FEDERATION INTERNATIONALE DE L'AUTOMOBILE

From: **FIA Single-Seater Department**
Date: 20 October 2022
Re: Report on the events involving the deployments of recovery vehicles during the 2022 Japanese Grand Prix (FIA Formula One World Championship)

INTRODUCTION

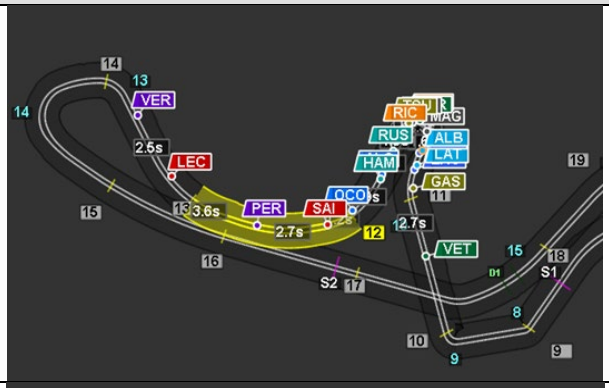
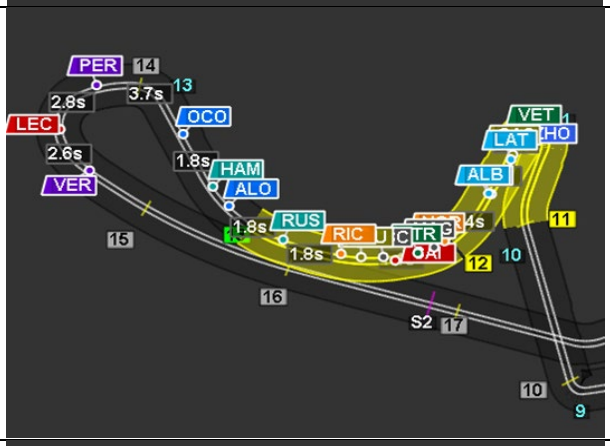
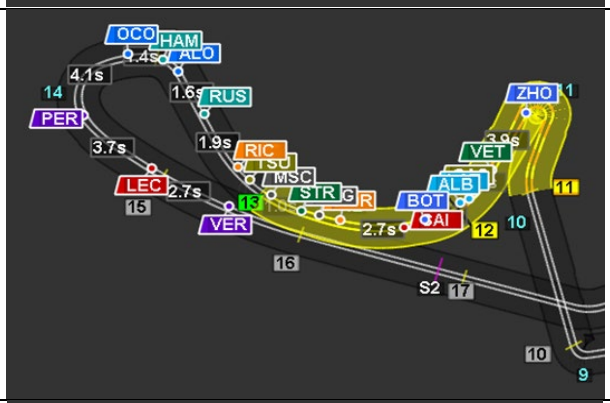
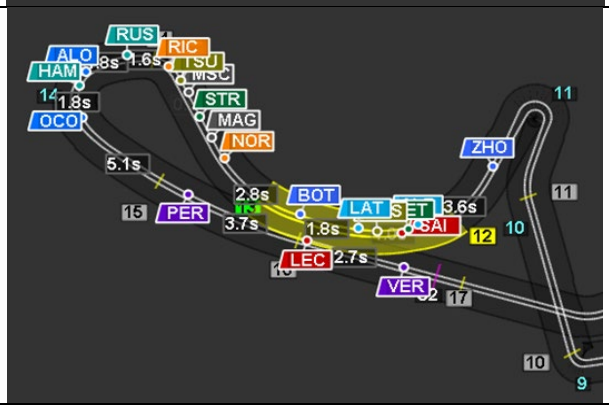
This report has been drawn up to present conclusions arising from the review of the events involving the deployments of recovery vehicles for the recovery of cars #55 (SAI) and #23 (ALB) during the 2022 FIA Formula 1 Japanese Grand Prix. The purpose of this report is to draw any lessons from these events to ensure improvement of processes and procedures.

This document contains a detailed description of the events that unfolded during the Japanese Grand Prix and a list of potential measures to be implemented to avoid or limit the recurrence of such situations.

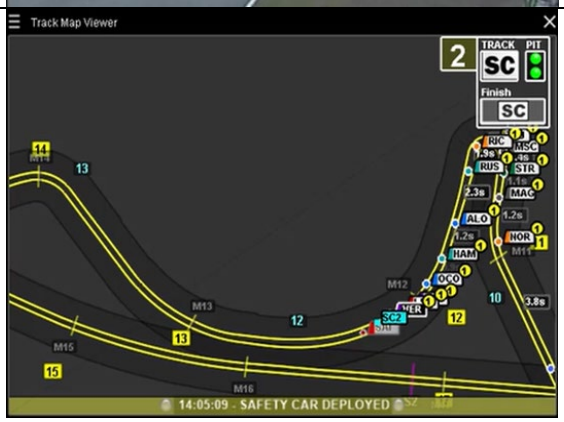
I. THE FACTS

Despite the rain, conditions were conducive to an on-schedule standing start. All cars started on intermediate tyres following reconnaissance laps to the grid, however, heavier rain around the start time made car control on intermediate tyres more challenging.

TIMING	EVENTS
14:00:00	Formation Lap
14:03:36	Race Start
14:03:52 Yellow Flag Sector 2 (T2) – Car #5 (VET) Spins following contact with Car #14 (ALO) on entry to Turn 1 **14:04:12** Clear in Sector 2 (T2) **14:04:46** Car #55 (SAI) in WET tyres Sector 12 at T12 entry – ***"Incident 1"***	 

TIMING	EVENTS
14:04:47 Yellow Flag Sector 12 (T12)	
14:04:56 Yellow Flag Sector 11 (T11)	
14:04:57 Double Yellow Flag Sector 11 (T11)	
14:05:04 Clear Sector 11 (T11)	

TIMING	EVENTS
14:05:05 Car #10 (GAS) hits advertising boarding and continues around the track with the advertising board wedged on the front of his car.	
14:05:09 Safety Car Deployed	
14:05:28 Car #23 (ALB) stops at T12 exit – ***"Incident 2"*** **14:05:59** Marshals attend Car #23 (ALB)	
14:06:24 Car #55 (SAI) runs across the track at T12 having received permission from a track marshal.	

TIMING	EVENTS
14:06:25 Car #11 (GAS) enters the pit lane **14:06:32** Marshals enter the track at T12 entry under Clerk of the Course and Race Director Instructions – ***"Incident 1"*** **14:06:44** Marshals attend Car #55 (SAI) – ***"Incident 1"***	
14:06:52 Crane enters the track at T12 entry – ***"Incident 1"*** **14:07:06** Car #10 (GAS) exits the pit lane **14:07:06** Crane enters the track at T12 exit – ***"Incident 2"*** **14:07:11** Crane attends Car #55 (SAI) – ***"Incident 1"***	
14:07:15 Safety Car and field reach ***"Incident 1"*** ***Speed of the Cars:*** ***VER 58 km/h*** ***LEC 49 km/h*** ***PER 43 km/h*** ***OCO 46 km/h*** ***HAM 46 km/h*** ***ALO 57 km/h*** ***RUS 61 km/h*** ***RIC 69 km/h*** ***TSU 70 km/h*** ***MSC 73 km/h*** ***STR 78 km/h*** ***MAG 70 km/h*** ***NOR 81 km/h*** ***BOT 92km/h*** ***LAT 143 km/h*** ***VET 159 km/h*** ***ZHO 167km/h***	

TIMING	EVENTS
14:07:26 Crane attends Car #23 (ALB) – ***"Incident 2"***- As Safety Car and field approach ***Speed of the Cars:*** ***VER 86 km/h*** ***LEC 99 km/h*** ***PER 106 km/h*** ***OCO 117 km/h*** ***HAM 104 km/h*** ***ALO 109 km/h*** ***RUS 104 km/h*** ***RIC 106 km/h*** ***TSU 115 km/h*** ***MSC 110 km/h*** ***STR 101 km/h*** ***MAG 122 km/h*** ***NOR 105 km/h*** ***BOT 95 km/h*** ***LAT 80 km/h*** ***VET 85 km/h*** ***ZHO 82 km/h***	
14:08:13 RED FLAG	
14:08:14 Car #10 (GAS) passes ***"Incident 1"*** (189 km/h) Marshals move back out the way	

TIMING	EVENTS
14:08:20 Car #10 (GAS) passes ***"Incident 2"*** (163 km/h). Car #10 (GAS) then accelerates up to a maximum of 250 km/h for the rest of the lap	
14:09:24 All cars, including Car #10 (GAS), enter the pit lane **14:11:46** Crane with Car #55 (SAI) exit the track – ***"Incident 1"***	Video Window - Trk Cam 18 
14:11:57 Crane with Car #23 (ALB) exit the track – ***"Incident 2"***	Video Window - Trk Cam 21 

II. FINDINGS

Taking the above description into account, and for the reasons listed below, we can conclude that the procedures for the recovery of cars were respected during the Japanese Grand Prix:

- The track was neutralised with the Safety Car ("SC") before marshals and cranes were deployed on track.
- After the Pit Stop, GAS went back on track and drove to his SC delta time to catch up with the pack. When he reached the incidents in T12 for the second time, marshals were working with a crane on track.
- It is important to understand why GAS was able to drive so quickly whilst under the SC when required to respect the delta times.

- Under Virtual Safety Car ("VSC") and SC, drivers must respect a limited speed which is based on lap times:
  - Dry conditions lap time is 40% slower than a typical race dry lap time
  - Wet conditions lap time is 50% slower than a of typical race dry lap time
- The Teams are able to configure flashing lights on the dash with different colours as well as audio tones to indicate to the driver if he is respecting the delta time and therefore the required speed.
- Straight after SAI crashed, the SC was deployed. All Drivers had to follow their SC delta times.
  - GAS who clipped the advertising board was, for obvious reasons, slower than the SC delta times. The result was that his delta time grew increasingly more positive. By the time he reached the pit entry and SC1 line, he was 18 seconds slower than the targeted delta time. The delta time is not reset in the pit lane so, when he left the pit lane at SC2 line he still had an additional 18 seconds on his SC delta. The result of this is that he could drive at a pace that was 18 seconds faster per lap than the specified SC delta lap time without triggering the delta time alarm.
  - Consequently, for the lap that GAS drove after pitting, despite driving considerably faster than what would be expected under these circumstances, he was still in conformity with the requirements of the SC delta controls that were in place.

- While the crane was on the track and GAS arrived at T12, it is further highlighted that:
  - This was the second time that GAS had passed in front of the incidents. So, he was aware that a car had crashed and that marshals might be clearing the track.
  - Just a few meters before GAS reached the incidents, yellow flags with SC boards & SC TSPs switched to red flags.
  - SC procedures (yellow flags & SC boards) are overriding the single yellow flags and double yellow flags. Supposing that GAS couldn't see the red panels, he was nevertheless supposed to respect the yellow flags and SC Boards which in accordance with the applicable regulations require drivers to prepare to slow down and potentially stop the car.
  - GAS's speed was at 189km/h on arrival at Incident 1 (SAI) and 163km/h at Incident 2 (ALB recovery car) while under red flags. In neither of these two cases were GAS's car speeds compatible with the obligation to slow down and be able to stop his car.
  - After T12, whilst still under red flags, GAS's car #10 was still reaching speeds of between 200km/h and 250km/h.

Comments and analysis

- Having recovery cranes on track at Suzuka during these weather conditions is an extremely sensitive matter.
- Nevertheless, and without undermining responsibilities regarding safety on track, we must also consider as detailed above that GAS drove in a reckless manner by not respecting the flags, thereby ignoring the basic safety rules.
- As the weather conditions were changing, it is concluded that it may have been better to delay the deployment of the recovery vehicles on track. However, the potential situation that GAS could have lost control of his car and collided with the stationary damaged car, a driver walking across the track and/or any marshals on track, must also be considered. In addition, in the event of a serious incident the Medical Car and staff could also have attended the scene.
- It is important to highlight that although the driver has an important responsibility on track with regards to their own safety and that of others, they are not held solely hold responsible for the incident.
- Following the Japanese Grand Prix, a review meeting was held on Thursday 13th October to discuss all aspects of the start of the race in Suzuka where we identified areas of improvement. The FIA is committed to constant improvement and analysis so that situations such as that which occurred in Suzuka can be avoided or at least be safely mitigated.

- One issue in the current procedures is that whilst the SC is used to neutralise a race, there is control over the cars directly behind the SC, but not sufficient control over the cars that are elsewhere around the track.

III. PROPOSED MEASURES

Proposed measures are set out below to address the findings and conclusions in this report.

ACTIONS LIST	IMPLEMENTATION	VALIDATION
Information to be provided to the Teams by means of a message via the official messaging system & communicated via the FIA intercom system that "a recovery vehicle is on track at T x" with obligation from the Teams to inform their Drivers.	United States Grand Prix, Austin	FIA
Development of a live VSC/SC monitoring Window to display the status of all cars, on track, behind SC, in PITS to be used by Race Control and the ROC. Adoption of the same client to be used for consistency of operation between Race Control and ROC	United States Grand Prix, Austin	FIA
Race Control Procedure Update to better define the allocation of tasks across the Race Control team (including delegation of monitoring tasks to ROC, if required and if deemed robust) under SC or VSC procedure. In specific relation to this review, the delegation of monitoring of cars entering the Pit Lane under SC conditions and the consequent length of the SC train.	United States Grand Prix, Austin	FIA
Race Director Review of the Incidents during Austin GP Drivers' Briefing to explain what solutions we plan to introduce to avoid that situation in the future and remind the drivers the importance of strict adherence to the safety rules and especially the respect of the flags.	United States Grand Prix, Austin	FIA
Dynamic VSC: implementation of a new function that would change the delta speed required for the driver to follow before and in the sectors where there is an incident, this would aid the drivers to know where incidents have been declared.	2023	FIA
Review of penalty precedent for drivers not respecting the rules relating to Yellow, Double Yellow, VSC and SC conditions. Drafting of penalty guidelines for failing to slow adequately under Yellow, Double Yellow, VSC and SC conditions.	United States Grand Prix, Austin	FIA & Stewards
Closing of the Pit Exit during any SC period, only opening it for a short period each time the SC train passes Pit Exit to allow cars to re-join the track whilst remaining under the control of the SC. It is noted that this could be implemented at the discretion of RC dependent upon track condition and/or the specific requirements of an intervention.	2023	FIA & SAC Meeting *This would require significant analysis and discussion due to the sporting implication. This may elongate SC periods.*
Assessment of the current application of advertising boards, their construction, location and materials used to avoid the potential for them to being torn off and thrown on track.	2023	FIA & FOM
Improving the visibility of recovery vehicles by adding extra powerful lights (F1 Rain Lights)	2023-24	FIA & FOM
Circuit drainage improvements in Suzuka	TbD	FIA & FOM

Investigation of new technology (Artificial Intelligence) to help manage difficult situations on track better, including under severe weather conditions.	2023	FIA
The FIA Technical Department is working on a project related to wet weather tyres to assist the tyre manufacturer going forward in relation to the characteristics of the tyres for extreme wet track conditions.	2023-24	Pirelli & FIA