

Notifiable incident

Incident ID [6492](#)

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	20/04/2020 02:30 PM (WST)
Notification date	22/04/2020 02:01 PM (WST)
NOPSEMA response date	22/04/2020 02:12 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>	Other kind needing immediate investigation
3 Day report received	24/04/2020
Final report received	21/05/2020
All required data received	21/05/2020
Final category type <i>(based on final report)</i>	Dangerous Occurrence
Final category <i>(based on final report)</i>	Other kind needing immediate investigation
Brief description	OHS-OKNI-Damage to inspection hatch in exhaust stack of marine boiler
Location	Deck
Subtype/s	Other
Summary <i>(at notification)</i>	<p>Operator advised that marine boiler #20 was being prepared for its annual inspection. This boiler had been shutdown since 03/02/2020.</p> <p>It was identified that a manhole cover/inspection hatch between the boiler and exhaust stack was damaged (warped/bowed) and the welds in the corner of the framing for the cover were cracked.</p> <p>It is suspected that a fire in the boiler caused the damage which is being investigated and an assessment of any other damage being made.</p>
Details <i>(from final report)</i>	<p>Operator advised that marine boiler #20 was being prepared for its annual inspection. This boiler had been shutdown since 03/02/2020.</p> <p>It was identified that a manhole cover/inspection hatch between the boiler and exhaust stack was damaged (warped/bowed) and the welds in the corner of the framing for the cover were cracked.</p> <p>It is suspected that a fire in the boiler caused the damage which is being investigated and an assessment of any other damage being made.</p> <p>** As Supplied by Duty Holder**</p> <p>Brief Description: As part of preparation for the planned internal inspection of Boiler 20, insulation was removed from an exhaust stack inspection hatch on 4P1 C deck. On removal of the insulation, damage localised to the hatch door was identified, there was no visible damage to the surrounding insulation thus</p>

structural integrity of the hatch door remained intact. The hatch door is manufactured using S10 steel and in alignment to exhaust stack design parameters (250degC outlet and 0.5 kPag).

Initial details and pathway forward:

- At the time of the inspection boiler 20 was in a safe shutdown state following a power outage on 03 February 2020, no further immediate action was required to make safe.

- Hatch door was last inspected in September 2018 as part of the box up inspection prior to boiler start up.

- No specific events have been identified through the surveillance process that would be consistent with damage identified.
 - o Thermal distortion potentially caused by unexpected combustion in the 2nd pass of the boiler is an initial suggested cause; however, this is not confirmed.

- Collaborative onshore & offshore coordinated response and investigation team has been established with four main workstreams identified;

- o Short-term threat / repair / coordination

- o Inspection Scope

- o Root Cause Analysis

- o Potential impact to restart

- Boiler 20 will remain shut down until inspection, investigation and hatch door repair has been undertaken.

Work or activity being undertaken at time of incident: Activity being undertaken: Preparation for routine Inspection

What are the internal investigation arrangements? Causal Reasoning Investigation.

Was there any loss of containment of any fluid (liquid or gas)? No – not applicable

Action taken to make the work-site safe - Boiler to remain shut down pending inspection and investigation.

Extent of damage - On removal of the insulation, damage localised to the hatch door was identified, there was no visible damage to the surrounding insulation thus structural integrity of the hatch door remained intact. The hatch door is manufactured using S10 steel and in alignment to exhaust stack design parameters (250degC outlet and 0.5 kPag).

Will the equipment be shut down? Yes

If Yes, for how long? At the time of the inspection boiler 20 was in a safe shutdown state following a power outage on 03 February 2020, no further immediate action was required to make safe.

Will the facility be shut down? No

Immediate action taken/intended, if any, to prevent recurrence of incident - Commence investigation to determine the extent and cause of the damage to Boiler 20. Responsible - Engineering Manager.

Completion Date - Commenced 22 April

What were the immediate causes of the incident? Immediate causes are unknown at this time. Investigation into root cause has commenced.

Immediate cause/s tbc

Root cause/s

Root cause description

Duty inspector recommendation

Date 22/04/2020

Duty inspector

Recommendation Do not conduct Major Investigation

Reasoning Does not meet MI threshold based on information received

Supporting considerations

Major investigation decision	
Date	22/04/2020
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	28/04/2020
Inspector	
Risk gap	Moderate
Type of standard	N/A
Initial strategy	Investigate

Recommended follow up strategy	
Recommended strategy	Investigate
Supporting considerations	The term "fire" in the context of this notification is incorrect. Combustion is expected in the exhaust duct and therefore high temperatures and the products of combustion are expected. There was no loss of integrity of the hatch, and there was no evidence of damage to the surrounding insulation. It is currently speculated (although not confirmed) that combustion may have been present in the second pass of the heat exchanger leading to higher temperatures than expected which may have warped the hatch. The boiler is not currently operating due to the shutdown in February. It is recommended that NOPSEMA follow this potentially dangerous occurrence and review the results of the investigation when completed at the next inspection (PI 2129)

Non-major investigation decision	
Date	28/04/2020
RoN	
RoN review result	Agree with recommendation
Strategy decision	Investigate
Supporting considerations	

Associated inspection	
Inspection ID	2129