# Hashamomuck Cove
# Southold, New York
# Coastal Storm Risk Management
# Integrated Feasibility Study/EA

## Appendix A7
## Record of Non-Applicablity
## (RONA) and Emissions
## Calculation

Environmental Analysis Branch (CENAN-PL-E)

January 15, 2019

**RECORD OF NON-APPLICABILITY (RONA)**

Project Name: Hashamomuck Cove Coastal Storm Damage Reduction Project
Reference: Equipment list provided 25 Oct 18 to Jenine Gallo via email from Matthew Voisine

Project/Action Point of Contact: Dan Falt

Begin Date: January 2020

End Date: December 2020

1. The project described above has been evaluated for Section 176 of the Clean Air Act. Project related emissions associated with the federal action were estimated to evaluate the applicability of General Conformity regulations (40CFR§93 Subpart B).

2. The requirements of this rule do not apply because the total direct and indirect emissions from this project are less than the 100 tons trigger levels for $NO_x$, $PM_{2.5}$, CO, and $SO_2$ and less than 50 tons for VOCs for each project year (40CFR§93.153(b)(1) & (2)) and for the project as a whole. The estimated total $NO_x$ emissions for the project are 9.0 tons. Emissions of VOC, $PM_{2.5}$, CO, and $SO_2$ are also all well below the applicable trigger levels (see attached estimates).

3. The project is presumed to conform with the General Conformity requirements and is exempted from Subpart B under 40CFR§93.153(c)(1).

Enclosure

Sincerely

WEPPLER.PETER.M.1228647353
Digitally signed by WEPPLER.PETER.M.1228647353
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=WEPPLER.PETER.M.1228647353
Date: 2019.01.15 16:29:27 -05'00'

Peter Weppler
Chief, Environmental Analysis Branch

Emissions have been estimated using project planning information developed by the Philadelphia District, consisting of anticipated equipment types and estimates of the horsepower and operating hours of the diesel engines powering the equipment. In addition to this planning information, conservative factors have been used to represent the average level of engine load of operating engines (load factors) and the average emissions of typical engines used to power the equipment (emission factors). The basic emission estimating equation is the following:

$$E = hrs \times LF \times EF$$

Where:

**E** = Emissions per period of time such as a year or the entire project.
**hrs** = Number of operating hours in the period of time (e.g., hours per year, hours per project).
**LF** = Load factor, an estimate of the average percentage of full load an engine is run at in its usual operating mode.
**EF** = Emission factor, an estimate of the amount of a pollutant (such as $NO_x$) that an engine emits while performing a defined amount of work.

In these estimates, the emission factors are in units of grams of pollutant per horsepower hour (g/hphr). For each piece of equipment, the number of horsepower hours (hphr) is calculated by multiplying the engine's horsepower by the load factor assigned to the type of equipment and the number of hours that piece of equipment is anticipated to work during the year or during the project. For example, a crane with a 250-horsepower engine would have a load factor of 0.43 (meaning on average the crane's engine operates at 43% of its maximum rated power output). If the crane were anticipated to operate 1,000 hours during the course of the project, the horsepower hours would be calculated by:

$$250 \text{ horsepower} \times 0.43 \times 1{,}000 \text{ hours} = 107{,}500 \text{ hphr}$$

The emissions from diesel engines vary with the age of an engine and, most importantly, with when it was built. Newer engines of a given size and function typically emit lower levels of most pollutants than older engines. The emission factors used in these calculations assume that the equipment pre-dates most emission control requirements (known as Tier 0 engines in most cases), to provide a reasonable "upper bound" to the emission estimates. If newer engines are actually used in the work, then emissions will be lower than estimated for the same amount of work. In the example of the crane engine, a $NO_x$ emission factor of 9.5 g/hphr would be used to estimate emissions from this crane on the project by the following equation:

$$\frac{107{,}500 \text{ hphr} \times 9.5 \text{ g } NO_x/\text{hphr}}{453.59 \text{ g/lb} \times 2{,}000 \text{ lbs/ton}} = 1.1 \text{ tons of } NO_x$$

As noted above, information on the equipment types, horsepower, and hours of operation associated with the project have been obtained from the project's plans and represent current best estimates of the equipment and work that will be required. Load factors have been obtained from various sources depending on the type of equipment. Land-side nonroad equipment load factors are from the documentation for EPA's NONROAD emission estimating model, "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, EPA420-P-04-005, April 2004."

Emission factors have also been sourced from a variety of documents and other sources depending on engine type and pollutant. Nonroad equipment NOx and other emission factors have been derived from EPA emission standards and documentation. On-road vehicle emission factors have also been developed from the EPA model MOVES2014a run for 15-year-old single-unit short-haul trucks operating in CY 2017, expected to be representative of trucks of the same model years in the time frame of expected project operations. To the extent that normal turnover will result in newer trucks performing the work for the project, the on-road estimates in this analysis are likely higher than will actually occur.

As noted above, the emission factors have been chosen to be moderately conservative so as not to underestimate project emissions. Equipment turnover by the time the project is undertaken will likely result in newer equipment performing the work than assumed in this analysis, meaning the emissions presented in this analysis are likely higher than will actually occur.

The following pages summarize the estimated emissions in sum for the project including the anticipated equipment and engine information developed by the Philadelphia District, the load factors and emission factors as discussed above, and the estimated emissions for the project.

**USACE - New York District**
**NAN - Sandy-Related Projects**
**Hashamomuck Cove Coastal Storm Damage Reduction Project**
**Equipment Emission Estimates**
**1 November 2018**
**DRAFT**

| | $NO_x$ | VOC | tons<br>$SO_x$ | $PM_{2.5}$ | CO |
|---|---|---|---|---|---|
| | tons | tons | tons | tons | tons |
| **Project Emissions:** | **9.0** | **0.7** | **0.006** | **0.3** | **2.3** |

| **Description, off-road equipment*** | **Category** | **Horsepower (approx.)** | **Load Factor** | **Hours** | **hphrs** | **grams per hphr*** $NO_x$ | VOC | $SO_x$ | $PM_{2.5}$ | CO | **tons** $NO_x$ | VOC | $SO_x$ | $PM_{2.5}$ | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mobilization / Demobilization** | | | | | | | | | | | | | | | |
| TRACTOR, CRAWLER (DOZER) | Crawler tractor | 250 | 0.59 | 180 | 26,550 | 9.5 | 0.19 | 0.005 | 0.16 | 1.21 | 0.278 | 0.006 | 0.0001 | 0.005 | 0.04 |
| TRACTOR, CRAWLER (DOZER) | Crawler tractor | 80 | 0.59 | 180 | 8,496 | 9.5 | 0.19 | 0.005 | 0.16 | 1.21 | 0.089 | 0.002 | 0.0000 | 0.001 | 0.01 |
| **Beach berm** | | | | | | | | | | | | | | | |
| TRACTOR, CRAWLER (DOZER) | Crawler tractor | 250 | 0.59 | 3,600 | 531,000 | 9.5 | 0.19 | 0.005 | 0.16 | 1.21 | 5.561 | 0.111 | 0.0029 | 0.094 | 0.71 |
| **Backfill crew** | | | | | | | | | | | | | | | |
| TRACTOR, CRAWLER (DOZER) | Crawler tractor | 80 | 0.59 | 912 | 43,046 | 9.5 | 0.19 | 0.005 | 0.16 | 1.21 | 0.451 | 0.009 | 0.0002 | 0.008 | 0.06 |
| | | | | | **609,092** | | | | | | **6.4** | **0.1** | **0.003** | **0.1** | **0.8** |

* Emission factors consistent with NAN ABU emission estimates and documented with that work.

| **Description, on-road vehicles*** | **Category** | **Hours** | **Miles** | **grams per mile**** $NO_x$ | VOC | $SO_x$ | $PM_{2.5}$ | CO | **tons** $NO_x$ | VOC | $SO_x$ | $PM_{2.5}$ | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mobilization / Demobilization** | | | | | | | | | | | | | |
| DUMP TRUCK, HIGHWAY | Class 8 diesel truck | 180 | 6,300 | 9.3 | 2.2 | 0.011 | 0.7 | 5.3 | 0.065 | 0.015 | 0.0001 | 0.005 | 0.04 |
| **Beach berm** | | | | | | | | | | | | | |
| DUMP TRUCK, HIGHWAY | Class 8 diesel truck | 7,200 | 252,000 | 9.3 | 2.2 | 0.011 | 0.7 | 5.3 | 2.588 | 0.606 | 0.0030 | 0.185 | 1.48 |
| | | | **258,300** | | | | | | **2.7** | **0.6** | **0.003** | **0.2** | **1.5** |

On-road truck activity assume travel at 35 mph average, conservative 1995 MY trucks

* On-road emission factors from MOVES2014 for 2017, Union Co. NJ. MY 2002 (15-year-old) single-unit short-haul truck

| | $NO_x$ | VOC | $SO_x$ | $PM_{2.5}$ | CO |
|---|---|---|---|---|---|
| **Total estimated project emissions** | **9.0** | **0.7** | **0.01** | **0.3** | **2.3** |

* Per NYDEC finding, land-side emissions are accounted for in the applicable SIP and are therefore not considered in the General Conformity evaluation.