

**STATE OF RHODE ISLAND  
ENERGY FACILITY SITING BOARD**

**In Re: Sea 3 Providence, LLC )  
d/b/a Sea 3 Providence )  
(Rail Service Incorporation Project )  
25 Fields Point Drive and Seaview )  
Drive Providence, Rhode Island )**

**Docket No. SB-2021-03**

**Pre-Filed Testimony of  
EDMUND “FRED” MILLAR**

**On Behalf of the  
Attorney General of the State of Rhode Island**

**Topics:  
Safety Risks of  
Liquid Propane Gas Storage and Rail Transport**

**Date Filed: November 12, 2021**

## DIRECT TESTIMONY OF FRED MILLAR

1 **Q. Mr. Millar, please state your name and briefly describe your qualifications.**

2  
3 A. My name is Edmund “Fred” Millar.

4 I am an independent environmental safety advocate, national policy analyst and lobbyist,  
5 trade union strategic researcher, educator and consultant, based in Washington, D.C. area.

6 I am a recognized international analyst and lobbyist in nuclear waste storage and  
7 transportation and industrial chemical use and risks, transportation and accident  
8 prevention, emergency planning and homeland security, including work on risks of  
9 flammables. I have also served as a consultant to major U.S. chemical and oil worker  
10 unions, environmental groups, insurance companies and university and governmental  
11 bodies. Additionally, I served for several years as a member of the District of Columbia  
12 Local Emergency Planning Committee.

13 I have five decades of experience in the field, beginning in the late 1970s, and have been  
14 involved in the drafting of several pieces of enacted chemical safety and hazmat  
15 transportation legislation. I am appearing in this proceeding on behalf of the Attorney  
16 General of the State of Rhode Island (“RIAG”).

17 **Q. Please describe your assignment in this matter.**

18 A. I have been tasked with reviewing the Petition filed in Rhode Island Energy Facility Siting  
19 Board (“EFSB”) Docket No. SB-2021-03 by Sea 3 Providence, LLC (Sea 3 Providence”).  
20 Specifically, I have been asked to review the Petition and related filings with respect to  
21 potential safety and welfare effects on the public.

22 **Q. Have you reviewed the Petition Filed by Sea 3 Providence, LLC (“Sea 3 Providence”)**  
23 **in the Rhode Island Energy Facility Siting Board’s (“EFSB”) Docket No. SB-2021-**  
24 **03?**

25  
26 A. Yes, I have thoroughly reviewed all the filings in that docket, including but not limited to,  
27 the Petition and the Siting Report filed by Sea 3 Providence.

1  
2 **Q: Are you familiar with Liquefied Propane Gas (“LPG”) and the potential safety risks**  
3 **associated with transportation and storage of LPG? If so, what is your experience?**  
4

5 A: Yes. For decades I have researched safety issues arising from LPG transport and storage.  
6 LPG is widely transported in the US, in pressurized containers by truck and rail – in the  
7 rail context each railcar typically has 30,000 gallons capacity. LPG Rail moves in both  
8 mixed freight “manifest” trains and in “unit trains” with LPG only.  
9

10 In recent years, I assisted the Maryland Attorney General’s office in filing comments, along  
11 with some 14 other states’ Attorneys General, in federal proceedings on a proposed US  
12 DOT rule allowing unprecedented service in rail tank cars carrying LNG onto US rail lines.  
13 LNG is a highly flammable cargo and its transport and storage poses similar risks to LPG.  
14

15 I have also drafted proposed ordinances for the Washington DC Council and gave invited  
16 testimony in Washington DC, Chicago, and Baltimore in proceedings on proposed  
17 ordinances mandating urban re-routing of the most high-risk hazardous rail cargoes  
18 including flammables such as LPG. The ordinances were proposed in an attempt to  
19 mitigate the high-risks associated with transport of hazardous materials by rail in urban and  
20 city-settings.

21 **Q: In your opinion, does the addition of rail service to the subject Sea 3 Providence**  
22 **Facility in the Port of Providence (the “Facility”) significantly affect the safety risks**  
23 **associated with operation of the Facility?**  
24

25 A: Introducing a new LPG rail-linked operation into a major city such as Providence,  
26 RI, would bring a new and significant risk of disaster, both onsite and offsite nearby and  
27 along the rail routes.  
28

29 The proposed daily LPG train operations at Sea 3 Providence’s facility (the “Facility”)  
30 would pose significant release risks, different from, and in some ways greater than, the  
31 safety risks from the current marine shipments the site receives and will continue to receive  
32 regularly.  
33

34 In my opinion, there will be a significant impact on public safety should Sea 3 Providence

1 move forward with its proposed expansion of operations. New and significant fire,  
2 explosion and flammable vapor cloud dispersion disaster risks would be created in the  
3 vicinity of the Facility. These same risks would be introduced along the proposed rail  
4 routes.

5  
6 **Q: In your opinion, does the Petition adequately evaluate and discuss safety risks**  
7 **associated with the transport of LPG by rail? Please also explain your reasoning.**

8  
9 **A:** No. Nowhere does the Petition adequately explain the inherently dangerous nature of LPG  
10 -- a highly flammable fuel transported and stored in bulk in pressurized tanks at ambient  
11 temperatures. This danger has been demonstrated in historical US and international  
12 releases from both fixed facilities and during transportation. As evidenced from these  
13 incidents, there is a real danger of an event leading to multiple fatalities and/or large-scale  
14 property damage.

15  
16 Most crucially, the Petition fails to provide even a basic acknowledgment of the potential  
17 consequences of an LPG release, including what the public and public agencies most need  
18 to know: i.e. the estimated distances for various LPG release scenarios and potential  
19 accident impacts.

20  
21 **Q: In your opinion, does the Petition adequately demonstrate that this proposed**  
22 **expansion *will not* significantly impact the safety of the community such that full**  
23 **review from the EFSB is not required?**

24  
25 **A:** No. The Petition evades key risk issues concerning the potential consequences of a serious  
26 LPG release from new rail-related LPG operations. The Petition also does not provide a  
27 new potential worst case scenario analysis, which would provide estimated LPG release  
28 hazard distances that citizens and public officials must know and be able to weigh.

29  
30 The Petition seeks to forego a full risk study. Were one conducted, the report would:

- 31
- Estimate potential LPG release hazard zones, as well as highlight emergency response-  
32 related documents that suggest evacuation distances in case of LPG release.
  - Address several other issues of concern for public safety and security relevant to the  
33 proposed Sea 3 Providence facility, such as the adequacy of local emergency response  
34 capabilities.  
35

- Address public concerns about potential accidental or terrorism-related disaster consequences. Concerns related to such an analysis led in 2013 to a withdrawal by the proponent of a proposal for an LPG port facility in Searsport at Bangor, ME.

**Q: Based on your experience and research, what type of safety risks are associated with the proposed addition of rail transport at the Sea 3 Providence facility?**

A: Among other potential safety concerns, there are significant risks associated with the transportation of hazardous materials, such as LPG, via rail. Among those are clear and undeniable risks of fire, explosion, and liquid releases, which could also lead to vapor cloud dispersion. The inherent dangers related to this transport are a concern for communities near the Facility, as well as the communities through which the trains carrying LPG would travel.

**Q: Based on your experience and research, what types of safety risks are associated with the additional proposed storage at the Sea 3 Providence facility?**

A: There are serious release risks with the proposed offloading and transloading onsite. The proposal would add a significant additional volume of LPG (up to 450,000 gallons) in a significantly hazardous new configuration of major equipment and operations, involving various storage vessels and pipelines, especially in light of their proximity to other hazards with tanks and operations at the facility.

**Q: Does the addition of rail transport at the Facility significantly increase public safety risks associated with the Sea 3 Providence Facility?**

A. Yes. The new risks at the Facility stem from not only the daily rail deliveries of up to 16 full LPG tank cars to the new terminal, and subsequent shipment of still risky “empty” railcars bringing residual cargoes back to their place of origin, but also from the new and frequent transloading connection and disconnection operations onsite from railcars to the six new bullet storage tanks. These types of loading and unloading operations offer some of the most likely opportunities for serious releases caused by human and mechanical errors or intentional releases.

**Q: Are the risks of rail delivery different than the risks associated with the current vessel deliveries of LPG at the Sea 3 Facility?**

1  
2 **A:** Yes. The proposed daily rail shipments to and from the Facility are arguably more  
3 dangerous than the ongoing quasi-monthly marine cargo deliveries to the existing facility  
4 in several respects. Specifically, the daily LPG train cargoes would: (1) require much more  
5 frequent connection and disconnection operations for the total volume of product delivered;  
6 (2) move through densely populated neighborhoods all along the train routes, not just at  
7 the point of delivery along the waterfront; and (3) likely travel with no escort, regulatory  
8 hazard zones or other security measures which the US Coast Guard imposes on marine  
9 hazardous cargoes traversing in certain populated areas.

10  
11 It should also be noted that the Petition posits on page 27 that the facility could experience  
12 overlapping simultaneous operations [“SIMOPS“] involving LPG rail and marine  
13 deliveries to the facility. However, the Petition makes no mention of potential releases  
14 causing cascading impacts from one set of delivery operations to the other at the site. There  
15 is the potential for catastrophic results were something to happen on the rail route or the  
16 vessel that caused an additional event on the other mode of transport.

17  
18 Additionally, an estimated 16 LPG railcars per day arriving and unloading, and “empty”  
19 railcars leaving the facility would introduce many more safety and security risks, whether  
20 the full railcars were unloaded individually or simultaneously into storage in the proposed  
21 bullet tanks.

22  
23 **Q: Are you aware of any specific groups that might be subjected to increased risk?**

24  
25 **A:** Yes. I have reviewed corporate Material Safety Data Sheets [MSDS] concerning the  
26 hazards of LPG in general. They indicate significant hazards for workers and the public as  
27 a result of LPG operations and releases. Specifically, the documents highlight dangers for  
28 workers and emergency response personnel.

29  
30 The MSDS on LPG, e.g., states that “Empty containers pose a potential fire and explosion  
31 hazard” --a significant warning about the potential hazards of the 16 unloaded railcars [so-  
32 called “empties”] that would be transported away from the proposed Sea 3 Providence

1 facility on a daily basis [along routes not specified by Petition].<sup>1</sup>

2  
3 **Q: Is there any notable history of LPG disasters in the United States?**  
4

5 A: Yes. LPG disasters have occurred in all types of LPG operations: traditional storage  
6 facilities, rail, truck, and pipeline transport, and underground storage facilities. Several of  
7 the most serious historical US LPG disasters have occurred in rail operations. These  
8 include five major rail release disasters between 1970 and 2007. The history of LPG rail  
9 disasters from the 1970s forward illustrate the historical pattern in North America where  
10 significant improvements in hazardous material regulations follow only after disaster  
11 strikes. Notable US LPG transportation disasters include Eagle Pass, TX, in 1975 [ truck]  
12 and rail accidents such as Crescent City, IL, in 1970, Weyauwega ,WI, in1996, and  
13 Murdock, IL, in 2007.<sup>2</sup>  
14

15 The U.S. Pipeline and Hazardous Materials Safety Administration (“PHMSA”) funded a  
16 major study by the US Health and Safety Executive (“HSE”)<sup>3</sup>, which was presented to the  
17 PHMSA Workshop on LNG Regulation in May 2016. The results were surprising to many

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<sup>1</sup> An MSDS for LPG can be found here:

[https://www.marathonpetroleum.com/content/documents/Operations/Tesoro\\_SDS/LPG\\_SDS\\_Tesoro.pdf](https://www.marathonpetroleum.com/content/documents/Operations/Tesoro_SDS/LPG_SDS_Tesoro.pdf).

<sup>2</sup> Links to press/information on these disasters:

- Murdock IL:  
[https://www.reddit.com/r/CatastrophicFailure/comments/fcsdz8/two\\_bleves\\_boiling\\_liquid\\_expanding\\_vapour/](https://www.reddit.com/r/CatastrophicFailure/comments/fcsdz8/two_bleves_boiling_liquid_expanding_vapour/)
- Weyauwega WI:  
<https://data.nts.gov/Docket/?NTSBNumber=CHI96FR010>
- Eagle Pass TX:  
[https://www.nts.gov/safety/safety-recs/RecLetters/I76\\_5\\_6.pdf](https://www.nts.gov/safety/safety-recs/RecLetters/I76_5_6.pdf)
- Crescent City IL:  
<https://www.nts.gov/investigations/Pages/79765.aspx>

<sup>3</sup> US Health and Safety Executive Study can be found here:

<https://primis.phmsa.dot.gov/meetings/FilGet.mtg?fil=853&nocache=9447>

1 in the field, as it indicated that twenty-four (24) major Unconfined Vapor Cloud Explosions  
2 (“UVCEs”) were experienced in recent years from facilities and pipelines worldwide  
3 involving “heavier than methane hydrocarbons” (“HTMHs”), including several incidents  
4 involving LPG. The report indicated that:

5 [T]here are numerous examples of such VCEs in open areas  
6 involving higher molecular weight materials [than LNG] and  
7 mixtures, especially common materials such as LPG  
8 (Liquefied Petroleum Gas) and gasoline. Refrigerants  
9 [including LPG – ed. note] commonly used at LNG facilities  
10 would come within these categories...”<sup>4</sup>  
11

12 Perhaps the most well-known LPG disaster in US history involved a single derailed tank  
13 car that experienced an unexpected, delayed Boiling Liquid Expanding Vapor Explosion  
14 (“BLEVE”) in Waverly, TN in 1978. That accident resulted in sixteen (16) deaths,  
15 including those of four (4) emergency responders. An additional 43 people were  
16 hospitalized with injuries, and many others were treated at the scene. Sixteen (16)  
17 buildings were destroyed, and another twenty (20) were damaged. Parts of the tank car  
18 and other debris were scattered over a wide area with one piece of the tank car reportedly  
19 having been propelled 330 feet by the explosion. Noise and blast pressure from the  
20 explosion were felt several blocks from the scene.<sup>5</sup>  
21  
22  
23  
24

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<sup>4</sup> The 2016 study also cited a 2002 report [Casella 2002] on major 1970-2002 US pipeline incidents, 8 of the 12 of which were LPG. Most produced flash fires, but 2 of the 8 produced UVCEs, Brenham TX (1992) and Port Hudson MO (1970).

Link: <https://www.hse.gov.uk/research/rrhtm/rr036.htm>, see pg 12.

<sup>5</sup> Firehouse magazine summarized on January 11, 2013: “Tennessee Propane Blast: A Turning Point for Hazmat” by Robert Burke explains how the 1978 explosion in Waverly, TN, changed the way firefighters deal with LPG fires.

Link: <https://www.firehouse.com/rescue/article/10852275/fireservicehazmatincidents>



1 **Q: How would LPG rail delivery release risks compare with LPG truck shipments**  
2 **already moving from the Sea 3 facility to regional user facilities?**

3 A: Even given the statistically higher overall accident rate per million ton-miles for truck transport  
4 than rail, LPG rail release risks are actually higher than LPG truck risks, based on several factors  
5 influencing potential consequences and probabilities:

- 6 • LPG railcar cargo volumes are each roughly three times larger than a single LPG truck  
7 cargo, thus producing larger release event potentials.
- 8 • LPG rail cars most often travel in groups [long “unit trains” or multi-car “blocks” of  
9 like railcars for efficient loading/unloading] in which one releasing railcar can cause  
10 cascading impacts to and releases from nearby others in multi-railcar derailments or in  
11 coordinated attacks. By contrast, truck LNG shipments typically travel singly – another  
12 factor reducing the comparative risk of LPG trucking as opposed to rail shipment.
- 13 • Rail LPG cargoes will move more slowly overall to final destinations than truck LPG  
14 deliveries, allowing for more effective terrorist planning and targeting..
- 15 • LPG Rail routes often traverse major cities, unlike LPG truck routes which have more  
16 flexibility to utilize protective re-routing to avoid congested cities, bridges and tunnels,  
17 and proximity to high-risk terrorism targets, etc.

18  
19 **Q. Would the same factors you cited above concerning increased public safety risks with**  
20 **new LPG rail-related onsite storage and deliveries, as well as transportation routing**  
21 **issues create higher levels of terrorist concerns?**  
22

23 A. Yes, access to multi-car train cargoes which have much larger potential for mass casualties  
24 than single LPG truck cargoes create a real terrorism concern.  
25

26 **Q: What types of significant risk scenarios do you believe would exist at the Facility**  
27 **that should be considered through a full siting application process?**  
28

29 A: Potential huge LPG release disaster outcomes are also known to be possible from onsite  
30 operations and storage at LPG facilities generally. Based on my experience and research,  
31 potential LPG release disaster outcomes from the proposed Sea 3 Providence LPG  
32 operations, as proposed in the Petition, include serious LPG Rail liquid releases that could  
33 form large vapor clouds [much larger than the volume of liquid released] seeking an

1 ignition source. This could result can be a massive fireball. While the incident would be  
2 short-lived, fire radiation damage could extend a significant distance (about 0.4 miles)  
3 from the site of release.

4  
5 There have been several serious LPG fireball releases in the US and across the world, often  
6 described in the media and summarized in emergency response [ER] trainings. The  
7 fireballs do not always occur immediately after a release. Some of these fireball accidents  
8 have been known to be time-delayed and can occur anywhere from 5-54 minutes after a  
9 release.<sup>6</sup> These Boiling Liquid Expanding Vapor Explosions (“BLEVE”) often result in  
10 circular blast impacts. In addition to the dangers from the explosion itself, this can create  
11 far-travelling shrapnel and projectile. See discussion of Waverly, TN above.

12  
13 Additionally, an unignited vapor cloud can travel downwind, and later be ignited and  
14 produce flash fire that could potentially can flash back to source. The cloud may also end  
15 up confined offsite [by a row of trees or between two houses, etc. and yield a confined  
16 vapor cloud explosion [CVCE]. Alternatively, it could be unconfined and yield an  
17 Unconfined VCE [which could potentially be facility-destroying] – see above discussion  
18 of the 2016 UK HSE Report].

19  
20 **Q: Would the hazardous impacts of vapor cloud explosions be contained to the facility?**

21  
22 **A:** No. The potential Worst Case Scenario vapor cloud explosion [VCE] blast overpressure  
23 impact distances [out to 1 pound per square inch] estimated by the three LPG facilities’  
24 respective Risk Management Plans I recently examined in the US EPA federal reading  
25 room. As reported by Sea 3 Providence, its existing operations have a worst-case scenario  
26 blast radius of 0.4 miles. This would impact 484 residents, plus schools and public  
27 recreation areas. This calculation uses a 20<sup>th</sup> Century dispersion model standard which US  
28 EPA developed for facility compliance with the Emergency Planning and Community

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<sup>6</sup> Crescent City IL – written account of fireball:  
<https://www.ideals.illinois.edu/bitstream/handle/2142/93/Crescent%20City%20Train%20Derailment,%201970.pdf>

1 Right To Know Act of 1986 [EPCRA], which is still used by many facilities.

2  
3 Larger distance estimations are calculated by a wide range of newer available documents,  
4 including the 2009 US EPA guidance document for propane facilities and a few very recent  
5 published expert reports and guidance documents for emergency responders that suggest  
6 large evacuation zones in case of LPG release emergencies.

7  
8 A fair composite estimate for the hazard zones regarding public impacts for a single  
9 30,000-gallon LPG railcar release should be indicating these as extending approximately  
10 1.9 miles on each side of the tracks, considering potential for downwind travel of an  
11 unignited flammable LPG vapor cloud and then a fire burn or explosion impact radius zone  
12 in a nearby community. The corresponding circular release hazard zone for each of the  
13 six onsite 90,000 bullet tanks release potential would have a 2.1-mile radius.<sup>7</sup>

14  
15 For some indication of the estimated risks of LPG and other highly flammable materials,  
16 the authoritative but generic US DOT ERG Guide 115 on flammable gas cargo  
17 emergencies [including LNG and LPG] suggests initial evacuation distances of ½ mile and  
18 one mile for a transportation vehicle involved in a fire.

19  
20 Cautious emergency Incident Commanders (the common term in the fire service) in rural  
21 areas may prefer to order double that distance, but this will often not be possible in an  
22 urban area. That said, in Mississauga, ON a rail hazmat emergency resulted in the  
23 precautionary evacuation of 250,000 citizens for a week in 1979. The US DOT Emergency  
24 Response Guidebooks (including the latest, ERG2020) warns explicitly of BLEVE  
25 potentials with LPG cargoes -the same would apply to bullet storage.<sup>8</sup>

26  
27  

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<sup>7</sup> 2009 EPA Risk Management Program Guidance on LPG, Table 2, p 13, which can be found  
here: <https://www.epa.gov/sites/default/files/2013-11/documents/storage.pdf>

<sup>8</sup> ERG2020 can be found here:  
<https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2020-08/ERG2020-WEB.pdf>

1 **Q: Do the facts that the proposed new LPG tanks would be located near each other or**  
2 **that multiple rail cars would be brought in each day increase the safety risks at the**  
3 **Facility?**

4  
5 A: Yes. The City of Providence is host to numerous chemical disaster-potential facilities. The  
6 City's 2019 Multi-Hazard Mitigation Plan<sup>9</sup>, suggests both:

- 7 • alarming potentials for “cascading” release impacts from LPG and LNG facilities
- 8 close to each other; and
- 9 • that the city is inadequately prepared to respond to or mitigate the risks associated
- 10 with the existing high-hazard facilities, let alone proposed new risks from daily rail
- 11 deliveries of explosive materials.

12 **Q: What can you say about the likelihood of an LPG disaster release from the proposed**  
13 **new rail delivery and operations at Sea-3?**

14  
15 A: The general formula for calculating chemical release risks is *Risk = Consequence x*  
16 *Probability*. If the probability of a release were zero, the risk would be zero. The Petition  
17 does not suggest that Sea 3 has provided any substantial risk assessment of the future  
18 probabilities of such a release from the proposed new rail-related delivery of LPG.

19  
20 A full Quantitative Risk Assessment (“QRA”) from Sea 3 Providence would attempt to  
21 calculate such probabilities, using one of the many complex computerized methodologies  
22 available. But such [costly and time-consuming] efforts by industry or government  
23 agencies are often very controversial, virtually impossible for the public to assess, and  
24 therefore un-transparent and unaccountable.

25  
26 Each of the leading methods have significant limitations, which is often admitted by even  
27 the most prominent QRA consultant authors, especially in getting access to adequate and  
28 relevant industry data on which to make respectable probability calculations. The QRA  
29 calculations involve and depend on scores of significant “engineering judgments”,  
30 allowing for a huge scope of subjectivity, leading many observers to conclude that QRAs  
31 are inherently “manipulable”. Risk-imposing industries are by far the more likely than any

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<sup>9</sup> City of Providence Multi-hazard Mitigation Plan: <https://www.providenceri.gov/wp-content/uploads/2019/12/Providence-Multi-Hazard-Mitigation-Plan-2019.pdf>

level of government to be able to fund the extremely costly reports, so their biases are likely to be reflected in the results. As one prominent former US EPA Secretary noted, risk assessments in general are like “a captured spy. If you torture it long enough, it will say whatever you want.”

In the US post-Bhopal chemical risk reduction efforts, the 1986 EPCRA law mandated that some 12,500 high risk facilities calculate the offsite consequences of their largest potential flammable/toxic/explosive Worst Case Scenario releases for public and local officials’ review, but notably that law chose not to mandate any kind of facility probabilities calculations.

Also notably, the United States has never set any kind of overall national chemical industry “acceptable risk” criteria for such documents, so the few US QRA practitioners must resort to using criteria from other regions around the world, including UK and Singapore. The abilities to determine terrorist risks are also limited, as the QRA practitioners concede that they cannot quantify the probabilities of a terrorist attack.

**Q: Do you believe that the federal oversight at facilities such as Sea 3 Providence’s is sufficient to ensure that potential risks are accounted for and mitigated?**

A. No. As noted above, regulations and changes in railroad practices to improve hazmat rail safety often follow a series of major disasters. The well-heeled chemical shippers and their railroad and truck carriers have enormous weight in creating and enforcing the federal agency safety regulations. Despite limited rail safety improvements that have periodically been made after multiple hazmat rail disasters [e.g., in the 1980s for toxic gas tank cars and in 2015 for crude oil tank cars], they are repeatedly found to be inadequate – in part because of the inherent conflict between the safety need to provide more robust [thicker steel] railroad tank cars and the industry’s drive to carry larger and larger quantities of product. (There is a federal regulation on total weight limits per car to prevent unacceptable damage to rail tracks, bridges, etc.)

Most recently there have been cost-cutting railroad strategies like “Precision Scheduled Railroading” that weaken safety, as well as the current rail industry push for one-person

1 train crews. In a very well-known analogy, it was a one-person train crew brake-setting  
2 error [not caught by any second crew member] that caused the 2013 Lac-Megantic Quebec  
3 rail disaster with a runaway crude oil unit train that derailed, killing 47.

4  
5 Perhaps the most illuminating public admission of the long-standing federal regulatory  
6 deficits, specifically on the current federal regulatory reliance on designing specific classes  
7 of hazardous materials tank cars that would be agency-approved as safe enough, was in  
8 2014 from the top US Federal Railroad Administration safety official Karl Alexy. Alexy,  
9 staff director of the Federal Railroad Administration's Office of Safety, when commenting  
10 on the agency's recent crash-testing field research stated: "When you begin to look at cars  
11 that are derailling at [train] speeds of 30, 40 miles an hour, it's very difficult, it's a big ask,  
12 to expect that a tank car get hit [and] not be breached," while speaking at the National  
13 Transportation Safety Board's April 22-23 2014 national safety forum on Transportation  
14 of Ethanol and Crude Oil.<sup>10</sup> The top Association of American Railroads CEO Ed  
15 Hamburger, present at the time, immediately responded forcefully that North American  
16 railroads could not slow down so significantly. The current [post crude oil train disasters  
17 era from 2012-2016] industry safety standard for the maximum speed of the highest risk  
18 hazmat trains [in the most recent industry guidance, AAR Circular OT-55Q ] is 50 mph.<sup>11</sup>

19  
20 **Q: In sum, do you believe that the proposed additional storage and rail delivery**  
21 **operations at the Facility are sufficient to determine that the proposed changes "will**  
22 **result in a significant impact on the public safety and welfare"?**

23 **A:** Yes. In summary, the reasons for my opinion are provided below:  
24

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<sup>10</sup> US NTSB Webcast archived at [http://ntsb.capitolconnection.org/042314/ntsb\\_archive\\_flv.htm](http://ntsb.capitolconnection.org/042314/ntsb_archive_flv.htm);  
see also - <http://www.bostonglobe.com/business/2014/05/08/local-fuel-distributor-require-safer-rail-cars-its-terminals/QfkKMda2NmE6OC0tUpWWiK/story.html>

<sup>11</sup> Link to letter from CEO: <https://www.aar.org/wp-content/uploads/2018/09/CPC-1337-OT-55-Q-w-AskRail-9-6-18.pdf>

- The potential basic public safety disaster consequences of the proposed addition of the large and unprecedented Sea 3 Providence LPG facility rail unloading operations and associated daily regional rail transportation operations are actually well understood by the industry and local emergency response agencies. And terrorist chemical release potentials are a given in the post-9/11 world. But Petition evades any discussion of such risks and argues that no serious study be undertaken.
- The new rail release risks would likely be greater than the current Sea 3 Providence facility's onsite storage, truck and marine vessel risks, and the potential would be raised for cascading impacts of one release causing others.
- Several kinds of LPG release risks would potentially impact onsite workers, off-site neighbors of the facility, and thousands along the proposed routes across the region. The potential release distances could reach an estimated 1.9 miles from the site of release into nearby communities.
- The risk-imposing industries strenuously resist making the public safety risks vividly clear to the populations in the normal kind of rigorous analyses that the Sea 3 Providence proposal calls for.
- The key data needed is on the public safety impact distances from a potential LPG release onsite or along the rail routes within which distances the public could be impacted by fire radiation, vapor cloud travel, and explosion. Worst Case Scenario consequence assessment has long been mandated and is routinely provided to local officials by the highest risk US facilities including the current Sea 3 Providence facility.
- Providence officials have themselves suggested that any significant disaster release would likely overwhelm local emergency response capabilities.

- Rhode Island citizens and officials soundly rejected an unwanted ultra-hazardous LPG facility in the recent past, following a thorough risk assessment study by a national counter-terrorism expert.
- The decision on what is an “acceptable risk” of disaster is often not in the hands of those at highest risk regarding hazardous materials transportation, because of industry-won federal agency preemption over state and local officials. But local and state officials often have some leverage in using local laws, informing citizens of the risks, and demanding critical data on potential risks – as the EFSB should do here.

**Q: Does this conclude your testimony?**

**A.** Yes.



## CERTIFICATION

I hereby acknowledge under oath that the foregoing testimony is true and correct to the best of my knowledge, and that this declaration has been executed on this 12<sup>th</sup> day of November 2021 in Alexandria, Virginia.

By: Fred Millar

Name: Edmund "Fred" Millar

## EDMUND “FRED” MILLAR

**406 Rucker Place**

**Alexandria, VA 22301**

Public interest and environmental safety advocate, national policy analyst and lobbyist, trade union strategic researcher, educator and consultant, based in Washington, D.C. area, with skills, technical expertise and national, local and international contacts in a wide range of issues and strategies. Recognized international analyst in nuclear waste storage and transportation and industrial chemical use and risks, transportation and accident prevention, emergency planning and homeland security. Consultant to the major U.S. chemical and oil worker unions, environmental groups, insurance companies and university and governmental bodies including the District of Columbia Council. Beginning in the post-Bhopal era, campaigns and accomplishments have covered a wide range:

- Analyzed safety problems and advocated national and grassroots action strategies for chemical hazard assessment, emergency planning, accident prevention, and public access to information. Educated citizens, workers and public officials in scores of petrochemical communities and chemical transportation corridor states on generic industrial safety issues and on existing risk documents such as worst-case accident scenarios. Advocated many specific safety improvement activities by companies and governments.
- Conceived, initiated and with allies advocated successfully for new Congressional legislation enacting a major new federal regulatory program on prevention of chemical accidents: The Clean Air Act Amendments of 1990 Section 112 r impacts an estimated 12,500 U.S. chemical and oil facilities and provides an estimated \$3 billion of worker safety training and new facility risk documents for workers, government officials and the public.
- After 9/11 raised nationally and in major target cities the issue of urban transportation of ultrahazardous cargoes providing attractive targets/weapons for terrorists. Campaign included new re-routing bills introduced in 10 cities and 3 states, testimony in city council hearings, supporting materials solicited from experts, submission of expert affidavit for court case, community presentations, national overview articles in trade press and chapters in books, op-ed pieces and promotion of coverage by local and national media. Wrote and lobbied for national rail hazmat re-routing legislation signed by the President in August 2007, and led subsequent efforts to improve the law and regulations.

### **2004-present Consultant on chemical accident and terrorism risks.**

Projects for various clients included: proposed oil refinery expansion to use Hydrogen Fluoride in Bakersfield CA (comments on DEIS and community protest led to revised proposal without HF); analysis for Will County IL of proposed 10-fold expansion of rail freight including hazmat cargoes through 30 populated Chicago suburbs; analysis of terrorism risk scenarios in publications by Columbia University and insurance company; media research on regional rail hazmat risks; analysis of transportation risks of nerve gas chemicals; comment on CA state task force on railroad

safety; analysis of chlorine transportation routes; for City of Savannah, analysis of LNG trucking risks and recommendations for local hazmat flow study; analysis of risks of major petrochemical port in South America; analyses for Natural Resources Defense Council and Earthjustice on fire and explosion hazards of crude oil terminals and transportation; pro bono consulting for citizens and legislators, on crude oil by rail issues in Albany NY, Virginia, Washington State, Montana and Washington DC; on LPG risks for citizens and officials in San Pedro CA, Albany NY and Rhode Island; on LNG risks along the Gulf Coast, and Hydrogen Fluoride disaster risks in the Twin Ports WI and Twin Cities MN.

**2003-2005    Director, Target Cities Re-Routing Project, Friends of the Earth, Washington, D.C.**

Initiated foundation-funded project to reduce safety and terrorism risks in transportation of ultrahazardous industrial chemical cargoes through High Threat Target Cities, with beginning focus in the Nation's Capital. Analyzed issues and regulations and advocated successfully for enactment of local DC Council Bill 15-525 banning the most dangerous cargoes; did technical, legal and regulatory analysis for fact sheets, Council testimony and slides; led alliance of union locals, tourist industry, emergency room physicians, environmentalists and public health associations in promoting the bill; did outreach and community presentations to Local Emergency Planning Committees, Metropolitan Washington Council of Governments, George Washington University occupational health forum, and media shows. Met with major stakeholders such as chemical shippers, city agencies, and railroads. Analyzed the issues and initiated introduction of re-routing ordinances in 10 other target cities, including St. Louis, Minneapolis, Memphis, Buffalo, Albany, Cleveland, Baltimore, Boston, Chicago and state legislatures of New York State and Tennessee. As the issue reached the national level in 2005 and again in 2007, helped write re-routing legislation for several committees of the House and Senate, and commented on the 2006 proposed twin rail security regulations from the Transportation Security Administration/DHS and US DOT. Consulted with target city governments, TV investigative reporters, national media, citizen groups. Invited expert presentation on dangerous cargoes to US Coast Guard's Chemical Transportation Advisory Committee, May 2006, Philadelphia PA and in roundtable "Railroad Routing of Hazardous Materials Expert Panel" hosted by ATSDR/DHS/SRB, September 2006 Atlanta GA. Wrote op eds and articles for trade journals and for book: James J.F. Forest (ed.), "Homeland Security" by Praeger Security International, 2006, Volume 3.

**2004-2005    Consultant, International Brotherhood of Teamsters Rail Conference, Washington, D.C.**

Analyzed rail safety, transportation security, and Liquified Natural Gas facility security issues for the Research and Strategic Initiatives departments. Initiated project for survey and publication "High Alert" on chemical security issues in rail yards.

**2001-2002    Consultant, Bio-Terrorism Technology, Public Technology Inc., Washington, D.C.**

Analyzed availability of emerging technologies from federal laboratories for detection and decontamination of biological agents for use by local officials in a terrorism context. Analyzed technical and testing data, provided summaries, wrote comparisons of the technologies and

recommendations for an ongoing system of third-party assessment and user needs surveys that could help local officials wisely spend public funds on new capabilities.

**2000-2001     Research Director, Roofers International Union, Washington, D.C.**

In the service of an organizing campaign with residential construction workers in the Southwest U.S., did strategic corporate analysis on major homebuilder corporations. Wrote homebuilder corporate profiles and White Paper on worker justice issues. Advocated strategies on sprawl, retirees and healthcare, and networked with union retiree groups, Interfaith Councils, AFL-CIO and other allies. Did web analysis and advocacy for the campaign website, campaign leaflets, etc.

**1999-2000     Director of Environmental and Public Safety Policy, Center for Y2K and Society, Washington, D.C.**

Analyzed and publicized the potentially catastrophic systemic safety risks that Y2K posed to major national infrastructures such as petrochemical, water supply and food industries, to at-risk communities and to democratic decision-making. Wrote technical and policy analyses and policy and action-oriented recommendations content for Center's website. Advocated safety improvements in national and local forums and in weekly conference calls with allies.

**1995-1997     D.C. Coordinator, Nuclear Waste Citizens Coalition, Washington, D.C.**

Coordinated the work of a coalition of national and regional groups, from both commercial nuclear power plant communities and nuclear weapons site communities. Analyzed issues of centralized interim storage and transportation of irradiated fuel. Did technical research and organized and led Congressional advocacy, convened meetings of member groups, and wrote weekly fact sheets, analyses and recommendation on the issue.

**1994-2002     Consultant, nuclear waste and chemical accident prevention policies**

Clients included Public Technology Inc., Oil Chemical and Atomic Workers International Union, United Steelworkers of America, International Chemical Workers Union, Operating Engineers International Union, Friends of the Earth/England and Wales, National Environmental Law Center, Environmental Working Group, Labor Ministry of Brazil, Greenpeace International. Provided analysis for curriculum and delivered content at chemical accident prevention training programs, advocated for safety improvements at conferences on chemical accident prevention policy and programs, advocated for worker and citizen action implementing the new US chemical accident prevention laws.

**1989-1994     Director of the Toxics Project, Friends of the Earth, Washington, D.C.**

Responsible for analysis, policy development, lobbying and advocacy in chemical accident prevention, risk assessment, air toxics emissions, right-to-know issues, hazardous materials transportation and multinational corporate accountability.

- Built ad hoc partnerships of activists, workers, state and local officials and media contacts in chemical communities and provided technical and strategy analysis and recommendations. Founded and initially steered the Working Group on Community Right-To-Know, comprised of national and local environmental groups and labor unions. Wrote and published foundation-funded "The Community Plume" publication with analyses and

fact sheets, to recommend strong roles for federally-mandated Local Emergency Planning Committees.

- As a safety analyst and policy expert, addressed international conferences on chemical accident prevention. Served as environmental advocate with the U.S. government delegations and developed recommendations for safety improvement in conferences with industry and government participants in London, Manchester, Stockholm, Berlin, Boston, Milan, Goa and Ahmedabad (India), and Tokyo.
- Worked with the environmental and labor coalition that in 1991-94 lobbied OSHA and EPA, advocating regulations to implement the Clean Air Act Amendments of 1990. Provided analysis and recommendations for testimony in Congressional hearings and wrote technical comments on proposed regulations.
- As an OSHA grant-funded consultant to the three major U.S. petrochemical labor unions, trained groups of workers in several cities on chemical accident risks and accident prevention. Advocated in Congress for two major unions for new worker safety training funds.
- *International advocacy:* gave invited presentations on chemical accident prevention and community right-to-know policy and legislation to government and industry officials, universities and citizens groups in Brazil, Canada, Lithuania, Latvia, Bulgaria, Mexico, India, Vietnam, Thailand, Germany, Argentina, and Australia.

**1979-1988 Director of the Nuclear and Hazardous Materials Transportation Project at the Environmental Policy Institute, Washington, D.C.**

Spearheaded environmentalists' efforts, educated the public and advocated for safety improvement by the government and corporations on issues of nuclear and hazardous materials storage and transportation.

Worked with Capitol Hill, several regulatory agencies, national trade associations, national media, environmental NGOs, labor unions, petrochemical industry, investor groups, and funders to develop recommendations in testimony before several House and Senate committees.

**1978-1979 Research consultant, Ohio Public Interest Campaign.**

Working under a federal grant, researched and wrote final evaluation of a four-year project on plant closings in Ohio.

**1972-1978 Assistant Professor of Sociology, George Mason University, Fairfax, Virginia.**

Taught political sociology, social problems, sociology of war and peace, social theory.

## PUBLICATIONS

- Op eds, Minneapolis Star Tribune, “Oil Train and Refinery Safety: Don’t Roll the Dice That We’ll Avoid Disaster” July 6, 2018. “Oil trains are disasters-in-waiting,” November 17, 2014
- Op ed, Buffalo News, July 19, 2018 “Railroad Routing of Bomb Trains Puts Public at Risk”
- Op ed, Pittsburgh Post Gazette, February 13, 2014 “Danger on the Rails that Run through Pittsburgh”
- Fire Chief Fire Magazine blog, September 21, 2010 “Coming to a City Near You” on rail security
- Cargo Security International report 2pp, “Rail Security: Risk Factors”, June-July 2010
- “Terror threats ought to factor into rail routes,” op ed June 19, 2009, Minneapolis Star Tribune
- “Dangerous railroad cargo could threaten public safety”, op ed July 17, 2009, St Louis Post-Dispatch
- White Paper, Friends of the Earth, “Transcontinental Freight Rail Monopoly Game: Chicago Area Communities In Play and At Risk” September 2008
- “Seven Years After 9/11: No Protective Rail Hazmat Re-Routing Yet”, guest column in Government Security News, March 18, 2009
- “Don’t Insult Citizens”, letter to editor, May 11, 2008, Bakersfield Californian
- “Diverting Risk”, Cargo Security International, December 2008/January 2009, pp. 26-28
- “Rails shouldn’t fight hazmat rules”, analysis of new federal regulations, in The Journal of Commerce, January 21, 2008
- “‘Betting the Nation: Poison Gas Cargoes Through Target Cities,” in James J.F. Forest (ed.), “Homeland Security: Protecting America’s Targets” by Praeger Security International 2006, Volume 3 “Critical Infrastructure”.
- “The Elephant in the Living Room,” opinion piece on WMD cargoes in ports, in The Journal of Commerce, May 1, 2006.

- “New Strategies to Protect America: Putting Rail Security on the Right Track”, a paper in the Critical Infrastructure Security Series, published by the Center for American Progress, 2005.
- “City Limits”, Opinion piece on hazmat security, in Cargo Security International magazine, October 2004.
- “The Terrorism Prevention and Safety in Hazardous Materials Transportation Act of 2004”
- DC Bill 15-525, enacted in February 2005. Upheld in Federal District Court, it has been the model for similar re-routing bills in Baltimore, Cleveland, Boston and Chicago
- “Hell Might Come on Wheels,” op-ed piece in “Close To Home” section, Washington Post, February 16, 2003, on the terrorism and hazardous materials transportation issue.
- Articles with recommendations for school boards on terrorism and hazardous materials issues, “School Board Journal”, 2003.
- “Don’t Harm the Most Vulnerable”, a White Paper on Residential Construction in the Southwest, Roofers Local 135, Phoenix AZ, July 2000
- “Y2K and the Environment: The Challenge for Local Officials”, published by Public Technology Incorporated, 1999.
- “Winning the Right-To-Know”, in The Environmental Forum, December 1992
- “The Community Plume”, a foundation-funded publication that Friends of the Earth sent to 4100 Local Emergency Planning Committees in the U.S., 1988-91.
- Op-Ed piece, New York Times Business Section, “Braking the Slide in Chemical Safety”, May 1986
- “Regulations on the Routing of Irradiated Fuel,” a chapter in The Urban Transport of Irradiated Fuel (Macmillan Press, 1984)
- “Hazardous Materials Transportation”, a series of three articles for International Fire Chief magazine, 1981.

## **EDUCATION**

B.A. in Philosophy from Notre Dame University (1966)

M.A. and Ph.D. in Sociology from Case Western Reserve University (1975)