



Barry L. Kluger
Inspector General

Office of the Inspector General
Metropolitan Transportation Authority
Two Penn Plaza, 5th Floor
New York, New York 10121
212-878-0000

May 1, 2018

Andrew Byford
President
MTA New York City Transit
2 Broadway, 30th Floor
New York, NY 10004

**Re: New York City Transit Signals
Division Inspection and
Recordkeeping Controls
MTA/OIG #2018-01**

Dear Mr. Byford:

The Office of the Metropolitan Transportation Authority (MTA) Inspector General (OIG) completed a review of the controls governing New York City Transit's (NYC Transit's) recordkeeping for signals testing and maintenance (Inspections). This letter shall serve as the OIG's final report on the matter that was previously presented to MTA in a draft letter dated February 8, 2018. In NYC Transit's March 30, 2018 response the agency indicated that it agreed with the recommendations contained in our draft letter.

NYC Transit's signal system is a critical part of the subway infrastructure in that it controls the movement and speed of trains, and includes safety features that minimize the risk of train collisions. The Division of Signals (Signals) within the Department of Subways (Subways), Maintenance of Way (MOW) is responsible for the testing and maintenance (hereafter inspections) of approximately 45,000 signal devices. As of July 2017, there were approximately 800 Signal Maintainers (Maintainers), 440 signal helpers and 150 Maintenance Supervisors (Supervisors) who perform signal inspections.

In July 2010, during the course of an ongoing investigation, and due to our concerns for the safety of the riding public, OIG informed NYC Transit of evidence indicating that maintainers were falsifying signal records. We then entered into a partnership with the Office of the New York County District Attorney (NYDA) to identify those directly and indirectly responsible for the falsification, and determine the nature and extent of any criminal conduct. As a result of our joint investigation with the NYDA, eight signal maintainers and two signal supervisors pled guilty to either Official Misconduct, or Tampering with Public Records.

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While our investigation was ongoing, we also worked with NYC Transit to help ensure the integrity of Signals inspection documentation. In order to improve recordkeeping controls Subways implemented two types of audits of Signals inspection records.

In 2017, we reviewed these controls and found that neither of the audits, which are performed by Asset Management and Operations Support (Asset Management), are transmitted to Signals in a timely manner so that Signals' managers can act on the results nor are Signals' managers given deadlines to respond to audit findings. More troubling, Signals is not required to describe the actions that it has taken to correct deficiencies identified in the audits, and therefore, Asset Management has no assurance that Signals has taken appropriate corrective actions in response to audit findings.

We also found that one of the audit types performed by Asset Management, and designed to detect suspicious inspection activity, is not as comprehensive in its analysis of inspection records as it should be. These flaws undermine the controls governing Signals' inspection records.

Going forward, Subways should ensure that Asset Management establishes response deadlines in all of the audits that it performs, and conducts more comprehensive audits of inspections. In addition, Subways should require that Signals describes corrective actions taken in response to audit findings. This letter informs you of the results of our recent review.

Signals Organization and Recordkeeping

As of July 2017, there were 124 signal sections in the NYC transit system. Maintainers are required to test and maintain signal equipment at defined periodic intervals. Maintainers are also required to document the work in accordance with NYC policy in a logbook that is maintained at the employee's assigned quarters. In addition, supervisors are required to record the inspections performed in their assigned sections in an electronic recordkeeping system known as the Signal Equipment Information System (iSEIS).

Notably, logbook entries are the business record for signal inspections. In contrast, iSEIS is a management tool. Supervisors use iSEIS to plan and assign inspections, and their superiors, Superintendents and other higher-level officials¹ use iSEIS to ascertain whether required inspections are up-to-date. Thus, ensuring the integrity of this information is essential for sound management.

¹ The management levels above a Superintendent are General Superintendent, Assistance Chief Signal Officer, Chief Signal Officer and the Chief Electrical Officer.

Logbook Audits

Within MOW, Asset Management performs a quality assurance review of the logbook data, known as a logbook audit. With regard to organizational structure, Asset Management is independent of the Signals Division. The Senior Director of Asset Management reports directly to the Vice President and Chief Maintenance Officer, the senior most MOW official, as does the Chief Electrical Officer, who is responsible for Signals.

Asset Management's goal is to perform approximately 40 logbook audits a year. Each audit focuses on the logbook for a specific section. The sections are randomly selected at the beginning of the audit cycle, but Asset Management will also perform audits specifically requested by Signals' management. For each audit, the auditor will compare approximately three months of iSEIS inspection records to the entries in the section logbook, and note any discrepancies. In 2016, Asset Management performed 44 logbook audits. More than 68,000 entries were audited.

Transmission of Audit Results to Signals Management

After a logbook audit is completed the Senior Director of Asset Management reviews the results, prepares a cover memo, and transmits the completed report to the Chief Electrical Officer who in turn forwards the audit to the General Superintendent in charge of the section.

However, we found Asset Management does not treat logbook audits that indicate significant discrepancies between iSEIS and the section logbook with any degree of urgency. For example, Asset Management completed an audit of the Parsons-Archer section on July 3, 2017. The audit showed that only 32 of 76 iSEIS entries (42 percent) pertaining to switch inspections had a corresponding entry in the logbook for the Parsons-Archer section. This is a significant number of discrepancies, which raised the question of whether the inspections were actually performed. According to the Signals General Manager in charge of Parsons-Archer, he received the audit on July 20, 17 days after the audit was completed.

OIG confirmed that all of the inspections were in fact performed, and determined that the inspections were incorrectly recorded in the section logbook for 179th Street instead of Parsons-Archer.² The discrepancies found in our review were significant and Asset Management should have quickly notified Signals of logbook audit results.

² The signal inspections were performed in tandem with NYC Transit Track Division inspections, and documented on a joint Signals/Track inspection form that is completed by both divisions.

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Signals' Response to Logbook Audits

According to the Chief Electrical Officer, the General Superintendent (GS) in charge of the audited section is responsible for the Signals logbook audit response. However, when Asset Management transmits audit results to Signals it does not establish an audit response deadline. This is troubling, because it significantly diminishes the logbook audit's value as a tool that can help Signals management ensure that the work has been performed, and correctly reported in Signals recordkeeping systems.

The absence of an audit response deadline is especially troubling when the logbook audit finds significant discrepancies between iSEIS and the logbook. For example, Asset Management's 2016 audit of the East New York (ENY) section, which was transmitted to the Chief Electrical Officer on September 27, 2016, reported that approximately 1,520 iSEIS entries (40 percent of the entries) did not have a corresponding entry in the ENY logbook. This is a substantial and an unacceptable discrepancy. Because the discrepancies may have indicated a pattern of missed inspections, the GS in charge of the section should have been required to respond promptly to the audit findings with an explanation and corrective action. However, Asset Management did not set a deadline for the GS to respond, and consequently, the GS did not respond until May 27, 2017, eight months after he received the audit results.

Additionally, Signals' managers are not required to explain the reasons for audit discrepancies, nor are they required to ensure that the inspections were actually performed. Notably, the audit responses that we reviewed during our audit were uninformative. Again, the 2016 ENY audit is instructive. The GS in charge of the ENY section transmitted the following response to Asset Management regarding the ENY logbook audit "Employees were reinstructed on logbook entries." Who was reinstructed and why went unexplained in the response. Worse, there was no indication that the GS confirmed that the work listed in iSEIS, but not in the section logbook, was actually completed.

The GS told OIG that the recordkeeping discrepancies largely stemmed from inattention on the part of the Superintendent in charge of the ENY section, because he allowed iSEIS to erroneously list signal equipment that was the responsibility of the Utica Avenue (Utica) section instead as the responsibility of the ENY section. OIG reviewed the Utica logbook entries and found that they corresponded to the questionable iSEIS entries for the audit period. The GS also told OIG that the Superintendent had corrected the iSEIS records, and that he himself analyzed the records to make sure that the inspections were performed, and corrected 12 data entry errors.

However, he could not adequately explain why it took eight months from the date of the audit to correct the data entry errors, nor could he explain why the audit response was not meaningful. He acknowledged that he often paid little attention to the audits.

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In short, Subways should ensure that Asset Management sets audit response deadlines. It should also require that Signals, in its audit response, describe the corrective actions that it took in response to audit findings.

Maintenance Delivery/Outlier Audits

As noted, in July 2010, OIG informed NYC Transit management of evidence indicating that maintainers were falsifying signal inspection records. During our investigation we observed that when the iSEIS records³ associated with a specific maintainer indicated unusually high inspection activity during the maintainer's normal eight hour work shift there was a risk that the inspection reporting was fraudulent. OIG identified any such occurrence by the term "outlier." An unusually high amount of inspection activity in iSEIS is not conclusive proof of fraudulent reporting, nevertheless, such occurrences warrant further investigation.

While our investigation was ongoing, we communicated our observation regarding outliers to NYC Transit. The agency informed OIG that it would implement our recommendation to use audit procedures similar to the methods used by OIG during our investigation to identify and investigate outliers in the inspection records.

However, in May 2013, the MTA's Audit Services found that the outlier audits conducted by Subways (also known as maintenance delivery audits) focused only on certain maintenance tasks, while neglecting other maintenance tasks and all signals testing. Audit Services recommended that the agency should develop a more comprehensive monthly review process of outlier activity to include all critical testing and maintenance activity.

NYC Transit agreed with the recommendation, and subsequently the agency reported to Audit Services that it had implemented the recommendation. Unfortunately, in 2017, we found that the outlier audits performed by Asset Management are still focused only on certain maintenance tasks, and had not fully implemented the recommendation made first by our office, and later by Audit Services.

OIG completed its own analysis of signal inspections recorded in iSEIS for the month of July 2017, including testing and maintenance, and found no outliers. To help ensure that controls on Signals' recordkeeping are adequate, we believe that Asset Management should periodically perform more comprehensive outlier or maintenance delivery audits.

³ When the investigation was being conducted the electronic recordkeeping system was known by the acronym SEIS.

RECOMMENDATIONS

To strengthen controls on Signals recordkeeping, we make the following recommendations to the NYC Transit Subways:

1. Asset Management in consultation with Signals should establish a threshold above which discrepancies between iSEIS and the section logbook will require that Asset Management immediately notify Signals of the audit results.
2. Ensure that Asset Management's process for logbook and maintenance delivery audits:
 - a. Establishes an audit response deadline in every audit transmitted to Signals;
 - b. Requires that Signals correct discrepancies in the inspection records; and
 - c. Requires that Signals audit response include an explanation of the reason(s) for the recordkeeping inaccuracies, and a description of the corrective actions taken.
3. Asset Management must perform comprehensive maintenance delivery audits, including signals testing as well as maintenance, as accepted by NYC Transit in 2010 and 2013.

Agency Response

Your response to our preliminary report is dated March 30, 2018. Notably you highlighted NYC Transit's commitment to improve the audit process. To this end, NYC Transit established a subdivision within MOW that is solely responsible for maintenance compliance auditing. Also noted is that the new subdivision reports directly to the Vice President and Chief Maintenance Officer, and that it would assume the signal auditing responsibility.

The letter states that NYC Transit agrees with our recommendations and specifies that NYC Transit will:

1. Establish thresholds above which discrepancies between iSEIS and the section logbook will require immediate notification of audit results;
2. Establish thresholds above which discrepancies between iSEIS and the section logbook will require that a Signal section undergo a re-audit during the following year;
3. Require that audits must be transmitted to Signals within five business days of completion;
4. Require that Signals respond to audit results within seven business days; and
5. Include inspections as part of its maintenance delivery audits.

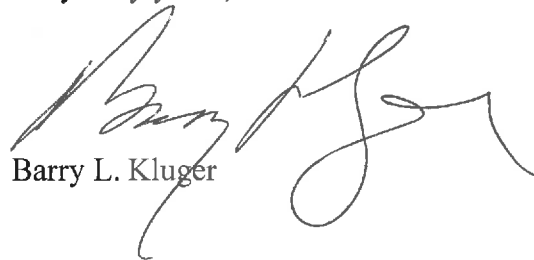
According to the response, NYC Transit stated that it is confident that these actions will increase the reliability of the agency's assets and the public's trust in the agency's service.

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We are encouraged by NYC Transit's response, and going forward, we will monitor the implementation of our recommendations as appropriate.

As always, we appreciate the courtesy and cooperation afforded to us at all times by members of your staff. Should you have any questions, or need additional information, please contact me at (212) 878-0007 or Executive Deputy Inspector General Elizabeth Keating at (212) 878-0022.

Very truly yours,

A handwritten signature in black ink, appearing to read "Barry L. Kluger". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Barry L. Kluger