

Notifiable incident

Notification ID	NTF11642
Duty holder	Woodside Energy Ltd
Facility/Activity	Vincent
Nearest state	WA
Incident	OHS-OKNI - Corrosion to high pressure gas compressor

Basic information provided at time of notification	
Notification type	Incident
Incident date	12/07/2022 08:00 PM (AWST)
Notification date	14/07/2022 02:00 PM (AWST)
NOPSEMA response date	14/07/2022 02:15 PM (AWST)
Received by	

Summary of information provided	
Brief descriptive title	OHS-OKNI - Corrosion to high pressure gas compressor
Incident location	Process deck
Subtype/s	Other
Summary <i>(provided at notification)</i>	Site has chosen to shutdown a high pressure gas compressor on the 1000 kpa piping side. Piping wall loss identified during plant inspection after removal of stainless steel mesh. No loss of containment. Significant corrosion identified. Being investigated.

Request permission to disturb the site	
Permission given	Not Applicable
Permission given by	
Permission given on	

Initial spill and release amounts	
Gas (kg)	
Liquid (L)	
Release type	
More information	

Details of person providing information to NOPSEMA	
Full name	
Job title	

Initial notification category	
Initial category type <i>(based on notification)</i>	Dangerous Occurrence
Initial category <i>(based on notification)</i>	OHS - other kind needing immediate investigation

Running sheet
<i>There are no running sheet entries for this notification</i>

Decision	
Escalate to level 1	Yes
Inspector	
Escalated on	14/07/2022 14:45

Final notification category	
Final category type <i>(based on final report)</i>	Dangerous Occurrence
Final category <i>(based on final report)</i>	OHS - other kind needing immediate investigation

Immediate causes	
Details	Contact point between carbon and stainless materials creating a galvanic cell

Initial report	
Due date	15/07/2022
Received date	16/07/2022
Reviewed date	26/07/2022
Reviewed by	

Additional details provided by duty holder	<p>Brief description of incident During planned inspection of the 50mm line on the suction of gas compression , significant corrosion was identified at the contact point between the carbon steel line and the stainless steel personnel protection</p> <p>Work or activity being undertaken at time of incident Normal operations</p> <p>What are the Internal Investigation Arrangements Internal investigation in accordance with Woodside "Health Safety and Environment Event Reporting, Investigating and Learning Procedure"</p> <p>Action taken to make the work-site safe: Action taken :Facility shutdown gas compression (1500kPa service) due to a piping wall loss as they were unable to determine the remaining wall thickness accurately Details of any disturbance of the work site : Descaling to support radiographic examination</p> <p>Was an emergency response initiated? No Was anyone killed or injured? No</p> <p>Immediate action taken/intended, if any, to prevent recurrence of incident:</p> <p>Action: Perform non destructive testing of piping defect to educate remaining wall thickness of 50mm pipe gas compression suction pipe Responsible party [REDACTED] Completion date 15-Jul-2022 Actual or Intended Actual</p> <p>Action: Perform review of similar carbon/stainless steel personnel protection contact points on hydrocarbon piping systems Responsible party [REDACTED] Completion date 18-Jul-2022 Actual or Intended Intended</p> <p>Action: Review 50mm gas compression suction pipe condition and determine plan to return to service Responsible party [REDACTED] Completion date 20-Jul-2022 Actual or Intended Intended</p>
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Final report	
Due date	02/09/2022
Received date	02/09/2022
Reviewed date	09/09/2022
Reviewed by	[REDACTED]

Additional details provided by duty holder

Extension Granted by Inspector [REDACTED] to 02 Sept

Full Report:

Describe investigation in detail, including who conducted the investigation and in accordance with what standard/procedure:

Investigation completed in accordance with the Woodside "Health, Safety and Environment Event Reporting, Investigating and Learning Procedure", by a team including [REDACTED] and [REDACTED].

During planned inspection of the 50mm line on the suction of gas compression, galvanic corrosion was identified at the contact point between the carbon steel line and the stainless steel personnel protection (PP) mesh. Facility decided to shutdown the gas compressor to enable radiography wall thickness measurements (radiography can interfere with safety critical process instrumentation). Radiography found an Area 4 defect which required immediate rectification, which was completed using an engineered wrap.

An ORA was conducted, implementing controls to ensure ongoing safe operations. A follow up inspection was completed on all areas of hydrocarbon piping under clamps or mesh with the potential to have galvanic corrosion (49 lines). Until this inspection was completed, a temporary disturbance stop was placed on live line clamps.

Of the additional lines inspection, 6 required a fitness for service. All passed, with repair plans put in place following the corrosion management procedure. PP mesh will be re-installed via MOC on a risk based approach, including protection against future galvanic corrosion.

A review of the inspection history found that inspections took place in accordance with the RBI program, with the defect first found in 2016 and classified as galvanic corrosion. A 2016 corrective work order was raised, but was not classified as Safety Critical.

In 2018, the line was taken out of service and the 2016 WO was cancelled. After being re-instated for service post-GED project, the 2019 inspection (2019) again identified the defect, and another non-safety critical corrective work order raised. This corrective was de-prioritised in 2020 due to COVID restricting work scopes to safety critical and regulatory compliance scopes. Wall thickness measurements were not taken in 2016 or 2019, which would have enabled correct prioritisation.

The asset inspection team have been briefed on the investigation findings including requirements for wall thickness measurements and safety critical classification.

Actions to prevent recurrence of same or similar incident:

Action 1 - Complete engineered wrap and associated engineering approval for its installation on HPC 50mm suction line

Responsible party - [REDACTED]

Completion date - 05-Aug-2022

Actual or Intended - Actual

Action 2 - Complete review of gas compression systems to support Return to Service in relation to corrosion impacts from PP contact points

Responsible party - [REDACTED]

Completion date - 31-Aug-2022

Actual or Intended - Actual

Action 3 - Develop and issue a communication notice for inspectors and inspection engineers, to provide clarity on requirements for raising corrective notifications on safety critical piping.

Responsible party - [REDACTED]

Completion date - 15-Nov-2022

Actual or Intended - Intended

Action 4 - Inspect all areas where PPG is located on hydrocarbon piping, and where required implement repair plans.

Responsible party - [REDACTED]

Completion date - 18-Aug-2022

Actual or Intended - Actual

Action 5 - Review non-TI work orders for hydrocarbon piping fabric maintenance and replacements, to ensure correct safety critical classification.

Responsible party - [REDACTED]

Completion date - 01-Sep-2022

Actual or Intended - Actual

Final spill and release amounts

Gas (kg)

0.00

Liquid (L)	0.00
Release type	
More information	

Root causes

Code	
Description	Has the investigation been completed? Yes Root Causes - Analysis Factor: EQ3-0 Equipment Predictive/Preventative Maintenance Comments - Inspection had identified the corrosion at the point of contact between personnel protection and carbon steel piping. Identification of the galvanic cell during inspection review may have accelerated response, but follow on inspection was conducted in time to mitigate a through wall defect

All data received

Date	02/09/2022
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