

Facility:Northern EndeavourOperator:Woodside Energy LtdOffshore Inspection Dates:16/09/2015 – 18/09/2015

Lead inspector

Inspection Team



Report Number

1175

REPORT DISTRIBUTION

Position	Company
Records management	NOPSEMA
	Woodside Energy Ltd

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1 Abbreviations

AFFF	Aqueous Film Forming Foam
ALARP	As Low As Reasonably Practicable
BDV	Blowdown Valve
ESD	Emergency Shut Down
HSR	Health & Safety Representative
HSSE	Health Safety Security and Environment
IG	Inert Gas
MAE	Major Accident Event
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
OHS	Occupational Health and Safety
OPGGSA	Offshore Petroleum and Greenhouse Gas Storage Act 2006
OPGGS(S)R	Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009
P&ID	Piping and Instrumentation Diagram
PS	Performance Standards
RESDV	Riser Emergency Shutdown Valve
SDV	Shutdown Valve
TEMPSC	Totally Enclosed Motor Propelled Survival Craft
WEL	Woodside Energy Limited

2 Inspection Method

The inspection team prepared a planned inspection brief and discussed this with the operator prior to the inspection. The brief set out the proposed inspection itinerary and scope. A list of persons present at this pre-inspection meeting is included in Attachment A.

The proposed scope for this inspection included:

- Verification of actions arising from previous recommendations;
- Consultation with Health & Safety Representatives and members of the workforce;
- Follow up on previous incidents #4127 and #4313;
- Loss of Containment Topsides Releases MAE 02 Shutdown Valves and Blowdown Valves;
- Dropped Objects MAE 05;
- Contractor Management.

General Occupational Health and Safety (OHS) observations noted during the course of the inspection are also included in the report.

On arrival at the facility, an entry meeting was held to present the plan to the offshore personnel. Before leaving the facility, the inspection team prepared an Inspection Exit Brief, which was discussed with key offshore personnel during an exit meeting. An attendance list for both the offshore entry and exit meetings is included in Attachment A.

Subsequently, a meeting was held with key onshore personnel of the operating company to discuss key findings from the inspection. Significant details of this meeting are provided in Attachment A.



3 Conclusions and Recommendations

At the time of the inspection, the facility had 27 personnel on board and was producing at a steady state of approximately 4500 barrels of oil per day.

Seven recommendations raised in previous planned inspections were closed during the inspection. There were no overdue actions at the time of this inspection.

The inspectors found that the Health & Safety Representative (HSR) process on the facility is functional. The relationship between the HSRs and facility management remains positive.

The NOPSEMA inspectors reviewed the reported loss of containment due to failure of a monoflange and the reported dropped object due to a corroded ventilation duct. It was noted that measures have been implemented by the operator to prevent recurrence of both incidents. One opportunity for improvement was identified.

Technical and other controls for the "MAE 02 - Loss of Containment – Topsides Releases– Shutdown Valves and Blowdown Valves" were sampled and it was found that they had been implemented, and were functional and maintained. However, two opportunities for improvement were identified.

Technical and other controls for "Dropped Objects – MAE 05" were sampled. Several opportunities for improvement were identified.

Detailed findings are provided in the following sub-sections, which highlight any particular areas where non-compliance or opportunities for improvement have been identified. The inspector's detailed recommendations are included in the following sub-sections and are repeated in the Recommendations and Follow-up List in Attachment B.

Attachment C also includes the status of previous recommendations from the last inspection report as well as any other open recommendations.

3.1 Previous recommendations

The following recommendations have been closed during this inspection:

No.	Recommendation	Remarks
1106-10	Ensure that documents relating to Subsea start-up, shut-down and methanol use contained on the "Virtual Bookshelf" 2 ar reviewed and where necessary remove the documents no longer in use.	Response accepted – closed.
1083-08	Ensure that the bunded pallets for the storage of helicopter fuel containers are permanently repaired/replaced and fit for purpose.	The operator submitted a response describing the permanent repairs to the bunded pallets for the storage of helicopter fuel containers.
1083-18	Ensure that corrosion on the Hose king post is arrested and the king post assessed/tested to demonstrate that it is fit for purpose.	Repairs verified during inspection.
982-10	WEL to ensure defects raised during inspection and testing of lifeboats are reviewed and work orders raised as necessary, have notifications raised, are	Response accepted – closed.



	clearly linked to the original work order within SAP and are completed in a timely manner. The defects include but may not be limited to the following identified in the May 2013 annual inspection: Stbd Lifeboat items B4, B6, B13, B1, L1; Stbd Davit items D1, D13, D15, D1 Port Lifeboat Items B1 windows, skate wires & deluge rail Port Davit D1 corrosion winch & sheaves.	
854-11	Woodside Energy Limited to ensure audit level assurance activities are conducted on an annual basis for the production processes, as committed to in the assurance operating standard. * Regulation 2.45 OPGGS(S)R 2009	Response accepted – closed.
854-13	Woodside Energy Limited to ensure independent review level assurance activities are conducted on a quarterly basis for the production processes, as committed to in the safety case and the assurance operating standard. * Regulation 2.45 OPGGS(S)R 2009	Response accepted – closed.
693-01	Ensure procedure AU6-PSP09001 and performance standards are aligned to measure the blowdown activation time requirements as stipulated in the safety case. *OPGGS(S)R 2009, Regulation 2.45 Recommendation basis: The AU6-PSP09001 procedure does not measure the performance criteria described in the safety case, being: Confirmed gas in turret initiates blow-down within twenty seconds of the debutaniser and turret and after ten minutes blow-down of the process, and Confirmed gas in process initiates blow- down within twenty seconds of the debutaniser and process and after ten minutes blow-down of the turret.	The operator submitted a response describing corrected references: "The referenced procedure (AU6-PSP09001) should be AU06-PSF09001. This document is the Function test for Blowdown valves. Activation times are covered in the ESD Function Test AU06- PSF06004. This test refers to the C&E drawings which are referred to in the F06 PS and which provide the activation timings. Update of AU06-PSF09001 and F06 not required. Both reference C&E drawings which define the required timings. Note – PSP09001 is a PRT for Polymer Coupon Sampling and Analysis for P09."

18 recommendations remain open. There are no overdue recommendations.



3.2 Consultation with Health & Safety Representatives and members of the workforce

The inspectors met with two HSRs on board. It was noted that all roster panels are represented by HSRs on the facility. HSR meetings are held regularly and minutes posted. Actions are tracked to close out. The HSRs reported that the relationship with management is open and responsive. It was also noted that all HSRs are trained or scheduled to be provided with the accredited HSR training.

3.3 Follow up on previous incidents - #4127 (monoflange failure) & #4313 (dropped object - corroded vent duct)

3.3.1 Monoflange loss of containment

It was reported that a secondary vent valve on the double block and bleed monoflange (gas lift compressor – third stage) failed. The secondary block and vent valves from the monoflange body were removed and replaced with engineered valve port plugs. Deviation #92013342 has been put in place. All relevant Piping and Instrumentation Diagram (P&IDs) have been identified and marked up. However, it was noted that the P&IDs have not been updated to reflect the changes described in Deviation #92013342.

Recommendation 1175-1

Ensure that relevant P&IDs are updated to reflect modifications in way of engineered plugs to the affected monoflanges as listed in Deviation #92013342.

3.3.2 Dropped object – part of engine room air ventilation duct

It was reported that a part of the engine room air vent duct fell to the deck in the purifier room due to corrosion. An inspection was carried out on all similar ducts in the engine room and a second location of concern was found. The duct was handled to check integrity and in doing so it also fell to deck. The area below has been cordoned off. The affected areas will remain cordoned off until permanent repairs are carried out.

3.4 Item 4 – Loss of Containment – Topsides Releases – Shutdown Valves and Blowdown Valves

The riser emergency shutdown system is described in section 3.3.2 of Chapter 2 of the in-force facility safety case (Controlled ref no. M1500MF010). Process emergency shutdown is described in section 4.9.2 of Chapter 2 of the safety case, and blowdown is described in Chapter 2, s.4.9.3. The High Pressure and Low Pressure flare systems are described in sections 3.4.11-13 of Chapter 2 of the safety case.

The operator has published three performance standards (F05, F06 and F09) to govern the assurance of emergency shutdown (ESD) valves, the ESD system and blowdown valves. These performance standards refer to supporting documents that prescribe the required standards for shutdown valves (SDV) and blowdown valves (BDV) performance.

The inspectors observed that the levels and hierarchy of ESD implemented on the facility are as described in the safety case. Evidence was received showing that ESD logic solvers are subject to planned testing.

A facility cause and effects chart was readily available in the CCR. Alarm management procedures and alarm monitoring processes were observed and appeared to be adequate.



Riser emergency shutdown valves (RESDV), SDVs and BDVs were sampled and appeared to be in generally good condition, as was the pipework around the depressurisation system and knock-out drums. The inspectors observed an opportunity for improvement relating to small bore tubing (SBT) around the RESDVs:

• One clamp on a length of SBT had failed, making that length of SBT vulnerable to vibration induced fatigue failure. This was pointed out to facility crew who undertook a repair.

The inspectors observed that Passive Fire Protection (PFP) has been implemented to protect RESDVs and sampled BDVs as per performance standards F05 and F09. However, it was noted that the PFP at the Laminaria Production / Test RESDV and the Laminaria Production RESDV appears to have been modified at some point in the facility's history, exposing elements within, albeit not the valves or actuators directly (see photo). Facility crew were not able to provide any explanation for these apparent modifications. The inspectors consider that an assessment of this situation is necessary to ensure that the original design intent, with respect to fire protection of these RESDVs, has not been compromised.



Photo 1: PFP at Laminaria Production RESDV

Recommendation 1175-2

Review the Passive Fire Protection implemented for all RESDVs and associated fittings to ensure that that original design intent has not been compromised.

The inspectors sampled maintenance records, including the "NE 2015 ESD Test Report" (DRIMS No.#9054161, dated 20/08/2015) and found that all SDVs and BDVs are subject to annual testing with times, leak rates & depressurisation checked as per performance standards. All topsides SDVs have been proven within the last 12 months. It was noted that the offtake header SDV (27SDV693) has not met its required closing time, however the inspectors consider that this situation is being appropriately managed under deviation no.92013519.

The inspectors sighted evidence (Deviation no.92013544 and the NE 2015 ESD Test Report) that all BDVs meet their performance requirements when subject to a planned ESD, most recently conducted on 14/08/2015. The deviation notes that the gas injection header BDV (31BDV036) does not meet the depressurisation criteria during a process trip. The inspectors note that this is subject to an engineering investigation, and consider this anomaly is being adequately managed under the deviation process.

It was also noted that the sampled work instructions for RESDV leak-off testing describe the performance requirements for each RESDV, and these requirements are either aligned with, or are more stringent than, the requirements of the submitted document "Laminaria and Corallina Field Development Riser ESD Valve



Leak Rate Study" (M1000RF046, dated 21/09/1999). These work instructions also provide instructions as to the Technical Change Management System notifications to be raised if specified levels of leak rate are exceeded during testing.

The CCR operators' competency records were checked by the inspection team and it was found that the competency requirements specified by the operator were being met. The inspectors sighted onboard training materials and noted that they refer to both the shutdown and depressurisation processes. No evidence was provided that the controls related to this Major Accident Event (MAE) have been subject to an independent audit.

Recommendation 1175-3

Ensure that the technical and other controls for MAE-02 are subject to an independent audit in accordance with table 1.1 and Section 10.2 of Part 3 of the facility safety case.

3.5 Dropped Objects – MAE 05

It was stated that engineered lifts are implemented for difficult or heavy loads. A pre-lift inspection of all lifting equipment is carried out. The crane operator demonstrated daily checks carried out on the aft deck crane, which included checking the belt tensions by hand. It was observed that no isolations were in place before checking the belt tensions. The machinery could be started during this time by another operator from the separated crane operator's cabin, creating the potential for a serious hand injury in the machinery room.

Recommendation 1175-4

Ensure that the crane machinery is appropriately isolated before checking belt tensions during pre-start checks of the deck cranes.

Certification and load test results for the deck cranes was not available on board and could not be located by facility personnel. As per Section 1.13 of the WEL Lifting Equipment Maintenance, Inspection and Testing Strategy Controlled (Ref No: W1000AS7912891, Revision 1, dated 4 September 2014):

"Each site shall use the Woodside Lifting Register to store appropriate certificates and related documentation for all Woodside-owned lifting equipment. Records of all maintenance and inspection activities shall be maintained in SAP. The Lifting Register and SAP should be used alongside each other as important tools, to assist with the overall goal of ensuring lifting equipment integrity and traceable maintenance, inspection and testing history."

Recommendation 1175-5

Ensure that appropriate certificates, load test results and records that relate to lifting equipment integrity are available on board the facility. The records should include certification and traceable maintenance, inspection and testing history.

Records of load test results for the deck cranes were not available on board and, when requested, could not be located by facility personnel.



As stated in Part 2 Section 2.6.9 of the safety case, the forward and aft "**Controlled** cranes on the facility are rated for man-riding. Section 4.4.8 of the superseded WEL Lifting Operating Standard (Controlled Reference Number: WM1040SF5599291, Revision 3, dated 7 July 2014) states:

"All lifting equipment used for Personnel Lifting shall clearly indicate that it is suitable for Personnel Lifting and fully comply with the requirements of:

- a. All Woodside Standards and Procedures and
- b. Lifting Operations and Lifting Equipment regulations (LOLER) 1998, Regulation 5 or
- c. International Equivalent and local legislative requirements; and
- d. The lifting appliance shall be clearly marked "SUITABLE FOR PERSONNEL LIFTING" or "SUITABLE FOR LIFTING PEOPLE".

WEL Lifting Operating Standard (Controlled Reference Number: WM1040SF5599291, Revision 3, dated 7 July 2014) has been superseded by the WEL Safe Work Control Procedure (Controlled Reference Number: WM0000PG9905472, Revision 0, dated 17 June 2015). The WEL Safe Work Control Procedure does not include compliance of lifting equipment to the Lifting Operations and Lifting Equipment regulations (LOLER) 1998, Regulation 5 or an International Equivalent standard as required by the superseded WEL Lifting Operating Standard.

Certification for the man riding cranes was not available. No evidence was provided to demonstrate that the man riding cranes comply with this or other equivalent requirements. No evidence was found that a risk assessment had been carried out.

Recommendation 1175-6

Ensure that the forward and aft **c** cranes are safe and fit for purpose and that risks relating to the use of man riding lifting equipment at the facility are reduced to a level that is ALARP.

Recommendation 1175-7

Conduct a risk assessment to assess the potential impacts of superseding the WEL Lifting Operating Standard (Controlled Reference Number: WM1040SF5599291, Revision 3, dated 7 July 2014) with the WEL Safe Work Control Procedure (Controlled Reference Number: WM0000PG9905472, Revision 0, dated 17 June 2015).

The risk assessment should include, but not necessarily be limited to, potential impacts caused by changes such as the removal of compliance with the Lifting Operations and Lifting Equipment regulations (LOLER) 1998, Regulation 5 or an International Equivalent standard as required by the superseded WEL Lifting Operating Standard (Controlled Reference Number: WM1040SF5599291, Revision 3, dated 7 July 2014).

Inspection and appropriate testing should be carried out frequently to ensure parts of the crane subject to deterioration through corrosion, damage, wear or abrasion are maintained appropriately. Maintenance and test records including slew bearing measurements (rocking motions) were sighted.

Inspection and testing of the facility cranes was discussed during the inspection with facility personnel. It was noted that management of change records for changes adopted to the WEL Lifting Equipment Maintenance, Inspection and Testing Strategy (Controlled Ref No: W1000AS7912891, Revision 1, dated 4 September 2014) were not available. A risk assessment to assess potential impacts caused by changes to the requirement of the "Woodside Standard – Lifting and Hoisting Practise – Document number W1000QAF2572510, Rev 0 dated 01 March 2007", was not available.



NOPSEMA inspectors understand that Element 4 of the older standard states: "Lifting equipment shall be certified to an internationally recognised standard appropriate for its use", and Element 5 of the older standard states: "Lifting equipment shall be inspected, maintained and certified in accordance with manufacturer's recommendations and recognised standards appropriate for its use". The requirements of elements 4 and 5 to have cranes inspected, maintained and certified in accordance with manufacturer's recommendations and recognised standards has been removed from the new WEL Lifting Equipment Maintenance, Inspection and Testing Strategy (Controlled Ref No: W1000AS7912891, Revision 1, dated 4 September 2014).

No documented evidence was provided to demonstrate that the removal of Elements 4 and 5 of Woodside Standard – Lifting and Hoisting Practise – Document No. W1000QAF2572510, Revision 0, have been risk assessed. WEL's Management of Change Golden Safety Rule and Management of Change Operating Standard require that a risk assessment is undertaken to assess potential impacts of change.

Recommendation 1175-8

Conduct a risk assessment to assess the potential impacts of changes adopted by the Lifting Equipment Maintenance, Inspection and Testing Strategy to ensure that risks relating to lifting equipment at the facility are reduced to a level that is ALARP.

The risk assessment should include, but not necessarily be limited to, potential impacts caused by changes such as the removal of certification, maintenance and inspection in accordance with manufacturer's recommendations and recognised standards appropriate for the use of cranes as stated in Elements 4 and 5 of the Woodside Standard – Lifting and Hoisting Practise, Document No. W1000QAF2572510, Revision 0.

Crane limit switches and software controls (slew limiting system, load indicator and monitoring systems), automatic and manual crane shutdown systems were sampled and found functional. Records for emergency load lowering system trials were sighted. However, it was noted that the emergency lowering procedure posted in the deck cranes was incorrect. This was confirmed by the crane operator.

Recommendation 1175-9

Ensure that the emergency lowering procedure posted in the deck cranes aligns with the correct, safe sequence of procedural steps.

It was noted that anti-spray arrangements were not fitted in the machinery spaces on the lube-oil and fuel oil systems of the deck cranes. Anti-spray arrangements prevent the spray of any leaking lube / fuel oil from coming into contact with hot surfaces which could result in a fire in the machinery space.

Recommendation 1175-10

Ensure that anti-spray arrangements are fitted in the machinery spaces on the lube-oil and fuel oil systems of the deck cranes.

The maintenance schedule was sighted and it was noted that the wire rope change out for the jib and hoist wires of the aft main deck crane has been overdue since June 2015.



Recommendation 1175-11

Ensure that all crane wire ropes are changed out in a timely manner in accordance with the periodicity specified in the maintenance program.

The provisions crane jib handrail crossbars, handrail connections to jib, cab window frame and cab roof were noted to be extensively corroded and the crane right hand side window glass is missing and blanked with masking tape. This would impair the vision of the crane operator during crane operations.



Photo 2: Provisions crane hand rail

Photo 3: Corrosion tags for provisions crane cab

Recommendation 1175-12

Ensure that:

- a. corrosion on the provisions crane jib handrail crossbars, handrail connections to jib, cab window frame and cab roof is permanently repaired
- b. the provisions crane right hand side window glass is replaced/permanently repaired.

Lifting gear is inspected 6-monthly and colour coded (colour at time of inspection was GREEN). An electronic lifting gear register is maintained on board. However, it was observed that pad-eyes and monorails were not inspected or colour coded as required by WEL PS P20 Lifting Equipment Performance Standard.

Chain block #28454 marked as "not available" in the lifting gear register was found available for use in the rigging container.

Recommendation 1175-13

Ensure that chain blocks, pad-eyes and monorails are inspected and colour coded as per WEL PS P20 Lifting Equipment Performance Standard or tagged out of service.

Competency records of crane operators and riggers were sighted. Personnel competency and training records as per WEL License to Operate system (rigger, crane operator, dogman) were available.

PAT (Production Assurance Tool) audits for lifting operations were sighted. However, no evidence was provided that the controls related to this MAE have been subject to an independent audit.



Recommendation 1175-14

Ensure that the technical and other controls for MAE-05 are subject to an independent audit in accordance with table 1.1 and Section 10.2 of Part 3 of the facility safety case.

3.6 Contractor Management

The WEL "Health, Safety, Security and Environment (HSSE) in Contracts Management Procedure" outlines the minimum health and safety requirements for managing contractors. Work-scopes are categorised as a low, medium or high risk. The work scope for repairs to the #4 port water ballast tank was sighted. This work was carried out by contractors. The documentation for the tank repair work carried out by contractors was reviewed against the WEL contracts management procedure which requires completion of specified steps described in Part 3, section 8.3 of the safety case.

It was noted that a review of the capability of potential contractors as required by step #4 of Part 3, section 8.3 of the safety case was not available.

Recommendation 1175-15

Ensure that the capability assessment of potential contractors is undertaken to assess their ability to manage HSSE risks in accordance with Part 3, section 8.3 of the safety case.

A safety manual (document number SM-WEL14-797-01 dated 15/10/2014) prepared by the contractor (Legeneering Australia Pty Ltd) addressing the requirements of steps #6 & #7 of Part 3, section 8.3 of the safety case of was sighted. However, a review of the contractor's HSSE performance including review of HSSE Management Plans for improvement opportunities annually or following a high potential event as required by step #8 of Part 3, section 8.3 of the safety case was not available.

A close-out report to review the following as required by step #10 of Part 3, section 8.3 of the safety case was not available:

- a. Formally review the HSSE performance of a contractor throughout the contract;
- b. Capture lessons learned and best practices for improving HSSE performance of current and future work and future contractor selection;
- c. Formally review the suitability of the Woodside HSSE contract strategy and contract delivery requirements.

Recommendation 1175-16

Ensure that a close-out report as required by step #8 of Part 3, section 8.3 of the safety case is completed. The report must include the following:

- a. Formally review the HSSE performance of a contractor throughout the contract;
- b. Capture lessons learned and best practices for improving HSSE performance of current and future work and future contractor selection
- c. Formally review the suitability of the Woodside HSSE contract strategy and contract delivery requirements.



3.7 General OHS Observations

Several temporary wrap repairs were observed on the main deck aqueous film forming foam (AFFF) piping.



Photo 4: Wraps on AFFF piping

Recommendation 1175-17

Ensure that all sections of damaged main deck aqueous film forming foam piping are permanently repaired and fit for purpose.

Temporary repairs were noted on the inert gas (IG) main pipe forward of deck seal and on the IG purge line at 1S cargo tank.



Photos 5 & 6: Temporary repairs on IG piping

Recommendation 1175-18

Ensure that the sections of damaged main deck IG piping are permanently repaired and fit for purpose.

It was observed that access to the starboard side smoke float life-buoy was blocked by rubbish skips. This was cleared and access restored by facility personnel during the inspection.

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It was noted that there was inadequate coverage of rubber matting in the switch-rooms on the facility. The NOPSEMA inspectors concluded that during an emergency situation in a switch-room the risks of electric shock to members of the workforce may not be reduced to a level that is as low as reasonably practicable (ALARP).



Photos 7 & 8: No insulation mats in forward switch-rooms

Recommendation 1175-19

Conduct a review of the insulated rubber matting in the switch-rooms on the facility to ensure that the risk of operating electrical equipment is reduced to ALARP.

The inspectors noted that the man-riding "Frog" is stowed on an unrated platform and secured with rope tied to a hand rail. The platform is not a designated lay-down area or storage space, is several metres high and does not have any barriers. Stowed in this manner, the Frog is a potential dropped object.

Recommendation 1175-20

Ensure that the "Frog" is stowed appropriately in a designated storage area.

It was noted that the hypochlorite tank support base was corroded and deformed.



Photo 10: Corroded hypochlorite tank support



Recommendation 1175-21

Ensure that the hypochlorite tank support base is permanently repaired to adequately support the weight of the tank and associated accessories.

The open drain line support bracket on the port side (aft of the re-compressor skid) was noted to be substantially corroded and has the potential to become a large dropped object.



Photo 12: Corroded open drain line support bracket

Recommendation 1175-22

Ensure that corrosion on the open drain line support bracket on the port side (aft of the re-compressor skid) is addressed in a timely manner.

It was observed that the blast protection door protecting the aft fire pumps was damaged and not closable. The closing mechanism was broken.



Photo 13: Damaged blast protection door

Recommendation 1175-23

Ensure that blast the protection door protecting the aft fire pumps and its closing mechanism are repaired in a timely manner.



The inspectors noted that the starboard aft poop deck fire hydrant flanges were corroded.



Photo 14: Corroded fire hydrant flanges

Recommendation 1175-24

Ensure that corrosion on the starboard aft poop deck fire hydrant flanges is addressed in a timely manner.

The safety case, at part 2, section 2.9 commits that, "the Northern Endeavour will also maintain its statutory certification as required under the applicable maritime legislation". The inspectors noted that the facility appears to be operating under an interim certificate of class, issued on 6 August 2015, issued by Lloyds Register. There is no expiry date shown on the certificate, so that the inspectors were unable to determine if the operator was meeting its safety case commitments.

Recommendation 1175-25

Ensure that statutory marine certification for the facility is maintained in order to provide the workforce and stakeholders with assurance that the facility's structural integrity is being adequately maintained.

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4 Attachments

Attachment A – Meetings

1. Pre-Inspection Meeting

The pre-inspection meeting was held on 10 September 2015 in order to discuss the proposed inspection scope and to ascertain senior management's understanding and expectations of the OHS risks posed by the operation at the facility and the control measures employed to reduce risks to ALARP.

Name	Position
	Inspector
	Inspector
	Asset Manager
	Production Process Advisor
	Maintenance Superintendent
	Risk Engineer
	Maintenance Engineer

The main points arising from this meeting were:

- Scope of the inspection discussed;
- Some documents requested in the inspection brief yet to be received by NOPSEMA;
- Recommendations from previous inspections;
- Contact person during the inspection offshore.

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2. Facility Meetings

The facility Entry Meeting provided an opportunity for NOPSEMA to provide an overview of the planned inspection programme and confirm the itinerary. The facility Exit Meeting provided an opportunity for NOPSEMA to present the interim observations and conclusions from the planned inspection and for the facility's workforce to give their views.

A list of personnel at the entry and exit meetings is attached below:





3. Post-Inspection meetings

A meeting was also held on 8 October 2015 in order to discuss the inspection findings. People present at that meeting are listed below:

Name	Position
	Inspector
	Inspector
	Asset Manager
	Production Process Advisor
	Maintenance Team Leader
	Maintenance Engineer
	Risk Engineer

The main points arising from this meeting were:

- Draft report and recommendations presented and explained;
- Draft report accepted by the operator.

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NOPSEMA	ID	1175-1
	Recommen- dation	Ensure that relevant P&IDs are updated to reflect modifications in way of engineered plugs to the affected monoflanges as listed in Deviation #92013342.
NOPSEMA	ID	1175-2
	Recommen- dation	Review the Passive Fire Protection implemented for all RESDVs and associated fittings to ensure that that original design intent has not been compromised.
NOPSEMA	ID	1175-3
	Recommen- dation	Ensure that the technical and other controls for MAE-02 are subject to an independent audit in accordance with table 1.1 and Section 10.2 of Part 3 of the facility safety case.
NOPSEMA	ID	1175-4
	Recommen- dation	Ensure that the crane machinery is appropriately isolated before checking belt tensions during pre-start checks of the deck cranes.
NOPSEMA	ID	1175-5
	Recommen- dation	Ensure that appropriate certificates, load test results and records that relate to lifting equipment integrity are available on board the facility. The records should include certification and traceable maintenance, inspection and testing history.
NOPSEMA	ID	1175-6
	Recommen- dation	Ensure that the forward and aft "" cranes are safe and fit for purpose and that risks relating to the use of man riding lifting equipment at the facility are reduced to a level that is ALARP.
NOPSEMA	ID	1175-7
	Recommen- dation	Conduct a risk assessment to assess the potential impacts of superseding the WEL Lifting Operating Standard (Controlled Reference Number: WM1040SF5599291, Revision 3, dated 7 July 2014) with the WEL Safe Work Control Procedure (Controlled Reference Number: WM0000PG9905472, Revision 0, dated 17 June 2015).

Attachment B – Detailed Recommendations from this Inspection

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with the Lifting Operations and Lifting Equipment regulations (LOLER)

Objective ID: A434859



NOPSEMA	ID	1175-8
	Recommen-	Conduct a risk assessment to assess the potential impacts of changes
	dation	adopted by the Lifting Equipment Maintenance, Inspection and Testing
		Strategy to ensure that risks relating to lifting equipment at the facility are reduced to a level that is ALARP.
		The risk assessment should include, but not necessarily be limited to,
		potential impacts caused by changes such as the removal of certification,
		maintenance and inspection in accordance with manufacturer's
		recommendations and recognised standards appropriate for the use of
		cranes as stated in Elements 4 and 5 of the Woodside Standard – Lifting
		and Hoisting Practise, Document No. W1000QAF2572510, Revision 0.

NOPSEMA	ID	1175-9
	Recommen-	Ensure that the emergency lowering procedure posted in the deck cranes
	dation	aligns with the correct, safe sequence of procedural steps.

NOPSEMA	ID	1175-10
	Recommen-	Ensure that anti-spray arrangements are fitted in the machinery spaces on
	dation	the lube-oil and fuel oil systems of the deck cranes.

NOPSEMA	ID	1175-11
	Recommen-	Ensure that all crane wire ropes are changed out in a timely manner in
	dation	accordance with the periodicity specified in the maintenance program.

NOPSEMA	ID	1175-12
	Recommen-	Ensure that:
	dation	a. corrosion on the provisions crane jib handrail crossbars, handrail
		connections to jib, cab window frame and cab roof is permanently
		repaired;
		b. the provisions crane right hand side window glass is
		replaced/permanently repaired.

NOPSEMA	ID	1175-13
	Recommen- dation	Ensure that chain blocks, pad-eyes and monorails are inspected and colour coded as per WEL PS P20 Lifting Equipment Performance Standard or tagged out of service.

NOPSEMA	ID	1175-14
	Recommen-	Ensure that the technical and other controls for MAE-05 are subject to an
	dation	independent audit in accordance with table 1.1 and Section 10.2 of Part 3 of the facility safety case.



	Recommen- dation	Ensure that the capability assessment of potential contractors is undertaken to assess their ability to manage HSSE risks in accordance with Part 3, section 8.3 of the safety case.
NOPSEMA	ID	11/5-16
	Recommen- dation	 Ensure that a close-out report as required by step #8 of Part 3, section 8.3 of the safety case is completed. The report must include the following: a. Formally review the HSSE performance of a contractor throughout the contract; b. Capture lessons learned and best practices for improving HSSE performance of current and future work and future contractor selection; c. Formally review the suitability of the Woodside HSSE contract strategy and contract delivery requirements.
	10	
NOPSEMA	ID	11/5-1/
	Recommen- dation	Ensure that all sections of damaged main deck aqueous film forming foam (AFFF) piping are permanently repaired and fit for purpose.
NOPSEMA	ID	1175-18
	Recommen- dation	Ensure that the sections of damaged main deck IG piping are permanently repaired and fit for purpose.
NOPSEMA	ID	1175-19
NOPSEMA	ID Recommen- dation	1175-19 Conduct a review of the insulated rubber matting in the switch-rooms on the facility to ensure that the risk of operating electrical equipment is reduced to ALARP.
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NOPSEMA NOPSEMA NOPSEMA	ID Recommen- dation ID Recommen- dation ID Recommen- dation	 1175-19 Conduct a review of the insulated rubber matting in the switch-rooms on the facility to ensure that the risk of operating electrical equipment is reduced to ALARP. 1175-20 Ensure that the "Frog" is stowed appropriately in a designated storage area. 1175-21 Ensure that the hypochlorite tank support base is permanently repaired to adequately support the weight of the tank and associated accessories.
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NOPSEMA	ID	1175-24
	Recommen- dation	Ensure that corrosion on the starboard aft poop deck fire hydrant flanges is addressed in a timely manner.
NOPSEMA	ID	1175-25
	Recommen- dation	Ensure that statutory marine certification for the facility is maintained in order to provide the workforce and stakeholders with assurance that the facility's structural integrity is being adequately maintained.



NOPSEMA

NOPSEMA	ID	1106-1
	Recommen- dation	Ensure that the release and issue of the updated "Live Work Justification Case" procedure is expedited.
	Status	Open
Operator	Due Date	30/01/2016

this performance standard, RBI requirements and integrity management strategy are aligned in order to form a clear inspection and testing regime

Attachment C – Recommendations Status from Previous inspections

for subsea pipeline systems.

1106-2

Recommendation

Operator	Due Date	15/10/2015
NOPSEMA	ID	1106-3
	Recommen- dation	Ensure that the performance standard PO9 assurance tasks section lists all assurance activities to be undertaken as identified in the selected maintenance strategy.
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	1106-4
	Recommen- dation	Ensure that the RBI assurance requirements for manifold pipe UT inspections are fully completed and reported in a timely manner.
	Status	Open
Operator	Due Date	30/09/2015

NOPSEMA	ID	1106-6
	Recommen- dation	Ensure that the performance standard P23 assurance tasks section lists all assurance activities to be undertaken as identified in the selected maintenance strategy.
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	1106-7
	Recommen- dation	Ensure that a reference is made between performance standard P28 to MAE-01 where it is used as a control.
	Status	Open
Operator	Due Date	15/10/2015



NOPSEMA	ID	1106-8
	Recommen- dation	Ensure that the manifold wall thickness assurance status is accurately captured in the Well & Subsea Integrity Status report.
	Status	Open
Operator	Due Date	30/09/2015

NOPSEMA	ID	1106-9
	Recommen- dation	Ensure that the annual third party performance standard verification activities are completed as required by the WEL Integrity Management process.
	Status	Open
Operator	Due Date	30/01/2016

NOPSEMA	ID	1106-11
	Recommen- dation	Develop an emergency response instruction for MAE 04 vessel collision for inclusion into the ERP.
	Status	Open
Operator	Due Date	30/11/2015

NOPSEMA	ID	1106-12
	Recommen- dation	Ensure that the vessel collision performance standard aligns with the controls listed in the Safety Case.
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	982-05
	Recommen- dation	WEL to ensure that the following documents are maintained and up to date
		The strategy document W1000SL7954516 rev 0 references the WEL engineering Standard – Risk Based Inspection W1000AM148863 Rev3 which is superseded. (The document appears to be superseded by W1000SL8326295).
		P08 piping systems performance standard also references the W1000AM148863 Rev3 superseded standard.
		The strategy document W1000SL7954516 Rev 0 references the WEL Engineering Standard – Inspection Management W1000ML4702905 which is superseded. (The document appears to be superseded by W1000SL8273467)
	Status	Open
Operator	Due Date	15/10/2015



NOPSEMA	ID	982-09
	Recommen-	WEL to review the performance standard TEMPSC (E09). The review
	dation	should take into account the following observations:
		The performance standard TEMPSC (E09) Doc No. M1500RF1000.0030 Rev 3 contains key requirements of being capable of launching and being capable of full manoeuvrability and a speed of 6 knots. The assurance section of the performance standard does not provide adequate testing for this. The performance standard TEMPSC (E09) does not contain a key
		performance requirement of remaining buoyant with no leaks.
		There is no clear link between WEL generic maintenance plans and that of the NE specific maintenance plans in the performance standard TEMPSC (E09).
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	854-1
	Recommen- dation	Woodside Energy Limited to develop procedural, competency and relevant software performance standards for the Northern Endeavour as committed to in the safety case and the guidance on the Development of Facility Performance Standards W0000SF335227. * Regulation 2.45 OPGGS(S)R 2009
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	854-2
	Recommen- dation	Woodside Energy Limited to ensure the guidance document for the selection of SCE (W1000AG3184458 Rev 3) aligns with the safety case and the development of performance standard guideline (W10000SF3352276). Specifically it should include procedures, processes and competency MAE control measures and subsequent performance standard development. Currently the guidance excludes "Health, Safety and Environment (HS&E) business process (HS&E management systems), processes and procedures". * Regulation 2.45 OPGGS(S)R 2009
	Status	Open
Operator	Due Date	15/10/2015



NOPSEMA	ID	854-3
	Recommen-	Woodside Energy Limited to review the performance standard for the IGG
	dation	system in relation to the commitments in the safety case and its FSA to ensure all committed safety case requirements are captured in the performance standard. WEL to consider reviewing other performance standards to ensures their alignment also.
		* Regulation 2.45 OPGGS(S)R 2009
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	854-4
	Recommen- dation	Woodside Energy Limited to ensure performance standards are clearly linked to their associated controls for Major accident events.
		* Regulation 2.45 OPGGS(S)R 2009
	Status	Open
Operator	Due Date	15/10/2015

NOPSEMA	ID	854-5
	Recommen- dation	Woodside Energy Limited to review performance standards in relation to them being specific and measurable with self-contained performance requirements. It should be noted that SMART criteria (Specific, Measurable, Achievable, Realistic, Timely) are a stated key objective of any performance standards according to WEL Guidance for the Development of Facility Performance Standards document W0000SF3352276. * Clause 9(2)c OPGGSA 2006
	Status	Open
	Due Date	15/10/2015

NOPSEMA	ID	693-04
	Recommen- dation	Review the performance standards in relation to subsea critical valves and their requirements to ensure their respected performance requirements (i.e. identification of subsea critical valves, test type and frequency, accepted leak rates and acceptable valve operating times etc.) are effectively captured. *OPGGSA 2006, Schedule 3, Clause 9(2)(e)
		Recommendation basis The following are not identified on the performance standard(s): Subsea critical valves, Valve test type,



		Valve minimum test frequency, Valve maximum accepted leak rates (gas and oil), and Valve maximum acceptable valve operating times. Note: the Process Safety Times and Valve Response Times for Northern Endeavour Shut Down Valves (M5810RP7464174, Rev 0, 07/07/2011) was presented. This report excludes RESDV's and does not include subsea valves operating times.
	Chabur	Note: the superseded 'Critical Safety System Performance Standards' for ESD – Reservoir Isolation System – Subsurface and Xmas Tree Valves, identified some of the above performance, including valve response times
	Status	Open
Operator	Due Date	15/10/2015