Notifiable incident

Incident ID	5554
Duty holder:	INPEX Operations Australia Pty Ltd
Facility/Activity:	Ichthys Venturer
Facility type:	Floating production storage and offloading facility

Incident details	
Division	Occupational Health and Safety
Notification type	Incident
Incident date	29/08/2018 08:31 PM (WST)
Notification date	29/08/2018 09:33 PM (WST)
NOPSEMA response date	30/08/2018 07:21 AM (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	31/08/2018
Final report received	18/09/2018
All required data received	18/09/2018
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-Heat detector activation initiated a GA and muster
Location	Deck
Subtype/s	Alarm, Muster
Summary *(at notification)*	Operator advised that the forward fire water generator 'A' had been running and when it was shutdown and reset, a heat detector alarm was activated for the compartment. This initiated a facility GA and muster. The ERT was deployed and no signs of excessive heat or fire was identified. All crew were stood down. It is suspected that there is a fault in the heat detector circuit but further investigation is required.

Details *(from final report)*	Operator advised that the forward fire water generator 'A' had been running and when it was shutdown and reset, a heat detector alarm was activated for the compartment. This initiated a facility GA and muster. The ERT was deployed and no signs of excessive heat or fire was identified. All crew were stood down. It is suspected that there is a fault in the heat detector circuit but further investigation is required. At 20:31hrs the facility experienced an unplanned alarm resulting in a General Alarm (GA) and Personnel on Board (POB) muster. FPSO Venturer facility mustered and all persons were accounted for. The initiator was an activation of the heat detectors in Fire Water Generator (FWG) Room A when a technician reset the HIMA panel after a test run. The Emergency Response Team (ERT) was mobilised to investigate and found no indication of excessive heat, smoke or fire in FWG Room A. There was no impact to Facility/Personnel/Environment. FPSO Venturer facility returned to normal status at 20:47 hrs. During a system reset of the FWG'A' Unit Control Panel (UCP), coincident alarms were activated. These included oil mist, heat detector fault and Local Manual Activation Control (MAC) point for this Fire Pump room. The MAC point executive action initiates a GA. (The oil mist and heat detector fault is alarm only). Summary of investigation findings; • Activation of the system reset does the following - Loop reset of the fire and heat detectors, reset of the oil mist detector, resets any events of high gas, low gas, MAC, fire & heat and oil mist. • A different reset philosophy exists for the events in the logic of the HIMatrix. For fire & heat, the loops get opened to reset the detectors; in this case the reset is needed to make the loops healthy when the detectors are powered on again (Set/Reset [SR] flip flop is used). For the events of a high gas, low gas, MAC and oil mist happening during a reset, any genuine event will be detected and passed through to ALM (Reset Priority [RS] flip flop is used). These actions were verified by conducting our own OFFLINE logic test. The heat detector fault alarm was as a result of the system reset itself and is time stamped a few milliseconds earlier than the others. • Hardware design, specifically the input side of the HIMatrix controller was checked for common causes by a desktop review of the design documents. The power supply of the oil mist and the two MAC point loops in the drawings were inspected. The power is individually fused and live side is common to more than the three considered signals. The relays and Pepperl & Fuchs (P&F) intrinsically safe barriers are individual. • Oil mist and MAC point DAS signals (HW interface signal between FWG HIMatrix and ICSS FGS HIMax) are only for 105ms available, this tends to exclude that the trip signals are created by the HIMatrix logic, as these would be captured even during an active reset. • Per architecture deviations in the time stamping were considered, as DAS signals are hard wired to the HIMax these signals receive the time stamp from the HIMax (FGS), all others are transferred via Modbus (a serial communications protocol) to UCP and then finally to Process Control System (PCS) where they receive the time stamp. This may cause a difference of up to 4sec where signals can appear later in the list. Conclusion is that these event signals are activated on the output from the HIMatrix to the HIMax (FGS), no indication of any input that would have triggered the output alarms (MAC/Oil mist).
Immediate cause/s	A spurious indication of a MAC point loop from fire & gas panel.
Root cause/s	ED - DESIGN - Design specs - problem not anticipated
Root cause description	

Duty inspector recommendation	
Date	30/08/2018
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	30/08/2018
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	30/08/2018
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	Consequences - no credible consequences from this occurrence. Likelihood is unchanged, therefore no risk gap. Established standards - as per scope of validation. Relevant incident history - there have been a number of these false activations across different fire and gas detection systems at the facility during the commissioning period.

Non-major investigation decision	
Date	30/08/2018
RoN	[redacted]
RoN review result	Agree with recommendation
Strategy decision	Inclusion in annual report stats / data analysis
Supporting considerations	

Associated inspection	
Inspection ID	