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April 14, 2022

Via Electronic Mail

Mr. Craig Cipriano
Interim President
MTA New York City Transit
2 Broadway, 20th Floor
New York, NY 10004

**Re: NYC Transit Fire Suppression
Systems Require Immediate
Attention – FINAL Interim Report
MTA/OIG # 2022-05**

Dear Mr. Cipriano:

The MTA Office of the Inspector General (OIG) is conducting an audit of fire alarm and fire suppression systems at New York City Transit (NYC Transit) facilities. Our comprehensive audit report will be issued upon completion; however, concerns arose that we conveyed to you on March 29, 2022, via a draft version of this letter. This serves as the final version, and your response to our draft appears at the end of this letter.

During our fieldwork we observed water flow tests at the 207th Street Yard for the rehabilitation and storm hardening project. The purpose of the tests was to determine if the fire loop¹ was provided with enough water pressure to accommodate the installation of a new fire pump² for Relay Building A, which is under construction.

¹ The “fire loop” at 207th Street is an 8” pipe buried underground with redundant connections from the New York City water supply that loops around the yard to provide water to all hydrants and facilities with fire protection systems. The tests were requested by the Superintendent of the Fire Suppression Group to ensure proper water flow to the fire loop prior to any additional connections being made.

² A fire pump increases water pressure for fire suppression systems such as sprinklers and standpipes, both utilized in NYC Transit facilities. Fire pumps are needed when the pressure of the water supply is too low to contain a fire effectively.

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During these tests, the fire pump in Storeroom #1 was activated to check pressure at other locations. While the fire pump was running, low pressure was also observed at other points in the loop. Based on the test results, the fire loop pressure was determined to be insufficient by MTA Construction & Development and the Consulting Construction Management firm active at the 207th Street Yard; and the Fire Suppression group concurred.

OIG personnel then requested that the fire pump itself be tested in Storeroom #1 to ensure the pump was in working condition. In-house personnel from the Fire Suppression and the Hydraulics groups performed the test on March 9, 2022. The Fire Suppression Superintendent (Superintendent) told OIG that he believed the test failed due to a pressure reading on the suction gauge below the level required by code. OIG then requested the applicable code references substantiating the fire pump test failure. After researching National Fire Protection Agency (NFPA) codes 20 and 25, the Superintendent explained to the OIG that in fact the test did not fail due to low pressure but should have failed for insufficient gallons per minute (GPM) readings – that is, the volume of the water discharged during testing.

At this time, the General Superintendent, Building Maintenance/Yards & Barns (General Superintendent) appropriately became concerned that the testing was not being conducted properly and hired an outside vendor to perform the tests. Almost 10 days later, on March 18, 2022, OIG observed the tests performed by the outside company, which found that the fire pump failed almost immediately. The testing company noted that the results may have been from poor water pressure provided to the fire loop within the yard. Based on the results, the outside company determined – with corroboration from the General Superintendent – that the fire suppression system was ineffective, and a fire watch was immediately required. Additionally, the company recommended that the tests be conducted again after the loop pressure is restored.

Fire suppression systems play an important role in ensuring personnel and assets are protected from fires. Testing and maintaining these fire pumps on NFPA-required schedules is of the utmost importance. However, we learned that NYC Transit has not kept up with the required annual testing cycles, and there is significant evidence that in-house personnel have not been sufficiently trained on or knowledgeable about NFPA code requirements to ensure the testing was properly performed.

FINDINGS

- **The fire pumps at 22 of 23 NYC Transit facilities have not received the required annual fire pump inspections since 2020.** The 23rd location was last tested in November 2021 (*See* Exhibit 1, below, for a list of fire pump testing sites).
- **The testing performed historically was compromised because there is no record that existing gauges have been calibrated or regularly replaced.** NFPA requires that gauges shall be replaced every 5 years or tested every 5 years by comparison with a calibrated gauge.³ Another NFPA code⁴ states that flow meter equipment provided for testing shall be calibrated annually. The outside testing company’s recommendations also stated that equipment gauges should be calibrated annually. However, NYC Transit has no record of maintenance or testing – on any cycle – being conducted on these gauges.
- **Special gauges are required for 7 out of 23 fire pumps.** According to NFPA, if the gauges on the suction (intake) side of the fire pumps fall below 20 pounds per square inch (PSI), “the suction gauge shall be a compound pressure and vacuum gauge.”⁵ Based on our review of the 2020 fire pump test reports, 7 of the 23 fire pumps have a suction PSI of less than 20 and will need the special pressure/vacuum gauge as required. Since learning from the outside company that the special gauges are needed, the General Superintendent has been proactive in trying to order them; however, this process can take six to eight weeks.
- **NYC Transit fire suppression personnel are not adequately trained.** Operations Training requires all Fire Suppression personnel performing testing to receive the necessary training to perform these inspections and tests; this process includes “certificates of certification.”⁶

³ NFPA 25, 2017 Edition, Section 13.2.7.2

⁴ NFPA 25, Section 8.3.3.2.1.3

⁵ NFPA 20, 2016 Edition, Section 4.11.2.2.

⁶ NYC Transit Policy Instruction 10.2.1, Section III.C.1. & 2.

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During the testing, a key cause of the test failure was the low GPM level observed by the vendor. However, in previous testing by in-house forces, GPM was completely overlooked. A data plate located at the fire pump provides GPM requirements based on the needs of the facility, but this was also not taken into consideration by in-house personnel. Based on discussions with the Superintendent and the General Superintendent, OIG found that the fire suppression personnel do not have the proper training either to perform fire pump tests adequately or to assess the test results correctly.

RECOMMENDATIONS

Given the urgency of these findings, NYC Transit should:

1. Conduct the annual fire pump test for all 23 fire pumps immediately, as per Policy Instruction 10.23.1, §§ IV.5.V and Z. We further recommend that an outside consultant perform all testing unless proper gauges and testing equipment are on hand and the evaluation of data can be capably performed by trained in-house staff.

Agency Response: NYC Transit is engaging an outside vendor “to perform testing of the 23 fire pumps identified in the Interim Report. Testing reports will be shared with the OIG upon completion.”

2. Install proper gauges that are calibrated per NFPA requirements, or per more stringent industry standards, to ensure accurate test results.

Agency Response: “NYC Transit has issued a purchase order for the necessary new gauges. While some items are in stock, others have a 16–18-week lead time. NYC Transit will inform the OIG when installation is complete.”

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3. Direct qualified personnel to review all 2020 annual fire pump test reports immediately and report their written findings to upper management. Data plate information located at each fire pump should be used in the review process to ensure that each tester is aware of the required GPM level at each location. This data plate information should also be listed on the test reports for convenience during reviews.

Agency Response: NYC Transit is engaging an outside vendor “to review all 2020 annual fire pump test reports, and to prepare a report of their findings. The report will be shared with the OIG upon completion.”

4. Provide training to the Fire Suppression and Hydraulic personnel who conduct testing of fire pump equipment, as per the Policy Instruction, and document both the substance of the training and the names and titles of the individuals who received it.

Agency Response: “NYC Transit is in the process of determining how fire pump equipment testing will be performed after [the outside vendor] completes its testing of the fire pumps, in order to assure that testing is performed by appropriately trained and qualified individuals.”

We appreciate your prompt response to our interim report and will be providing the full report on fire alarms and fire suppression in May. Should you have any questions or require any additional information regarding this interim report, please contact me (212) 878-0022.

Very truly yours,

/S/

Elizabeth Keating

cc: Dominick Gallo

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Exhibit 1: Fire Pump Table

No.	Location	Designation	Date of Last Inspection	Suction PSI	Needs Special Gauge?	Date Gauges Last Calibrated
1	207th Street Yard – Storeroom #1	500-1	10.21.2020	-30	Yes	No Record
2	333 West 53rd Street – Power Control Center	500-9	10.21.2020	0	Yes	No Record
3	180th Street Station – Sprinkler Pump	500-4	10.09.2020	25	No	No Record
4	180th Street Maintenance Shop Standpipe Pump	504-2	10.09.2020	20	No	No Record
5	180th Street Maintenance Shop Sprinkler Pump	500-3	10.09.2020	20	No	No Record
6	Westchester Yard Signal Tower	500-6	10.02.2020	10	Yes	No Record
7	Westchester Yard Maintenance Shop	500-7	10.02.2020	0	Yes	No Record
8	Tiffany Yard Iron Shop	500-8	10.02.2020	20	No	No Record
9	Cozine Iron Shop	500-10	10.15.2020	45	No	No Record
10	Coney Island Yard Overhaul Shop	500-11	09.28.2020	15	Yes	No Record
11	Coney Island Yard Overhaul Shop	500-12	09.25.2020	20	No	No Record
12	Coney Island Yard Traction Motor Shop	500-13	09.25.2020	40	No	No Record
13	Coney Island Yard Pneumatic Shop	500-14	09.19.2020	30	No	No Record
14	Coney Island Yard Hazardous Material Building	500-15	09.19.2020	20	No	No Record
15	Linden Yard Fabrication Shop Sprinkler	500-17	10.15.2020	45	No	No Record
16	Linden Yard Fabrication Shop Standpipe Pump	500-18	10.15.2020	25	No	No Record
17	38th Street Yard 10th Avenue Fire Pump	500-19	09.20.2020	0	Yes	No Record
18	Stillwell Ave. Terminal Portal Bldg.	500-20	09.25.2020	35	No	No Record
19	Stillwell Ave. Terminal RTO Bldg.	500-21	09.19.2020	20	No	No Record
20	Smith/9th Street Station	500-24	09.26.2020	0	Yes	No Record
21	Corona Yard Maintenance Shop	500-27	10.03.2020	42	No	No Record
22	Corona Yard Master Signal Tower	500-28	10.03.2020	30	No	No Record
23	Fulton Street Transit Center	500-29	11.11.2021	50	No	No Record