Notifiable incident

Notification ID	NTF11806
Duty holder	Woodside Energy Ltd
Facility/Activity	CWLH OKHA FPSO
Nearest state	WA
Incident	OHS-DSCE - Defects Identified in the Produced Water System

Basic information provided at time of notification	
Notification type	Incident
Incident date	14/10/2022 06:00 AM (AWST)
Notification date	14/10/2022 08:34 AM (AWST)
NOPSEMA response date	14/10/2022 09:53 AM (AWST)
Received by	[redacted]

Summary of information provided	
Brief descriptive title	OHS-DSCE - Defects Identified in the Produced Water System
Incident location	Process deck
Subtype/s	Facility integrity, Other
Summary *(provided at notification)*	[redacted] reported a failure to a safety critical component against performance standard 11.1 pressure equipment. During inspection two three walkthrough wall defects identified and the produced water system from our Hydro cyclone B discharge to the produced water flash vessel. First defect on a valve body on a discharge valve with a minor weep measuring 0% LEL at 10mm, 30mm and a 100mm. Second location is upstream of the level control valve to the produced water filter on the discharge. The same discharge line from the Flash gas vessel adjacent. This has also been measured as a minor weep, 0% LEL at 10mm, 30mm and 100mm. Facility engineering is currently being engaged to approve temporary repair on both locations and investigations have commenced on further repair strategies. No escalation to baseline risk.

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	[redacted]
Job title	[redacted]

Initial notification category	
Initial category type *(based on notification)*	Dangerous Occurrence

Initial category *(based on notification)*	OHS - damage to safety-critical equipment

Running sheet
There are no running sheet entries for this notification

Decision	
Escalate to level 1	Yes
Inspector	[redacted]
Escalated on	18/10/2022 07:28

Final notification category	
Final category type *(based on final report)*	Dangerous Occurrence
Final category *(based on final report)*	OHS - damage to safety-critical equipment

Immediate causes	
Details	To be determined as part Internal investigation in accordance with the Woodside "Health, Safety and Environment Event Reporting, Investigating and Learning Procedure"

Initial report	
Due date	17/10/2022
Received date	15/10/2022
Reviewed date	21/10/2022
Reviewed by	[redacted]

Additional details provided by duty holder	Brief description of incident During inspection 2 X through wall defects identified on the Produce Water System from Hydrocyclone “B” to the Produced Water Flash Vessel. 1) Valve body defect on discharge valve. Minor weep measuring 0% LEL @ 10mm, 30mm & 100mm. No measurable quantity. 2) Location upstream of LCV to Produced Water Flash Vessel adjacent weld location. Minor weep measuring 0% LEL @ 10mm, 30mm & 100mm. No measurable quantity. This is a potential failure of PS11.1, PS01.1 & P08.1 Work or activity being undertaken at time of incident General visual inspections. What are the Internal Investigation Arrangements: Internal investigation in accordance with the Woodside "Health, Safety and Environment Event Reporting, Investigating and Learning Procedure Action taken to make the work-site safe: Action taken Controlled as per Health Safety and Environment Event Reporting Guideline. Weep For process hydrocarbon Events with no potential to cause harm, where (nominally gas detectable by a gas detector <100% LEL at 100 mm, or fluid leak rate less than 1 drop per minute) Reported in FP and monitored. Details of any disturbance of the work site Visual inspection to evaluate defect and preparations for temporary repair as directed by Engineering Support. Was an emergency response initiated? No Was anyone killed or injured? No Immediate action taken/intended, if any, to prevent recurrence of incident. Action Engaged Inspection engineer for guidance of temporary repair and capture in Corrosion Defect Register (CDR) Responsible party [redacted] Completion date 20-Oct-2022 Actual or Intended Intended

Final report	
Due date	13/11/2022
Received date	08/11/2022
Reviewed date	15/11/2022
Reviewed by	[redacted]

Additional details provided by duty holder	Full Report: Describe investigation in detail, including who conducted the investigation and in accordance with what standard/procedure The investigation was carried out in accordance with Woodside HSE Event Reporting, Investigating and Learning Procedure by [redacted]. 05MV450838 is a manual gate valve off Hydrocyclone B with Duplex Stainless Steel valve body in Produced Water service. Based on the investigation, the likely root cause of the pinhole weep from 05MV450838 is a manufacturing defect e.g., due to incorrect heat treatment of valve body leading to sigma phase (Cr-rich) particles. Other potential causes such as a casting defect or Microbial Induced Corrosion (MIC) were deemed unlikely. It was confirmed that remaining in service valves are Duplex Stainless Steel (DSS) with no signs of weeps. Belzona putty has been applied as a short-term repair, resulting in no further weep. A Work Order has been raised to replace the valve at next opportunity. Short-term and long-term repairs and inspection requirements are managed in the Corrosion Defects Register (CDR-28556). As this is likely a manufacturing defect which is difficult to detect during quality checks, no further actions are required on other DSS valves. 250-WP-5450007-03D01-P is a Duplex Stainless Steel (DSS) line on Hydrocyclone B in Produced Water service. Based on the investigation, the likely root cause is a weld defect due to incorrect pre-heating/post-weld heat treatment. It is possible that the root cause is instead MIC on the weld, hence root cause will be confirmed by further inspection using either Radiography Testing (RT) or Phased-Array Ultrasonic Testing (PAUT) on the line as per Action 3 below. Survey of piping in the area did not identify any additional weeps. A Rappit wrap has been applied as a short-term repair, resulting in no further weep. An engineered wrap will be designed and applied as the long-term repair. Short-term and long-term repairs and inspection requirements are managed in the Corrosion Defects Register (CDR-28389). It is considered low probability that other welds suffer from similar problems hence no further action is recommended to address root cause. This will be revisited if further inspection suggests a different failure mode. Actions to prevent recurrence of same or similar incident Action Raise CDRs to manage short and long term repairs and inspection requirements of both locations. Responsible party [redacted] Completion date 02-Nov-2022 Actual or Intended Actual Action Implement short term repairs of both locations Responsible party [redacted] Completion date 31-Oct-2022 Actual or Intended Actual Action Complete further inspection of defective weld and other welds on the line to confirm root cause if practical. Responsible party [redacted] Completion date 04-Aug-2023 Actual or Intended Intended

Final spill and release amounts	
Gas (kg)	0.00
Liquid (L)	0.00
Release type	
More information	

Root causes	
Code	
Description	Root cause analysis: Root Causes Analysis Factor: EQ2-2 Equipment/Parts Defective - Manufacturing Comments 05MV450838 Valve body - Based on the evidence available, defect is the result of a manufacturing issue. Root Causes Analysis Factor: HP4-3 Procedures - Followed Incorrectly Comments Weld Pin Hole 250-WP-5450007-03D01-P - Further analysis required to provide certainty of failure mechanism. Evidence available at this time suggests this defect is the resultant of poor heat control during/ post welding process.

All data received	
Date	08/11/2022