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Written Remarks for the Refinery Commission

These written remarks expand an invited oral comment made at the committee's hearing on August 27th, 2019, organized by the environmental and academic subcommittee. I include the oral remarks below as delivered that evening at Prep Charter School. They are supplemented here with linked audio and visual materials about southwest Philadelphia included to illustrate how oil refining has destroyed rich historic wetlands at the confluence of the Delaware and Schuylkill. Ongoing and future climate change make these former wetlands of south Philadelphia especially vulnerable. The ground and water pollution from fifteen decades will not stay fixed in place, multiply toxic harms to residents, many who have already been disproportionately adversely affected by the refinery's air pollution and more. These additional materials include maps and paintings, links to oral histories collected in partnership with the Eastwick Friends and Neighbors Coalition with help from the John Heinz National Wildlife at Tinicum, and a range of interpretive exhibits and virtual tours to exhibits of south and southwest Philadelphia, of Eastwick, of the tidal Schuylkill River, the Navy Yard, and the PES refinery lands.

A brief note on the collaborative authorship of these included materials:

Five years ago, I founded an interdisciplinary environmental studies program at the University of Pennsylvania, the Penn Program in Environmental Humanities (PPEH). We have some thirty affiliated faculty as well as postdoctoral and doctoral fellows whose environmental research and expertise extends across the arts and sciences. Our work, often collaborative, proceeds from the fact that there is nowhere on Earth which the human species has failed to impact. Vast stretches of land and waterscapes have been remade as petroleumscapes and plasticscapes. Geologists and cultural historians alike assert that the planet is in a new geological era, no longer in the holocene, but not in the anthropocene. Our intensive fossil fuel use has much to do with this planetary shift. We cannot study the environment as something separate from human history and human values (for better or worse).

By training I am a scholar of comparative literature and the Atlantic world and have written about the history of Pennsylvania and its multiethnic, multilingual society. Today, this past is not mere prologue. As we consider the future of this refinery and make recommendations to the Mayor's Office, to the City, and its residents--including especially the residents of fenceline communities who most directly bear the costly toxic harms of the refinery--we must recognize how we in the river valleys of the Schuylkill and Delaware are living with decisions which long precede us, decisions about how to live with water. As residents of Philadelphia, we are inheritors of monumental processes European settler colonists and then nineteenth-century

industrialists set into motion as they drained and dyked vast historic wetlands, hardening the rivers' edges and submerging and sewerizing historic creeks. They attempted to draw clear lines between the wet and the dry--creating jobs and, to some extent, improving public health. But while we Philadelphians have long maintained dry land, including on the former wetlands where the refinery has sat since the 1860s, the water is coming back. And we would do well to remember, in the words of my colleague at Penn, Michael Nairn, founding member of the Eastwick Friends and Neighbors Coalition, "water always wins."

At Penn, historians, humanists, anthropologists, and scientists are collaborating together to develop new research paradigms more capable to represent and respond to the world we've made. At PPEH, we have a research focus on Philadelphia and our urban waterways. For the last three years, we have also been collaborating with faculty and students at Drexel and the Academy of Natural Sciences, and with informal education centers and community organizations. Documentation of our projects is available in the public digital archive maintained by PPEH. My thanks to all our collaborators in this informal Schuylkill Research Corps for their work to create the materials. Links and visuals follow the script of the oral testimony.

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I am Dr. Bethany Wiggin--I am a professor in the School of Arts & Sciences at the University of Pennsylvania and the Faculty Director of the Penn Program in Environmental Humanities (PPEH). "

I'll make three points this evening. I'm supplying the committee with longer written remarks that include PPEH's public research materials about the tidal Schuylkill River running through the refinery lands. They include materials ranging from oral histories collected in Eastwick, on the river's west bank, to a variety of historic documents, to curated virtual tours and exhibits of the tidal Schuylkill River and environs.

SPOILER ALERT: here are my three points:

- Long ago, when William Penn was negotiating with the Lenni Lenape, South Philadelphia, including southwest Philly, was very soggy.
- Since then, we have dried these wetlands out. But--**r qlpv'4/**-it's getting wetter again! Our planet's climate is changing at an accelerating pace, and regardless which future climate scenario we assume, by the year 2100 (and likely well before then), climate models unequivocally show the refinery lands will be very wet indeed.
- **Cpf .r qlpv'5**, the water is returning to dried land where it will mix with what we've released onto it for a very long time. The refinery has a long history--in operation, for a hundred years before the passage of the Clean Air and Water Acts. Today, we must

consider the legacy pollutants the water is mixing with as it's returning. We must avert creating a still more toxic stew.

Let me share a little about the research I've been guiding on the tidal river, and about what we know about the river's environmental history. It's actually not a lot--and while that means my remarks can be short--that fact should actually worry us all. There is, for example, no pollutant load data for the tidal river, although thousands of Philadelphians are eager to boat. With colleagues at Drexel/ANS we've been taking air and water quality measurements. But we don't have reliable longitudinal studies, and--as we've already heard in these hearings--much existing data are not particularly accurate, helpful, or accessible.

In oral histories collected with the Eastwick Friends and Neighbors Coalition with support from the John Heinz National Wildlife Refuge at Tinicum, we're also learning about how hard it is to know what to do when water comes. In Margie Cobb's oral history of living with water in Eastwick, for example, she explains how difficult it was to know what to do when storms surged unexpectedly--how she faced great uncertainty about where to take her elderly mother. You can imagine how hard it is to figure out what to do while you're listening to the contents of your basement crashing together on waves of water.

We also learned about the rich environment that we've sacrificed to build the refinery, starting in the 1860s. We've uncovered all kinds of paintings and drawings of all kinds of people enjoying the river until late into the nineteenth century. Old maps show wetlands stretching over more than six thousand acres. About 200 remain (they are the Heinz NWR.)

These historic losses continue to compound today. Without the buffer zones that coastal wetlands provide, we have opened ourselves up to storm surge. Water poses a rising threat to south and southwest Philadelphia along three lines:

- With higher storm surge and more severe storms
- With sea level rise
- With more extreme rain events which bringing more rain in short time--overwhelming a system not built for so much water

Unfortunately, climate change compounds the vulnerability of the fenceline, environmental justice communities of south and southwest Philadelphia, adding ongoing insult to historic injury.

And even with global reductions in CO2 emissions, by 2100 the PES refinery lands will be very wet. The water will come back to where the old maps showed it. But it will come back and mix

with who knows what hazards--because we still don't have sufficient data for the pollutants on the land and in the water.

In closing, let me emphasize that I am not pointing fingers. As a society, we owe a lot to cheap oil, and I myself have greatly benefited from the low cost of carbon. But in our era of accelerating climate change, the additional costs have become too high for us all. We cannot keep the water away, and it's mixing with petroleum and other substances used in refining processes. We cannot afford to remain blissfully ignorant of all that's mixed up along the tidal river. As we consider this refinery's future, let's not look away from the people and the places it will soak.

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1. Surging Seas in Philadelphia. By 2100, under any climate scenario, south Philadelphia will be very wet.
2. South Philadelphia at 1700, a vast marsh.
3. Vast marsh at 1700, map detail.
4. Marsh grasses and barges, 1859.
5. Marsh grasses and the oil refinery, 1881.

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Select public online resources for seeing the slow violence of the refining process and the consequences of drying wetlands in south and southwest Philadelphia for use by industry:

Jacob Hershman, *Y kpguakpi 'Rj kcf grj k au'Qkuecr g*

<http://schuylkillcorps.org/exhibits/show/witnessing-philadelphia-s-oils/bearing-witness>

Ana Alonso, *Vj g'Gcuwy keniNxlpi 'J kxqt { 'Rt qlgev.*

<http://schuylkillcorps.org/exhibits/show/eastwick-oral-history-project/urban-renewal>

Figure 1.

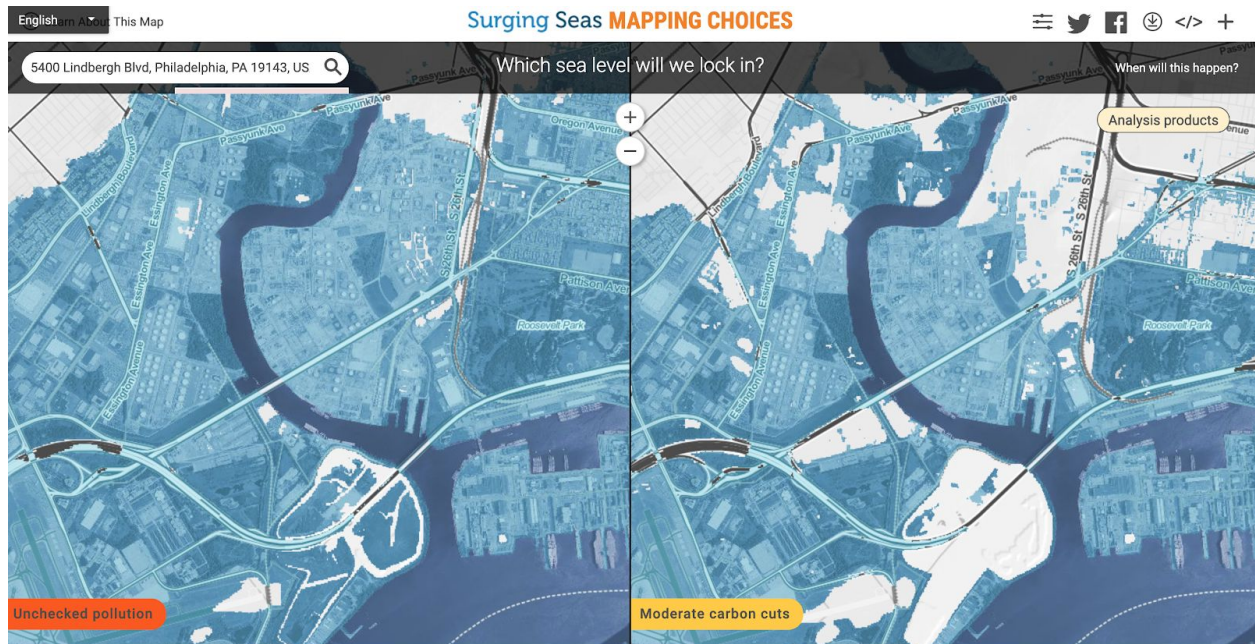


Figure 1 caption. The view from 2100. South Philadelphia will again be very wet with the rise in sea levels, no matter which climate scenario or model you use.

Image source:

<https://choices.climatecentral.org/#12/39.9526/-75.1655?compare=scenarios&carbon-end-yr=2100&scenario-a=unchecked&scenario-b=moderate-cuts>

Figure 2.



Figure 3.



Figures 2 and 3 caption. The view from 1700, with inset detail, of the 1681 map by Thomas Holmes. South Philadelphia was very wet when European colonization was in its early days: marshy and home to many fish and birds.

Image source: <https://www.loc.gov/resource/g3820.ct001815/?r=-0.215,-0.02,1.308,0.711,0>

Figure 4.



Figure 4 caption. James Fuller Queen. "Grays Ferry Looking South." Painting. 1859.

Image source:

<https://www.loc.gov/photos/?fa=access-restricted:false&q=James+fuller+queen+barges&st=slide+show>

