US Army Corps of Engineers®
New York District

LAKE MONTAUK HARBOR, EAST HAMPTON, NEW YORK

NAVIGATION IMPROVEMENTS

FINAL ENVIRONMENTAL ASSESSMENT
JULY 2020

APPENDIX G:

Clean Air Act

Environmental Analysis Branch (CENAN-PL-E)

March 2020

RECORD OF NON-APPLICABILITY (RONA)

Project Name: Lake Montauk Harbor Navigation Improvement Feasibility Study

Reference: Summary report "*Report Summary Lake Montauk Harbor Nav-ONLY Jan2019.docx*"

Project/Action Point of Contact: Peter Weppler

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 67.2 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).

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Peter Weppler
Chief, Environmental Analysis Branch

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Emissions have been estimated using project planning information developed by the New York District, consisting of anticipated dredging volumes, 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. 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 New York District, the load factors and emission factors as discussed above, and the estimated emissions for the project.

USACE - New York District

NAN - Lake Montauk Harbor

General Conformity-Related Emission Estimates

DRAFT

3/20/2019

Project Emission Summary

Pollutant	2019	2020	Total
NO_x	57.6	9.6	67.2
VOC	2.2	0.4	2.5
$PM_{2.5}$	3.0	0.5	3.5
SO_x	0.0	0.0	0.04
CO	6.4	1.1	7.5

Equipment and Emission Details

			Load			grams per hp-hr					tons				
Description, dredges and vessels	**Category**	**Horsepower (approx.)**	**Factor**	**Hours**	**hphrs**	**NOx**	**VOC**	**PM2.5**	**SOx**	**CO**	**NO_x**	**VOC**	**$PM_{2.5}$**	**SO_x**	**CO**
Cutter suction dredge main engine	CSD primary engine	9,000	0.66	711	4,225,970	9.7	0.37	0.51	0.005	1.06	45.19	1.724	2.376	0.023	4.938
Cutter suction dredge secondary engine	CSD secondary engine	3,310	0.66	711	1,554,218	9.7	0.37	0.51	0.005	1.06	16.62	0.634	0.874	0.009	1.816
Dredge auxilury engine	CSD aux engine	830	0.40	711	236,199	7.3	0.2	0.29	0.005	1.27	1.90	0.052	0.076	0.001	0.331
Work tug main engine	Tug main	250	0.68	711	120,945	9.7	0.37	0.51	0.005	1.06	1.29	0.049	0.068	0.001	0.141
Work tug aux engine	Tug aux	50	0.40	711	14,229	7.3	0.2	0.29	0.005	1.27	0.11	0.003	0.005	0.000	0.020
Crew/survey boat main engine	Tug main	100	0.68	711	48,378	9.7	0.37	0.51	0.005	1.06	0.52	0.020	0.027	0.000	0.057
Crew/survey boat main engine	Tug aux	40	0.40	711	11,383	7.3	0.2	0.29	0.005	1.27	0.09	0.003	0.004	0.000	0.016
Derrick barge main	Crane	200	0.43	711	61,184	9.5	0.183	0.16	0.005	1.21	0.64	0.012	0.011	0.000	0.082
Derrick barge aux	Generator	40	0.43	711	12,237	9.5	0.183	0.16	0.005	1.21	0.13	0.002	0.002	0.000	0.016
Tug Boat, 1950 hp	Tug main	1,950	0.68	15	19,890	9.7	0.37	0.51	0.005	1.06	0.21	0.008	0.011	0.000	0.023
Tug auxiliary engine	Tug aux	150	0.40	15	900	7.3	0.2	0.29	0.005	1.27	0.01	0.000	0.000	0.000	0.001
Barge Mounted Crane, 100 ton	Crane	200	0.43	25	2,150	9.5	0.183	0.16	0.005	1.21	0.02	0.000	0.000	0.000	0.003
Tug Boat, 1950 hp	Tug main	1,950	0.68	25	33,150	9.7	0.37	0.51	0.005	1.06	0.35	0.014	0.019	0.000	0.039
Tug auxiliary engine	Tug aux	150	0.40	25	1,500	7.3	0.2	0.29	0.005	1.27	0.01	0.000	0.000	0.000	0.002
Barge Mounted Crane, 100 ton	Crane	200	0.43	3	258	9.5	0.183	0.16	0.005	1.21	0.00	0.000	0.000	0.000	0.000
Tug Boat, 1950 hp	Tug main	1,950	0.68	3	3,978	9.7	0.37	0.51	0.005	1.06	0.04	0.002	0.002	0.000	0.005
Tug auxiliary engine	Tug aux	150	0.40	3	180	7.3	0.2	0.29	0.005	1.27	0.00	0.000	0.000	0.000	0.000
Barge Mounted Crane, 100 ton	Crane	200	0.43	5	430	9.5	0.183	0.16	0.005	1.21	0.00	0.000	0.000	0.000	0.001
Tug Boat, 1950 hp	Tug main	1,950	0.68	5	6,630	9.7	0.37	0.51	0.005	1.06	0.07	0.003	0.004	0.000	0.008
Tug auxiliary engine	Tug aux	150	0.4	5	300	7.3	0.2	0.29	0.005	1.27	0.00	0.000	0.000	0.000	0.000
Totals											**67.2**	**2.5**	**3.5**	**0.04**	**7.5**