DRBC June 10 Public Comment Session Talking Points

Combining PennEast, Full Frack Ban, Green Recovery from COVID 19

Pick the talking points that most resonate with you - mix and match, add your own individual facts and perspective

Deny a Docket for PennEast

Suggested Closing Request after each person speaks: **It's Time For DRBC To Deny A Docket to the PennEast Pipeline.**

- It is important that you set strong precedent that shows that the DRBC will stand with the people and with their member states (particularly New Jersey and New York) who care about protecting our communities and future generations from the devastating water, forest, air, economic and climate impacts of fracked gas pipelines, fracking exports and the fracking industry they serve.

- With PennEast, DRBC's decisionmaking is setting precedent for every other fracked gas pipeline to come -- whether it be a project in NY, NJ, PA or DE.

- It is essential that DRBC exercise its full authority in a transparent, thoughtful, respectful process that includes the public and ensures full, fair and thoughtful public engagement and agency consideration.

- Thank you for being clear that DRBC has jurisdiction across the entire PennEast pipeline project within the watershed boundaries and that a DRBC docket is required for the entire footprint.

- Thank you for being clear that no PennEast construction, including tree felling, is allowed within the boundaries of the watershed absent a valid DRBC docket.

- It is important that you not just require a docket, but that you ensure a full, fair and robust hearing process -- do not allow the same rush to judgement that has resulted in projects like Mariner East inflicting enduring harm on our waterways and communities, or the LNG export facility in Gibbstown.

- PennEast cannot be allowed to undermine or evade any review by any agency, particularly not DRBC, by seeking to artificially segment its project into pieces for segmented review, approval and construction. DRBC should go on the record immediately demanding full plans for the entire New PennEast project which includes its so-called Phase 1, the Adelphia pipeline that is now a clearly identified part of the

Phase 1 project, and the New Jersey portion of the project (so-called Phase 2) which PennEast has made clear it has every intention to construct.

- Despite PennEast's assertions, the facts are clear: the PennEast Project, including the Phase 1 project in Pennsylvania alone, will involve significant disturbance of ground cover affecting water resources of the basin, clearly requires a docket from the DRBC, and must be subject to a full and robust public review and comment period.

- DRBC has promised the public a full and fair opportunity to be heard on the PennEast Pipeline project, including a PennEast-focused hearing. At such a hearing, the public will bring forth all of the facts, science and evidence that will demonstrate there is no support, legally or otherwise, for issuance of a DRBC docket.
    - ➔ But to do the full analysis and expert reviews necessary will require an appropriate amount of time. PennEast has had 6 years to put its materials together. The public is entitled to at least 1/10 of that amount of time.
    - ➔ Therefore, we respectfully request 7 months to fully review, assess and comment upon the new materials PennEast will be/has submitted to the DRBC before the first DRBC public hearing is held – for all practical purposes this translates into 6 months of expert review and analysis and 1 month to prepare reports for a DRBC hearing.
    - ➔ In addition, we will renew our request that multiple hearings be held – a single hearing will not provide a fair opportunity for all impacted communities to participate – hearings on at least 3 separate days are essential.

<u>Governor Murphy--Deny a Docket for PennEast</u>:

- Use your seat as a DRBC Commissioner to urge New York and Delaware to join you in challenging/questioning/opposing the project because of its irreparable impacts on water resources, including through direct harm and the harms that will be inflicted by an increased climate crisis.

- New Jersey should not allow the DRBC to become another Rubber Stamp for PennEast.

- We can be almost certain that FERC and PADEP will continue to rubber-stamp the PennEast Pipeline, putting pressure on the DRBC and NJDEP to do the same.

- It is clear that PennEast is attempting to evade NJDEP's review through its new artificial phasing of the project. The DRBC could very well become the final backstop in stopping the New PennEast Pipeline once and for all.

Governors Cuomo and Carney--Deny a Docket for PennEast:

- While PennEast does not cut through your states, the next pipeline might, so it is important you don't just defer to Pennsylvania. Our whole watershed, and all future pipelines, will be impacted by the vote you take on PennEast. Please demonstrate your leadership by standing up for the law and future generations.

- While PennEast has segmented its project to start in PA, it has made very clear the project will continue on its path to cut under the River and through New Jersey watersheds as well. It would be wrong for you to support PA by allowing DRBC to support the project and as a result, very literally, sacrifice DRBC protections for NJ.

- Side with NJ who has said no to PennEast for significant and important environmental reasons. Do not allow PA to coopt your vote at the DRBC.

- Today it is New Jersey's authority that DRBC would undermine if it approved PennEast -- tomorrow it could be New York's or Delaware -- defend your own authority by standing with New Jersey at the DRBC to challenge/question/oppose PennEast at the DRBC.

- We are grateful to Governor Cuomo for standing strong and making clear that New York won't permit pipelines that don't meet its water quality standards; please show this same care and concern for the water resources of our shared Delaware River basin.

PennEast will Induce More Fracking

- The New PennEast pipeline will induce the drilling of up to 3,061 new wells in Northeast Pennsylvania.
    - ➔ This will have serious and irreparable implications for climate change effects within and outside the basin.
    - ➔ This increased drilling could help advance and increase the discharges of toxic frack wastewater within the Delaware River watershed and the export of vast volumes of Delaware River basin waters if DRBC's Commissioners chose to advance their foolish proposed fracking regulations that would allow for the treatment, storage and disposal of frack waste in the watershed and water exports to support out of basin fracking operations.
    - ➔ These harms, as well as the inevitable construction of additional new pipelines, is notably absent from any consideration of foreseeable impacts due to construction of a PennEast pipeline.

DRBC Full Frack Ban:

- Tens of thousands of people wrote to DRBC during the public comment period and testified at hearings on the draft natural gas regulations from November 2017 through March 2018 for a full ban on fracking throughout the Delaware River Watershed. A full and permanent ban on fracking and all related activities means a ban throughout the Delaware River Watershed on fracking, on fracking wastewater storage, processing and discharges, and on water withdrawals for fracking to enable fracking elsewhere. As we the public have spoken at these meetings since 2017, fracking and its activities must be prevented in order to protect the drinking water of over 15 million people, including NYC and Philadelphia, and to defend the unmatched natural assets and living communities, human and nonhuman, of the Wild and Scenic Delaware River and National Estuary. **We are here today to say that we want the Commissioners to vote to adopt a full frack ban and we want the vote now. The people have spoken!**

- Over 100,000 petitions were delivered to you, the DRBC Commissioners, in December 2018 calling for a full and complete frack ban – a ban on fracking, fracking wastewater, and water exports for fracking elsewhere. These petitions were presented to each of the Governors in their capitols because the Governors and the Major General from the Army Corps of Engineers are the deciders who serve as Commissioners to safeguard and guide the DRBC's decisionmaking from a perspective of a Watershed, united by our treasured Delaware River. Organizations and their members, community representatives, scientists, elected representatives, academics, religious leaders, fishermen, kayakers, canoeists, river lovers, and health professionals have spoken to the DRBC Commissioners at every DRBC public comment session at your meetings for the 2 ½ years that have passed since you closed the public comment period on the draft natural gas regulations, providing new information regarding fracking and its impacts, advocating for a vote by the Commissioners to adopt a COMPLETE ban – a ban on fracking, on wastewater produced by fracking, and water withdrawals for fracking anywhere. **We are here today to say that we want the Commissioners to vote to adopt a full frack ban and we want the vote now. The people have spoken!**

- The harms of fracking are even better documented now than when you voted to ban fracking in the watershed but allow frack wastewater and water withdrawals for fracking despite the illogical concept of banning fracking but allowing its pollution and water depletion to occur. We have presented to you the findings of numerous reports and studies since the draft regulation comment period ended on March 30, 2018. We have covered the water and air pollution caused by fracking, the toxicity of fracking fluids, the pollution caused by fracking wastewater and its radioactive properties that last thousands of years, the health effects that people in communities where fracking is occurring, including the horrifying emergence of rare childhood cancers in the Marcellus shale fields of southwestern PA, the unmitigatable emissions of methane unleashed by

fracking cradle to grave adding enormous greenhouse gas burdens to our atmosphere, worsening the climate crisis and its destructive effects on the water resources of the Delaware River Basin, and more. **We are here today to say that we want the Commissioners to vote to adopt a full frack ban and we want the vote now. The people have spoken!**

- Here in the Delaware River Watershed you have heard our calls for a COMPLETE ban on fracking including a ban on fracking wastewater and water exported from the basin for fracking. The pressures of the fracking industry are never-ending and we, as a watershed community, want the debate to end with DRBC making the right decision, the decision you know is the right one for our watershed – to ban fracking and its activities COMPLETELY. Some say you are waiting until the ludicrous claims of the fracking industry's nuisance lawsuit – Wayne Land Mineral Group v. DRBC & Delaware Riverkeeper Network – is finally decided upon by the courts. But there is no reason to wait; DRBC is in court arguing that it has the legal authority necessary to support its decisionmaking with regards to fracking in the watershed. You clearly know that DRBC has the legal authority to protect the water resources of the basin from the fracking industry – from all aspects of the fracking industry. It makes no sense to stand strong for legal authority in the courts and then not act to implement it in the real world. It's time to exercise your authority against fracking, its wastewater and water withdrawals today. **We are here today to say that we want the Commissioners to vote to adopt a full frack ban and we want the vote now. The people have spoken!**

<u>Specific fracking impacts:</u>

- A report issued by FracTracker Alliance, "Categorical Review of Health Reports on Unconventional Oil and Gas Development; Impacts in Pennsylvania", 2019, on scientific and health reports regarding fracking impacts published over the last 3 year shows that health effects are continuing and in some cases escalating in fracked regions. Early life exposure, including prenatal exposure has been the most studied topic. Researchers have documented relationships between UOGD and is associated with adverse birth outcomes and morbidity in children. A Pennsylvania study showed developmental, structural and functional birth defects were found to result from proximity to UOGD. Pennsylvania studies have also measured preterm birth (<37 weeks). These studies and others from Pennsylvania populations have also documented low birth weight due to prenatal exposures. Fetal death and early infant mortality have also both been epidemiologically linked to Unconventional Oil and Gas Development(UOGD). **These health risks are startling and too great a risk to allow; DRBC must ban fracking and its activities**.

- Pennsylvania epidemiologic research has also shown that exposure to UOGD is associated with respiratory outcomes including asthma exacerbation in children and adults. A relationship was found between UOGD and oral corticosteroid orders, asthma

emergency department (ED) visits, and hospitalization. Pennsylvania hospitalization rates show relationships of exposure to UOGD and acute myocardial infarction (MI), chronic obstructive pulmonary disease (COPD), pneumonia, and other upper respiratory disorders. More research from Pennsylvania showed impacts including current chronic rhinosinusitis, migraines, fatigue, all related to neurological impacts. The relationship between cancer and proximity to UOGD has also been established in the Pennsylvania literature. Cancer types include all childhood leukemia subtypes, urinary bladder cancer, and thyroid cancer, and research in Colorado discovered correlations with acute lymphoblastic leukemia and Non-Hodgkin's lymphoma. **These health risks are startling and too great a risk to allow; DRBC must ban fracking and its activities**.

- Wastewater produced by fracking activities contains a chemical mix that is complex, variable, and contains dangerous constituents and properties; in some instances what is in the fluids used in fracking, which are contained in the waste stream, is kept secret, even though it could be toxic. It is known that many of the constituents are carcinogenic, some have known adverse health effects, and some are toxic to aquatic life and plant life including: biochemical oxygen demand (BOD), bromide, chloride, chemical oxygen demand (COD), specific conductivity, sulfate, total dissolved solids (TDS), total suspended solids (TSS), barium, potassium, sodium, strontium, benzene, ethylbenzene, toluene, xylenes, sulfide, gross alpha, gross beta, radium 226, and radium 228, according to the U.S. Environmental Protection Agency. **These pollution risks are too dangerous to allow; DRBC must ban fracking and its activities**.

- It is known through sampling of wastewater produced by fracking that the Marcellus Shale formation and other shale gas deposits are highly radioactive, resulting in a waste stream that contains dangerous radioactive materials. A Duke University study of a stream in Pennsylvania below a frack wastewater processing plant found radium 226 levels in stream sediments at the point of discharge were ~200 times greater (544−8759 Bq/kg) than upstream sediments and background sediments (22−44 Bq/kg) and above radioactive waste disposal threshold regulations. Radium 226 has a half-life of 1600 years and is a known carcinogen. Once it is released into the environment by being brought to the surface by fracking, it is a health hazard for generations to come. **These pollution risks are too dangerous to allow; DRBC must ban fracking and its activities**.

- According to EPA's "Wastewater Produced by Fracking" in 2018: EPA says in their report that the lack of information about many of the constituents of frack wastewater, including the lack of scientific research on the chemicals used and on those chemicals that are kept secret under the cloak of Trade Secrets, leaves a data gap that is insurmountable, making it impossible to identify and control the impacts on human health and aquatic life. If EPA has not been able to get this needed information, DRBC and states cannot get this information either, making an insurmountable problem. Wastewater simply cannot be allowed to be discharged in the Delaware River

Watershed – **it is too risky to endanger the water supply of over 15 million people. DRBC must ban fracking and its activities**.

- USEPA reports that spills, leaks, and releases of frack wastewater occur, citing a study that says wastewater is one of the top 3 materials spilled in fracking activities, including during transportation of wastewater. EPA documents that these releases have negative impacts on water quality and aquatic life; the harm can persist for years after a spill. It has reported that "health effects associated with chronic oral exposure to these chemicals include carcinogenicity, neurotoxicity, immune system effects, changes in body weight, changes in blood chemistry, liver and kidney toxicity, and reproductive and developmental toxicity." EPA also states that studies show that the likelihood of spills increase as the volume of wastewater and number of trips increase. It is highly likely that at least some of these chemicals will leak, spill, or migrate into water supplies. **Therefore, allowing drilling and fracking activities in the Delaware River Basin amounts to a huge gamble with the quality of people's drinking water - not only those of us here today but those who will follow us, the future generations that we are supposed to be thinking of. DRBC must ban fracking and its activities**.

- Bromide is a contaminant consistently found in frack wastewater. Pennsylvania Department of Environmental Protection acknowledges that bromide is a key parameter of concern in the effluent because it can form brominated disinfection by-products (DBP's) in water supplies. These are a drinking water hazard because of the propensity for the brominated DBP's to form trihalomethanes and haloacetic acid, which can cause cancer. **Increasing the risk of cancer is totally unacceptable; DRBC must ban fracking and its activities**.

- Yale University School of Public Health, in a study of chemicals used in fracking, found that of the 119 compounds with sufficient data to classify them in terms of carcinogenicity (only 20% of chemicals in use had sufficient data – a problem in itself), "44 percent of the water pollutants and 60 percent of air pollutants were either confirmed or possible carcinogens." 55 unique compounds with carcinogenic potential could be released to both water or air and 20 chemicals had evidence of increased risk for leukemia or lymphoma specifically. DRBC will not be able to control which chemicals companies use to frack wells and which chemicals end up in the wastewater that is produced, resulting in the exposure of people to these dangerous chemicals, risking harmful health effects. **These health risks are too great a risk to allow; DRBC must ban fracking and its activities**.

- The Secret Chemical Report - "Keystone Secrets", Partnership for Policy Integrity, documents that drilling companies have extensively used loopholes in Pennsylvania rules that allow companies to withhold chemical identities as trade secrets, using analysis of fracking chemical disclosure data by Pennsylvania-based FracTracker Alliance. Drilling companies employ secret chemicals to frack gas and oil wells, keeping the ingredients of fracking formulas hidden claiming Trade Secret protections.

Regulations at the federal and state level allow for the information about the chemicals injected into drilled wells to be kept from the public and, in some cases, even from emergency responders and regulatory agencies. Secret chemicals? Why are they secret if these companies have nothing to hide? **We can't afford these risks; DRBC must ban fracking and its activities**.

- This same Secret Chemicals report documents that drilling companies injected secret fracking chemicals 13,632 times into 2,515 "unconventional" wells in Pennsylvania, between 2013 and 2017, primarily in Marcellus and Utica shale formations. At least one hydraulic fracturing ("fracking") chemical with an identity kept hidden from the public - and an average of more than five secret fracking chemical injections each - was injected into more than 2,500 unconventional natural gas wells drilled in Pennsylvania, amounting to 55 percent of the more than 4,500 unconventional gas wells drilled during the five-year period. Because of reporting loopholes, the number is probably even greater. How can we risk these toxic and in some cases carcinogenic chemicals being injected into the ground and exposing our groundwater and surface water – and our DRINKING WATER – to contamination? **We can't afford these risks; DRBC must ban fracking and its activities**.

- These secret chemicals used in fracking could have serious health effects including irritation to skin and lungs, liver toxicity, developmental toxicity and neurotoxicity, according to EPA. The widespread use of secret fracking chemicals therefore poses serious health risks for people living near Pennsylvania's unconventional gas wells and for people living downstream of fracked wells, such as the 15 to 17 million people who rely on the Delaware River Basin for drinking water who would be exposed if DRBC doesn't ban fracking. Fracking must be fully banned – banning frack wastewater and water withdrawals for fracking as well as extraction of shale gas - to save our water and protect public health. Add to this the health effects of other materials in frack wastewater such as Naturally Occurring Radioactive Materials (NORM), hydrocarbons, heavy metals, and other contaminants from the shale formation, and the danger to water quality and public health is enormous and unmitigatable. DRBC has proposed to ban fracking in the Delaware River Watershed but allow the treatment and discharge within the Basin of fracking wastewater produced elsewhere. Any discharges of wastewater would be likely to include some of these secret fracking chemicals, exposing at least 15 million people to frack waste pollution and the adverse health effects that are entailed without anyone even knowing about it. **We can't afford these risks; DRBC must ban fracking and its activities**.

- According to a report that examined the potential impacts from fracking on the Delaware River Watershed (Habicht, 2015) the development of shale gas wells could as much as double nitrogen oxides (NOx) emissions, compared to current air conditions in the Marcellus Shale counties of the basin, and it will be released on a long-term basis from the compressor stations that are required to move gas through gathering lines to market

pipelines. The release of the NOx is unavoidable throughout the life of the producing gas well. NOx and VOCs are precursors to ozone, or smog, which is known to cause respiratory illness. Other air pollutants are released by fracking and during all stages of gas development, including sulfur oxides, particulate matter, and volatile organic compounds such as formaldehyde, benzene, toluene, ethylbenzene, and xylene. This would have a direct negative impact on human health and the ambient air quality of the region. **We can't afford these human health risks; DRBC must ban fracking and its activities**.

- In the same study that examined the potential impacts from fracking on the Delaware River Watershed, health impacts from air emissions and other pollution from fracking was examined. The report mapped the likely location of well pads in the Delaware River Watershed's Marcellus Shale region and estimated that 45,000 people live within 1 mile of a projected well pad, virtually the entire population of the location where fracking is most likely to occur. The study reported that scientific literature documents that some health risk factors are related to the distance from a well pad to a person's home. 60% of the health of Wayne County's population could be affected by close proximity to a well pad. The study examined the pollutants that people would be exposed to, based on scientific studies (CNA, Table 12). These findings make very clear that the effects of gas development and fracking on the air and the health of the people of the region are inescapable due to the proximity of projected well pad locations to the population. It is unacceptable to sacrifice the air quality and health of the people of the Marcellus Shale region in the Delaware River Basin so that shale gas can be developed. **The only protective option is to prohibit fracking and gas development completely. DRBC must ban fracking and its activities**.

- Waste from oil and gas mining was re-named 'special' by the Bentsen amendment to the Resource Conservation and Recovery Act (or RCRA) in 1980 so that these wastes would not be regulated as the toxic materials that they are. RCRA takes a "cradle to grave" approach to ensure wastes are handled properly from the point of creation to transport to disposal. As 'special' wastes, drilling fluids, produced water, hydraulic fracturing fluids are unregulated toxic substances. Additionally, that change isolated the gas and oil companies from the liability they would have if this waste was regulated as toxic under RCRA. Because it is labeled 'special' does not mean that it is not toxic - it is toxic and very harmful. The liquid wastes contain carcinogens, endocrine disrupting chemicals, heavy metals, poisonous hydrocarbons, radioactivity and extremely high salt content. Included in the mix are the toxic BETX materials, benzene, ethylbenzene, toluene and zylenes. With the other volatiles in these mixtures, when they are "treated," which is usually a dilution process, they are both left in the receiving water body and released into the surroundings as poisonous, smog producing air pollution. **These health risks are too great a risk to allow; DRBC must ban fracking and its activities.**

- That the DRBC would consider allowing these wastes into the Delaware Basin in order to "regulate" them is short-sighted and a false economy of effort. It is always better to prevent pollution rather than attempt to clean up after. Because of the unregulated nature of these materials, how would the DRBC know what and how much wastes are coming into the Basin in order to 'regulate' their transport and disposal. The DRBC is asking for the illegal dumping and trucking accidents that happen regularly in areas near drilling. We depend on the DRBC to keep the Delaware Basin healthy - the wastes should not be allowed into the Basin and should be banned with the high volume fracking already proposed. **These pollution risks are too dangerous to allow; DRBC must ban fracking and its activities.**

- The oil and gas industry has unprecedented exemptions from our nation's most important environmental and public health laws, including the Safe Drinking Water Act, Clean Air Act, and the Clean Water Act, Resource Conservation and Recovery Act, the Community Right to Know Act and more. Because the industry has known for decades about their inability to prevent damages from the drilling and from their liquid and solid wastes they sought exemptions to avoid liability for the damages they knew they would cause. First by making the wastes, 'special' via the Bentsen Amendment to the RCRA law in 1980 so that the wastes from oil and gas exploration and production are not tracked or manifested and needn't be disposed of as the toxic materials they actually are. Then after about 25 years of trying the industry got exemptions to major provisions of 7 protective environmental laws in the 2005 Energy Policy Act. The more I learned about the contents of and the potential impacts from these wastes the more alarmed I have become. **These pollution risks are too dangerous to allow; DRBC must ban fracking and its activities.**

- The amounts of many of the chemicals in the wastes the DRBC is proposing to import may sound small, but many behave like hormones and are harmful in very tiny amounts. Studies in humans and horses show that exposure to the chemical laden wastes causes increased birth defects. Regulatory constraints are the obligation of government to protect health and safety. The Delaware River Basin is not for sale to the highest bidder or as a favor to a business associate - it is our home and it is the DRBC's mandate to protect and preserve the Basin and its resources for current and future residents, human and otherwise. Drilling must be banned and resulting wastes must not be imported in the Delaware Basin. **These health risks are startling and too great a risk to allow; DRBC must ban fracking and its activities.**

<u>Climate and Fracking:</u>

- The development of natural gas digs the planet further into a hole, with the powerful greenhouse gas methane exacerbating the climate crisis. Methane is 86 times more powerful than carbon at heating the atmosphere on a 20 year time scale. That means natural gas is not a "bridge fuel" or a benefit if used to replace coal or oil as a fuel. Renewables are the answer. Recent decisions from the Trump Administration make it

more urgent than ever that Governors Murphy (NJ), Cuomo (NY), Wolf (PA) and Carney (DE) act now to pass a complete ban on fracking and all of its associated activities throughout the Delaware River Basin. And the Trump Administration is doing this as the United Nation's climate experts gave dire warnings about how we need to urgently act to move away from fossil fuel extraction and burning, including fracked gas, to avoid catastrophic climate change. The Delaware River Watershed, as you, the Commissioners are aware, is already feeling the effects of climate change. We must do our part here in the Delaware River Watershed to curb the climate crisis by preventing greenhouse gas emissions wherever we can. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change. DRBC must ban fracking and its activities**.

- Greenhouse gas emissions must address methane, which means curtailing natural gas development. According to recent tracking greenhouse gas reports, "However, energy-related carbon dioxide emissions were at a record high last year and new renewable power capacity has stalled after years of strong growth. At the same time, methane, a more potent greenhouse gas than carbon dioxide, has risen in recent years due to oil and gas production, including fracking." Atmospheric methane levels rose steadily during the last few decades of the 20th century before leveling off for the first decade of the 21st century. Since 2008, however, methane concentrations have again been rising rapidly. This increase, if it continues in coming decades, will significantly increase global warming and undercut efforts to reach the COP21 target of < 2 degrees C above the pre-industrial baseline by 2021. Limiting warming to 1.5C will be even more difficult, if not impossible. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change. DRBC must ban fracking and its activities**.

- The composition of natural gas is about 95% methane. Methane leaks or is vented or flared at all stages of the natural gas process (extraction/production, gathering, processing, transmission, storage, local distribution and consumption). Methane is 86 times more efficient than CO2 at trapping heat over a 20-year period. It is 104 times more powerful than carbon over a 10-year period. Unless methane emissions are dramatically and intentionally reduced, it will be impossible to meet the required 45% reduction of greenhouse gases that the IPCC and other scientists have concluded is necessary to meet climate goals. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change. DRBC must ban fracking and its activities**.

- Natural gas systems emit more anthropogenic methane than any other source in the United States, and are the third highest source for carbon dioxide emissions nationally. Natural gas, considered "clean" or a "bridge fuel" is, in fact, a bigger problem than other fossil fuels due to uncontrolled and uncontrollable leaks, intentional flaring and venting. "Methane is far more potent than carbon dioxide in contributing to climate change. That

makes it particularly harmful to the environment when it is discharged into the atmosphere. In the U.S. alone, the methane that leaks or is released from oil and gas operations annually is equivalent to the greenhouse gas emissions from more than 69 million cars, according to a Wall Street Journal analysis using conversion formulas from the Environmental Protection Agency and emissions estimates for 2015 published last year in the journal "Science." **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change. DRBC must ban fracking and its activities**.

- Methane's impact on atmospheric warming is much shorter and simpler than carbon, as explained in the VOX.com article: "Reduced emissions [of methane] have an almost immediate climate impact. It's a short-term climate lever, and if the countries of the world are going to hold rising temperatures to the United Nations' target of "well below" 2 degrees Celsius above the preindustrial baseline, they're going to need all the short-term climate levers they can get." According to Dr. Howarth of Cornell University, the planet is going to continue to warm to 1.5 degrees C in 12 years and to 2 degrees C in 35 years or less unless we substantially cut methane emissions. He points out that the planet responds much faster to methane than carbon dioxide. There is already so much carbon in the atmosphere that the ONLY hope of meeting global climate targets is to address methane because that can quickly reduce greenhouse gases and slow the warming of the atmosphere. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change. DRBC must ban fracking and its activities**.

- Rising air and water temperatures and changes in precipitation are intensifying droughts, increasing heavy downpours and flooding, reducing snowpack, and causing declines in surface water quality, with varying impacts across different regions of the country. Changes in temperature and precipitation are increasing air quality and health risks from wildfire and ground-level ozone pollution. These climate change impacts affect water resources, including river flows, temperature, and seasonal variability, reservoir levels, water quality and the concentration of pollutants in bath ground and surface water, Delaware River Watershed species (both flora and fauna) and their habitats, recreation, economic values, and human health. Stressors and threats from climate change in the Delaware Bay and coastal watersheds were identified and assessed in a 2019 report from the National Fish and Wildlife Foundation (NFWF). Fish and wildlife stressors included energy, land use changes, infrastructure, invasive species, water quality changes, and dredge spoils sites. Flooding threats included sea level rise, storm surge, land subsidence, erosion potential, flat and poorly drained soils including human-made impervious surfaces, and flood prone areas. The report analyzes the magnitude of threats and stressors on this and other resources, such as human community assets, within the Delaware River Basin. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate**

change, reducing harmful impacts in the Delaware River Basin. DRBC must ban fracking and its activities.

- Sea level rise translates into river level rise in the tidal Delaware River. The rising of the seas moves upriver from the ocean, the Bay, the estuary and into tidal reaches of the river, raising the river's level and the level of the river's freshwater tributaries. In the nontidal river and its watershed, extreme weather events cause inland flooding and its cascade of impacts to natural ecosystems, streams, habitats, infrastructure and the human environment, and to the hydrology of waterways and the hydrologic cycle, which is altered by increased stormwater runoff, wetland disruption and less natural infiltration and natural floodplain functions. In the absence of adaptation, more intense and frequent extreme sea level events, together with trends in coastal development, will increase expected annual flood damages by 2-3 orders of magnitude by 2100. We can't absorb more flooding of communities, we can't lose more wetlands, habitats and species. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change, reducing harmful impacts in the Delaware River Basin. DRBC must ban fracking and its activities**.

- The damage to buildings in all the counties along Delaware River tidal waters has increased due to climate impacts since 1980 according a report published last year by the Rhodium Group. (see "New Jersey's Rising Coastal Risk", October 2019 https://rhg.com/wpcontent/uploads/2019/10/Rhodium_NJCoastalRisk_Oct2019final.pdf) Mapping shows the greatest increases for the Delaware estuarine waters to be Cape May County (from 20.9% to 27% - both from the Delaware Bay and the Atlantic Ocean) and Salem County (12.5% to 15.3%). The "increase in expected average annual loss, as a percent of county output, due to changes in sea level and expected hurricane activity since the 1980s" is greatest in Cape May, Hudson, and Salem Counties of all New Jersey counties, according to the Rhodium study. This is a significant cost for these two Delaware River Basin counties. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change, reducing harmful impacts in the Delaware River Basin. DRBC must ban fracking and its activities**.

- Sea level rise is impacting vulnerable and disadvantaged communities greater than others. In addition to climate change-induced flooding caused by sea level rise, urban flooding is often exacerbated by Combined Sewer Overflows that drench neighborhoods that are already disproportionately burdened by pollution with dangerously polluted floodwaters. A 2019 report from the Union of Concerned Scientists projected that by 2045 significant numbers of highly exposed communities with above-average rates of poverty will experience increased flooding and storm damages, including in New Jersey. New Jersey and Delaware are two of the eight states where 60 percent or more of the homes at risk of chronic inundation within the next 30 years are valued below the state median. In Delaware, 90 % or more of the chronic inundation risk is borne by residents of these lower-value properties. **A complete ban on fracking supports a goal of**

limiting greenhouse gases and tackling climate change, reducing harmful impacts in the Delaware River Basin. DRBC must ban fracking and its activities.

- The Delaware Valley Regional Planning Commission (DVRPC) reports "…water levels of the tidal section of the Delaware River will rise as sea level rises along the Atlantic Coast. These rising water levels will be a permanent change to the landscape and will introduce new flooding vulnerabilities along the Delaware that communities will need to address." (see https://www.arcgis.com/apps/MapSeries/index.html?appid=8080c91a101d460a9a0246b90d4b4610) In a NOAA Technical Report on global and relative sea level rise, it is concluded that seas will continue to rise due to climate change even if substantial action is taken now to address climate change impacts. (see National Oceanic and Atmospheric Administration Technical Report NOS CO-OPS 083, Jan. 2017) These impacts include:
    - "Significant, direct impacts of long-term [relative sea level] (RSL) rise, including loss of life, damage to infrastructure and the built environment, permanent loss of land (Weiss et al., 2011), ecological regime shifts in coastal wetlands and estuary systems (Kirwan et al., 2010), and water quality impairment (Masterson et al., 2014), also occur when key thresholds in the coastal environment are crossed (Wong et al., 2014).
- In an earlier DVRPC report, the study on the effects of sea level rise concluded:
    - "The study concludes that a three- to four-foot rise in sea level during the next 100 years will have a wide range of impacts. Rising seas will inundate almost all of Pennsylvania's 1,500 acres of tidal wetlands. The salt line in the Delaware River will migrate further upstream, threatening Philadelphia's drinking water supply. The pollutants found in contaminated sites may be released into estuary waters. Efforts to increase public access to the waterfront may be jeopardized by rising waters."

  A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change, reducing harmful impacts in the Delaware River Basin. DRBC must ban fracking and its activities.

Green Recovery:

- We are facing unprecedented times as the world emerges from the COVID 19 global pandemic. Seeking a healthier world, the Delaware River Watershed can be part of a green recovery that builds in cleaner air, water, and healthier habitats. The challenge is to bring down greenhouse gas (GHG) emissions and make systemic changes that remove the disproportionate burdens that have weighed so heavily on communities of color and the poor. The Intergovernmental Panel on Climate Change ("IPCC") report says limiting warming to 1.5 degree C will require reducing greenhouse gases by 45% from 2010 levels by 2030 and that there can be no carbon emissions from energy production by about 2050. To accomplish this we will need to make dramatic change in

how we meet energy needs and how we consider human communities, particularly those in urban environments. We need a recovery from the coronavirus health and economic disasters that will spur these changes and support a healthy environment by investing in economic engines that promote health and a clean environment. This requires stopping new releases of methane by prohibiting fracking and its activities and turning to solid energy efficiency initiatives and renewable, truly clean, energy sources. We are asking you, DRBC commissioners, to help our watershed move in the right direction by banning fracking and its activities. **A complete ban on fracking supports a goal of limiting greenhouse gases and tackling climate change. DRBC must ban fracking and its activities**.

- The International Monetary Fund (IMF) has stated it is a "must" that as the world economy recovers from the Covid-19 pandemic, nations must reduce carbon emissions and instead make "green investments" to fight climate change. IMF's fiscal affairs department also pointed out that record-low oil prices makes this a good time to the phase out subsidies and replace them with state guarantees to support the shift to cleaner fuels that won't worsen global warming. The IMF, a global financial institution, is calling for a green recovery from the pandemic in order to provide a stable and thriving economy. We are asking you, Commissioners, to help us do our part here to replace greenhouse gas-emitting fuels with clean and green fuels by enacting a full frack ban within the Delaware River Watershed – banning fracking, frack wastewater, and the export of Delaware River water for fracking outside the Basin. This is the investment we need, an investment in a green and clean economy that supports the economic and environmental health of the river and its communities. **This calls for the DRBC to ban fracking and its activities**.

- As the states in the DRBC reopens, it needs to be done in an equitable way that supports public health and the environment. We can create more jobs and a better environment by transitioning from fracking/fossil fuels and highway widenings to a green economy. We should be electrifying our transportation grid and mass transit, creating renewable energy and energy efficiency jobs. The states should also focus on environmental restoration, including creating parks, restoring natural systems, cleaning up toxic sites, removing lead from our homes and pipes, and upgrading our drinking water infrastructure. **This will be supported by the DRBC banning fracking, frack wastewater imports, and Delaware River water exports for fracking - we call on you to vote for a full frack ban.**

- As we recover from the coronavirus pandemic and the economic crisis that has come with it, we cannot go back to the old short-term solutions that our nation has so often implemented in the effort to shore up a flagging economy. Rather than throwing good money after bad by investing more and more in the dead-end of fossil fuels, we need to turn to the promise and stability of renewable, sustainable, and truly clean energy sources. As a recent Bloomberg NEF report revealed, the investment that the U.S. and

Europe has made in fossil fuels, hasn't worked out well. The development of technologies such as battery storage have, for instance, made gas-fired "peaker plants" (power plants that only run when demand is up) more expensive than storage. They point out that the economic recovery will be slow and demand is way down, so this is the moment to replace these old, uneconomic systems. The EU is even starting to work on a "European Green Deal recovery plan that de-emphasizes natural gas in favor of renewable energy", according to the Bloomberg report. **This is what we need to do here in the Delaware River Watershed states and by banning fracking, frack wastewater, and the export of Delaware River water for fracking outside the Basin you, DRBC Commissioners, will be supporting this essential shift and the water resources of the Basin will benefit from it.**

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