalakes it will be Tara
2 Zrinski. Okay. Mr. Heindel.

3 MR. HEINDEL:

4 I'm Ned Heindel. I live
5 in the Fry's Run watershed area. In
6 fact, we own the headwaters of Fry's
7 Run in Lower Williams Township. I have
8 a Ph.D. in pharmaceutical chemistry and
9 I have taught the last 52 years at
10 Lehigh University in the area of health
11 science. I've taken graduate courses
12 in toxicology. I have 320 publications
13 in the area of toxicity of chemicals in
14 a beneficial way, as to how they can be
15 controlled.

16 I'm here to talk about a
17 few of the chemicals that are used in
18 fracking, but I'd like to start with a
19 quote from Francis Von Holkeim
20 (phonetic) in 1555. Professor Von
21 Holkeim said the only thing that
22 separates a toxin from a medicine is
23 the dose.

24 We seem to lose of the
25 fact that while we all have a common

1 human genome, we process chemicals
2 differently.

3 We process
4 pharmaceuticals rather markedly
5 differently. For one example, many of
6 us clear, inhale and ingest benzene and
7 metabolize it as benzene. We do have
8 differences in human metabolism, and
9 it's critical to understand that
10 because something that is safe for a
11 lot of the population, may not be safe
12 for all of the population.

13 We have idiosyncratic
14 metabolic differences. 352 chemicals
15 have been identified as being part of
16 the cocktail used in fracking. That's
17 the number that is studied by a man
18 named Colburn, said go down wells. The
19 number that come up is even larger
20 because it has an extracted effect. A
21 review of the 352 chemicals used in the
22 United States for fracking, shows that
23 25 percent are demonstrated for
24 potential carcinogens, 45 percent have
25 an effect on the immune system and 37

1 percent have a long lasting effect on
2 the endocrine system.

3 Chemical effects can
4 occur long after the exposure. I give
5 you just a couple examples of that.
6 Individuals exposed to one of many
7 toxic gases like dichloromethyl sulfide
8 develop immune system collapse 20 years
9 afterwards. Streptozotocin toxins are
10 cumulative toxins for --- to self
11 poisoning.

12 You've got to consider
13 that these low level chemicals which
14 then are not removed quantitatively by
15 cretin --- and remain in the drinking
16 water can have cumulative effects
17 differentially across the human race.

18 I would like to ask the
19 committee if they would receive from me
20 --- and they can throw it in the
21 nearest wastebasket, ten recent
22 publications, one from last week's
23 issue of the journal showing you a
24 correlation of exposure to fracking
25 chemicals and human ---.