Notifiable incident

Incident ID	**5718**
Duty holder:	INPEX Operations Australia Pty Ltd
Facility/Activity:	CPF Ichthys Explorer
Facility type:	Other platform with accommodation facilities when drilling/workover facilities are not in commission

Incident details	
Division	Occupational Health and Safety
Notification type	Incident
Incident date	05/12/2018 05:45 PM (WST)
Notification date	06/12/2018 01:43 PM (WST)
NOPSEMA response date	06/12/2018 02:53 PM (WST)
Received by	[redacted]
Nearest state	WA
Initial category type *(based on notification)*	Dangerous Occurrence
Initial category *(based on notification)*	Other kind needing immediate investigation
3 Day report received	09/12/2018
Final report received	04/01/2019
All required data received	04/01/2019
Final category type *(based on final report)*	Dangerous Occurrence
Final category *(based on final report)*	Other kind needing immediate investigation
Brief description	OHS - OKNI - Hot spot noted on gas compressor exhaust
Location	Process deck
Subtype/s	Facility integrity
Summary *(at notification)*	- Notification related to hot surfaces exceeding performance standard (PS) criteria. - Thermographic surveys were being conducted on gas export compressors on 5 Dec 2018. - Survey identified increased surface temperature on the exhaust stack of No 2 compressor (TC2). - Temperature was up to 347 C (3 short from limit of 350 C) and the OIM decided to shut down equipment in line with Inpex procedure for managing hot surfaces. - Hot spots were described as thermal leaks in the exhaust insulation (i.e. around joints where Pyrogel has been applied). - during the thermographic survey, temperatures on the compressor no1 (TC1) were also monitored and found to be elevated (e.g. 311 C) however not yet reaching the PS limit and these have been monitored via thermographic survey every 12 hours. - remediation of the hot spots is planned to be conducted at first available opportunity.

Details *(from final report)*	- Notification related to hot surfaces exceeding performance standard (PS) criteria. - Thermographic surveys were being conducted on gas export compressors on 5 Dec 2018. - Survey identified increased surface temperature on the exhaust stack of No 2 compressor (TC2). - Temperature was up to 347 C (3 short from limit of 350 C) and the OIM decided to shut down equipment in line with Inpex procedure for managing hot surfaces. - Hot spots were described as thermal leaks in the exhaust insulation (i.e. around joints where Pyrogel has been applied). - during the thermographic survey, temperatures on the compressor no1 (TC1) were also monitored and found to be elevated (e.g. 311 C) however not yet reaching the PS limit and these have been monitored via thermographic survey every 12 hours. - remediation of the hot spots is planned to be conducted at first available opportunity. Routine FLIR camera thermography survey of Gas Export Compressor (GEC) 2, identified increases in surface temperature on the exhaust stack up to approx. 347 Deg C. Reported as a dangerous occurrence as it exceeds Safety Case and Performance Standard limits for Control of Ignition Sources I/CPF/DC-05.02 Reduced flow through compressor by 50%. Re-surveyed using FLIR for confirmation of reduction in temperature. FLIR identified temperature to approx.311 Deg C but rising trend identified. Compressor shutdown under OIM instruction. Commence twice daily thermographic survey monitoring on GEC 1. Surveillance assurance tasks associated with hot surfaces were carried out using thermal imaging cameras on GEC 2. This resulted in the identification of some areas exceeding the project design criteria on the exhaust stack area of the gas turbine machines. After analysis of data gathered on the associated hot spot areas, two causes were identified. It was found that GEC 2 exhaust duct has a lack of insulation in the void space below the expansion joint causing hot air emission resulting in hot spots on the exhaust duct. Analysis also identified that the exhaust duct has gaps in insulation in the exhaust duct void causing hot air emission resulting in hot spots on the exhaust duct. Following the identification of the root causes of the hot spots, INPEX/Company is working with SHI and GE to identify engineering solutions. Three possible solutions have been identified and are currently being evaluated.
Immediate cause/s	Hot surfaces found on gas compressors exhaust during thermographic survey.
Root cause/s	ED - DESIGN - Design specs - design not to specs
Root cause description	GEC 2 exhaust duct has a lack of insulation in the void space below the expansion joint causing hot air emission resulting in hot spots on the exhaust duct. GEC 2 exhaust duct has gaps in insulation in the exhaust duct void causing hot air emission resulting in hot spots on the exhaust duct.

Duty inspector recommendation	
Date	06/12/2018
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	07/12/2018
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	07/12/2018
Inspector	[redacted]
Risk gap	Substantial
Type of standard	Established
Initial strategy	IInvestigate within 45 days

Recommended follow up strategy	
Recommended strategy	Investigate ASAP
Supporting considerations	Previous notification 5620 (8/10/2018) - the same issue. Inspection 1890 conducted, resulting in 5 recommendations, issued 3/12/2018.

Non-major investigation decision	
Date	07/12/2018
RoN	[redacted]
RoN review result	Agree with recommendation
Strategy decision	Investigate ASAP
Supporting considerations	

Associated inspection	
Inspection ID	1926