MORE ABOUT WHY A HEALTH IMPACT ASSESSMENT IS NEEDED AROUND THE PROPOSED COMPRESSOR STATION 206 SITE

HEALTH CONCERNS FROM COMPRESSOR STATION 206 AIR EMISSIONS – BACKGROUND INFORMATION

NJDEP already granted Williams/Transco an Air Pollution Permit (September 2017) because they considered the facility to be a "minor" source of air pollution, and all threshold standards were met for estimated emissions.

EPA has set NAAQS for 6 air pollutants called "criteria pollutants" –

- Ground-level ozone or smog (O_3)
- Nitrogen Oxide (NOx)
- Carbon Monoxide (CO)
- Particulate Matter (PM) - PM_{10} and $PM_{2.5}$
- Lead (Pb)
- Sulfur Dioxide (SOx)

PARTICULATE MATTER emissions are mostly at the point where natural gas is burned (i.e., at the compressor station). It can get deep into lungs & carries other toxic chemicals with it. Modeling has shown that it can travel 2.5 to 6 miles away in the air.

DANGERS: heart attacks, kidney disease/failure, chronic bronchitis, decreased lung function, aggravated asthma & premature death

GROUND-LEVEL OZONE OR SMOG (O_3) is not directly emitted into the air. It develops as a result of a chemical reaction between NO_x and VOCs (volatile organic compounds) in the presence of sunlight. Ozone's precursors (VOCs & NO_x) are regulated to control the potential for ozone formation.

Estimated emissions*, **in tons per year (tpy)**, from Compressor Station 206 for the 6 NAAQS "criteria pollutants" were listed by Williams/Transco to be:

Ground-level ozone precursors:
- *Volitile Organic Compounds (VOC) = 8.35 tpy*
- Nitrogen Oxide (NO_x) = 22.74 tpy

Lead (Pb) = none
Carbon Monoxide (CO) = 56.86 tpy
Particulate Matter (PM_{10}) = 18.94 tpy
Particulate Matter ($PM_{2.5}$) = 18.94 tpy
Sulfur Dioxide (SO_2) = 3.07 tpy

**** Note: These amounts appear to be for one turbine/smokestack when looking at Caterpillar's specification sheets for the Solar MARS 100 turbines.***

Emissions of **Greenhouse Gases** (GHGs) are typically expressed in terms of CO_2 equivalents (CO_2e). Williams/Transco expects that CS206 will emit 132,720 tpy.

***Estimated* caustic chemical emissions, in pounds per year (lbs/yr)**, from two turbines at Compressor Station 206 were listed by Williams/Transco to be:

Formaldehyde= 668 lbs/yr	Ammonia = 29,580 lbs/yr *	Acrolein = 14 lbs/yr
Acetaldehyde = 88 lbs/yr	Ethylbenzene = 70 lbs/yr	Benzene = 26 lbs/yr
Toluene = 285 lbs/yr	Propylene Oxide = 63 lbs/yr	Xylenes = 140 lbs/yr

** No threshold standards*

Plan of Williams/Transco = to build a natural gas-powered compressor station (CS206) between Trap Rock Quarry (air emissions, noise + blasting) & Higgins Farm Superfund Site (groundwater contamination)

NEED FOR A HEALTH IMPACT ASSESSMENT

In the DEIS, FERC decided that there was no need to do a Health Impact Assessment for people around Compressor Station 206 site due to the size of the facility & the limited impact on air quality from emissions.

★ ***This is not acceptable because the cost to our health is not a factor considered by FERC. If costs or other types of data are deliberately left out of an environmental impact statement, the quality of decision-making is flawed.***

- The proposed compressor station will emit toxic chemicals that can cause health issues including cancer, childhood leukemia, birth defects, developmental delays, immunological disorders (including asthma and allergies) & increased risk for heart attacks, strokes, neurological issues, lung diseases, sleep issues, breathing disorders and kidney disease.

1. Impacts of CS206 on air quality in immediate area were not studied.

- There was no local assessment of air quality emissions that included the airborne pollutants from the mining operations of Trap Rock Quarry in combination with the anticipated emissions from Compressor Station 206.
- There was no measurement of air quality at the compressor station site. Existing air quality measurements came from EPA/State ambient air quality monitoring stations in North & East Brunswick, Elizabeth & Philadelphia. Concern = Adding emissions from the compressor station to those from Trap Rock Quarry's operations & trucks.

2. Impacts of chemical emissions on elderly, young & pregnant women weren't specifically considered.

- There are many senior citizens living very close to the proposed compressor station site, and they are one of the groups most at risk for complications from these chemical air emissions.
- Over 165,000 people live in Franklin + South Brunswick + Montgomery + Rocky Hill + Princeton.
- The Buddhists, whose property is adjacent to the compressor station site, complete much of their religious practices outside, and their extended meditation trails would be extremely close to the compressor station.
- The toxic chemicals in the air can spread for miles in any direction, depending on how the wind blows.
- FERC did not reference current studies that show a strong correlation between increased health issues & air pollution around compressor stations. *(see some studies listed in references, below)*

3. Estimates and threshold standards were used to determine impact without exploring actual emissions from another Solar Mars 100 compressor, and not all chemical emissions are required to be measured.

- Saying that health is protected by meeting National Ambient Air Quality Standards (NAAQS) that only measure certain air pollutants does not account for:
  - other chemicals that will be emitted;
  - the potential for acute exposure to toxic chemicals released to the air that are greater during blowdowns and are not consistent from hour to hour; or
  - the possibility that the decay product of radon (lead) could be in the pipelines & compressor station since at least some of the gas comes from Marcellus Shale fracking regions.
- We already live in an ozone-comprised area. Emissions from the compressor station, along with leaks at the station and from pipelines, will make ozone worse.
- FERC's DEIS did not include a health impact analysis of each of the chemicals that will be released into the air or an analysis of the interactive impact of multiple chemicals emitted at the same time.
- Williams/Transco does not say where the gas will come from but, knowing part is from the Marcellus Shale region in Pennsylvania, there is reason to believe that there will be Radon in the gas. Radon breaks down into lead when it travels, and this sticks to the inside of the pipes.

Emissions predicted by Williams/Transco for two (2) Solar MARS turbines & New NJDEP Reporting Thresholds

	To be emitted	N.J.A.C. 7:27-17.9 thresholds (February 2018)
Formaldehyde	668 lbs/yr	3.5 lbs/yr
Acetaldehyde	88 lbs/yr	21 lbs/yr
Acrolein	14 lbs/yr	1 lb/yr
Benzene	26 lbs/yr	6 lbs/yr
Ethylbenzene	70 lbs/yr	19 lbs/yr
Naphthalene	2.856 lbs/yr	1.4 lbs/yr
Propylene Oxide	63 lbs/yr	12 lbs/yr
Toluene	285 lbs/yr	
Xylenes	140 lbs/yr	
Ammonia	29,580 lbs/yr *	

** No threshold standards*

Figures for new thresholds from: Aucott, M. (2018, May 10). Air Quality Review of Transco's Northeast Supply Enhancement (NESE) ("Project"), FERC Docket No. CP17-101-000. Accessed from FERC docket CP17-101 - Accession No. 20180514-6168(32885359).

Emissions from gas-fired compressor stations are linked to significant health impacts – some studies:

Bowe, B., Xie, Y., Li, T., Yan, Y., Xian, H. & Al-Aly, Z. (2017, September 21). Particulate matter air pollution and the risk of incident CKD and progression to ESRD. Journal of American Society of Nephrology, 29: 218-230. Retrieved from http://jasn.asnjournals.org/content/29/1/218.full.pdf+html

Casey, J.A., Ogburn, E.L., Rasmussen, S.G., et al. (2015, April 9). Predictors of indoor radon concentrations in Pennsylvania, 1989–2013. Environmental Health Perspectives 123:11, 1130-1137. Accessed at: https://ehp.niehs.nih.gov/wp-content/uploads/123/11/ehp.1409014.alt.pdf

Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction) (5th ed.) (2018, March). Concerned Health Professionals of New York & Physicians for Social Responsibility. Retrieved from http://concernedhealthny.org/compendium/

Increased Levels of Radon in Pennsylvania Homes Correspond to Onset of Fracking. (2015). Johns Hopkins Bloomberg School of Public Health. Accessed at: https://www.jhsph.edu/news/news-releases/2015/increased-levels-of-radon-in-pennsylvania-homes-correspond-to-onset-of-fracking.html

Kloczko, N. (2015, November). A brief review of compressor stations. Southwest Pennsylvania Environmental Health Project. Retrieved from http://www.environmentalhealthproject.org/files/A%20Brief%20Review%20of%20Compressor%20Stations%2011.2015.pdf

NY Compressor Station Report. Retrieved from http://www.environmentalhealthproject-ny.org/

70 chemicals released from compressor stations are linked to 19 of 20 major categories of human disease.

Qian Di, M.S., Yan Wang, M.S., Antonella Zanobetti, Ph.D., Yun Wang, Ph.D., Petros Koutrakis, Ph.D., Christine Choirat, Ph.D., Francesca Dominici, Ph.D., and Joel D. Schwartz, Ph.D. (2017 June 29). Air Pollution and Mortality in the Medicare Population. The New England Journal of Medicine. N Engl J Med 2017; 376:26, 2513-22.

Russo, P.N. & Carpenter, D.O. (2017, October 12). Health effects associated with stack chemical emissions from NYS natural gas compressor stations: 2008-2014. Institute for Health and the Environment - A Pan American Health Organization / World Health Organization Collaborating Centre in Environmental Health, University at Albany. Retrieved from https://www.albany.edu/about/assets/Complete_report.pdf

Summary of Minisink Monitoring Results.
Retrieved from http://www.environmentalhealthproject.org/resources/10/click/5

Summary on compressor stations and health impacts. (2015, February 24). Southwestern Environmental Health Project. Retrieved from http://www.environmentalhealthproject.org/files/Summary%20Compressor-station-emissions-and-health-impacts-02.24.2015.pdf

The hazards of a compressor station: A town wakes up to the realities of corporate deception. (2015, November). Retrieved from http://350ma-berkshires.org/the-hazards-of-a-compressor-station-a-town-wakes-up-to-the-realities-of-corporate-deception/

> *Dr. Nordgaard's [Boston pediatrician] "main point was that the EPA limits do not closely reflect actual human health risks. The closer you are to the compressor station, the worse the symptoms experienced. Both doctors [Dr. Nordgaard & Dr. Sheila Bushkin-Bedient, physician at Albany's Institute for Environmental Health] agreed that many of these chemicals are known carcinogens and respiratory irritants, but that an even greater danger would come from their synergistic combinations, some of which have never before been tested on humans."*