

MEMO

TO: Robert G. Vornlocker, Franklin Township Manager; Mayor Phil Kramer

FROM: Franklin Township Task Force on Compressor Station 206 & NESE

DATE: December 19, 2018

REFERENCE: Transcontinental Gas Pipe Line Company, LLC - Northeast Supply Enhancement Project

SUBJECT: Urge FERC to assess the health, environment and well-being of Franklin Township residents.

- FERC's 3/23/2018 DEIS declined to address health, environment and well-being impacts identified by FTTF and the municipalities of Franklin, South Brunswick, Princeton and Montgomery Township.
- From FERC's DEIS issuance until now, FERC has not raised any of the direct and indirect risks and impacts to residents in preparation for issuing the FERC FEIS. Additionally, FERC has neglected to investigate the many cumulative issues raised by FTTF and others in preparation for the FEIS.
- FERC's FEIS is scheduled to be released on 1/25/2019, yet FERC has made no effort to investigate direct impacts and risks identified by FTTF, Franklin Township, and the other area municipalities.
- There is a direct conflict between considering a certificate for public convenience and FERC not investigating to ensure that a project doesn't harm humans, wildlife, and the environment directly, long-term and cumulatively.
- This project cannot be deemed public convenience when there are direct significant impacts to residents, environment and well-being in Franklin Township, Somerset County, NJ.

Summary

The Franklin Township Task Force (FTTF) Steering Committee asks that the Franklin Township Manager and the Franklin Township Mayor escalate the fact that FERC has ignored Franklin Township throughout this project since pre-filing to date regarding immediate direct impacts, long term impacts, risks associated with aging pipeline segments throughout Central New Jersey, risks associated with proximity to active mining operation and cumulative impacts to local environment, air quality and weather change.

Thus far, in the DEIS and subsequent documents posted on the FERC Docket No. CP17-101 in preparation for issuing the FEIS, most issues have not been investigated and some issues tacitly reviewed. An example is when FERC asked Transco if added capacity and velocity pose significant risk to aging pipeline. Transco provides no details other than a response "No." This clearly demonstrates that there has not been sufficient consideration or discussion of the impacts, risks and cumulative issue for Central Jersey raised by local municipalities (Franklin Township, South Brunswick, Montgomery Township, Princeton) and thousands of residents in the area.

Discussion below highlights many of the gaps, issues and impacts of this proposed project that have been ignored by FERC. Throughout the CP17-101 certificate review process, Williams/Transco (W/T) has faked residential impact maps, has not provided technical response for increased volume capacity impact on pipeline segments throughout New Jersey installed prior to 1970, and failed to provide actual emissions from an existing Solar Mars 100 in operation. W/T representatives even claimed to have no knowledge of the Solar Mars 100 emissions at a Franklin Township meeting on 8/10/2016. Despite many of these issues being sent to FERC by many residents in Central New Jersey, FERC has not taken any of this into account in determining a project stated to be for public convenience. The methane emissions alone will have substantial impact in New Jersey in terms of localized climate change, yet this aspect is not reviewed FERC. Failure to assess and review the real immediate and long-term impacts of this project renders FERC's stated public convenience assessment illegitimate.

The FTF Steering Committee continues to learn more about how emissions from natural gas are dangerous, toxic and highly damaging to the climate (as evidenced by the Fourth National Climate Assessment - <https://nca2018.globalchange.gov/downloads/>), yet FERC has made no effort to adjust the review process for projects in natural gas, nor has FERC fully looked at the proposed lifetime operation of the expansion projects in assessing cumulative impact. **If FERC did, FERC would not be able to approve projects such as CP17-101.**

The FTF Steering Committee urges FERC to require:

- that all emissions (heat, volume, load average during year, chemical emissions, GHG emissions) from an existing Solar Mars 100 in operation are fully provided;
- that lifetime planned operation and expansions for CS206 are detailed and planned increases in capacity for pipelines A and C are also detailed;
- that Williams/Transco (W/T) provides a list of all outdated pipeline segments (installed prior 2000) and when W/T plans to upgrade those segments; and
- that W/T provide full detailed and mapped documentation that assesses the immediate and long-term impacts to the NJ/NY area from construction in the Raritan Bay.

The FTF Steering Committee Urges FERC to:

- Fully assess immediate, long term and cumulative impacts for CS206, including future expansion plans.
- Assess the full disruption of the Raritan Bay in terms of immediate and long term impacts for the NJ/NY area.

So far, this project continues to be a clear and present threat to Central New Jersey residents. Numerous municipalities have submitted comments to FERC along with thousands of residents urging FERC to fully assess this real threat and the damage and health impact it will cause for residents in Central New Jersey. Up to this point, the public, FTF and municipalities have provided detailed evidence that this project does not warrant public convenience.

Sincerely,

The Franklin Township Task Force Steering Committee
Linda, Barbara, Carol, Bernadette, Kirk

Discussion

FERC's CP17-101 certificate review process: GAPS to date, prior to the scheduled FEIS 1/25/2019 release

In addition to data, reports and analyses that FERC identified as missing in the DEIS, FERC minimized any need to consider environmental and health damage/danger when the comments of citizens and their elected representatives to FERC were dismissed without providing any authoritative and/or scientific, data-based support for not addressing the concerns thoroughly. Some of the requests for studies and actions that were essentially pushed to the side by FERC and not fully considered in the DEIS are:

1. Perform a Health Impact Assessment of people around the proposed Compressor Station 206 site before construction & for several years following operation if the Project is approved.
2. Require air quality monitoring in the immediate area around the proposed Compressor Station 206 site that would be in place before construction and for the life of the compressor station if the Project is approved.
3. Validate the reported estimates of chemical emissions for Compressor Station 206 with actual data from another Solar Mars 100 unit.
4. Conduct a safety analysis of increased velocity of gas proposed to be sent through aging pipelines. NOTE: This was not done. Rather, Williams/Transco wrote that: "Pipeline segments along the Project path of the Project will see increased gas velocities due to increased volumes flowing through the area; however, maximum gas velocities in the Project area will range from approximately 30 to 50 ft/sec." [Accession No. 20180725-5235(3302756)] *This is not a safety analysis.*
5. Account for the year-after-year compounded effect of Trap Rock Quarry's blasting on the foundation of Compressor Station 206 and all facilities at the site. FERC did not address concerns of commenters for year-after-year impacts on the proposed Compressor Station 206 and connected infrastructure from weekly dynamite blasting at Trap Rock Quarry that shakes homes a mile away.
6. Determine both the short-term and long-term impacts from emissions, noise and the temperature of the exhaust that will exit two 50' smokestacks (210,000 cubic feet per minute that would be at least 849°F).
7. Require submission of plans for a septic system at the Compressor Station 206 site along with any analyses of potential impacts to wetlands there.
8. Identify the water source for the proposed Compressor Station 206 – Williams/Transco asserted that Franklin Township said that the repairs would be completed in 2018, *but they will not be done by then.* Williams/Transco also wrote that: "If the municipal repairs are not completed before Compressor Station 206 goes into service, Transco will install a potable water tank(s) for temporary operational water use at Compressor Station 206." [Accession No. 20180511-5170(32881775)]
9. Explore the feasibility of reducing heat emissions from Compressor Station 206 by adding a heat recovery system.
10. Complete additional core sampling analyses in Raritan & Lower New York Bays that are in the workspace area where vessels will anchor and moor, resulting in unstudied seabed disturbances with likely re-contamination of the waters. *These were done, but the results have not all been published. Additionally, no FERC-review was provided on the docket yet.*
11. Provide an analysis of the EPA's Five-Year Review *that was completed on September 28, 2018* for the Higgins Farm Superfund Site to address any potential that the contaminated groundwater would not impact or be impacted by construction and/or operation of the proposed Compressor Station 206.
12. Provide documentation of EPA's review of plans as they pertain to impacts from and on construction on the Raritan Bay Slag Superfund Site as well as other onland contaminated sites near or through planned pipeline construction activities.

Brief point about Concerns 1 & 2:

FERC did not address concerns about air pollution from the proposed Compressor Station 206 that, if built, would be next to another industrial air polluting facility – Trap Rock Quarry. Prior comments to FERC on Docket CP17-101 have included references to current studies about the effects of air pollutants that would be emitted from Compressor Station 206. There were no actual air quality measurements taken at this site to identify ambient air quality, and there were no requirements to construct air quality monitoring stations at this site.

- It is well known that ozone and fine particulate matter contribute to over 200,000 premature deaths in the United States each year. [1] Their effects are felt most severely by children, the elderly, people with pre-existing conditions including asthma, and otherwise healthy adults engaged in strenuous or frequent outdoor activity or work.
- The Commission has no information about preexisting health conditions of the many people who live close to the proposed compressor station and thus has no basis for its conclusion that the reported increased pollution will not impact the health of those who live nearby or that there is no need to conduct a Health Impact Assessment in the area before, during and after construction if Compressor Station 206 is built.
- The 9/7/18 Air Pollution Control Preconstruction Permit and Certificate to Operate Construction of a New Source for Compressor Station 206 was issued by the NJDEP before they enacted more protective reporting thresholds for HAPs that were effective on January 16, 2018 with an operative date of February 12, 2018. With the prior thresholds, emissions from two of the proposed turbines exceed allowable levels for formaldehyde, and emissions for only one of the turbines exceed reportable levels for all of the HAPs according to current reporting thresholds.

{See Appendix D}

[1] See Steven R.H. Barrett et al., *Air Pollution and Early Deaths in the United States Part I: Quantifying the Impact of Major Sectors in 2005*, Atmospheric Environment Vol. 79, p. 198 (Nov. 2013) (modeling particulate matter and ozone emissions from combustion sectors and concluding that these pollutants result in approximately 200,000 premature deaths in the United States annually).

Williams/Transco submitted extensive information to the Commission near/after the end of the comment period following issuance of the DEIS. By not waiting to receive all relevant environmental data and performing an independent examination, FERC denied the public their right to read a full and fair discussion of significant environmental impacts and the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.

The DEIS, prepared by FERC and published on March 23, 2018, did not meet the description of an environmental impact statement that “shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” Source: National Environmental Policy Act’s (NEPA) regulations (Title 40, Chapter V, Section 1502.1)

NEPA requires that the agency (FERC) collect the necessary information and offer its analysis of the significance of likely impacts in the draft EIS [40 C.F.R. § 1502.16(a)-(b)]. It is precisely that expert agency analysis that the public comments on—not reams of raw, out-of-context information filed by the applicant months after the release of the draft EIS and, in some cases, fewer than three days before the close of the Commission’s comment period.

In the DEIS, FERC acknowledged that they were missing information from Williams/Transco. Yet, without reviewing the missing studies, data and other information and independently analyzing it, FERC concluded that “approval of the Project would result in some adverse environmental impacts; however, all impacts would be reduced to less-than-significant levels with the implementation of Transco’s proposed mitigation and the additional measures recommended in the draft EIS” (DEIS’s “Cover Letter to Parties” in the DEIS – page 1) and also wrote their conclusion that “construction and operation of the NESE Project would result in some adverse environmental impacts. Most of these impacts would be temporary and occur during construction (e.g., impacts on residences and offshore impacts related to turbidity, sedimentation, and pile driving noise). Long-term impacts on air quality and noise would result from the operation of Compressor Station 206. We also conclude that, with implementation of Transco’s impact avoidance, minimization, and mitigation measures, as well as their adherence to our recommendations, all Project effects would be reduced to less-than- significant levels.” (DEIS Major Conclusions, page ES-13)

In the DEIS, FERC requested information that, once reviewed and analyzed, could yield additional or different environmental impacts that were not identified or considered by FERC in their DEIS. In apparent recognition of the inadequacy of the information considered in the draft EIS, the Commission has required Williams/Transco to submit additional information after the release of the draft EIS. As of December 6, 2018, the company had filed **nearly 7,000 pages of new environmental information** (text, reports and correspondence) after the DEIS. Additionally, six filings of the MOVES2014a data have been submitted since the DEIS, totaling 13,020 pages of data.

From May 11 through December 6, 2018, Williams/Transco posted supplemental information to the CP17-101 docket, after issuance of the DEIS, in response to FERC’s requests for additional environmental information. These **96 requests by FERC for additional environmental information** illustrate the missing, unclear or conflicting information that FERC relied upon to develop the DEIS.

FERC’s failure to require such voluminous and significant information to be evaluated and included in the DEIS for public review and comment clearly demonstrates that the agency has not made “every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.” [40 C.F.R. § 1502.9(a)] Given the volume and detail in late-submitted information (5/11/18 and later), the DEIS failed to provide the public a meaningful opportunity to review and understand NESE’s proposed methods and plans that are relevant to potential environmental impacts before asking the public to provide comments during the 45-day comment period.

The public was denied the opportunity to use the DEIS to form meaningful comments to participate in the environmental review process since (a) there was a great deal of missing information, (b) FERC wrote about information provided in earlier documents without providing summaries or guides to locate it, (c) conclusions by FERC were not based on independently verified data that accounted for the entire range of predictable costs and potential impacts, (d) a great deal of additional information was provided to FERC between May 11 and December 6, 2018 that could not possibly have been reviewed and considered by the public within the timelines imposed by FERC (official comment period ended on May 14, 2018), and (e) all concerns raised by the public during pre-filing and post-application were not all addressed in the DEIS and, when addressed, did not include supporting evidence to justify conclusions.

The deficiencies in the DEIS undermined informed public comment, and the conclusions in the DEIS revealed a lack of informed decision-making by FERC that are clearly revealed in subsequent requests for missing and/or conflicting environmental data by FERC, NJDEP and NYSDEC. The provision of quantitative and qualitative information for the public and agency decision-makers, needed for making informed choices and comments, was not provided in the DEIS as is required by NEPA’s CEQ regulations.

A Supplemental or Revised DEIS was requested by commenters.

There were numerous requests on the CP17-101 docket for a revised or supplemental DEIS to include FERC's review and independent analysis of all the supplemental information that was provided near the end of and after the close of the DEIS's comment period, and the Commission did not agree to do this.

Impacts have not yet been completely revealed, and mitigation plans are not yet even finalized and approved for the increased air pollution from construction. The Commission asked for additional information to finalize their Draft General Conformity Determination after publishing it on September 18, 2018 with requests on October 23 and October 31, 2018.

The construction schedule has changed numerous times as a result of additional information and input since the DEIS, and there are still not firm agreements about (a) time-of-year restrictions to protect threatened and endangered species during construction or (b) disposal of dredged material. Agreements about these could certainly alter the identified environmental impacts and, possibly, the construction schedule. Decisions about the required burial depth for parts of the Raritan Bay Loop were not agreed upon until well after the DEIS was released, and the 15-foot burial depth for parts necessitated additional studies and consideration of additional environmental impacts.

Once the FEIS is published (expected on January 25, 2019), the public no longer has an opportunity to comment - question information and/or conclusions, make requests or supply additional information that would need to be considered by the Commission in their environmental review.

On the CP17-101 docket are numerous comments as well as experts' testimony that identify significant concerns, and we expect that ALL of this will be addressed by the Commission in the FEIS with detailed and data- and/or scientifically-based reasons for any conclusions by the Commission about impacts and required mitigation or avoidance actions. Thus far, in submissions on the docket for NESE, there is no evidence that FERC has adequately considered and disclosed the environmental impact of this Project.

Public Necessity and Need for NESE were not established in the DEIS.

The Commission failed to provide complete analyses for the Public Necessity - In the DEIS, the Commission did not offer its own analysis of need for the Northeast Supply Enhancement (NESE) Project, but instead repeated Williams/Transco's very general claims that the project is a public necessity. The Commission accepted that Williams/Transco's precedent agreements demonstrate that the project is needed without looking behind them to evaluate actual market demand. In doing so, the Commission has not truly examined market demand for new gas-fired power generation.

On the CP17-101 docket are comments questioning the need for this Project despite the report that National Grid's affiliates have contracted for the gas. There was no genuine consideration of New York's actual need for the gas, which was purported to be the reason for the Project, and there was no analysis provided that accounted for New York's current goals for clean energy and reduction of greenhouse gases. If approved and permitted, NESE would yield significant profit for Williams/Transco and its backers while the public would be saddled with decades of environmental, financial, safety and health risks. The planned increase in gas (64% increase) is much more than National Grid identified as needed to convert oil boilers to gas-fired ones (10% more) even though they subscribed for all of it.

- According to ICF International's 2012 report for the NYC Mayor's Office of Long-Term Planning and Sustainability, conversion of New York City's boilers would require a maximum increase of National Grid's gas supply by 6%, yet the NESE Project would increase National Grid's capacity by more than 64%. Source: http://www.nyc.gov/html/om/pdf/2012/icf_natural_gas_study.pdf.

- In comments to FERC on May 14, 2018, National Grid noted that they only need approximately a 10% increase in natural gas to cover both New York City and Long Island. It was also noted by National Grid that: “Over the next ten years, Peak Day gas demand in the National Grid NY and National Grid LI service territories is expected to grow by more than ten percent due to the continued conversion of oil-fired heating systems to run on natural gas as well as increased demand from new construction customers. Furthermore, in assessing the adequacy of its current gas supply portfolio, National Grid has identified a need for additional gas supply beginning in the 2019/2020 heating season in order to support this customer demand growth in downstate New York.” (Accession No. 20180514-5995)

Impacts of increased greenhouse gas emissions were not accounted for in the DEIS.

NESE would significantly worsen climate change impacts in the region due to greenhouse gas emissions from drilling, producing, transporting and burning of natural gas. It is apparent from recent global and U.S. reports that consideration of impacts from greenhouse gases is urgent.

Recent reports have clearly shown how emissions from natural gas are dangerous, toxic and highly damaging to the environment and our health, and impacts from the NESE Project were not identified or independently examined by FERC as long-term or cumulative impacts in the DEIS. Reports:

- October 7, 2018 - comprehensive assessment by the Intergovernmental Panel on Climate Change (IPCC) released in Incheon, South Korea. Accessed at: <https://www.ipcc.ch/report/sr15/>

IPCC, 2018: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above preindustrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. MassonDelmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. In Press.

- November 23, 2018 - A new federal report finds that climate change is affecting the natural environment, agriculture, energy production and use, land and water resources, transportation, and human health and welfare across the U.S. and its territories. Accessed at: <https://nca2018.globalchange.gov/>

Volume II of the Fourth National Climate Assessment (NCA4), released Nov. 23, 2018 by the United States Global Change Research Program (USGCRP -- <http://www.globalchange.gov/about>), focuses on climate change impacts, risks and adaptations occurring in the U.S. The report contains supporting evidence from 16 national-level topic chapters (e.g., water, oceans, energy, and human health), 10 regional chapters and two chapters that focus on societal responses to climate change. NOAA is one of 13 federal agencies that contributed significantly to the Fourth National Climate Assessment. USGCRP also released the Second State of the Carbon Cycle Report (SOCCR2 -- <https://carbon2018.globalchange.gov/>).

Avoidance and Mitigation Plans are not detailed and not committed to by Williams/Transco in a site-specific manner.

A significant “red flag” is the Commission’s reliance on Williams/Transco’s “pledge” to mitigate harm to water and environmental resources with “standard” controls or “best practice” measures without providing (a) sufficient detail and study of specific site-based impacts, (b) proposed mitigation efforts in detail and with clear commitment from Williams/Transco to do these, and (c) an oversight plan that is agreed to and can be implemented.

Additionally, the effects of climate change and severe weather events were not comprehensively examined in the DEIS in terms of how the NESE Project would exacerbate these.

Closing

NEPA requires FERC to take a “hard look” at identified problems – environmental consequences of its decisions and disclosure of the environmental impacts of its actions. This was not apparent in the DEIS.

Basic NEPA principles would be violated if FERC uses the supplemental material in a final EIS and in subsequent decisions without first providing a supplemental or revised DEIS with (a) complete information and analyses, and (b) offering that revised DEIS for public comments with at least 45 days to review it.

Given these deficiencies, and the lack of a supplemental or revised DEIS, FERC should seriously consider (a) delaying publication of the FEIS until all concerns are addressed and all final plans are submitted and reviewed, and (b) giving the public an opportunity to provide meaningful comments following the publication of the FEIS.

In the FEIS, we expect that the Commission will correct the numerous and substantial deficits in the DEIS that were identified in comments during the public comment period as well as after that in response to supplemental information from Williams/Transco and subsequent requests for environmental data from FERC, NJDEP and NYSDEC.

The FEIS should, at a minimum, include (1) review and independent examination of the supplemental information from 5/11/18 and later, (2) added information that details potential impacts and commitments to avoidance or mitigation methods, (3) responses that more fully address all comments and requests by officials, agencies and the public during pre-filing and post-application, and (4) inclusion of source citations for all of FERC’s conclusions.

Appendix A

FERC - CS206 Impact Omissions

- Clearly omitted health impact assessments of continuous toxic airborne chemical emissions
 - o Formaldehyde - 668.6 pounds per year
 - o Ammonia – 29,580 pounds of ammonia per year
 - o 1,3-Butadiene - 0.94 pounds per year
 - o Acetaldehyde - 87.84 pounds per year
 - o Acrolein - 14.06 pounds per year
 - o Benzene - 26.36 pounds per year
 - o Ethylbenzene - 70.26 pounds per year
 - o Naphthalene - 2.86 pounds per year
 - o PAH - 0.52 pounds per year
 - o Propylene Oxide - 63.68 pounds per year
 - o Toluene - 285.46 pounds per year
 - o Xylenes - 140.54 pounds per year

- Clearly omitted analysis of high heat high volume emissions to a rural pocket within densely populated Central Jersey
 - o Two smokestacks, each emitting exhaust at a rate of 210,000 cubic feet per minute at a temperature greater than 849° Fahrenheit.
 - o Being old technology and confirmed by manufacturer that combustion exhaust temperature increases at lower than 100% load along with emitting more unburned fuel and chemical byproducts.

- Clearly omitted validating stated estimate emissions WT claimed despite using outdated technology,
 - o As stated by manufacturer, “non-warranted emissions of SO₂, PM_{10/2.5}, VOC, and formaldehyde.”
 - o VOCs emissions are not warranted 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 produces erratic chemical emissions.

- Clearly omitted assessing actual greenhouse gas (GHG) emissions both initially and cumulatively for the impact on Central New Jersey.
 - o Methane (CH₄, most impacting GHG) - More than 33.41 tons every year
Does not include fugitive emissions or routine or unplanned blowdowns.
 - o Carbon dioxide (CO₂) – claimed est. 130,864 tons every year
 - o Nitrous oxide (N₂O) – claimed est. 3.29 tons every year

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Appendix B

CS206 Emissions Health Impact Reference

Federal and New Jersey State Agency chemical references recognizing airborne chemical emissions as highly toxic to human health causing a variety immediate and chronic health conditions from CS206 emissions (see below).

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| <p>AMMONIA</p> <p>CS206 emissions 29,580 lbs per year</p> | <ul style="list-style-type: none"> • Suspected liver, gastrointestinal, reproductive, respiratory, skin, and neurotoxicant (EDF Goodguide) • Exposure from inhalation may cause bronchiolitis obliterans; symptoms include cough, wheezing, obstructive/restrictive defect, chronic shortness of breath and difficulty breathing from low activity, increased inflation of lungs (HAZMAP) • Exposure through inhalation may cause toxic pneumonitis (acute inflammation of lungs); symptoms include burning, chest tightness, conjunctivitis, cough, dark or bluish color of skin due to oxygen deficient blood, shortness of breath and difficulty breathing from low activity, crackling when listening to breathing with stethoscope, excessive tearing of eyes, sore throat, pulmonary edema (increased fluid in lung tissues), runny nose, wheezing (HAZMAP) • Exposure through inhalation may cause chronic bronchitis; symptoms include coughing up phlegm, wheezing (HAZMAP) • TOXIC; may be fatal if inhaled, ingested or absorbed through skin; vapors are extremely irritating and corrosive (NOAA) • High exposure can cause a build-up of fluid in the lungs (pulmonary edema) (NJ Fsheet) • Strong irritant to eyes, skin, respiratory tract (HSDB) • Exposure to high levels of ammonia in air may be irritating to skin, eyes, throat, and lungs and cause coughing and burns; lung damage and death may occur after exposure to very high concentrations of ammonia; some people with asthma may be more sensitive to breathing ammonia than others (ASTDR) • Populations at increased risk include asthmatics, those hyper reactive to other respiratory irritants, and those with glaucoma, corneal disease, and chronic respiratory disease (HSDB) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at 1.7 Parts Per Million (PPM) ○ OSHA: 50ppm over 8 hour work shift ○ NIOSH: 25ppm over 10 hour work shift (NJ Fsheet) |
| <p>FORMALDEHYDE</p> <p>CS206 emissions 668 lbs per year</p> | <ul style="list-style-type: none"> • Known carcinogen (HAZMAP) • Suspected gastrointestinal/liver, immune system, neuro, reproductive, respiratory, and skin/sense organ toxicant (EDF Goodguide) • Adverse effects from exposure include asthma and toxic pneumonitis (inflammation of the lungs) (HAZMAP) • High exposure through inhalation can cause a buildup of fluids in the lungs (NJ Fsheet) • Repeated exposure may cause bronchitis and an asthma like allergy (NJ Fsheet) • Limited evidence that exposure may damage developing fetus and affect female fertility (NJ Fsheet) • Eye, skin, and respiratory tract irritant (HSDB) • People with asthma may be particularly sensitive to exposure (HSDB) • Exposure through inhalation can cause burning sensation, cough, headache, nausea, and shortness of breath (NIOSH) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at .04 parts per million (PPM) ○ OSHA: 0.75ppm averaged over 8 hour work shift ○ NIOSH: 0.016ppm averaged over 10 hour work shift (NJ Fsheet) |

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| <p>BENZENE</p> <p>CS206 emissions 26 lbs per year</p> | <ul style="list-style-type: none"> • Listed as a known carcinogen (HAZMAP) • Listed as a recognized carcinogen and developmental and reproductive toxicants (EDF Goodguide) • Listed as a cause of anemia (decrease in number of red blood cells) (HAZMAP) • Listed as a neurotoxin (cause of central nervous system solvent syndrome) (HAZMAP) • Listed as a reproductive toxin (HAZMAP) • Listed as a suspected cardiovascular/blood, endocrine, gastrointestinal/liver, immune system, neuro-, respiratory, skin/sense organ toxicant (EDF Goodguide) • The major effect of benzene from long-term exposure is on the blood; causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia; can also cause excessive bleeding and can affect the immune system, increasing the chance for infection (ASTDR) • Occupational diseases associated with exposure include: leukemia and aplastic anemia (symptoms include fever, bleeding into the skin, mouth, nose, and gastrointestinal tract caused by the low platelet count of aplastic anemia and the damage to capillaries caused by viral hemorrhagic fevers, decreased white blood cell count, tiny circumscribed foci of extravagated blood in the skin); large areas of confluent petechiae are called purpura, ecchymoses, or bruises (HAZMAP) • Acute exposure to high concentrations of benzene in air results in neurological toxicity (headache, dizziness, drowsiness, confusion, tremors, and loss of consciousness) (HSDB) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at .009 Parts Per Million (PPM) ○ OSHA: 1ppm averaged over 8 hour work shift ○ NIOSH: 0.1ppm averaged over 10 hour work shift (NJ Fsheet) |
| <p>ETHYLBENZENE</p> <p>CS206 emissions 70 lbs per year</p> | <ul style="list-style-type: none"> • Possible human carcinogen (ASTDR) • Listed as a suspected blood/cardiovascular, developmental, endocrine, gastrointestinal/liver, kidney, neuro, reproductive, respiratory, and skin/sense organ toxicant (EDF Goodguide) • Limited evidence that ethylbenzene may damage the developing fetus (NJ Fsheet) • Exposure to relatively low concentrations of ethylbenzene in air for several months to years causes kidney damage in animals (ASTDR) • High exposure can cause symptoms similar to chronic solvent encephalopathy, a syndrome with a variety of central nervous effects (HAZMAP) • Exposure may cause acute toxic effects such as difficulty concentrating, confusion, dizziness, fatigue, irritability, lethargy, impaired speech (HAZMAP) • Most severe irritant of benzene series (HSDB) • Exposure to high levels of ethylbenzene in air for short periods can cause eye and throat irritation; exposure to higher levels can result in dizziness (ASTDR) • Irreversible damage to the inner ear and hearing has been observed in animals exposed to relatively low concentrations of ethylbenzene for several days to weeks (ASTDR) • Inhalation may cause irritation of nose, dizziness, depression (NOAA) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at 5 Parts Per Million (PPM) ○ OSHA: 100ppm averaged over 8 hour work shift ○ NIOSH: 100ppm averaged over 10 hour work shift (NJ Fsheet) |

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| <p>ACETALDEHYDE</p> <p>CS206 emissions 88 lbs per year</p> | <ul style="list-style-type: none"> • Listed as a possible human carcinogen (HSDB) • Suspected developmental, immune system, kidney, neuro, respiratory, skin/sense organ toxicant (EDF Goodguide) • Acetaldehyde may cause birth defects in humans since it causes them in animals (NJ Fsheet) • Exposure can cause toxic pneumonitis (inflammation of the lungs) (HAZMAP) • Eye irritant at 50ppm for 15 min.; respiratory tract irritant at 134ppm for 30 min.; nose and throat irritant at 200ppm for 15 min. (HSDB) • Breathing vapors will be irritating and may cause nausea, vomiting, headache, and unconsciousness (NOAA) • Exposure to high concentrations can cause headache, dizziness, headache, light-headedness, and passing out (NJ Fsheet) • Higher exposures may cause a buildup of fluid in the lungs (NJ Fsheet) • Repeated exposure may bronchitis to develop with coughing, phlegm, and shortness of breath (NJ Fsheet) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level - A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C. ○ OSHA: 200ppm over 8 hour work shift ○ NIOSH: limit to lowest feasible concentration (NJ Fsheet) |
| <p>NAPHTHALENE</p> <p>CS206 emission 2 lbs per year</p> | <ul style="list-style-type: none"> • Listed as a possible carcinogen (HSDB) • Suspected cardiovascular/blood, developmental, gastrointestinal/liver, neuro, respiratory, skin/sense organ toxicant (EDF Goodguide) • Limited evidence that exposure may damage developing fetus (NJ Fsheet) • May damage red blood cells causing anemia (low blood count) (NJ Fsheet) • Exposure to large amounts may damage red blood cells or cause hemolytic anemiadestroy (destroys red blood cells resulting in too few red blood cells until body replaces them; symptoms include fatigue, lack of appetite, restlessness, and pale skin) (ASTDR) • Exposure may cause methemoglobinemia (blood disorder in which an abnormal amount of methemoglobin [form of hemoglobin--the molecule in red blood cells that distributes oxygen to the body] is produced, preventing oxygen from being effectively released to tissues in the body) (HAZMAP) • Naphthalene is an ocular irritant that has caused cataracts in exposed workers (HAZMAP) • Acute toxic effects from exposure include abdominal pain, confusion, cough, fatigue, wheezing, weakness, buildup of fluid in the lungs, nausea, and more (HAZMAP) • Effects from exposure through inhalation include headache, weakness, nausea, vomiting, sweating, confusion, jaundice, and dark urine (NIOSH) • People with blood, kidney, or liver diseases may be at a heightened risk (HSDB) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Chronic Inhalation Risk Level at .0007 Parts Per Million (PPM) ○ OSHA: 10ppm averaged over 8 hour work shift ○ NIOSH: 10ppm averaged over 10 hour work shift (NJ Fsheet) |

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| <p>TOLUENE</p> <p>CS206 emission 285 lbs per year</p> | <ul style="list-style-type: none"> • Listed as a recognized developmental toxicant (EDF goodguide) • Listed as a suspected cardiovascular/blood, gastrointestinal/liver, immune system, kidney, neuro-, reproductive, respiratory, and skin/sense organ toxicant (EDF goodguide) • Inhaling high levels of toluene in a short time can make you feel light-headed, dizzy, or sleepy; can also cause unconsciousness, and even death (ASTDR) • High levels of toluene may affect your kidneys (ASTDR) • Toluene may cause birth defects in humans as it has been shown to cause them in animals (NJ Fsheet) • Toluene may damage developing fetus (NJ Fsheet) • High exposure can cause symptoms similar to chronic solvent encephalopathy (a syndrome with a variety of central nervous effects) (HAZMAP) • Exposure may cause acute toxic effects such as difficulty concentrating, confusion, dizziness, fatigue, irritability, lethargy, impaired speech (HAZMAP) • Toluene may affect the nervous system; low-to-moderate levels can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, and hearing and color vision loss; these symptoms usually disappear when exposure is stopped (ASTDR) • Vapors irritate eyes and upper respiratory tract; cause dizziness, headache, anesthesia, respiratory arrest (NOAA) • Inhaling can irritate the nose and throat causing coughing and wheezing (NJ Fsheet) • People with central nervous system or liver diseases may be especially sensitive (HSDB) • Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at 4 Parts Per Million (PPM) ○ OSHA: 200ppm averaged over 8 hour work shift ○ NIOSH: 300ppm averaged over 10 shift (NJ Fsheet) |
| <p>XYLENE</p> <p>CS206 emission 140 lbs per year</p> | <ul style="list-style-type: none"> • Temporary memory loss, confusion, and laboratory evidence of liver injury have been reported in workers overexposed to xylene (HAZMAP) • Listed as a suspected cardiovascular, developmental, liver, immune system, kidney, respiratory, skin, reproductive, and immune system toxin (EDF Goodguide) • Listed as a neurotoxin (EDF Goodguide) • People who breathe high levels may have dizziness, confusion, and a change in their sense of balance (ASTDR) • Exposure to high levels for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys (ASTDR) • Inhalation can irritate the nose and throat causing coughing and wheezing (NJ Fsheet) • Exposure can cause headache, nausea and vomiting, dizziness, light-headedness and passing out (NJ Fsheet) • Repeated exposure can affect concentration, memory, vision, and muscle coordination (NJ Fsheet) • CDC Acute Inhalation Risk Level at 4 Parts Per Million (PPM) |