Driver Distraction & Fatigue Technology Functional Requirements Guideline

The purpose of this document is to provide Santos' contractors with guidance on the functional requirements for driver distraction and fatigue detection technology in vehicles.

The Santos Land Transportation Procedure requires the following:

- Distraction/fatigue detection technology shall be installed in light and heavy vehicles; (excluding vehicles that do not leave site boundaries or vehicles that do not leave metropolitan/city areas).
- Distraction/fatigue detection technology shall provide real time feedback to drivers.
- Contractors shall submit IVMS and distraction/fatigue driving performance data monthly to Santos in the required format.
- Distraction/fatigue detection technology data shall be evaluated quarterly to identify and address risks and trends.

The primary function of the technology is driver safety – monitoring and alerting a driver in real time who may be at risk due to distraction or fatigue.

The technology can also alert or inform the driver's leaders. Leaders can then have the relevant distraction/fatigue discussions with the driver.

Companies need to ensure that:

- They have the resources to monitor and maintain the technology on an ongoing basis.
- Such controls are integrated into their existing land transport and driver management frameworks or other safety procedures.

Minimum required performance data to be collected for reporting to Santos:

- Fatigue events
- Distraction events
- Mobile device use
- Seat belt exceptions (if the technology is able to detect) – include with IVMS seat belt exception reporting

See next page for functional requirements.

If you have any further queries contact Safe.Drive@santos.com.

Functional Requirements:

Objective: Monitor and alert drivers in real time when system detects driver is fatigued or distraction		
System Functionality	**Minimum Requirements**	**Preferred Functionality**
Technology Type	Camera based technology Capable of reliably functioning in day/night conditions, all road/weather conditions and with drivers wearing glasses, face masks etc.	
Fatigue Event Detection	Real time detection of at-risk microsleep / drowsiness (e.g., based on eye closure)	
Distraction Event Detection	Real time detection of at-risk distraction (e.g., based on eyes off the road)	
Artificial Intelligence (AI)	Driver distraction and fatigue monitoring	Advanced AI including but not limited to, seat belt, harsh driving, speeding, mobile phone use
In-Vehicle Alerts	Distinct audible warning to driver	Audible and visual alerts, with seat vibration for fatigue events
Event Footage Capture & Storage	Snips of fatigue or distraction events recorded for a few a few seconds before, during and after the event. Min 24 hrs storage Historical playback	Access to specific time-based recordings in the event of a motor vehicle incident. Min 36h storage
Back to Base Monitoring	In vehicle alerts with event notification via email	24 hr remote event monitoring support
Cameras	Driver facing	Driver facing and road facing
Camera Quality	B&W and infrared 720p @ 30 fps	Colour and infrared 1080p @ 30 fps
Communication	NextG/5G Connectivity	NextG/5G/Wi-Fi Connectivity/Iridium
System Integration	Driver/vehicle identification and event location (GPS)	Full integration of with IVMS software / API capability
Unit Function Reporting	Ability to provide daily unit functionality report	Full dashboard application to support real-time and online fault diagnosis
Reporting	Ability to provide daily event reporting	Full dashboard application to support real-time tracking