INTERNAL USE ONLY

Notifiable incident

Incident ID	6400
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	25/02/2020 12:00 AM (WST)
Notification date	25/02/2020 07:49 PM (WST)
NOPSEMA response date	25/02/2020 10:04 PM (WST)
Received by	[redacted]
Nearest state	WA
Initial category type *(based on notification)*	Dangerous Occurrence
Initial category *(based on notification)*	Unplanned event - implement emergency response plan
3 Day report received	27/02/2020
Final report received	26/03/2020
All required data received	26/03/2020
Final category type *(based on final report)*	Dangerous Occurrence
Final category *(based on final report)*	Unplanned event - implement emergency response plan
Brief description	OHS-UPE-Medevac for work related illness
Location	Engine room
Subtype/s	Illness, Medivac
Summary *(at notification)*	Operator advised that a group of workers were carrying out maintenance in the STG room on HP steam pipework. A heat stress management plan was in place for the work. At some stage during the work a worker reported that he did not feel well and was taken to cool down and later to the onboard medic for assessment. As a precaution he was later medevaced to Perth for further assessment in relation to the heat related illness. [redacted] attempted to contact the OIM to gather further information on several occasions but could not get through to him.
Details *(from final report)*	Operator advised that a group of workers were carrying out maintenance in the STG room on HP steam pipework. A heat stress management plan was in place for the work. At some stage during the work a worker reported that he did not feel well and was taken to cool down and later to the onboard medic for assessment. As a precaution he was later medevaced to Perth for further assessment in relation to the heat related illness.

[redacted] attempted to contact the OIM to gather further information on several occasions but could not get through to him.

** As Supplied by Duty Holder**

Brief Description:
What happened:
• IP working as a member of work party from approx. 1pm in STG Room.
• Heat stress management plan in place including 30min job rotations specified.
• Regular breaks taken in air-conditioned room on 6th deck
• IP reported that they “didn’t feel right” to colleague
• Went to cool down in designated room
• After short duration colleague assisted IP to elevator and attended medical centre for assessment
• Medevac was requested and activated.

Work or activity being undertaken at time of incident - Routine work duties.

What are the internal investigation arrangements? Offshore and onshore medical assessments to be completed. Consultation with Shell Health and onshore medical support. Five (5) whys investigation to be completed.

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

Action taken to make the work-site safe - IP reported to Prelude medic. Review and assessment undertaken. Onshore doctor recommendation to initiate a precautionary medevac. Further onshore medical review and assessment to be conducted in Perth.

Details of any disturbance of the work site - N/A

Was an emergency response initiated - medical emergency response plan (MERP) activated.

Was anyone killed or injured? Yes

Details of injury - IP reported to Prelude medic with symptoms of heat related illness

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

Action - Initiated medevac from Prelude. Responsible - Prelude OIM/Medevac provider. Completion date - 25/02/2020
Action - Arrange for Perth medical assessment. Responsible - Medevac provider. Responsible - 25/02/2020
Action - Stand down held with work crews working in the STG Room to reassess heat stress management for the work area. Responsible - OIM. Completion date - Completed Nightshift and Dayshift

What were the immediate causes of the incident? Unknown under medical review and investigation.

** As Supplied by Duty Holder**

Has the investigation been completed? Yes

Root cause 1 - The worker was undertaking moderate physical activity in a hot and very humid working environment and did not drink enough.
Root cause 2 - Fitness for work requirements and risks associated with heat stress have become normalised.
Root cause 3 - The worker had not received heat stress awareness training

Full Report:
A 5 causal reasoning investigation was conducted by the Prelude HSSE Advisor

Investigation findings identified that all the necessary work preparation requirements were complied with in the setting up of the activity including a heat stress risk assessment conducted by HSSE in preparation for the scope. Risk controls identified during this assessment included:
• Rest area established to promote body cooling and rehydration
o The Small Diesel Workshop identified as rest area with the air conditioner set to 22.3’C, chairs for

	resting and a water cooler with electrolytes available in the workshop. • Task rotation and sharing of work duties • Regular rest breaks. 30minute work periods/rest/hydration break o Note: Duration of work lasted 1 hour and 35 minutes • Air Ventilation in STG, nearby to the work area. o Note: at the time of the incident ventilation had not yet been installed into the hide as construction had only just been completed. In addition, the Permit JHA detailed the following requirements: • Permit Holder to discuss Heat Stress with the work party during the TBM • Water SHALL be available both in the room (on the person) and in the break area; The Last-Minute Risk Assessment/ Toolbox Meeting (TBM) notes Dehydration as a hazard, and the need to drink water. Discussion with Area Authority notes that the hazard of dehydration was covered with all personnel working in the STG room. Immediately following the event, a QUESTemp Heat Stress monitor was used to conduct a test within the hide. Results: WBGTi = 29.1'C, 86% Humidity, and Heat Index of 39'C. A review of QUESTemp Heat Stress monitoring results, and subsequent follow-up tests, lead the investigation team to hypothesise that the Worker was likely dehydrated before work in the STG room had commenced. Insufficient water intake (IP did not have a water bottle with them and only had two drinks of water during the period of work) coupled with high humidity in the area (86%), likely impacted or exacerbated the Workers fitness for work. Shell Heat Related Illness Management Procedure requires personnel to complete heat stress awareness training. Refresher Heat Stress Awareness Training was facilitated during Safety Sunday on 16th February 2020. The Worker arrived on site on the 21st February. Actions to prevent recurrence of same or similar incident: Action - Shell Health to provide guidance on the adequacy of current Heat Stress management strategies in place offshore, identify gaps and provide recommendations for improvement. Responsible - Shell Health Senior Operations Manager. Completion Date - 30 April 2020 Action - Heat Stress awareness training to be presented by offshore Medic and HSE team to offshore workforce. Responsible - Prelude HSE Advisor. Completion Date - 8 June 2020 (to cover all shifts) Action - Trial the use of a paper/field based 'Heat Stress Risk Assessment' tool (aligned with the existing electronic version) to support teams identify hazards/controls during the Last Minute Risk Assessment. Responsible - Prelude HSE Advisor. Completion Date - Closed Action - Shell Health to advise whether the use of hydration testing is an effective form of control and under what circumstances self-testing kits would be suitable for use amongst teams undertaking medium or high risk work (e.g. prior to work commencing). If effective, Health team to advise on process to be followed, which that can be implemented with assistance of the offshore medic and HSE Advisors. Responsible - Shell Health Senior Operations Manager. Completion Date - 30 April 2020
Immediate cause/s	TBC
Root cause/s	
Root cause description	Root cause 1 - The worker was undertaking moderate physical activity in a hot and very humid working environment and did not drink enough. Root cause 2 - Fitness for work requirements and risks associated with heat stress have become normalised. Root cause 3 - The worker had not received heat stress awareness training

Duty inspector recommendation	
Date	26/02/2020
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	26/02/2020
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	03/03/2020
Inspector	[redacted]
Risk gap	None
Type of standard	Interpretative
Initial strategy	Inclusion in annual stats/data analysis

Recommended follow up strategy	
Recommended strategy	Investigate
Supporting considerations	IP was medevac'd to hospital in Perth, but discharged quickly without any apparent medical effect. IP has made full recovery. Possible heat stress issue and previous related incident (Notification 6371. IP medevac'd for possible heat stress issue. No long term effect, made full recovery). Suggest investigation together with notification 6371.

Non-major investigation decision	
Date	03/03/2020
RoN	[redacted]
RoN review result	Agree with recommendation
Strategy decision	Investigate
Supporting considerations	

Associated inspection	
Inspection ID	2129