Notifiable incident

Incident ID	**5620**
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	08/10/2018 10:00 AM (WST)
Notification date	08/10/2018 01:02 PM (WST)
NOPSEMA response date	(WST)
Received by	[redacted]
Nearest state	WA
Initial category type *(based on notification)*	Dangerous Occurrence
Initial category *(based on notification)*	Damage to safety-critical equipment
3 Day report received	11/10/2018
Final report received	07/11/2018
All required data received	07/11/2018
Final category type *(based on final report)*	Dangerous Occurrence
Final category *(based on final report)*	Damage to safety-critical equipment
Brief description	OHS-DSCE- Main power generator exhaust surface temperatures exceeding performance standard
Location	Deck
Subtype/s	Facility integrity
Summary *(at notification)*	Operator advised that during routine camera thermography of main generator exhaust surface temperatures, a maximum temperature of 415 degrees Celsius was recorded adjacent to the louvre actuator. This is a breach of performance standard I-CPF-DC-005.02 for control of ignition sources which currently states a max temp of 200 degrees and is under review. The machine was shut down pending further investigation.

Details *(from final report)*	Operator advised that during routine camera thermography of main generator exhaust surface temperatures, a maximum temperature of 415 degrees Celsius was recorded adjacent to the louvre actuator. This is a breach of performance standard I-CPF-DC-005.02 for control of ignition sources which currently states a max temp of 200 degrees and is under review. The machine was shut down pending further investigation. Routine Forward Looking Infrared Radiometer (FLIR) camera thermography survey of Main Power Generator (MPG) A, exhaust surface temperature identified a maximum temperature of approx.415 Deg C adjacent to the louvre actuator. Reported as a dangerous occurrence as it exceeds Safety Case and Performance Standard limits for Control of Ignition Sources I/CPF/DC-05.02. Surveillance assurance tasks associated with hot surfaces were carried out using thermal imaging cameras on the Main Power Generators (MPGs) and Gas Export Compressors (GECs). These tasks commenced pre-gas in, which 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 MPG exhaust duct expansion joint had misalignment of internal lagging. It was also identified that a lack of insulation in the exhaust plenum resulted in hot air emission via the gap between duct and gas turbine (GT) enclosure Several modifications were developed involving all relevant parties (INPEX, GE Oil & Gas and Samsung Heavy Industries representatives), and then implemented on the MPG exhaust stacks. A subsequent thermographic survey carried out on the final modifications to MPG-C, verified that all temperature readings have been found to be in the acceptable temperature range less than 2000C. The modifications implemented on MPG-C coupled with the final thermographic survey, now demonstrates that surface temperatures around the GT exhaust is within project specification and meets the safety case requirements.
Immediate cause/s	Exhaust surface temperature identified a maximum temperature of approx. 415 Deg C adjacent to the louvre actuator.
Root cause/s	ED - DESIGN - Design specs - design not to specs
Root cause description	MPG exhaust duct expansion joint has misalignment of internal lagging. A lack of insulation in the exhaust plenum resulting in hot air emission via the gap between duct and gas turbine enclosure.

Duty inspector recommendation	
Date	08/10/2018
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	08/10/2018
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	08/10/2018
Inspector	[redacted]
Risk gap	Extreme
Type of standard	Established
Initial strategy	Investigate ASAP

Recommended follow up strategy	
Recommended strategy	Investigate ASAP
Supporting considerations	The CPF has 3 MPGs - a hot spot was identified for MPG B and was subsequently shutdown per facility OIM [redacted] (called him at 1:45 pm 8/10/2018). Finding was routine camera thermography survey of main generator exhaust surface temperatures and that there was good scaffolding access. The high temperature issue apparently can be fixed. Plan is in place to check MPG A & C i.e. scaffolding accesses are being built. 3D report will reflects [redacted]

Non-major investigation decision	
Date	08/10/2018
RoN	[redacted]
RoN review result	Agree with recommendation
Strategy decision	Investigate ASAP
Supporting considerations	Agreed.

Associated inspection	
Inspection ID	1890