VEHICLE AUTOMATION FACTORS GROUP CHAIRMAN'S FACTUAL REPORT

ATTACHMENT 4:

Navya Incident Report

Las Vegas, NV

HWY18FH001

(12 pages)

09/11/2017

RAPPORT D'INCIDENT

NOVEMBER, 8TH 2017-

LAS VEGAS

nauya

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[redacted]

Contributors

- Support R&D Engineer
- Supervision

Document history

AUTHOR	DATE	MODIFICATION PURPOSE
[redacted]	09/11/2017	Document creation

[redacted]

CONTENT

[redacted]

EVENT DESCRIPTION

On November, 8th 2017, at approximately 2:45 pm, the shuttle (P31) was hit by a truck reversing on the path.

The shuttle was idle when the impact occurred.

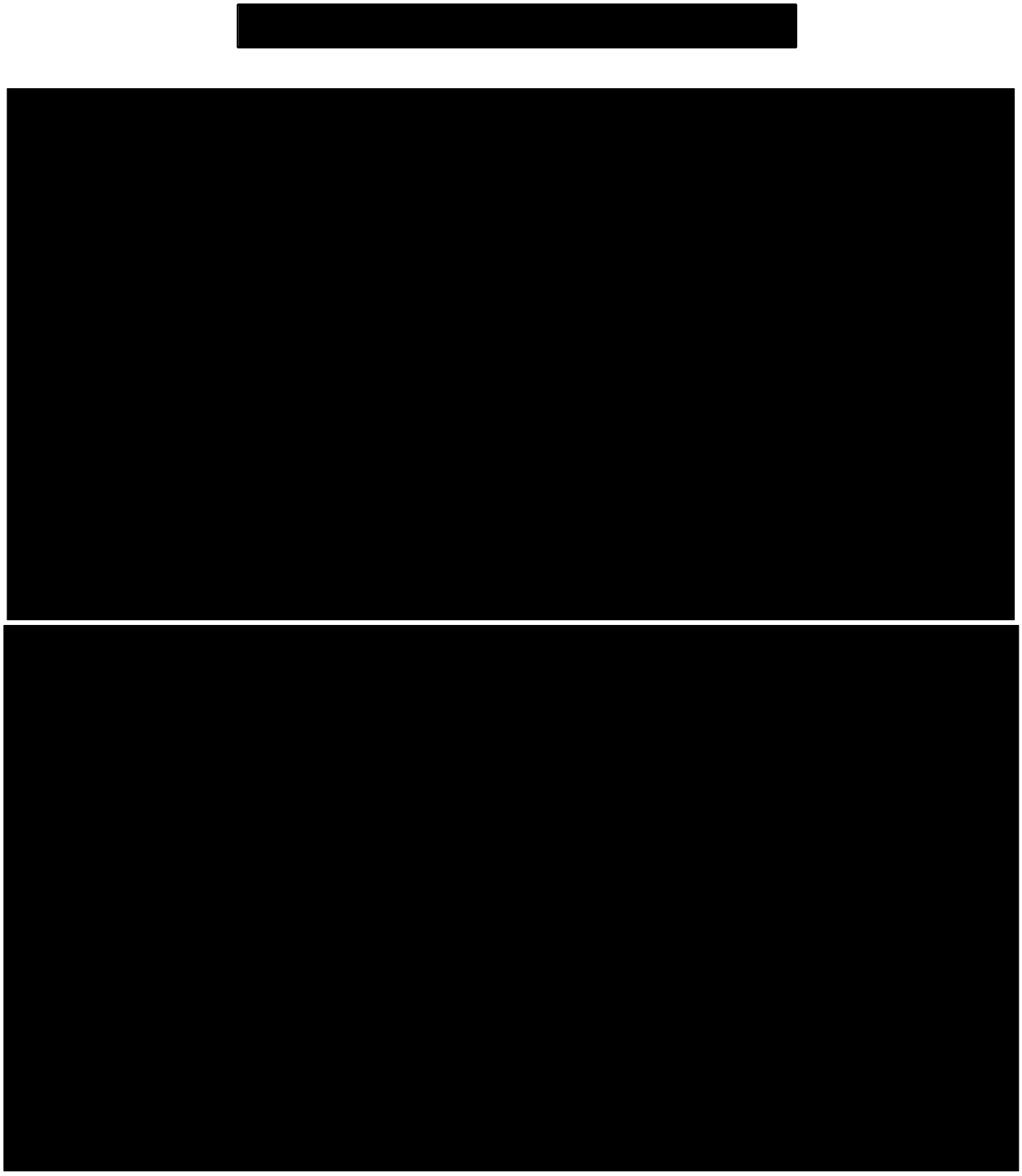
[redacted]

EVENT ANALYSIS

1- OBSTACLE DETECTION

The truck was first detected at a distance of 45 m and continuously detected afterwards, until the moment of the impact.

[redacted]



The obstacle detection performed correctly: the truck was detected and continuously taken into account by path planning.

[redacted]

2-PATH PLANNING

2.1-VELOCITIES AND BRAKING

In autonomous mode, the shuttle began to decelerate at a distance of 30 m from the truck.

[redacted]

[redacted]

At the end of the autonomous deceleration, the operator activated the emergency braking

When the operator activated the emergency braking, the shuttle had almost stopped: the engine speed was 0.249 m/s.

➔ The shuttle behaved as expected in autonomous mode and would have stopped correctly at a distance of 3 m from the obstacle (even if the operator had not activated the emergency braking).

[redacted]

Approximately 11 seconds elapsed from when the shuttle has completely stopped and the truck hit it:

CONCLUSION

The obstacle detection and path planning performed correctly: the shuttle decelerated and would have completely stopped in autonomous mode as expected.

Approximately 11 seconds elapsed between the shuttle coming to a complete stop and the truck hitting it.