

Notifiable incident

Incident ID 5524

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	05/08/2018 01:10 AM (WST)
Notification date	05/08/2018 07:06 AM (WST)
NOPSEMA response date	05/08/2018 08:11 AM (WST)
Received by	
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	07/08/2018
Final report received	07/08/2018
All required data received	07/08/2018
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 - Fault found on transformer for deck foam system
Location	Deck
Subtype/s	Facility integrity
Summary <i>(at notification)</i>	<ul style="list-style-type: none">- Following the loss of power event described in notification 5523 the facility also reported the event that may have been linked to the power loss:- It was found that the transformer for the deck foam system have failed.- Due to this, the deck foam coverage was unavailable at the time of the notification and as result the activities protected by this system have been restricted in the applicable areas (e.g. Diesel transfers, etc).- the OIM explained that during the troubleshooting of the power loss a foam nozzle was found discharging water only were it should have been foam.- the OIM described that it is suspected that the loss of power may have affected the air pressure of the particular foam system nozzle and activated the solenoid due to loss of air pressure, however, instead of discharging foam, it was only discharging water due to the failure of the transformer related to the foam system. <p>The matter is still under investigation and more information will be provided within the 3day report.</p> <p>Facility status was described by OIM as in hot commissioning stage with main activity as setting up the Fuel Gas System.</p>

Details <i>(from final report)</i>	<p>Following the loss of power event described in notification 5523 the facility also reported the event that may have been linked to the power loss:</p> <ul style="list-style-type: none"> - it was found that the transformer for the deck foam system had failed. - due to this, the deck foam coverage was unavailable at the time of the notification and as result the activities protected by this system have been restricted in the applicable areas (e.g. Diesel transfers, etc). - the OIM explained that during the troubleshooting of the power loss a foam nozzle was found discharging water only were it should have been foam. - the OIM described that it is suspected that the loss of power may have affected the air pressure of the particular foam system nozzle and activated the solenoid due to loss of air pressure, however, instead of discharging foam, it was only discharging water due to the failure of the transformer related to the foam system. <p>The matter is still under investigation and more information will be provided within the 3day report.</p> <p>Facility status was described by OIM as in hot commissioning stage with main activity as setting up the Fuel Gas System.</p> <p>The GA (General Alarm) was initiated around 01:00 on 5 August 2018 due to a loss of power caused by an operational upset. A planned shutdown of steam turbine 3 was occurring, whilst steam turbine 1 was also in operation. When STG3 was in process of shut down causing changes in steam/BFW demand, the boiler feed water (BFW) pressure controllers did not react quickly enough to the change in demand of boiler feed water, resulting in a high pressure trip of the BFW pumps, which cascaded into a loss of facility power.</p> <p>Personnel on the facility mustered as per normal response to GA.</p> <p>There was no risk to people or the environment during this incident.</p>
Immediate cause/s	Boiler feed water pump pressure controllers were unable to respond fast enough to process changes associated with the planned shutdown of the STG3.
Root cause/s	ED - DESIGN - Design specs - specs NI
Root cause description	Boiler feed water control system reacted unfavourably during shutdown of the STG3. Investigate control loop response to reduction in steam demand and high boiler feedwater pressure and tune appropriately.

Duty inspector recommendation

Date	06/08/2018
Duty inspector	
Recommendation	Do not conduct Major Investigation
Reasoning	Does not meet MI threshold based on information received
Supporting considerations	

Major investigation decision

Date	06/08/2018
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	08/08/2018
Inspector	
Risk gap	Moderate
Type of standard	Established
Initial strategy	Investigate

Recommended follow up strategy	
Recommended strategy	Investigate
Supporting considerations	Foam pump for fire fighting system is powered by normal power from steam turbine generators (STGs) and emergency diesel generators for backup. When main power was lost, available power for foam pumps should have switched over to emergency diesel generators. During change over on loss of main power (from STGs), there was a transformer fault which would have rendered the foam pump unavailable in the event of a fire. Transformer has been repaired and pump is available. Suggest investigation.

Non-major investigation decision	
Date	09/08/2018
RoN	
RoN review result	Agree with recommendation
Strategy decision	Investigate
Supporting considerations	

Associated inspection	
Inspection ID	1829