

**STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION**



memorandum

subject: Gold Star SB Tanker Incident

Groton

date: April 26, 2023

to: Garrett T. Eucalitto
Commissioner

from: Scott A. Hill, PE
Chief Engineer
Bureau of Engineering and Construction

DocuSigned by:

Scott A. Hill, PE

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The purpose of this memorandum is to memorialize the actions taken by the Department following the tank incident on the I-95 Southbound Gold Star Bridge. Attached to this summary is the Incident Inspection Report conducted by the Department's Office of Bridge Safety documenting the post condition of the bridge. The bottom line is that the tanker incident on the bridge did not compromise the structural integrity of the bridge. The bridge is safe and is now open to vehicular traffic. The bridge deck, sidewalk, railing, fencing and shoulder pavement in the area of the incident will need to be further inspected and repaired, as necessary, before the sidewalk and shoulder can be reopened. This work is ongoing and will be completed as expeditiously as possible.

At approximately 11:15 am on Friday April 21, 2023, a tanker truck crashed on the Southbound Goldstar bridge. Fire services immediately responded along with state and local police, DEEP, DOT, etc to secure the scene. All traffic was halted on the bridge for emergency operations. Bridge Safety personnel arrived on scene at approximately 2:00 pm. Topside was restricted when Bridge Safety arrived due to the ongoing accident reconstruction operations by the State Police CARS squad. The fuel source for the fire was indicated as #2 home heating oil. The fire caused severe damage topside (parapets, rails, pavement, fencing, sidewalk concrete).

Below deck, structural elements - superstructure, bearings and substructure - were exposed to fire due to the fuel traveling down the bridge drainage (scupper) system. It is unknown exactly how long the scuppers were on fire, but the incident occurred at approx. 11:15 am and notification was received at 11:44am that the topside fire was out. Bridge Safety was cleared to begin inspection activities below deck once they arrived on scene.

Inspection of the superstructure was performed from a 135' manlift provided by the contractor from the ongoing Northbound Gold Star construction project. Inspection findings regarding the post fire condition of the below deck elements- superstructure, bearings, and substructure in proximity to the burned scuppers revealed the following:

- Superstructure, bearings and substructure exposure to fire was due fire travelling down the outboard drainage scuppers attached along the face of the structure & pier.
- Primary and secondary members in proximity to the scuppers (where fuel was burning) were covered in soot.
- Fire duration was estimated to be less than 30 minutes.
- Inspection of the exposed members revealed no deflection, no distortion, no elongation and no buckling.
- No local or global structural deformations were discovered.
- All primary and secondary members remained true (straight).
- No surface pitting was observed on any of the steel members exposed to fire.

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FROM: Scott A. Hill
DATE: 4/26/2023

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- The steel paint system remained intact (no obvious external distress, as well as within built up members).
- Pier 27 (primary location of drainage scuppers) sustained moderate surface damage. Hammer soundings revealed no delamination's. Pier 28 sustained minor superficial damage.
- All bearings were undamaged by their exposure to fire and were just covered in soot.

The steel paint system remaining intact led to the field determination that exposed steel's temperature remained sufficiently below 1,100 degrees F. We would expect paint to show distress starting at ~750 degrees F and full failure at ~1,100 degrees F. Steel subjected to less than 1,300 degrees F is assumed to have no reduction in strength or change in material microstructure post fire.

As stated earlier, the bridge deck immediately adjacent to the parapets (shoulder section that is currently restricted), bridge sidewalk and parapets will require additional investigations before the shoulder and sidewalk can be reopened to traffic.

Based on the collective field observations noted above, it was determined that the primary structural elements of the bridge were not subjected to sufficiently intense heat for a necessary duration to compromise their structural integrity. Therefore, a determination was made that it was safe to reopen 4 lanes on the structure and keep the right most lane, right shoulder and sidewalk closed for the foreseeable future until additional investigations can be completed. Two lanes were opened at approx. 6:00 pm on April 21, 2023, and 2 additional were opened Saturday morning April 22, 2023.

Additional investigations of the areas adjacent to the fire effected locations as well as a detailed inspection of the sidewalk concrete, parapets and bridge deck below the fire areas will be performed starting Monday May 1, 2023. Concrete coring of deck at the drainage scuppers and parapet may be performed following the inspection. The right lane, shoulder and sidewalk will remain closed until the follow up investigations are completed.

Please contact me should you have any questions.

Bart Sweeney/Scott Hill/sh

cc: Scott Hill

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