Williams/Transco did not demonstrate a "compelling public need" for the NESE Project that meets requirements of NJ's Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A-10.4 or, alternatively, demonstrate an extraordinary hardship from denial of a permit.

Additionally, the "need" for the NESE Project has been refuted by reports, and the needs of the State that are currently focused on fighting climate change impacts would be harmed by the NESE Project despite claims by Williams/Transco about "benefits" to New Jersey.

According to the Freshwater Wetlands Protection Act Rules, N.J.A.C. 7:7A-1.3, "Compelling public need" means that based on specific facts, the proposed regulated activity will serve an essential health or safety need of the municipality in which the proposed regulated activity is located, that the public health and safety benefit from the proposed use and that the proposed use is required to serve existing needs of the residents of the State, and that there is no other means available to meet the established public need.

A. Williams/Transco cannot claim to have demonstrated "compelling public need" under the Freshwater Wetlands Protection Act Rules simply because the company has demonstrated "need" for the purposes of a FERC Certificate. "Need" and "compelling public need" are separate and distinct determinations.

B. Transco cannot use its own failure to conduct the proper due diligence at the outset of this project as a basis for satisfying the "extraordinary hardship" requirement of the Freshwater Wetlands Protection Act Rules.
   - Transco implies that the reclassification of certain wetlands on the proposed site to "exceptional resource value" was sudden and unforeseeable.
   - In fact, the citizen who submitted the "Rare Wildlife Sighting Report Form" that ultimately led to this reclassification has stated that she has heard the calls of the barred owl from the forest on or near her property over the last 40 years.

C. The **existing needs of the State** are to address and build resiliency from impacts of climate change, reduce ozone levels and, as is noted in Governor Murphy's Executive Orders and plans like NJ's Energy Master Plan and NY's Climate Leadership and Community Protection Act, to reach a goal of 100% clean energy by 2050. Increased greenhouse gas emissions from NESE, which are significant contributions to climate change effects, would also indirectly impact water and coastal resources. Adding construction and operations emissions, unearthing and spreading toxics currently buried beneath the seafloor, and perpetuating our reliance on fossil fuels does not address the needs of the State or the health and safety of residents.

D. The NESE Project **does not serve an essential health or safety need** of the municipality in which it would be constructed, and its proposed use does not serve existing needs of residents of the State. The health and safety of residents and visitors to the municipalities where construction and operation of NESE is proposed would, in contrast, be harmed by air pollution emissions and construction activities that would spread toxics into the air, soil and water.

   - Claims by Williams/Transco that the NESE Project would improve air quality because they would fund NO_x reducing projects as part of a requirement for General Conformity - since the construction would emit levels of NO_x that exceed acceptable standards - avoids recognition of operational methane leaks and toxic emissions from the compressor station that are not NAAQS elements and do pose health-related threats.

   - Claims by Williams/Transco that the access road would serve an essential safety need of Franklin Township for construction, maintenance and operation is ridiculous since these all benefit Williams/Transco. The lack of thorough planning and proposals for alternatives for the access road and pipeline tie-in that would avoid exceptional resource value wetlands and transition areas was apparent in the lack of submitted studies and surveys for these alternatives.

- Additionally, it seems that Williams/Transco is now planning to install potable water tanks at the Compressor Station 206 site, and there are no functioning fire hydrants on site or close to the surrounding forest to use in case a fire or explosion ignites the trees. This does not serve an essential safety need of Franklin Township.

- Furthermore, stating that the State would suffer hardship without the NESE Project's purported increase in reliability and economic and air quality benefits also belies logic. The NESE Project would damage our air quality, and New Jersey (which would not receive any of the transported gas from NESE) is moving away from reliance on fossil fuels and toward significant reductions in greenhouse gases. In addition to increased air pollution from both construction and operation, NESE threatens the economy of New Jersey by constructing through toxic sites on land and in the waters as well as indirectly affecting the health of New Jersey residents and those associated with its fishing industry. Thus, any assertion that a denial of permits would cause undue hardship is false.

- Williams/Transco's suggestion that NJ can change their regulations where "compelling public need" is defined, and their assertion that this component of the regulation exceeds what is permitted under the Clean Water Act, are contentions that may need to be settled in the courts.

Air Quality & Health Impacts

I. Air Pollution from Compressor Station 206 and Health Risks
II. Health Impacts from Increased Risk of Flooding
III. Spreading Toxic Elements from Soils and Seafloor from Construction

NJDEP is required to consider the health and safety needs of the community when reviewing applications.

Risks of increases in flooding, along with secondary impacts from climate change's unique risks that threaten the health and well-being of families and communities, were not adequately addressed in the applications to NJDEP for permits.

A. Construction of the NESE Project would create issues involving increased risks of flooding and stormwater runoff that could possibly carry contaminants from Superfund Sites and other contaminated groundwater or soils to residences, wetlands, and water supply sources. This risk is from:
   - Tree clearing
   - Building the compressor station facility on ground with a high water table and shallow bedrock without adequately addressing stormwater runoff
   - Digging in shallow clay soil that already does not allow for good infiltration and, worse, would produce sulfuric acid when this clay is exposed to air - This creates soil that would not support revegetation and, then, will be more problematic for erosion and flooding. In this area of the Madison Loop, there is also the possibility that soil and groundwater contaminants could be exposed and carried with flood waters since construction is planned to be through or near the Road Department Garage Area 3-1, Global Sanitary Landfill, E.I. DuPont DeNemours & Co. site, and the Morgan Ordnance Depot.

B. Extreme weather events not only result in damage to property, businesses, infrastructure and the environment, but also trigger costly health risks.

I. Air Pollution from Compressor Station 206 and Health Risks

Freshwater wetlands are in the area around the proposed compressor station, and there was not a comprehensive analysis of the impacts to the wetlands from the compressor station's air emissions. Though the Clean Water Act does not require consideration of this, the NJDEP is required to

consider the health and safety needs of the community when reviewing the Freshwater Wetlands Permit Application.

The NJDEP recently adjusted reporting thresholds for Air Toxics (February 2018) and, using these more restrictive levels which are currently considered to be protective of human health, the "HAP emissions from each of the two Mars 100 turbines exceed reporting thresholds for formaldehyde, acetaldehyde, acrolein, benzene, ethylbenzene, naphthalene, and propylene oxide." [Accession No. 20180514-6168(32885359) on the FERC docket for NESE at CP17-101]

Compressor Station 206 emissions:

210,000 cubic feet per minute (CFM) of exhaust at a temperature of 849.2 degrees Fahrenheit at the top of the two 50' smokestacks - In addition to emitting 130,942 tons per year of **Carbon Dioxide** (CO_2), the following airborne toxins will be **emitted each year**:

- 57 tons of **Carbon Monoxide** (CO)
- 23 tons of **Oxides of Nitrogen** (NO_x)
- 3 tons of **Sulfur Dioxide** (SO_2)
- 0.35 tons of **Formaldehyde**
- 18.9 tons of **Particulate Matter 2.5 micrometers** ($PM_{2.5}$)
- 18.9 tons of **Particulate Matter 10 micrometers** (PM_{10})
- 9.5 tons of **Volatile Organic Compounds** (VOCs)

Emissions of caustic chemicals predicted by Williams/Transco for two (2) Solar MARS turbines at proposed Compressor Station 206 & NJDEP Reporting Thresholds (old & new)

EMITTED CHEMICAL	POUNDS PER YEAR			
	To be emitted		Reporting Thresholds (NJDEP)	
			new	*old*
	from one turbine	**from two turbines**	N.J.A.C. 7:27-17.9	N.J.A.C. 7:27-8
			(February 12, 2018)	(February 27, 2015)
Formaldehyde	334	**668.6**	**3.5**	400
Acetaldehyde	44	**87.84**	**21**	1,800
Acrolein	7.02	**14.06**	**1**	8
Benzene	13.18	**26.36**	**6**	87.6 (0.01 lbs/ hour)
Ethylbenzene	35.2	**70.26**	**19**	2,000
Naphthalene	1.428	**2.86**	**1.4**	2,000
Propylene Oxide	31.8	**63.68**	**12**	1,000
Toluene	142.5	**285.46**		2,000
Xylenes	70	**140.54**		2,000
Ammonia	14,790 *	**29,580 ***	** No threshold standards*	

NESE was given an Air Pollution permit (9/7/17) by the NJDEP before new, more protective standards were in effect. As seen in the table above, HAPs Emissions from one turbine exceed the current reporting thresholds used by NJDEP.

Relying on NAAQS as protective of human health overlooks the other toxic airborne emissions from CS206. Additionally, there are studies showing that NAAQS levels are not truly protective of human health (see below).

Air Pollution & Health Issues about the proposed Compressor Station 206:

- Over 165,000 people live in Franklin Township + South Brunswick + Montgomery + Rocky Hill + Princeton, and the plumes of airborne pollutants from Compressor Station 206 could reach these communities, depending on weather conditions.
- 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. Their walking meditation trails would be 450-feet from CS206 construction and 1,225-feet from the CS206 building.
- The proposed Compressor Station 206 would be right next to an active mining operation, Trap Rock Quarry, and there was no accounting for the concentrated and synergistic impacts of emissions from these two industrial operations on local populations in any of the analyses done by FERC. The CS206 building would be 2,100-feet from the nearest face of Trap Rock Quarry.
- Ambient air quality samplings were taken from stations that are not in the immediate area. The separate stations in North Brunswick, East Brunswick, Elizabeth & Philadelphia do not measure all NAAQS (each only measures a particular air pollutant).
- No on-site (truly local) baseline for air pollution has been established by taking ambient air quality sampling from monitoring stations that should be on-site. This would include modeling of emissions from two turbines at Compressor Station 206 in combination with local ambient air sampling that would include air pollution from Trap Rock Quarry's operations.
- There's no requirement to install on-site air monitors for continual monitoring of all the airborne chemical emissions.
- No analysis of high heat & high volume emissions to a rural pocket within densely populated Central Jersey was completed. This is worrisome because the manufacturer of the Solar Mars 100 turbines does not warranty emissions of SO_2, $PM_{10/2.5}$, VOCs, and formaldehyde due to erratic operation turbine as confirmed by "Any emissions warranty is applicable only for steady-state conditions." This actually refers to all emissions, and changes in turbine load produce erratic chemical emissions. Solar Mars 100 turbines are old technology, and their manufacturer confirmed that combustion exhaust temperature increases at lower than 100% load along with emitting more unburned fuel and chemical byproducts.
- No separate evaluation and analysis of the anticipated emissions during planned and unplanned blowdowns at Compressor Station 206 was provided, and this is a concern because increased reporting of health issues has been found to correlate with timing of these events around other compressor stations.
- The health of all, especially vulnerable populations, is not truly protected by State and Federal standards, as was found in some studies showing statistically significant increases in health issues like kidney failure and death that were associated with long-term exposure to particulate matter levels that were BELOW the "safe" standards of the NAAQS.
- 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.
- The toxins can be carried downwind from the compressor station to residents in surrounding areas, impacting people living within a six mile radius of the compressor station. Emissions would include particulate matter and volatile organic compounds including benzene, toluene, hexane and xylene, and formaldehyde.
- We live in a nonattainment area for ozone, and emissions of NO_x and VOCS, precursors to ozone, would not aid attempts to reduce ozone which is highly correlated with significant health issues.

- No agency has agreed to conduct a Health Impact Assessment around CS206. Applications & reviews clearly omitted health impact assessments of continuous toxic airborne chemical emissions. No studies were provided about health impacts of all the chemical emissions (cumulative) – especially over time & also during peak emissions (blowdowns). This is especially important for the monks and congregants at the NJ Buddhist Vihara & Meditation Center where walking meditation is a regular practice, and outdoor activities for children happen often.

Health Risks from the Airborne Chemicals to be released from CS206:

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.

- Formaldehyde, Acetaldehyde and Benzene, that will be released by the proposed Compressor Station 206, are known carcinogens and mutagens (which are substances that cause genetic mutations).[2-4] Acetaldehyde's and Toluene's Hazardous Substance Fact Sheets clearly state in capital letters that the chemicals are known teratogens, which are substances that cause birth defects.[3,5] Acetaldehyde is implicated as the cause of fetal alcohol syndrome through its inhibiting effects on DNA synthesis, placental amino acid transport, and development of the fetal brain.[6]
- Children may be exposed to higher concentrations of Toluene since it is denser than air and its vapors stay closer to the ground. Also, children have faster breathing rates than adults and may therefore breathe in more Toluene. In older children and adolescents, repeated exposure to Toluene has been associated with loss of muscle control, loss of memory, poor balance, and decreased mental abilities. Some of these changes may last for a long time after Toluene has left the body. Exposure to Toluene during pregnancy has been associated with birth defects, including retardation of mental abilities and growth.[5,7]
- Repeated exposure to Benzene can cause aplastic anemia, a life-threatening blood disorder resulting from damage to the bone marrow and blood cell-producing stem cells, which leaves the individual vulnerable to sepsis and hemorrhage.[4]
- Acetaldehyde, Benzene, Toluene, Ethyl Benzene, Naphthalene, and Xylenes have been associated with neurological problems, including headache and dizziness.[3-5,8-10] Ethyl Benzene is a known hepatotoxin, producing liver damage.[8]
- Seizures and cardiac arrhythmias have been associated with high exposure to Benzene.[4] Repeated exposure to Xylenes can affect concentration and memory as well as vision and can lead to muscle coordination problems.[10]
- Toluene, Ethyl Benzene, Naphthalene (the active ingredient in moth balls), and Xylenes can damage the liver and/or kidneys.[5.8,9,10] Formaldehyde, Acetaldehyde and Naphthalene also cause skin allergies.[2,3,9] Repeated exposure of Naphthalene can lead to anemia.[9] Repeated exposure to Toluene can cause brain damage.[5]
- Formaldehyde, Benzene, Toluene, Ethyl Benzene, Naphthalene, and Xylenes are absorbed into the body via the lungs and skin thereby increasing the risk of exposure.[2,4,5,8-10] All the compounds released from Compressor Station 206 could cause skin, eye and/or respiratory irritation.[1-5,8-10]
- In addition to these human effects, wildlife is also subject to these effects as is our delicate ecosystem of the wetlands.

References:

1. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Ammonia.** http://www.nj.gov/health/eoh/rtkweb/documents/fs/0084.pdf Accessed 4/15/18.

2. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Formaldehyde.** http://nj.gov/health/eoh/rtkweb/documents/fs/0946.pdf Accessed 4/15/18.

3. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Acetaldehyde.** http://www.nj.gov/health/eoh/rtkweb/documents/fs/0001.pdf Accessed 4/15/18.

4. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Benzene.** http://nj.gov/health/eoh/rtkweb/documents/fs/0197.pdf Accessed 4/15/18.

5. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Toluene.** http://nj.gov/health/eoh/rtkweb/documents/fs/1866.pdf Accessed 4/15/18.

6. Gilbert-Barness E. Teratogenic causes of malformations. Ann Clin Lab Sci. 2010; 40(2): 99-114. http://www.annclinlabsci.org/content/40/2/99.full Accessed 4/15/18.

7. Agency for Toxic Substances and Disease Registry. **Public health statement on Toluene**. https://www.atsdr.cdc.gov/phs/phs.asp?id=159&tid=29 Accessed 4/15/18.

8. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Ethyl Benzene.** http://nj.gov/health/eoh/rtkweb/documents/fs/0851.pdf Accessed 4/15/18.

9. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Naphthalene.** http://nj.gov/health/eoh/rtkweb/documents/fs/1322.pdf Accessed 4/15/18.

10. New Jersey Department of Health. Right to Know Hazardous Substance Fact Sheet. **Xylenes.** http://nj.gov/health/eoh/rtkweb/documents/fs/2014.pdf Accessed 4/15/18.

NOTE: See Appendix for the CS206 Emissions - Health Impact Reference.

Risks of long-term exposure to airborne toxins from natural gas-fired compressor stations have been documented.

In the Application from Williams/Transco for NESE, they report an expectation, based on modeling, that $PM_{2.5}$ emissions for Compressor Station 206 and background air would approach the minimally "acceptable" thresholds:

Annual: 10.1 microgram/m^3 (EPA-NAAQS threshold: 12 microgram/m^3)
24-hour 32.1 microgram/m^3 (EPA-NAAQS threshold: 35 microgram/m^3)

A study of nearly 2.5 million veterans followed for over eight years concluded that there is a significant association between exposure to airborne Particulate Matter (PM2.5) and kidney disease. The authors found that levels of PM2.5 that were below the EPA threshold of 12 microgram/m^3 were associated with risk of Chronic Kidney Disease (CKD) and end-stage renal disease (ESRD).

Source: 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

Another study of over 60 million Medicare beneficiaries (2000 to 2012) looked at long-term exposure to PM2.5 and ozone at levels below the NAAQS. Findings revealed significant evidence of adverse effects related to exposure to PM2.5 and ozone at concentrations below the national standards. This showed increased risk of death in this population when they were exposed to levels that were below those considered to be protective of our health.

Source: 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

The following was documented in the report, Health Effects Associated with Stack Chemical Emissions from NYS Natural Gas Compressor Stations: 2008-2014, a technical report prepared for the Southwest Pennsylvania Environmental Health Project, a non-profit organization of medical professionals and public health scientists, and highlighted in a summary in http://www.environmentalhealthproject-ny.org/ -

- Emissions occur continuously during normal operations, as hazardous pollutants carried with the gas are vented or leak from equipment. They can also occur during routine maintenance operations such as "blowdowns" when large amounts of chemical contaminants are released into the air intentionally.
- Emissions from natural gas compressor stations are known to cause both acute and chronic health impacts. Some occur at a relatively steady rate, while others occur in episodic peaks. Weather conditions and wind direction may affect an individual's actual exposure. As a result of these factors, **acute health symptoms may be persistent, episodic or temporary**.
- The episodic intense peak exposures, which may last for minutes to several hours, can precipitate acute health symptoms, even though the total emissions averaged over a 24-hour or longer period can appear to be much less.
- Exposure to the air contaminants increases an individual's risk for the development of or worsening of pre-existing respiratory or cardiovascular disease. In addition, some of the contaminants have adverse neurologic effects; others are carcinogenic.
- As with other air pollution, those at increased risk include children, developing fetuses, the elderly, and individuals with chronic respiratory or cardiovascular disease.
- ***Acute health effects from short-term exposures:***
  - *Headache*
  - *Dizziness*
  - *Fatigue*
  - *Insomnia*
  - *Coughing*
  - *Confusion*
  - *Nausea*
  - *Skin Irritation*
  - *Eye & throat irritation*
  - *Acute respiratory problems*
  - *COPD and asthma exacerbation*
  - *Memory problems*
  - *Acute cardiac events*
  - *Acute cardiac events*
  - *Chest pain*
- ***Chronic health impacts from long-term exposures:***
  - *Anemia*
  - *Lung and other respiratory cancers*
  - *Leukemia and lymphoma*
  - *Breast and genital cancers*
  - *Bladder and urinary cancers*
  - *Bone cancer*
  - *Lip and other oral cancers*
  - *Endocrine disruption*
  - *Permanent neurological problems*

Source: 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. ***Accessed at:*** https://www.albany.edu/about/assets/Complete_report.pdf

Certain combinations of air pollutants have synergistic effects. For example, $PM_{2.5}$ and carcinogens are more dangerous together because particulate matter absorbs pollutants and then carries them deep into the lungs. According to the Southwestern Environmental Health Project's *Summary on compressor stations and health impacts* (2015, February 24), the combination of particles and chemicals effectively increases the dose of the chemical. Thus, the consequences are much greater than additivity would indicate.

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

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

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. Accessed at: http://concernedhealthny.org/compendium/

Gottleib, B. & Dyrszka, MD, L. (2017 February) Too Dirty, Too Dangerous: Why Health Professionals Reject
Natural Gas - A Report from Physicians for Social Responsibility. Accessed at: http://www.psr.org/assets/pdfs/too-dirty-too-dangerous.pdf

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

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

The hazards of a compressor station: A town wakes up to the realities of corporate deception. (2015,
November). Accessed at: 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."

II. Risks of increases in flooding, along with secondary impacts from climate change's unique risks that threaten the health and well-being of families and communities, were not adequately addressed in the applications to NJDEP for permits.

In addition to threats to health from the toxic emissions from the proposed gas-fired Compressor Station 206, the NESE Project's impact on climate change can be seen in flooding, temperature increases, other health risks, and displacement.

Extreme weather events not only result in damage to property, businesses, infrastructure and the environment, but also trigger stress and depression in people and are associated with costly health risks like water borne infections as well as increases in dampness and mold that trigger more allergies and respiratory disorders.

- Warmer temperatures, floods and long-standing excess water can potentially increase transmission of communicable diseases:
  - Water-borne diseases (typhoid fever, cholera, leptospirosis, and hepatitis A)
  - Vector-borne diseases (West Nile Fever & Zika)
- Direct contact with contaminated waters leads to the risk of non-epidemic-prone wound infections, dermatitis, conjunctivitis, and ear, nose and throat infections.

- Depending on the extent and intensity of the flooding, animals, rodents and snakes could be displaced from their natural habitats, causing other potential risks. Mosquito populations would increase.
- As the climate warms and atmospheric carbon dioxide increases, the amount and potency of the allergens like ragweed and airborne fungi increases, with significant consequences for exacerbating asthma and other forms of respiratory distress. Other consequences could include higher cooling costs and a heightened risk of heat stroke.
- Additionally, flooding could result in health issues from toxic mold as well as stress, anxiety and depression. Allergenic, pathogenic and toxic illnesses related to the respiratory, digestive tract and reproductive system have been found to be related to toxic mold exposure.
- Milder, shorter winters have increased the population of disease-carrying insects in our area.
- Longer and wetter seasons lead to more asthma, allergies and respiratory disorders.
- Flooding events are a pathway for pollution and bacteria to enter our waterways.

III. Risks from unearthing and spreading toxic elements in soils and the seafloor from construction through or near Superfund and other toxic sites were not adequately addressed by Williams/ Transco.

Raritan Bay Loop:

Due to efforts like improved wastewater treatment facilities and naturally-occurring changes, the waters in the Raritan Bay and Lower New York Bay have remarkably improved since the 1970's from the years of pollutants that were deposited there during the age of unregulated industrialization. Fish and marine mammal populations have increased here, and this is especially apparent in the recent drastic increase of sightings of humpback whales in these waters.

Disturbing, spreading and re-suspending toxins like arsenic, lead, dioxin, PCBs, and other elements with dredging and other construction of the Raritan Bay Loop would, in effect, place these toxins back on the seabed surface. There, bottom-dwelling creatures would again be poisoned, and the endangered Atlantic sturgeon, which feeds on bottom-dwelling species (benthic invertebrates such as crustaceans, worms, and mollusks, marine worms, and bivalve shellfish), would also be impacted.

PCBs, in the seabed of these waters, are associated with toxic effects in marine mammals that can impair hormone-mediated processes, reproduction and development. The humpback whale population is increasing in these waters, and seals live in communities on an island by the Verrazano Bridge and by Sandy Hook. Yet, an analysis of the impact of PCBs was only provided for two species in the DEIS - the hard clam (*M. mercenaria*) and *Nereis virens*, a common polychaete worm species. (DEIS, page ES-11)

Threats to the dwindling horseshoe crab population's reproduction and survival are posed from such spreading of contaminants. Horseshoe crab eggs provide a food source to migratory birds including the threatened red knot.

Madison Loop:

The Madison Loop would cross or be very close to several toxic sites with contaminated groundwater or soil, and the application is missing soil and groundwater analyses in these areas. Without providing any investigative reports about the potential to find contaminated groundwater and/or soil during construction, Williams/Transco only wrote that they would follow their Unanticipated Discovery of Contamination Plan, Materials Management Plan & General Groundwater Remediation Clean-up permit (BGR).

The sites of main concern are:

- Road Department Garage Area 3-1 near MP 9.5 where there is potential to encounter contaminated groundwater since this site flows southeast toward the HDD location;

- Global Sanitary Landfill that is less than 0.1-mile south of MP 10.13 to 10.38 of the Madison Loop which is an NJDEP Classification Exception Area (CEA) which also acts as a Well Restriction Area (WRA);
- E.I. DuPont DeNemours & Co. site with groundwater known to contain VOCs and metals that is currently being remediated in areas of the Madison Loop; and
- Morgan Ordnance Depot north of MP 11.10 of the Madison Loop that may have contaminated soil and unexploded munitions.

Safety Risk – Fires or Explosions

Williams/Transco's Northeast Supply Enhancement Project (NESE) would increase the volume of gas and velocities through the existing system. Pushing more gas, faster and hotter through aging lines, could lead to increased corrosion rates as well as weld failures.

Methane leaks from pipelines and compressor stations, and this flammable gas could catch fire if there's an accident and an ignition source (like a spark from the equipment used at Trap Rock Quarry). Actual methane leakage from pipelines & compressor stations is much higher than reported.

New Jersey has already begun to step up and take a proactive approach to prevent a devastating accident by passing pipeline safety resolution ACR164 out of committee and its sister resolution SCR118 through the full senate - telling the federal government that we can no longer tolerate the much weaker requirements interstate pipelines are held to.

Trap Rock Quarry's operations could easily provide an ignition source for leaked methane from CS206.

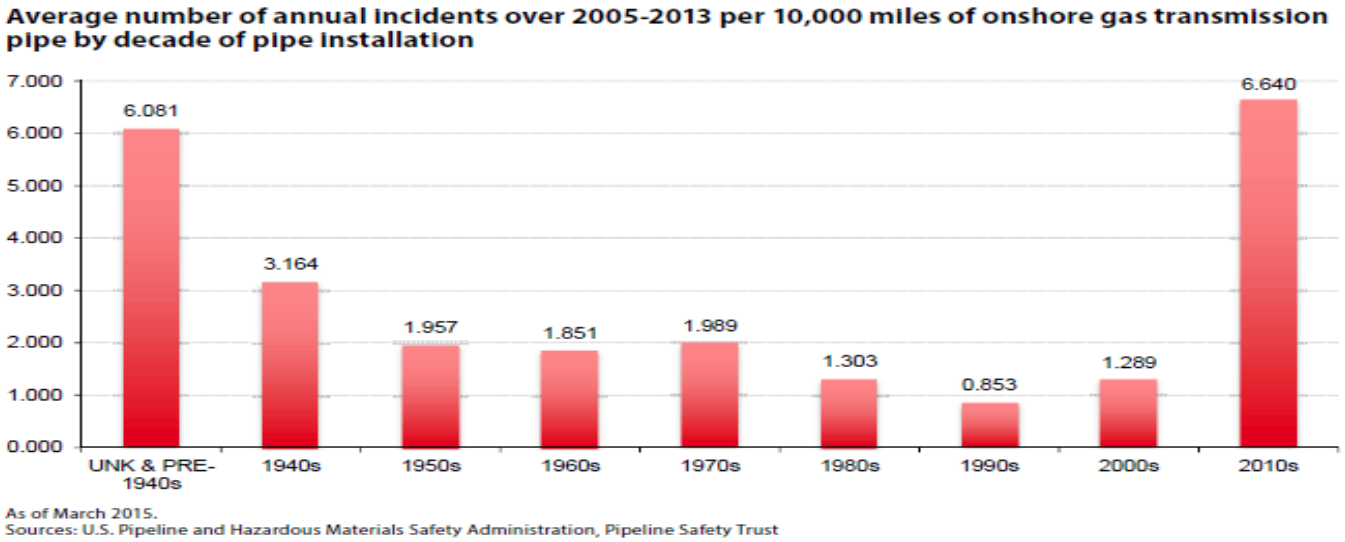
- Blasting from Trap Rock Quarry with dynamite results in shaking of items inside homes that are one mile away. The Buddha statue nearby has a crack in its base, and Trap Rock has paid people whose foundations have cracked from their blasting.
- Williams/Transco only did a cursory blasting assessment to determine if the blasting (one time) would have an impact on their proposed compressor station units/building.
- There was no viewable study about the impact of blasting on the area where they plan to construct tie-in piping and the suction and discharge piping which is in wetlands.
- There was no modeling of the impact of blasting month-after-month and year-after-year on any part of this facility where additional chemicals will be stored.
- Trap Rock Quarry plans to mine through 2040, and the impacts on homes a mile away should be carefully considered in terms of any possibility of damage to the pipelines and components of the entire facility since an accident would certainly impact the wetlands and nearby residents or visitors.
- The face of the quarry is 2,100-feet from the compressor station building.

The *industry claims* that their pipelines are safe. What they don't tell you is that large transmission line accidents have been occurring in this decade at a rate that hasn't been seen since the 1940s.

Existing corrosion on older segments of pipeline to be connected to NESE was not reported. Adding velocity increases risk of more rapid corrosion from increased heat in the lines.

If FERC and PHMSA did their jobs, why does the Pipeline Safety Trust report that the safety record of pipelines is getting worse and not better by noting that average incident rates in the 2010's exceed those for pipelines installed prior to 1940?

Older pipelines corrode and leak, and newer pipelines are not necessarily safer, as was noted in a report by Kathy Kunkel & Tom Sanzillo, "Risks Associated with Natural Gas Pipeline Expansion in Appalachia" (April 2016) - Institute for Energy Economics and Financial Analysis, published first in S. Smith's "As U.S. rushes to build gas lines, failure rate of new pipes has spiked," SNL Financial, September 9, 2015. ***Accessed at:*** https://www.snl.com/interactiveX/article.aspx?CDID=A-33791090-11060&ID=33791090&Printable=1



Accidents may be uncommon, but when they occur, they can be deadly. For the twenty years of 1997-2016, PHMSA recorded 1,719 incidents (averaging 114 incidents a year for the last ten years) for onshore gas transmission pipelines, with 48 fatalities and 179 injuries. 166 people — including both members of the public and industry workers — have been killed and 721 have been injured in serious pipeline incidents from all gas pipeline types since 2005.

There is good reason to worry about public safety. Since 2010, there has been, according to Pipeline and Hazardous Materials Safety Administration ("PHMSA") data, a five-fold increase in the number of pipeline incidents per 100,000 miles of gas transmission pipeline (see figure below). When we consider that pipelines put in the ground in the last decade are more likely to fail than those built in the 1940s, we understand that something has gone very wrong.

Such a dramatic rise is evidence that the Dept. of Transportation's PHMSA standards themselves are inadequate to prevent pipeline incidents, and/or that the inspection and enforcement of those standards is failing, likely due to rushed pace of construction. The gas industry is motivated to construct pipelines as quickly as possible to transport the glut of fracked gas from Pennsylvania and the Appalachian region to utility companies that are not required to tell how they will or do use the gas.

- A new natural gas pipeline recently exploded in West Virginia five (5) months after it was put into operation (June 7, 2018). Supposedly built to standards, inspected and tested before pushing natural gas through it, this pipeline failed soon after it was built. ***Source:*** https://inhabitat.com/transcanada-natural-gas-pipeline-explodes-in-west-virginia/
- A few years ago (April 26, 2016), a pipeline in Salem County, PA exploded after the company had inspected it in 2012, discovered some corrosion and 30% loss of pipeline thickness, but felt that the amount of corrosion was not an immediate risk. Surprise! The released methane caught fire, scorched over 40 acres, and caused a man to be burnt over 75% of his body. It's thought that the added compression hastened the rate of pipeline corrosion from the increased speed of gas through the pipeline and, since inspections are not frequent, the danger was not discovered in time. ***Source:*** http://www.post-gazette.com/powersource/companies/2016/05/11/Could-faster-gas-flow-have-contributed-to-Texas-Eastern-pipeline-erosion/stories/201605110092

There are no federal regulations limiting gas flow velocity.

If FERC did its job to ensure that pipelines and compressor stations are constructed according to plans to be safe, why are there so many incidents reported to the Department of Transportation's Pipeline & Hazardous Materials Safety Administration (PHMSA) – 503 significant natural gas transmission incidents causing 20 fatalities and another 89 injuries, also resulting in over $1 billion in property damage and costs from 2010 to 2016?

Pipeline Integrity - Corrosion Issues and NESE

Williams/Transco has not provided information requested by FERC about the extent of corrosion that they know exists in parts of the pipeline that would connect with the NESE pipelines (Mainlines A & C) even though they wrote that "it is ***likely*** that the Transco system began experiencing some degree of corrosion shortly after original installation."

Renowned **pipeline engineer and safety expert Richard Kupriwicz** – who was called to testify after the horrific Massachusetts gas explosions last fall – has concluded about the NESE project that "Transco has failed demonstrate that the risks of corrosion attack on its pipeline facilities and/or system is under control and would not be exacerbated by the NESE Project."

The pipelines associated with the NESE Project were installed in the 1950's and 1960's. Pipeline coatings and welding areas deteriorate over time. Only Transco's pipeline parts near Trap Rock Quarry have been moved and upgraded in the 1980's.

Williams/Transco fails to mention to FERC or the NJDEP the suspected presence of geologic formation of pyritic clay – high acid (pH3) producing soils at the Madison Loop that would not only create a risk from HDD to wetlands and steep slope stability, but introduce new risks to pipeline integrity. Low pH soils (highly acidic) are more corrosive to pipelines. Upon exposure to air from trenching, the sulfide minerals in the clays oxidize and produce sulfuric acid. Once these acid producing clays are exposed to air, they will be difficult to stabilize due to the inability of plants to grow and thrive in these soils.

The following needs to be known before this project could be permitted as one that is in the public interest:

1. If corrosion was likely detected shortly after installation of pipeline, how was it detected and remediated?

2. Over the past 50 years, how often has Williams/Transco detected anomalies on (a) pre-1970 installed segments and (b) segment replaced by Trap Rock Quarry in the 1980's?

3. When was the last smart pig inspection through Central Jersey Mainlines A and C?

4. Provide a summary of all anomalies and extent of anomalies within (a) pre-1970 installed segments and (b) segment replaced by Trap Rock Quarry in the 1980's from the last smart pig inspection.

5. Detail Williams/Transco's planned remediation and identify when the remediation is planned to be completed.

The **Emergency Plan** for Compressor Station 206 (CS206) has not been published, but:

- Princeton Manor's only exit is onto Route 27 (toward the CS206 site).
- The proposed access road from CS206 is planned to be over 3,000 feet long & from a 2-lane road without working fire hydrants.
- CS206 would only be manned during business hours 5 days/week (40 hours/week) = It's only manned 24% of the time. Thus, having portable fire extinguishers on site may not be enough to deal with a fire at CS206 to prevent it from spreading.
- Williams/Transco wrote that they did not intend to install a fire hydrant on the CS206 site.
- First responders would be trained, but these plans have not yet been released, and meetings with local first responders haven't happened. Also – There's no information about the equipment that would be needed to fight an explosion or spreading fire at the CS206 site & whether or not the townships would bear the cost of
  these purchases. Williams/Transco minimizes the need for such a discussion and preparedness by saying that the best way to stop a gas fire is to turn off the gas. However, there's no modeling of needed action for the possibility that the fire could spread to the nearby forest and beyond.

Lack of Fire Suppression Support at Compressor Station 206 site:

- According to a memo submitted by Carl Hauck, PE, CME, CPWM, Public Works Manager/Licensed Water Operator to the Franklin Township Manager on June 20, 2018 and submitted to FERC on that same date [Accession No. 201806290-5059(32963505)], the following was written in "response to a request for fire service availability for a proposed gas compressor station on Route 518 near Carroll Place." -

  There is an existing 10-inch water main and pump station which was installed as part of a US EPA Superfund site project in the early 1990's due to private well contamination from the Higgins Farm property. The water main and pump station were installed to provide domestic water service to the affected properties. Blow offs or underground hydrant stubs were installed to provide testing and flushing areas to monitor and maintain water quality of the water line. No above grade hydrants were installed due to the limitation on the design.

  Based on recent flow testing data from May 2018, the Route 518 line does not provide minimum fire flows as necessary for firefighting purposes.

  An engineering evaluation would be required for the existing pump station which should include a hydraulic model on the existing water main. Upgrades would be required to provide fire service to the gas compressor station.

- In Williams/Transco's 2020 applications to the NJDEP, they included "Factsheet" (January 2020) where they noted that they were planning to install potable water tank(s) for operations of the CS206 site. There is no indication in their applications that they anticipate installing a fire hydrant or other support for fire suppression at this site in the event that an explosion or fire catches the nearby forest on fire.

Potential Impact Radius

- According to Williams/Transco, the Potential Impact Radius (PIR) is 820-feet for the compressor station and associated pipelines at that site. The Potential Impact Radius of 820-feet should be expanded since there have been explosions with significant damage occurring at places farther away than the PIRs reported for natural gas pipelines.

    - The exploded 30-inch diameter pipeline in Appomattox, VA (2008) had a PIR of 585-feet. However, scorched earth & destroyed buildings was found 958-feet away, and a minimum estimate of the radius of damage was 1,444-feet away.

    - The 30-inch diameter pipeline that exploded in Salem County, PA (2016) had a PIR of 671-feet. However, high impact damage happened 800-feet away, and minor impacts happened 1,400-feet away, with other impacts happening 2,200-feet away.

- The PIR is often referred to as an "incineration zone" in which there is a 99% chance that people and buildings in it will not survive from a natural gas explosion/fire. However:
    - The PIR determinations do not account for the presence of fuel or fire accelerants such as trees, topography or weather conditions.
    - The PIR determinations do not take into account the velocity of the gas traveling through the pipelines or the condition of the pipelines.
    - The PIR determinations do not consider other pipelines that are nearby which, in the case of the proposed NESE, would have two existing pipelines (Mainlines A & C) tied-into Compressor Station 206 and another nearby Sunoco pipeline.
    - The PIR determinations are only based on the diameter of the pipeline and the Maximum Allowable Operating Pressure (MAOP).

- Poisonous gases are produced and can result in massive explosions, further contaminating the air and water. In fact, acetaldehyde can spontaneously decompose or polymerize to form explosive peroxides when heated, distilled, evaporated or even, when contaminated. It is considered flammable, reactive and an explosion hazard.

Madison Loop is planned to go by the Morgan Ordnance Depot north of MP 11.10 - - -
Here, there may be unexploded munitions.

- **Morgan Ordnance Depot**, between Route 35 and Cheesequake Road near Ernston Road in Sayreville is 0.3 miles north of MP 11.10 of the Madison Loop according to the NESE Application to FERC (03/27/2017 - Resource Report 7 – pp. 7-30 & 7-31). Williams/Transco has stated that there could be soil contamination from this site in part of the Madison Loop from Route 9 to the Raritan Bay: "As of December 17, 1995, the site is listed as a U.S. Army Corps of Engineers (USACE) Formerly Used Defense Site (FUDS) with confirmed contamination. The USACE FUDS Geographic Information System public database indicates that the site contamination area includes a portion of the Madison Loop starting from approximately Route 9 to the Raritan Bay shoreline (USACE 2013)."
- At issue in this area is the fact that, following massive explosions at this munitions site in 1918, unexploded munitions were spread over a large area, and the USACE has not completed a comprehensive survey to identify locations of still unexploded munitions that are buried in the ground in the area where Williams/Transco plans to construct the Madison Loop.
- The U.S. Army Corps of Engineers was scheduled to investigate the area to determine the location of any buried ordnance. That project was not implemented, so the danger of excavations in this area has not been eliminated. Thus, construction of the Madison Loop in this area and surrounding areas that may have buried unexploded munitions is an additional safety risk that was not addressed in the application.
- Over a century later, explosive debris continues to surface regularly across a 1.2-mile (1.9 km) radius, and the USACE has been called to Sayreville in the past to look for unexploded munitions at the LaMer development as well as at two schools in Sayreville – Eisenhower and Samsel. [Reference: *"Old military explosive unearthed in schoolyard". The Suburban. July 6, 2007. Archived from the original on March 4, 2016. We find these things a couple of times a year in town.]* Williams/Transco acknowledged this in their application to FERC by stating: "Nearly a century later, explosive debris continues to surface regularly across a 1.2-mile radius. Because this site contamination boundary includes a portion of the Project facilities and has an unclear remedial history, it is possible that soil contamination associated with this property could be present in the vicinity of the Project facilities. If contamination is unearthed, Transco will adhere to its Unanticipated Discovery of Contamination Plan included in RR 1, Appendix 1B, Attachment 8." (Application 3/27/17 to FERC in Resource Report 7 – pp. 7-30 & 7-31). However, this only addresses potential contaminated soils and not the possibility of hitting or unearthing unexploded munitions. If any munitions explode, there is the potential that contaminated soils would be spread across an undetermined amount of wetlands in addition to any damage from the explosion.

To believe that Williams/Transco would design, install, inspect, test, construct, operate, replace, and maintain the proposed Compressor Station 206 facility and its pipelines as a condition to get a Certificate from FERC does not assure compliance in a time when the motivation is high to construct pipelines as quickly as possible.

Right here in *our* region, the federal Pipeline Hazardous Materials Safety Administration (PHMSA) is currently recommending that Williams/Transco be *fined* over $1,000,000 for safety violations. These violations include missing safety reports and plans, failure to conduct inspections, failure to investigate internal corrosion inspection results, *and* running gas through their pipelines ***above allowable pressures***.

Williams/Transco's contracted company recently got caught in Pennsylvania using an unauthorized drilling method after they had a fluid spill that they reported to the PADEP. (March 2018) That led to the second Notice of Violation issued to them for their construction of the Atlantic Sunrise pipeline in Lebanon County. ***Source:*** https://www.ldnews.com/story/news/local/2018/03/31/pipeline-builder-faulted-unauthorized-form-drilling-spill-lebanon-county/474491002/

Concerns about Oversight

PHMSA, the arm of the Department of Transportation responsible for monitoring pipelines and compressor stations after they are operational, reported the following national statistics for natural gas pipelines between 1996 and 2015:

There were 11,192 reportable incidents with
- 6,678,631,880 dollars in damages,
- 371 people killed, and
- 1,378 other people injured.

The DOT's PHMSA has the exclusive safety authority for standards used in the transportation of natural gas.

- DOT's Pipeline & Hazardous Materials Safety Administration (PHMSA), the branch responsible for monitoring safety of transmission pipelines & compressor stations, is understaffed. Our regional office covers Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio (Office of Pipeline Safety), Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia.
- Relying on Williams/Transco & their contracted workers to do what they say and follow their procedures is risky. Recently, they were caught using an unauthorized drilling method while constructing the Atlantic Sunrise pipeline in Pennsylvania. *Key points:* ◆ Since 2008, ten (10) Williams/Transco pipelines and compressor stations have exploded and/or caught fire & five (5) other Williams/Transco natural gas facilities have experienced explosions and/or fires. ◆ Nine people have been killed in these incidents; 141 people have been injured in these incidents. ◆ These explosions and fires have destroyed property and scorched acres of land. ◆ These explosions and fires have released the potent greenhouse gas methane into the atmosphere, fracking condensate into creeks, and the carcinogen benzene into groundwater. ◆ OSHA has fined Williams for failing to adequately protect workers sent in to excavate toxic soil from an accident site. ◆ The US Pipeline and Hazardous Waste Safety Administration (PHMSA) has repeatedly fined Williams for violations of safety procedures, even in the absence of an accident.

See Attachment:

Safety Record of Williams/Transco reveals that procedures and required precautions are not always followed by them or their contracted workers

We can't afford to wait for a deadly explosion to occur,

such as the one in Massachusetts, before we take action to protect New Jersey residents & the environment.