Notifiable incident

Incident ID	6386
Duty holder:	Shell Australia Pty Ltd
Facility/Activity:	Prelude FLNG
Facility type:	Floating liquefied natural gas facility

Incident details	
Division	Occupational Health and Safety
Notification type	Incident
Incident date	15/02/2020 02:48 PM (WST)
Notification date	15/02/2020 06:31 PM (WST)
NOPSEMA response date	15/02/2020 07:09 PM (WST)
Received by	[redacted]
Nearest state	WA
Initial category type *(based on notification)*	Dangerous Occurrence
Initial category *(based on notification)*	Damage to safety-critical equipment
3 Day report received	17/02/2020
Final report received	17/03/2020
All required data received	17/03/2020
Final category type *(based on final report)*	Dangerous Occurrence
Final category *(based on final report)*	Damage to safety-critical equipment
Brief description	OHS-DCSE-Helideck firewater pump failure during planned test
Location	Deck
Subtype/s	Facility integrity, Other
Summary *(at notification)*	During a planned test of the starboard helideck DIS system, the forward firewater pumps failed to autostart. The aft pumps started. Investigation indicated that there was a vapour lock in the fuel line to the forward pump. The fuel line has been reprimed and the pump has been restarted and returned to service.

Details *(from final report)*	During a planned test of the starboard helideck DIS system, the forward firewater pumps failed to autostart. The aft pumps started. Investigation indicated that there was a vapour lock in the fuel line to the forward pump. The fuel line has been reprimed and the pump has been restarted and returned to service. ** As Supplied by Duty Holder** Brief description of incident - Firewater pump did not start as per requirement, control sequence continued and started aft firewater pump started to deliver firewater demand. Work or activity being undertaken at time of incident - Annual planned DIFFS testing on Starboard Helideck. What are the internal investigation arrangements? Causal Reasoning Investigation. Action taken to make the work-site safe - Investigation being under taken to determine the cause of the Firewater pump not starting on command How effective was the emergency response? Effective response and full muster achieved. What were the immediate causes of the incident? Investigation to be completed to understand the cause of the Firewater pump not starting on command ** As Supplied by Duty Holder** Has the investigation been completed? Yes Root cause - Governor to fuel rack linkages stuck due to seawater discharge into engine room via the foam network Full Report: On the 15th of February 2020, the production team attempted to start the forward fire pump during normal testing operations. The pump did not start on command and manual intervention was required to operate the pump. Investigation findings identified that the governor to the fuel rack linkages were stuck in the closed position and the governor output shaft to the fuel rack would not operate without assistance. After several starts with assistance, the engine then started successfully without assistance (5 times consecutively). The investigation included inspection of the governor to fuel rack linkages and some linkages beneath the rocker cover. Linkages and output shafts that were assessible were re-lubricated and allowed to set in. No abnormality was found during the inspection. After inspection and re-lubrication of linkages, the machine was re-instated and successfully started again without any assistance. As no mechanical issues were identified during inspection of the equipment it is believed that the governor output shaft would not operate due to sea water residue present on the equipment. Sea water had discharged into this room via the foam network (no foam produced) due to loss of instrument air and subsequent opening of valve A-60216 on the 3/02/2020. Note: Annual planned maintenance is scheduled for June 2020 as per Prelude preventative Maintenance plan. Actions to prevent recurrence of same or similar incident: Action - Inspection of fuel rack and governor to fuel rack linkages. Cleaned and lubrication of governor linkages. Fuel filter and water separator replaced. Responsible - Prelude MMTL. Completion Date - Completed. Action - Robustness check: Start up without assistance (as per design). Responsible - Prelude MMTL. Completion Date - Completed (Total 6 successful consecutive starts)
Immediate cause/s	TBC
Root cause/s	
Root cause description	Root cause - Governor to fuel rack linkages stuck due to seawater discharge into engine room via the foam network

Duty inspector recommendation	
Date	17/02/2020
Duty inspector	[redacted]
Recommendation	Do not conduct Major Investigation
Reasoning	Does not meet MI threshold based on information received
Supporting considerations	

Major investigation decision	
Date	17/02/2020
Decision	Do not conduct Major Investigation
Reasoning	Does not meet MI threshold based on information received
Supporting considerations	

Non-major investigation review and recommendation	
Date	17/02/2020
Inspector	[redacted]
Risk gap	None
Type of standard	Established
Initial strategy	Inclusion in annual stats/data analysis

Recommended follow up strategy	
Recommended strategy	Inclusion in annual report stats / data analysis
Supporting considerations	100% AFT diesel pumps started as expected, after forward pumps failed to autostart. Prelude is fitted with 3 x 100% FW pump redundancy (2 x 100% Diesel) and (2 x 50% Electric Driven FW pumps).

Non-major investigation decision	
Date	17/02/2020
RoN	[redacted]
RoN review result	Agree with recommendation
Strategy decision	Inclusion in annual report stats / data analysis
Supporting considerations	

Associated inspection	
Inspection ID	