

Notifiable incident

Incident ID [5588](#)

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	21/09/2018 05:35 AM (WST)
Notification date	21/09/2018 06:00 PM (WST)
NOPSEMA response date	21/09/2018 06:25 PM (WST)
Received by	
Nearest state	WA
Initial category type <i>(based on notification)</i>	Dangerous Occurrence
Initial category <i>(based on notification)</i>	Uncontrolled HC release >1 - 300 kg
3 Day report received	24/09/2018
Final report received	09/10/2018
All required data received	09/10/2018
Final category type <i>(based on final report)</i>	Dangerous Occurrence
Final category <i>(based on final report)</i>	Uncontrolled HC release >1 - 300 kg
Brief description	OHS-HC1 - Gas release from GEC during commissioning
Location	Deck
Subtype/s	Other
Summary <i>(at notification)</i>	Process gas leak from GEC#1 during commissioning. Investigation found a leak point on RTJ flange, on 1 inch bypass line. Total of 18kg of gas release over approx. 280 mins. GEC was shutdown and depressurised. Investigation underway determine cause using nitrogen as test medium. Small leak, no Fire and gas detection activated. No ERP.

Details <i>(from final report)</i>	<p>Process gas leak from GEC#1 during commissioning. Investigation found a leak point on RTJ flange, on 1 inch bypass line. Total of 18kg of gas release over approx. 280 mins. GEC was shutdown and depressurised. Investigation underway determine cause using nitrogen as test medium.</p> <p>During commissioning activities on Gas Export Compressor #1 (GEC1), a process gas leak was detected by a Personal Gas Monitor (PGM) carried by a production operator at the seal gas instrument panel.</p> <p>The investigation was conducted by the Facility HSE Advisor and subject matter experts in accordance with the INPEX Event Reporting and Investigation Procedure. On 21st of September fuel gas was being introduced into Gas Export Compressor #1 (GEC1) as part of hot commissioning. At approximately 05:30 the compressor was started and reached minimum speed (~13MPag discharge). During this period the area authority (AA) was in attendance to monitor the activity. At 05:35 the AA personal gas monitor (PGM) went into alarm requiring the AA to relocate to a safe area. Once in a safe area the AA contacted the central control room (CCR) to initiate a pressurised stop. The booster pump was switched off and hot gas manifold (HGM) supply to seals brought online. At this stage seal gas supply lines had ~9MPag process gas. The CCR or AA could not detect the location of leak and the area was deemed out of bounds until shift handover where further discussions were held with oncoming crew on how to safely locate leak. At approximately 10:10 the source of the leak was narrowed down to the seal gas supply. The seal gas supply was swapped to nitrogen (N2) from the HGM (20MPag) to further aid in the search for the leak. All personnel involved in the area inspection were wearing PGM's with additional infra-red PGM's used specifically to pinpoint the area of leak. The leak was discovered on a ring type joint (RTJ) flange at B-201-PDCV-443 bypass restriction orifice. This line is subject to either process gas at discharge pressure or N2 from external seal gas at 13.6-20MPag pressure (depending on compressor state). Following identification of the leak, GEC1 was fully depressurised to enable non-intrusive torque checks to be performed on the flange. Torque checks were completed and found the flange tightness to be below design value. The flange was re-torqued to correct values and a service test completed at 20 MPa (200 bar) discharge pressure with nitrogen. The joints were proven to hold using a soap solution method. The investigation found that when leak testing of GEC1 was performed, seal gas pressure was approximately 13.6 MPa, maintained via the hot gas manifold (HGM). Subsequently when fuel gas was introduced as part of the hot commissioning compressor run, the hot gas manifold pressure was increased to 20 MPa, which then increased the pressure in the section of the seal gas panel, from HGM inlet through to seal gas pressure control valve (PCV430), to a pressure that was 7.5 MPa above the leak test pressure.</p>
Immediate cause/s	Preliminary investigation has identified the leak point to be located on a Ring Type Joint (RTJ) flange at B-201-PDCV-443 bypass Restriction Orifice.
Root cause/s	HPD - QUALITY CONTROL - QC NI - inspection instructions NI
Root cause description	Torque checks were completed and found the flange tightness to be below design value.
Gas (kg)	18

Duty inspector recommendation	
Date	21/09/2018
Duty inspector	
Recommendation	Do not conduct Major Investigation
Reasoning	Does not meet MI threshold based on information received
Supporting considerations	

Major investigation decision	
Date	27/09/2018
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	27/09/2018
Inspector	██████████
Risk gap	Moderate
Type of standard	Established
Initial strategy	Investigate

Recommended follow up strategy	
Recommended strategy	Investigate
Supporting considerations	<p>on 25 at 5:20 PM, OIM (██████████) called to provide further information.</p> <p>The RTJ flange leak of the by pass line was minute and the F&G coverage did not went into alarm. The flanged 1" by-pass valve with RO is 1500# (4 bolts) was found with 1 bolt inadequately torqued. The arrangement was under PFP. The Ops Tech personal gas detector provided the indication as he happened to be close by. The Gas export compressor was subsequently tripped (manually). The flange in question was re-torqued. I recommend that we follow up the incident in next planned inspection in Jan 2018, unless there is a need to conduct inspection as part of incident investigation due to other event (██████████)</p> <p>The reported duration was based on the duration of GEC being on line and the HC release was a guesstimate (hard to quantify).</p>

Non-major investigation decision	
Date	28/09/2018
RoN	██████████
RoN review result	Disagree with recommendation
Strategy decision	Investigate ASAP
Supporting considerations	<p>Agreed on 28/09/2018.</p> <p>RoN review result amended on 07/12/2018 as a result of notification #5718 - compressor exhaust reportedly recorded and running at 311 deg C.</p>

Associated inspection	
Inspection ID	1926