

# Notifiable incident

**Incident ID** [6368](#)

**Duty holder:** Shell Australia Pty Ltd  
**Facility/Activity:** Prelude FLNG  
**Facility type:** Floating liquefied natural gas facility

Incident details	
<b>Division</b>	Occupational Health and Safety
<b>Notification type</b>	Incident
<b>Incident date</b>	05/02/2020 03:45 PM (WST)
<b>Notification date</b>	05/02/2020 03:59 PM (WST)
<b>NOPSEMA response date</b>	05/02/2020 04:10 PM (WST)
<b>Received by</b>	[REDACTED]
<b>Nearest state</b>	WA
<b>Initial category type</b> <i>(based on notification)</i>	Dangerous Occurrence
<b>Initial category</b> <i>(based on notification)</i>	Damage to safety-critical equipment
<b>3 Day report received</b>	08/02/2020
<b>Final report received</b>	31/03/2020
<b>All required data received</b>	31/03/2020
<b>Final category type</b> <i>(based on final report)</i>	Dangerous Occurrence
<b>Final category</b> <i>(based on final report)</i>	Damage to safety-critical equipment
<b>Brief description</b>	OHSE - DSCE - EMG running hot
<b>Location</b>	
<b>Subtype/s</b>	Power failure
<b>Summary</b> <i>(at notification)</i>	Forward EMG was running hot due to a damper in the closed position instead of open EMG has been shut down to investigate issue EDG is providing power for emergency services Facility topside is already shut down with no hydrocarbon inventory Duty Inspector tried to call back but received no response
<b>Details</b> <i>(from final report)</i>	Forward EMG was running hot due to a damper in the closed position instead of open EMG has been shut down to investigate issue EDG is providing power for emergency services Facility topside is already shut down with no hydrocarbon inventory Duty Inspector tried to call back but received no response  ** As Supplied by Duty Holder**  Brief description of incident - Impaired safety critical element – Forward emergency generator not serviceable.  Work or activity being undertaken at time of incident - Facility was shut down with topsides fully depressurised at the time. The Facility was on essential power and had experienced several power trips due to high lube oil temperatures on the essential diesel generators. The FWD Emergency Generator was in operation during the EDG outages as per design  What are the internal investigation arrangements? Causal Reasoning Investigation.

Action taken to make the work-site safe - Following the identification that the forward emergency generator (EMG) was running hot, the EMG was shutdown to prevent any engine damage. The Aft emergency generator is not impacted and is available for service. After the essential diesel generators were restarted, power was re configured to feed supplies normally fed from forward emergency generator. A risk assessment was completed for operation in a depressurised topsides condition with the forward emergency generator out of service. A remedial plan is being developed to facilitate the return to service of the forward emergency generator.

Details of any disturbance of the work site - Power management disturbance over a short term duration onboard Prelude.

Was an emergency response initiated? Yes

How effective was the emergency response? Effective response and full muster achieved.

Details of job being undertaken - Facility was shut down with topsides fully depressurised. Facility was on essential power at the time and experienced several power trips due to high lube oil temperatures on the essential diesel generators. Emergency diesel generators started, as per design, when the essential diesel generators tripped. The essential diesel generators were monitored during operation and after several hours of running, the forward diesel generator engine was identified as running hot. The engine was shut down to prevent any equipment damage.

Equipment damaged - Forward emergency generator

Will the equipment be shut down? Yes

If Yes, for how long? TBA - Remedial plan being developed to facilitate the return to service of the forward emergency generator

Immediate action taken/intended, if any, to prevent recurrence of incident:

Action - After the essential diesel generators were restarted, power was re configured to feed supplies normally fed from forward emergency generator. Responsible - Maintenance Coordinator.

04/02/2020 - Completed

Action - Risk assessment completed for operation in a depressurised topsides condition with forward emergency generator out of service. Responsible - Production Coordinator . 04/02/2020 – Completed

Action - Remedial plan being developed to facilitate the return to service of the forward emergency generator. Responsible - Production Coordinator. 06/2/2020 - Ongoing

What were the immediate causes of the incident?

- During power loss to facility both EMG's (FWD & AFT) were running
- FWD EMG's ventilation dampeners closed causing high temperatures
- Engine was operating outside of safe parameters
- Manual ESD activated

**\*\* As Supplied by Duty Holder\*\***

Has the investigation been completed? Yes

Root cause 1 - Loss of instrument air due to leaking air solenoid in the dampener emergency/alternative activation system

Full Report:

Describe investigation in detail, including who conducted the investigation and in accordance with what standard/procedure with reference to attachments listed in the 'attachments table' (following) as applicable A 5 Causal reasoning investigation was undertaken.

Engine was running at an increased temperature (running in emergency mode with no trip values) as the dampeners to the room had closed shut, removing any airflow through the radiator and the main motive power to open dampeners/compressed air by Instrument Air Compressors was unavailable as the compressors had tripped. The trip occurred due to a leaking air solenoid in the dampener emergency/alternative activation system, which bled the remaining instrument air from the compressed air bottle to atmosphere.

Actions to prevent recurrence of same or similar incident:

Action - Repair the engine. NOTE: Target due date may change in alignment with company response to COVID 19 as vendor to be mobilised. Responsible - Maintenance Support Engineer. Completion

	<p>Date - 6 April 2020.</p> <p>Action - Amend Preventative Maintenance of annual check of the air system tightness-air hold up test for tubing and valves on emergency air system. Responsible - HVAC Engineer. Completion Date - 3 April 2020.</p> <p>Action - Raise a notification Z1 to replace NRV. Responsible - Maintenance Support Engineer. Completion Date - 23 March 2020 - Completed</p> <p>Action - Amend Preventative Maintenance to annually change NRV QV -6809281, to prevent potential internal air leak/back in the Instrument air system. Responsible - HVAC Engineer. Completion Date - 03 April 2020</p> <p>Action - Raise MOC to configure back up N2 bottle with flexible tubing. Responsible - Engineering HVAC. Completion Date - 10 April 2020</p>
<b>Immediate cause/s</b>	TBC
<b>Root cause/s</b>	
<b>Root cause description</b>	Root cause 1 - Loss of instrument air due to leaking air solenoid in the dampener emergency/alternative activation system

<b>Duty inspector recommendation</b>	
<b>Date</b>	05/02/2020
<b>Duty inspector</b>	██████████
<b>Recommendation</b>	Do not conduct Major Investigation
<b>Reasoning</b>	Does not meet MI threshold based on information received
<b>Supporting considerations</b>	

<b>Major investigation decision</b>	
<b>Date</b>	05/02/2020
<b>Decision</b>	Do not conduct Major Investigation
<b>Reasoning</b>	Does not meet MI threshold based on information received
<b>Supporting considerations</b>	

<b>Non-major investigation review and recommendation</b>	
<b>Date</b>	07/02/2020
<b>Inspector</b>	██████████
<b>Risk gap</b>	Nominal
<b>Type of standard</b>	Established
<b>Initial strategy</b>	Investigate

<b>Recommended follow up strategy</b>	
<b>Recommended strategy</b>	Investigate
<b>Supporting considerations</b>	The Emergency Diesel Generator is designed to run to destruction and operated as required during the power outages earlier in the week. The cause of the damper being closed in being investigated. Shell advised that the EDG will be returned to service today. All functions of the EDG are currently being provided by the Essential Diesel Generators and UPSs as required. Investigate at next inspection.

<b>Non-major investigation decision</b>	
<b>Date</b>	07/02/2020
<b>RoN</b>	██████████
<b>RoN review result</b>	Agree with recommendation
<b>Strategy decision</b>	Investigate
<b>Supporting considerations</b>	

**Associated inspection**

**Inspection ID**

[2129](#)