

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR AEROSOL TESTING IN NEW YORK CITY PUBLIC TRANSIT VEHICLES

Pursuant to section 102(2) (c) of the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality regulations (40 CFR Parts 1500-1508) on implementing the procedural provisions of NEPA, the Department of Homeland Security (DHS) conducted an Environmental Assessment (EA) on the releases of an aerosolized solution of particulate material in an out-of-service bus, subway car and commuter rail car at locations inaccessible to the public within the Metropolitan Transportation Authority (MTA) transit system.

The Proposed Federal Action includes tests that occurred in NYC in February 2021 and additional follow-on tests that will stay within the initial scope outlined in the amended EA and this FONSI. These activities will encompass a smaller subset of test conditions. Aerosol tests will be conducted up to four times each test day. There may be up to six days with aerosol tests with an additional one day of equipment setup for each rolling stock type (i.e., bus, subway car, commuter rail car) prior to any aerosol releases on those dates. The aerosol release and measurement tests (proposed tests) may be planned and coordinated with the following agencies of the Metropolitan Transportation Authority: MTA Bus, MTA New York City Transit, and MTA Metro-North Rail Road. MTA has evaluated safety data of the test solution and has approved release of the particle simulant. The purpose of the aerosol tests is to collect quantitative evidence on the transport, in real time and space, of particles that simulate viral particles, e.g., SARS-CoV-2, in modes of public transportation and to measure the effectiveness of simple measures to mitigate transport and enhance public and transit worker health and safety on mass transportation systems.

The outcomes of the aerosol tests and evaluation of mitigation measures will be documented in a detailed Technical Report to DHS. This study in a transit system will deliver evidence-based support to inform actions that may be taken by MTA, and other transit systems around the nation, on active measures that can be implemented to enhance public and transit worker safety on mass transportation systems.

A FONSI was published on January 21, 2021. This amended EA and FONSI encompass additional follow-on test activities which have been determined to be consistent with prior analysis. Based on a detailed technical analysis presented in the amended EA, DHS finds that the Proposed Federal Action will not have a significant impact on the human environment, either on individual release dates, or cumulatively. Therefore, an Environmental Impact Statement (EIS) is not required under the NEPA for the Proposed Federal Action. Details of the analysis and results can be found in the EA entitled "*Environmental Assessment of Proposed NYC Simulant Particle Releases for the Viral Phenomenology Program*". The EA can be accessed at: <http://www.dhs.gov/nepa>.

BACKGROUND

In densely populated urban areas, public transit systems provide vital, reliable, and affordable services to enable the safe movement of people and workers to their destination. As the SARS-CoV-2 pandemic began to spread across the country, mass transit systems in large urban centers experienced a deep reduction in ridership due to multiple factors that included, for example, stay-at-home directives for non-essential workers; changes in work patterns through increased reliance on telework options; school and business shutdowns; and general apprehensiveness about the ability to observe social distance guidelines issued by the Centers for Disease Control and Prevention (CDC). As part of their mission, transit agencies are committed to providing and ensuring the safest

environment and experience possible for their workforce and the public. The DHS Science and Technology Directorate (S&T), through a partnership with MTA plans to conduct a quantitative study in the operational environment of the MTA system to identify how a safe, non-toxic aerosol moves in a bus, subway car, and commuter train car under standard operating conditions and to measure and evaluate the impact of implementing practical methods to mitigate aerosol transmission in those environments. The proposed tests will be conducted in out-of-service rolling stock. The test locations and vehicles will not be accessible to the public.

The proposed tests will involve release of the safe viral simulant in combination with various detection, sampling, quantification, and modeling methods. For each test environment, simple mitigation factors will be investigated which will include some or all of the following: window operation; door operation; modifying heating, ventilation, and air conditioning (HVAC) settings; modifying air filter types; and wearing masks. The air and/or surfaces inside the vehicle environments will be analyzed to determine simulant concentration and droplet/particle sizes. Filters from HVAC systems will be retrieved and analyzed as well. The only individuals involved in the proposed tests will be laboratory personnel and volunteer operators from the MTA. The study participants will have samples of the safe viral simulant collected from cloth coupons, personal air sampler filters, skin wipes, nose filters, and face masks to illustrate exposure levels to people in various transit vehicle environments (e.g. bus, subway car, or commuter rail car), as well as the influence of mitigation measures. The results of the proposed tests will be used to document practical steps that transit agencies can take to mitigate the spread of an airborne virus. Vehicle interiors will be cleaned following the tests before the test vehicles are returned to service.

The proposed simulant particle is composed primarily of common substances that are not hazardous, particularly in the quantities to be released, which in all cases are below published exposure limits by the National Institute for Occupational Safety and Health (NIOSH). Components of the water-based aerosol solution will include some or all of the following:

- (1) Salt, this is the same as common table salt.
- (2) Glycerol, an ingredient that is added to many foods including processed fruits and frostings and is used in many personal care products, such as soap.
- (3) Optical Brightener (OB) 220, a fluorescent brightener that is non-hazardous and found in toothpastes and laundry detergents to make whites appear brighter.
- (4) Non-coding DNA oligomers that may be biotinylated, which are randomly generated, short DNA sequences that do not have any function. DNA is ubiquitous in byproducts like skin and hair from all organisms, and is also present in food items like fruits, vegetables, and meats. Biotin is also known as Vitamin B7 and is part of normal diets. Appreciable food sources of biotin include liver, eggs, and baker's yeast.
- (5) Amorphous silica particles that may contain commercially available streptavidin or avidin to facilitate linking of the non-coding biotin-DNA to the particles' surface. The amorphous silica is used as an anti-caking agent in many human and animal food products.

Distribution of the simulant materials would occur as a short burst release or would be spread out over a period of approximately one minute, with a maximum of four releases per test day per transit vehicle type. The maximum amounts of particulate simulant material released in each vehicle type over fifteen minutes and 8 hours are 285 micrograms (for a single release event) and 1140 micrograms (for the maximum of four releases in an 8-hour period), respectively. The particulate release amount has been chosen because it provides enough simulant material for sampling measurements to take place within the planned time and distance scales, while remaining within regulatory guidelines and not substantially affecting air quality (see Section 3.1.5 and 3.1.6 in the EA).

A thorough review of the potential effects on human health and the environment was performed and is documented in the EA because the proposed tests involve the release of a particulate substance (Simulant Alternative P1) into the human environment. The information reviewed and summarized in the EA also included available animal, environmental decay, and pre-existing usage data.

CONCLUSION

Based on the information presented in the amended EA and FONSI, the undersigned finds that the Proposed Federal Action is consistent with the existing national environmental policies and objectives as

set forth in the National Environmental Policy Act of 1969 (NEPA), and that it will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to NEPA.

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