

Notifiable incident

Incident ID [6060](#)

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	27/07/2019 02:30 PM (WST)
Notification date	27/07/2019 05:39 PM (WST)
NOPSEMA response date	27/07/2019 05:52 PM (WST)
Received by	[REDACTED]
Nearest state	WA
Initial category type <i>(based on notification)</i>	Dangerous Occurrence
Initial category <i>(based on notification)</i>	Damage to safety-critical equipment
3 Day report received	30/07/2019
Final report received	26/08/2019
All required data received	26/08/2019
Final category type <i>(based on final report)</i>	Dangerous Occurrence
Final category <i>(based on final report)</i>	Damage to safety-critical equipment
Brief description	OHS-DSCE-Fire water pump not meeting performance standard
Location	Deck
Subtype/s	Facility integrity
Summary <i>(at notification)</i>	<p>Operator advised that a hydraulic leak on the line for the room fan on the aft fire water pump rendered the pump out of service.</p> <p>The forward pump was still available and able to provide 100% fire water requirements and there are also 2 electric pumps (50% each).</p> <p>It was anticipated to be able to return the aft pump to service in 12 hours.</p>
Details <i>(from final report)</i>	<p>Operator advised that a hydraulic leak on the line for the room fan on the aft fire water pump rendered the pump out of service.</p> <p>The forward pump was still available and able to provide 100% fire water requirements and there are also 2 electric pumps (50% each).</p> <p>It was anticipated to be able to return the aft pump to service in 12 hours.</p> <p>**As provided by Duty Holder**</p> <p>Brief description of incident At 14.20 the Aft Diesel Fire Water (FW) Pump was running as part of routine FW Pump testing, when a leak occurred on the hydraulic hose to the room cooling ventilation system. The leak was identified by the Area Authority and the pump was shutdown.</p> <p>The Forward (Fwd) Diesel Fire Water Pump was confirmed to remain available at 100% capacity, including the 2 x 50% Electric drive FW pumps (although both not deemed relevant for determining minimum FW capacity requirements).</p>

The LNGC Gaslog Gibraltar was making its final approach for berthing, for the planned LNG export activity. The OIM assessed the situation, completed risk assessment and decided safe to proceed under condition that FWD Diesel FWP was fully available.

Work or activity being undertaken at time of incident Area Authority was conducting weekly fire water pump run test.

What are the internal investigation arrangements? Internal Investigation commenced immediately. NOPSEMA notified.

FIM event raised (2410934).

Was there any loss of containment of any fluid (liquid or gas)? Yes or no

If Yes, provide details below Yes

Type of fluid (liquid or gas)

If hydrocarbon release please complete item no.15 as well

Hydrocarbon

Please specify

Non-hydrocarbon

Please specify – Hydraulic Fluid ?

?

Estimated quantity

Liquid (L), Gas (kg) 70L Hydraulic Oil

Estimation details Calculation ?

Measurement ?

Please specify: The hydraulic oil gauge reduced from 90% to 83% during the fire water pump run test. Therefore, 70L or 7% of the hydraulic oil working tank volume (1000L) was released.

Composition

Percentage and description

Hydraulic Oil

Known toxicity to people and/or environment Toxicity to people Low

Toxicity to environment NA

How was the leak/spill detected? F&G detection

CCTV ?? VisualOther ??

Did ignition occur?

No

Has the release been stopped and/or contained? Yes

Duration of the release Less than 6 minutes (based on a 6-minute fire pump test run time).

Estimated rate of release

Litres or kg per hour 700L/hour

Location of release What or where is the location of the release? AFT Fire Water Pump Room – 2nd Deck

What equipment was involved in the release? Hydraulic hose to the room cooling ventilation system.

Is this functional location listed as safety-critical equipment? Yes

Weather conditions

Please complete as appropriate Ambient temperature C° 27

Relative humidity % 45%

Wind speed m/s

NB: for enclosed areas use

Air change per hour 7 knots

Wind direction e.g. from SW North East

Significant wave height m 1.0m

Swell m 0.8m

Current speed m/s 1.3m/s

Current direction e.g. from SW WSW

Hydrocarbon release details

If hydrocarbon fluid (liquid or gas) was released, please complete this section as well System of hydrocarbon release Process

Drilling

Subsea / Pipeline ?

?

	<p>? Utilities Well related Marine ? ? ?</p> <p>Estimated inventory in the isolatable system Litres or kg 1000L in the hydraulic oil tank (Tank 60051B) System pressure and size of piping or vessel diameter (d in mm) length (l in m) or volume (V in L) Pressure MPag Known hydraulic oil reservoir reduction outlined below* Size Piping (d) and Piping (l) or Vessel (V) V = 1000L Estimated equivalent hole diameter d in mm *The hydraulic oil gauge reduced from 90% to 83% during the fire water pump run test. Therefore, 70L or 7% of the hydraulic oil working tank volume (1000L) was released.</p> <p>Was NOPSEMA notified through the dedicated notification phone line? Phone No. 08 6461 7090 Yes ? No ?</p> <p>Action taken to make the work-site safe Was permission given by a NOPSEMA inspector to interfere with the site? OPGGS(S)R 2.49. Yes ? No ?</p>
Immediate cause/s	TBC
Root cause/s	
Root cause description	<p>Will the facility be shut down? - No Immediate action taken/intended, if any, to prevent recurrence of incident: Investigation commenced to identify root causes and actions to prevent re occurrence Production Coordinator 05/08/2019 Expediting a replacement hydraulic hose and install to fire water pump Maintenance Onshore Support Team Completed What were the immediate causes of the incident? Possible damage to hose - Failure of hose where the hose had been crimped to the fitting has been identified as part of initial review. Formal investigation underway to determine root causes of the event.</p>

Duty inspector recommendation

Date	29/07/2019
Duty inspector	
Recommendation	Do not conduct Major Investigation
Reasoning	Does not meet MI threshold based on information received
Supporting considerations	

Major investigation decision

Date	29/07/2019
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	31/07/2019
Inspector	
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	Prelude has 3 x 100% independent fire water pump capacity, 2 x 100% diesel drive pumps (FWD and AFT) and 2 x 50% electrically driven pumps (AFT). AFT Fire Water pump (1 x 100%) shutdown and taken out of service due to hydraulic hose failure in relation to the room ventilation system. 2 x 100% Fire Water Capacity remained available (including test run to verify). Hydraulic hose has been replaced and fire water pump is understood to now be available. Continue to monitor and consider investigating if event is repeated; however no investigation recommended for this occurrence.

Non-major investigation decision	
Date	31/07/2019
RoN	
RoN review result	Agree with recommendation
Strategy decision	Inclusion in annual report stats / data analysis
Supporting considerations	

Associated inspection	
Inspection ID	