New York and New Jersey Harbor Deepening Project

Volume IIA:

Environmental Appendices A to C

U.S. Army Corps of Engineers
New York District

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Environmental Assessment
Appendix A:
Air Quality

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CLEAN AIR ACT COMPLIANCE

Background and Overview of Path to Air Compliance

The District has formulated a plan to comply with the Clean Air Act (CAA) that identifies the least expensive alternative without incurring extra project implementation risk. The HDP involves using Federal planning, design, supervision and cost sharing of construction activities to deepen channels within the New York and New Jersey Harbor. The General Conformity Rule (GCR) (§176(c)(1) of the CAA) requires that Federal Actions, which are defined as "any activity engaged in by a department, agency, or instrumentality of the Federal government, or any activity that a department, agency or instrumentality of the Federal government supports in any way, provides financial assistance for, licenses, permits, or approves…" do not interfere with states' efforts to attain or maintain ambient air quality standards in a timely manner in accordance with the Environmental Protection Agency (EPA) approved State Implementation Plans (SIPs). The GCR requires that Federal agencies document a conformity review through a conformity determination.

The *New York and New Jersey Harbor Navigation Study Feasibility Report* (*Feasibility Report*) along with its accompanying Final Environmental Impact Statement (EIS) for the HDP was completed in 1999. The EPA commented that the conformity review of air impacts required further analyses and information. The Recommended Plan study area is located within the New York - Northern New Jersey - Connecticut severe non-attainment area for ozone, which is composed of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs). In addition to ozone, the study area is a maintenance area for carbon monoxide (CO), which has a *de minimus* standard of 100 tons per year of CO. Preliminary emission estimates showed that the project emissions from construction would exceed the *de minimus* standard of 25 tons per year of NO_x, thus triggering the requirement that a conformity determination for ozone, followed by a Statement of Conformity (SOC), be prepared detailing how the entire project emissions would be reduced, mitigated or offset to zero. Offsetting is reducing emissions from project related sources or elsewhere within the non-attainment area that compensate for a project emission, thus resulting in no net increase in a particular pollutant's level within the non-attainment area. Emission estimates for CO showed that the project emissions would not exceed the CO trigger level and therefore, for CO the project meets the GCR requirements.

Various agencies involved with air quality in the region discussed how to bring the HDP into compliance. In November 2001, the Regional Air Team (RAT) was created to facilitate discussions between the EPA Region 2, the United States Army Corps of Engineers (USACE), the Port Authority of New York and New Jersey (PANYNJ) and the states of New York (NYSDEC) and New Jersey (NJDEP). Through the coordination of the RAT members and leadership of USACE- New York District (NYD), the team was able to develop a conditional statement of conformity (cSOC). This was the first time a conditional Statement of Conformity had ever been produced. It laid out a process to reach General Conformity before construction begins.

The cSOC commits USACE as the federal agency to bring the project into compliance prior to the start of construction. The cSOC serves as a guidepost for attainment, identifying various strategies to be investigated to achieve conformance. USACE would pursue real reductions of project emissions, *as technologies are available* as well as the use of credits, offsetting project emissions, and inclusion of all or part of the project emissions into one or both SIPs

In accordance with the cSOC, various emission reduction strategies and technologies were identified in an initial findings report. The technologies identified were: fuel emulsions; engine retrofits, particulate filters; oxidation catalysts, selective catalytic reduction technology, electrification, and other emerging technologies. Ideas were solicited from the dredging industry and port facility operators. The PANYNJ produced an inventory of existing emissions at PANYNJ facilities and listed technologies with the potential to offset some of the project emissions. USACE also evaluated emission reduction opportunities at its facilities.

Project emissions that could not be reduced through measures mentioned above would be reduced through purchase of existing air credits or by offsetting emissions within the non-attainment area or by the states' accommodating the project in their SIPs. In both the unconsolidated and consolidated implementation cases, the 25 tons per year standard for NO_x is triggered for all years[1], necessitating emission reduction to zero (net) in every year in order to achieve General Conformity as required by the CAA.

In December 2002, the USACE (NYD) received air mitigation guidance from USACE Headquarters that allowed NYD to pursue air mitigation in a path similar to wetlands mitigation. The guidance followed the prioritization established for wetlands mitigation: first at the project construction site, and if not at the project construction site, then nearby and within the non-attainment area. For air mitigation the priorities were established first to seek out mitigation on public/governmental marine vessels, then private marine vessels, and lastly from on-road vehicles. Public sources are a priority as they reduce contracting difficulties with private industries and reflects the government's commitment to improving air quality through sources that are used by the public.

Various combinations of strategies were researched that would bring the project into compliance. The Harbor Air Mitigation Plan (HAMP) is a detailed analysis of these strategies and the recommended plan. The HAMP reviews the strategies outlined in the cSOC, highlights a selected group of applications of those strategies, and arranges them according to the priorities in the Headquarters memo. The goal is to choose a plan that is cost effective and that fully complies with the CAA.

[1] In 2013, projected emissions do not exceed the 25 tons per year of NO_x threshold. However, the GCR states that if a federal action triggers the GCR in any year, that the emissions need to be reduced down to zero in all years.

Real reductions on site, at best, would only eliminate up to 40% of the Project's emissions. With any strategy chosen, the use of additional credits or offsets would be needed to achieve the necessary full emissions reductions. However as credits are not available for non-stationary sources and the emissions trading program in New Jersey is being phased out, offsets will make up the bulk of compliance strategies.

Offsets require establishment of concurrent administrative and monitoring programs to track the emissions derived from the offsets to ensure sufficient reductions are being made to offset actual project emissions fully. This is part of the enforceability requirement of General Conformity. Currently the most effective offset options consist of retrofitting or repowering marine vessels that operate a significant amount of time within the non-attainment area, primarily targeting tugboats, or the use of emission reduction technologies on local ferries.

Tugboats are relatively inexpensive to retrofit, but they also produce relatively small amounts of offset, are subject to being idled by unfavorable business conditions, and, because they are privately owned, are also susceptible to being moved to conduct operations outside the non-attainment area. Moreover, the number of tugs that are being operated in the non-attainment area and that can be retrofitted is insufficient to produce the total quantity of offsets required in the peak years of HDP construction.

Government operated ferries; such as the Staten Island Ferry have several advantages as compared to the repowering of tugs or the retrofitting of private ferries. They are not subject to being idled (and therefore not producing emissions offsets) as a result of unfavorable business conditions, nor will they be taken outside of the non-attainment area to pursue better business opportunities. Moreover, they are sufficiently numerous to have the potential to offset all of the HDP construction emissions (the Staten Island Ferry fleet is the largest discrete unregulated source of marine emissions in the non-attainment area). Accordingly, they are accorded a preference in the USACE Headquarters memo. For these reasons, the Staten Island Ferries were prioritized, as a choice emission reduction source.

That being said because of the long lead time in getting the Staten Island Ferry boats retrofitted and because of the relatively low HDP construction emissions in the first two years, a combination of credits and tug-repowering is needed in the beginning years to bridge the gap and to better match project emissions during the early period.

The current HAMP strategies consists of:

- The purchase of emissions credits,
- The re-powering of a total of approximately six to eight[2] tug-boats (the amount needed to reduce 150 tons NOx per year for the duration of the project), and
- The retrofitting of all seven of the Staten Island Ferry boats.

[2] The amount of reductions needed will dictate the exact number of tugboats repowered

The sources of variability and costs of implementation being slowed or interrupted were also factors that were considered. Project implementation risk is the risk that implementation of the project will be slowed or halted because of a lack of sufficient offsets to cover project emissions. The sources of variability that contribute to this risk are the performance of emission reduction equipment installed on the vessels of the dredging fleet, the utilization of repowered vessels, and the performance of non-EPA verified emission reduction equipment installed on the retrofitted ferry vessels. The primary costs associated with the adverse event (*i.e.*, having to slow or temporarily halt implementation of the HDP) would take the form of the opportunity cost of delay; increased interest during construction and delayed realization of project benefits. The magnitude of these costs depends on the length of the delay (more delay produces more cost) and the point in the construction sequence at which the delay occurs.

The total cost of the preferred alternative is $15,280,000. Included in this cost, over the life of the HAMP, is an estimated additional $2,000,000 needed to monitor and coordinate operations to confirm the necessary offsets are being generated. It is the least cost alternative and it is among the alternatives that presents the lowest level of risk that implementation of the project will be delayed or interrupted for lack of sufficient offsets to cover project emissions in any given period.

Credits and offsets have been secured by the PANYNJ according to the plan set forth in this LRR. As the basis for the PCA, the LRR would, effectively, set the unit prices of the credits and offsets. The HDP would, in effect, "buy" credits and offsets as required from the PANYNJ. The Government and the non-Federal sponsor would share the expense of the credits and offsets just as they would any other expense of construction the General Navigation Features of the project.

There would be a long-term net improvement in the air quality in the non-attainment area during and after project construction because the repowered tugs and retrofitted ferries will continue to operate after the project is completed; there will be a legacy of reduced air emissions over the long-term, thanks to the recommended plan. The region will be left with cleaner air and more efficient marine cargo movement. Furthermore, implementation of the project will make it possible for marine carriers to bring more containerized cargo to and from the Port per vessel call, resulting in fewer vessel calls than would otherwise have been the case and thereby further reducing future emissions.

A draft of the HAMP will be publicly released in February 2004. The first annual SOC will be publicly released in Spring 2004. Separate SOCs will be produced prior to start of each construction element.