

APPENDIX C NORTH WEST SHELF PROJECT EXTENSION CULTURAL HERITAGE MANAGEMENT PLAN

Revision 1



Appendix C



North West Shelf Project Extension Cultural Heritage Management Plan

Revision 1

G2000RF1401194398

Contents

1.	Summary	4
2.	Context, Scope, and Rationale	5
2.1	Introduction	5
2.1.1	Proposal	5
2.2	Scope of the CHMP	6
2.3	Key Environmental Factors	7
2.3.1	Proposal Activities Potentially Affecting Key Environmental Factors	7
2.4	Rationale and Approach	8
3.	Internal and Regulatory Framework	9
3.1	Internal Management Mechanisms Relevant to this CHMP	9
3.1.1	Woodside Management System	9
3.1.2	Cultural Heritage Management Procedure	9
3.1.3	Incident Reporting	9
3.2	Regulatory Management Mechanisms Relevant to this CHMP	10
3.2.1	Commonwealth Legislation	10
3.2.2	State Legislation	10
3.3	Other Management Mechanisms Relevant to this CHMP	11
3.3.1	Murujuga Rock Art Strategy and Murujuga Rock Art Stakeholder	11
4.	EMP Provisions	13
4.1	Management Based Provisions Summary	13
4.2	Management Actions	14
4.2.1	MA1 – Educate project personnel on the sensitive of the cultural heritage features on the Burrup Peninsula	14
4.2.2	MA2 – Provide access for Traditional Owners to Aboriginal cultural heritage sites within the Proposal development envelope when requested	15
4.2.3	MA3 - Investigate and respond to instances of odour complaints from within the Murujuga National Park or the National Heritage Place	15
4.2.4	MA4 - Adopt practicable and efficient technologies to reduce air emissions to prevent impacts to terrestrial and nearshore vegetation of heritage and conservation value	16
4.2.5	MA5 - Implement an adaptive management plan addressing the potential impact to rock art from industrial emissions	16
4.2.6	MA6 - Support the implementation of, and participate in, the DWER Murujuga Rock Art Strategy	16
5.	Adaptive Management and Review of the CHMP	18
6.	Stakeholder Consultation	19
7.	References	20
8.	Terms	21

Tables

Table 1-1: CHMP Summary Table.....	4
Table 4-1: Management-based Provisions	13

1. Summary

Woodside Energy Ltd (Woodside), as operator for and on behalf of the North West Shelf (NWS) Joint Venture (NWSJV), is the proponent for the North West Shelf Project Extension Proposal (the Proposal).

In summary, the Proposal is for ongoing operation of the NWS Project to enable the long-term processing of third-party gas and fluids and NWSJV field resources through the NWS Project facilities until around 2070. The Proposal is described in its entirety in Section 2 of the NWS Project Extension Environmental Review Document (Woodside, 2019) and is duplicated into **Section 2.1.1** of this Cultural Heritage Management Plan (CHMP) for ease of reference.

This CHMP was prepared in accordance with the 'Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans' published by the Western Australian (WA) Environment Protection Authority (EPA) (EPA, 2018).

This CHMP details the measures required to manage the potential impacts to social surroundings (Heritage) from the Proposal. **Table 1-1** summarises the information contained in this CHMP.

Table 1-1: CHMP Summary Table

Title of Proposal	North West Shelf Project Extension
Proponent Name	Woodside Energy Ltd., as Operator for and on behalf of the NWSJV
Purpose of the CHMP	To identify management and mitigation measures that could be implemented over time to reduce impacts to heritage features on the Burrup Peninsula
Key Environmental Factor/s and Objective/s	<p>Key Environmental Factor: Social Surroundings (Heritage)</p> <p>EPA Objective: to protect social surroundings from significant harm</p>
Key Provisions in the CHMP	<p>Management of:</p> <ul style="list-style-type: none"> • Potential accelerated weathering of rock art due to industrial emissions • Direct, accidental physical damage to heritage features within the development envelope • Continued restricted access to heritage features within the development envelope until around 2070 • Reduced amenity to heritage features outside the development envelope as a result of odorous substances (e.g. odour from atmospheric emissions) <p>Through the implementation of the following key provisions:</p> <ul style="list-style-type: none"> • Educating NWS Project personnel on the sensitivity of the cultural heritage features on the Burrup Peninsula • Providing access for Traditional Owners to Aboriginal cultural heritage sites within the Proposal development envelope when requested • Investigating and responding to instances of odour complaints from the Murujuga National Park or the National Heritage Place • Implementing an adaptive management plan addressing the potential impact to rock art from industrial emissions • Supporting the implementation of, and participate in, the DWER Murujuga Rock Art Strategy

2. Context, Scope, and Rationale

2.1 Introduction

The NWS Project is one of the world's largest liquefied natural gas (LNG) producers, supplying oil and gas to Australian and international markets from offshore gas, oil, and condensate fields in the Carnarvon Basin off the north-west coast of Australia. For more than 30 years, it has been WA's largest producer of domestic gas.

Woodside proposes to operate the NWS Project to around 2070 as an LNG facility that is commercially capable of accepting gas for processing from other resource owners. Therefore, this Proposal includes processing third-party gas and fluids and any remaining or new NWSJV field resources.

The Proposal is described in its entirety in Section 2 of the NWS Project Extension Environmental Review Document (ERD) (Woodside, 2019) and is duplicated in **Section 2.1.1** of this CHMP for ease of reference.

This CHMP will be implemented following receipt of approval under the *Environmental Protection Act 1986* (WA) (EP Act) and *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act). In the interim, the NWS Project will continue to operate under current licence conditions and management practices.

2.1.1 Proposal

To enable the future operation of the NWS Project and the ongoing supply of gas and fluids to domestic and international markets, the Proposal seeks approval to transition the Existing NWS Project facilities to a new phase of the NWS Project; which is commercially capable of accepting gas for processing from other resource owners. The NWS Project Extension Proposal is seeking approval for the:

- long-term processing of third-party gas and fluids and NWSJV field resources through the NWS Project facilities, including:
 - changes to feed gas composition including changed content of inerts, hydrocarbons and other components
 - changes to the composition of environmental discharges and emissions, although annual volumes of emissions and discharges are expected to be in line with current levels
 - modifications to the KGP onshore receiving facilities (that would not otherwise be undertaken if not for the Proposal) to accommodate third-party gas and fluids, as well as upgrades to metering to facilitate processing of third-party gas and fluids
 - potential construction of additional operational equipment to accommodate changes to feed gas composition or management of discharges and emissions
- ongoing operation of the NWS Project (from the date of the approval of this Proposal) to enable long-term processing at the NWS Project facilities, currently expected to be until around 2070, including:
 - ongoing use of existing NWS Project facilities to process third-party gas and fluids and NWSJV field resources
 - inspection, maintenance, and repair (IMR) and improvement programs for trunklines (TL), 1TL and 2TL
 - maintenance dredging associated with jetties and berthing pockets
 - replacing equipment, plant, and machinery as required that would not otherwise be replaced if not for the Proposal.

- ongoing, additional (and cumulative to existing approvals) emissions and discharges to the environment (Woodside, as operator for and on behalf of the NWS Project, will implement emission reduction opportunities that will result in a staged decrease in emissions over time)
- monitoring and management of environmental impacts.

2.2 Scope of the CHMP

Purpose of Management Plan

This CHMP has been prepared to ensure operation of the NWS Project does not compromise the environmental values of the Burrup Peninsula (including the National Heritage Place and Murujuga National Park) and to manage potential impacts of the Proposal on cultural heritage. The approach to managing the Proposal in a way that achieves the objective of avoiding significant harm to Aboriginal cultural heritage is based on a combination of impact assessment (refer to **Section 6.4** in the NWS Project Extension ERD (Woodside, 2019)), early response indicators, and adaptive management.

This CHMP outlines how aspects of the Proposal that have the potential to impact Aboriginal heritage places and objects (referred herein as heritage features) will be monitored and managed so that the relevant environmental values are protected. The provisions in this CHMP manage the potential impacts of the activities from the Proposal that are not otherwise managed under other regulatory instruments, including other Proposal management plans.

This CHMP is aligned with Woodside's Cultural Heritage Management Procedure (Woodside ID WM0000PG10178231).

Scope

This CHMP applies to activities of the Proposal that have the potential to impact Aboriginal cultural heritage features on the Burrup Peninsula and provides a framework for managing them. The NWS Project Extension ERD (Woodside, 2019) assesses potential impacts to the social surroundings (Heritage) from these activities:

- ongoing emissions to air from the Proposal until around 2070
- continued presence and activity of people, vehicles, vessels, and equipment in the development envelope
- ongoing marine discharges from the operation of the NWS Project facilities.

Therefore, the scope of this CHMP addresses the following:

- potential accelerated weathering of rock art due to industrial emissions
- direct, accidental physical damage to heritage features within the development envelope
- continued restricted access to heritage features within the development envelope until around 2070
- reduced amenity to heritage features outside the development envelope as a result of odorous substances (e.g. odour from atmospheric emissions).

When considering the impacts of air emissions on heritage features, there is strong link between this CHMP and the NWS Project Extension Air Quality Management Plan (AQMP) (Woodside ID G2000RF1401194398). To avoid duplication between these plans, the scope of this CHMP specifically focuses on the potential impacts of air emissions on the rock art on the Burrup Peninsula and does not seek to manage the sources of the emissions. Impacts from air emissions are managed under the NWS Project Extension AQMP (Woodside ID G2000RF1401194398).

Marine discharges from the Proposal are outside the scope of this CHMP. Although marine discharges do have the potential to impact heritage features within the marine environment, the impacts from marine discharge activities are wholly managed by the NWS Project Extension Marine Environment Quality Management Plan (Woodside ID G2000RF1401194400).

2.3 Key Environmental Factors

This CHMP relates to the 'Social Surroundings' environmental factor, specifically Aboriginal heritage and culture. The EPA objective for this environmental factor is:

To protect social surroundings from significant harm

This objective is intended to ensure that social surroundings are not significantly affected by a proposal.

The Environmental Factor Guideline – Social Surroundings (EPA, 2016) acknowledges that social surroundings include: Aboriginal heritage and culture; natural and historical heritage; amenity; and economic surroundings. For the purpose of this CHMP, the only aspect of the social surroundings environmental factor that is relevant to the Proposal is Aboriginal heritage and culture. This was determined by the EPA and is consistent with the NWS Project Extension referral decision dated 4 December 2018 (Woodside, 2018).

As part of the social surroundings environmental factor and specifically in relation to Aboriginal heritage and culture, the EPA states that the EP Act complements the *Aboriginal Heritage Act 1972* (WA) to preserve Aboriginal heritage sites, particularly when 'actual physical protection of the environment is required to protect sites of heritage significance' (EPA, 2016).

EPA guidance also states that in addition to Aboriginal heritage, 'matters of Aboriginal cultural associations, including traditional Aboriginal customs, directly linked to the physical or biological aspects of the environment, may also be considered significant.'

2.3.1 Proposal Activities Potentially Affecting Key Environmental Factors

The Burrup Peninsula features numerous Aboriginal cultural heritage sites and places that are highly significant to Aboriginal people. State records and Woodside's own surveys have identified a range of Aboriginal heritage site types, inside and adjacent to the Proposal development envelope. Heritage features of the Burrup Peninsula include petroglyph sites (rock art), ceremonial/restricted access sites, ethnographic sites, standing stones, shell middens, artefact scatters, quarries, grinding patches, and coastal fishing and foraging opportunities. The environmental value associated with the use of the Burrup Peninsula by Aboriginal people is best defined by those people. Therefore, this CHMP assumes that all known recorded uses of the Proposal development envelope and areas immediately adjacent to it by Aboriginal people holds environmental value.

The presence of heavy industry on the Burrup Peninsula has generated concerns that industrial emissions may lead to an accelerated weathering or deterioration of rock art. These concerns centre on the issue that deposition of nitrogen oxides (NO_x), sulphur oxides (SO_x) and ammonia (NH₃) from anthropogenic industrial sources have the potential to increase the acidity of the rock surface through chemical and/or biological processes. The key emissions from the Proposal in terms of potential impact to rock art include NO_x, volatile organic compounds (VOCs) pertaining to photochemical intensity of NO/NO₂ formation) and small contributions of sulphur dioxide (SO₂) arising from power generation and process emissions. Direct, accidental damage to those heritage features and sites within the Proposal development envelope could occur through direct interactions with NWS Project workforce (e.g. inappropriate human behaviour [climbing on/over or marking heritage features or leaving rubbish at these sites], driving of vehicles over heritage features, objects accidentally dropped on heritage features, or spills from operational activities).

Woodside recognises the 'living connection' that Aboriginal people have to heritage and the need to access heritage areas today and in the future. Continued restricted access within the Proposal development envelope until around 2070 may disrupt ongoing connection to culturally significant heritage sites for local Aboriginal groups. Woodside has an established process to provide Traditional Owners with access to heritage features within the development envelope when requested.

Murujuga National Park and the listed National Heritage Place of the Dampier Archipelago (including the Burrup Peninsula) are located east of the Proposal development envelope (DoEE, 2007; DEC, 2013). Reduced amenity to heritage features within these areas may occur as a result of Proposal activities.

Unreasonable emissions of odorous substances from the Proposal have the potential to cause nuisance or public amenity concerns. Potential trace levels of odorous substances associated with the Proposal can include VOCs (including BTEX) and sulphurous compounds (such as hydrogen sulphide [H₂S]). Potential for nuisance odours are assessed as posing low risk of loss of public amenity or reduced amenity to heritage features in the NWS Project Extension Environment Review Document (Woodside, 2019).

Dark smoke can be caused by the incomplete or low temperature combustion of flared gas. Dark smoke events occur infrequently at the NWS Project and it is unlikely that a dark smoke event will cause a significant impact to the amenity of heritage features adjacent to the Proposal development envelope. Dark smoke is managed through monitoring and reporting in accordance with Part V of the EP Act Operational Licence requirements.

2.4 Rationale and Approach

Woodside's approach to the management of Aboriginal heritage has been developed to ensure the requirements of the *Aboriginal Heritage Act 1972* (WA), the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), and the environmental objectives of the Social Surroundings environmental factor are met.

In developing this CHMP, the following points were assessed:

- results of heritage audits, surveys and consultation undertaken with Aboriginal groups
- outcomes of ambient air quality modelling for the Proposal and the Burrup Peninsula as this relates to deposition of NO_x and SO_x
- uncertainties as to the potential for accelerated weathering of Aboriginal rock art on the Burrup Peninsula due to industrial emissions.

Based on this assessment, and as the nature of potential impacts from the Proposal on social surroundings do not relate to aspects of the environment that can be quantitatively measured, a management-based approach has been taken to manage the cultural heritage values of the Burrup Peninsula. In the absence of management measures that can be objectively measured, the management-based provisions are supported by an adaptive management approach containing clear triggers for when these provisions should be revised via update of this Management Plan.

Additionally, some potential impacts managed under this CHMP, namely accelerated weathering of rock art, are the subject of ongoing scientific research; therefore, the understanding of how these impacts are best managed may change during the implementation of the Proposal. To address the uncertainty associated with these potential impacts, an adaptive management approach will be implemented, together with the Proposal providing for opportunity to substantially reduce air emissions of concern (NO_x and VOC emissions).

The management approach for this CHMP also identifies WA Government responsibilities in relation to the protection of rock art on the Burrup Peninsula and surrounding islands of the Dampier Archipelago.

3. Internal and Regulatory Framework

3.1 Internal Management Mechanisms Relevant to this CHMP

3.1.1 Woodside Management System

The Woodside Management System (WMS) defines how Woodside delivers its business objectives and the boundaries within which all Woodside employees and contractors are expected to work. Environmental and cultural heritage management are components of the overall WMS.

The overall direction for management of Aboriginal heritage is set through Woodside's corporate Indigenous Communities Policy. The policy provides a public statement of Woodside's commitment to building long-lasting relationships with Indigenous communities in which Woodside operates and to demonstrate respect and act with integrity as we generate positive economic, social and cultural outcomes. It sets out the principles for achieving the objectives and how these are to be applied. The policy is applied to all Woodside's activities, and employees, contractors and Joint Venture partners engaging in activities under Woodside operational control.

3.1.2 Cultural Heritage Management Procedure

Woodside's Cultural Heritage Management Procedure (Woodside ID WM0000PG10178231) defines:

- requirements to meet statutory obligations and commitments for Cultural Heritage
- requirements for Stakeholder Engagement, Cultural Heritage Assessment and Cultural Heritage Management
- accountabilities for reputation, Cultural Risk Assessments, Cultural Heritage Assessments and Cultural Heritage Management
- processes for escalating and reporting non-compliance with the requirements.

This CHMP ensures that the above requirements are met.

3.1.3 Incident Reporting

An incident is defined as any event that breaches or threatens the ability of any person or company to meet the objectives or management actions listed in this CHMP.

Specifically, an incident is defined as one or a combination of the following:

- Non-compliance with this CHMP
- Unexpected damage or loss to any heritage site or item within the development envelope
- Discovery of a new heritage site within the development envelope
- Discovery of skeletal remains within the development envelope
- Any trespass outside of the operational area of the development envelope without appropriate authorisation.

Incidents are reported to Woodside's Senior Heritage Adviser or equivalent corporate heritage representative and in accordance with the Health Safety and Environment Event Reporting and Investigation Procedure (Woodside ID WM0000PG9905421). Community grievances are handled through Woodside's Community Grievance Mechanism Procedure (Woodside ID WM0000PG9539696).

3.2 Regulatory Management Mechanisms Relevant to this CHMP

3.2.1 Commonwealth Legislation

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act) provides a mechanism for the Commonwealth Environment Minister to make declarations regarding the protection of an Aboriginal site when the Minister is satisfied that, under State or Territory law, there is ineffective protection of the area from a threat of injury or desecration. Declarations made under this Act may involve restricting activities and/or access to an Aboriginal site.

If the requirements of the *Aboriginal Heritage Act 1972* (WA) are adhered to, the ATSIHP Act is unlikely to have relevance for Aboriginal sites found to exist within the development envelope.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) establishes the National Heritage List, which includes natural, Indigenous and historic places that are of outstanding heritage value to the nation. There are penalties for anyone who takes an action that has or will have a significant impact on the heritage values of a place recognised in the National Heritage List. The EPBC Act also establishes the Commonwealth Heritage List, which includes places on Commonwealth lands and waters or under Australian Government control that have heritage significance.

Native Title Act 1993 (Cth)

The Native Title Act 1993 (NT Act) adopts the common law definition of native title, defined as the rights and interests that are possessed under the traditional laws and customs of Aboriginal people in land and waters, and that are recognised by the common law. These rights may exist over Crown Land but do not exist over land held as freehold title.

The NT Act recognises the existence of an Indigenous land ownership tradition where connections to country have been maintained and where acts of government have not extinguished this connection. This Act does not apply over the NWS Project development envelope as native title has been found not to exist over these areas.

Underwater Cultural Heritage Act 2018 (Cth)

The *Underwater Cultural Heritage Act 2018* prescribes penalties for damage to protected underwater cultural heritage without a permit under Section 30 or in contravention of a permit in Section 28. Under Section 16, protected underwater cultural heritage automatically includes the remains and associated artefacts of any vessel or aircraft that has been in Australian waters for 75 years, whether known or unknown. This protection is also extended to underwater cultural heritage specified by the Commonwealth Minister for Environment under Section 17, which may include Aboriginal or other types of heritage. There are no recorded underwater heritage sites within the NWS Project development envelope.

3.2.2 State Legislation

Aboriginal Heritage Act 1972 (WA)

The *Aboriginal Heritage Act 1972* (WA) (AH Act) is the principle legislation for providing protection and preservation of all Aboriginal cultural heritage places and objects within WA. This Act is currently administered by the WA Department of Planning, Lands, and Heritage (DPLH). Under Section 17 of the AH Act it is an offence to excavate, destroy, damage, conceal, or in any way alter any Aboriginal site or artefact.

3.3 Other Management Mechanisms Relevant to this CHMP

3.3.1 Murujuga Rock Art Strategy and Murujuga Rock Art Stakeholder

The Murujuga Rock Art Strategy (the Strategy) provides a long-term framework to guide the protection of rock art on the Burrup Peninsula and surrounding islands of the Dampier Archipelago. The strategy aims to 'build on previous work on the Burrup Peninsula to deliver a scientifically rigorous, world's best practice monitoring program and risk-based approach to the management of impacts to the rock art, consistent with legislative responsibilities under the EP Act (DWER, 2019a). The WA Department of Water and Environmental Regulation (DWER) and Murujuga Aboriginal Corporation (MAC) are responsible for the day-to-day implementation of the strategy, including ongoing consultation with key stakeholders (DWER, 2019a).

The scope of the Strategy is to:

- establish an Environmental Quality Management Framework (EQMF), including the derivation and implementation of environmental quality criteria
- develop and implement a robust program of monitoring and analysis to determine whether change is occurring to the rock art on Murujuga
- identify and commission scientific studies to support the implementation of the monitoring and analysis program and management
- establish governance arrangements to ensure that:
 - monitoring, analysis and reporting are undertaken in such a way as to provide confidence to the Traditional Owner, the community, industry, scientists and other stakeholders about the integrity, robustness, repeatability and reliability of the monitoring data and results
 - government is provided with accurate and appropriate recommendations regarding the protection of the rock art, consistent with legislative responsibilities
- develop and implement a communication strategy in consultation with stakeholders.

DWER plans to use the EQMF to provide a risk-based and robust framework for implementing the monitoring and management that is required to protect rock art from anthropogenic emissions. The EQMF comprises of:

- Environmental values – ecosystem conditions that require protection from environmental harm
- Environmental quality objectives – specific management goals that must be achieved to protect the environmental values
- Environmental quality criteria – scientifically determined limits of reasonable change. These criteria are the standards against which environmental monitoring data are compared to determine the extent to which environmental quality objectives have been met (DWER, 2019a)

DWER, in partnership with MAC, plan to implement a revised Murujuga Rock Art Monitoring Program, based on the results from the past 15 years of scientific studies and monitoring of the petroglyphs. This monitoring program potentially includes, but is not limited to, the parameters of colour change, pH/acidity, microbiology, and sources of pollutants (DWER, 2019b). The program should be able to distinguish between changes in condition of the petroglyphs attributed to anthropogenic emissions versus other unrelated causes. The program comprises cost-efficient, best-practice technologies and methods.

Monitoring and analysis results will be published on DWER's website (<https://www.der.wa.gov.au/our-work/programs/36-murujuga-rock-art-monitoring-program>). The strategy will be reviewed every five years or when significant new information becomes available to ensure that the strategy and governance procedures remain relevant and reflect the most recent scientific knowledge and management practices.

The Murujuga Rock Art Stakeholder Reference Group (Stakeholder Reference Group) was established in 2018 to facilitate engagement between key government, industry and community

representatives as the Strategy is developed. Woodside is a member of the Stakeholder Reference Group and as such will participate in the following activities, as per the terms of reference (DWER, ND):

- contribute constructively to the monitoring and protection of rock art, being considerate of the views of all stakeholders. This includes the provision of advice to DWER and the Minister for Environment on the design, implementation and analysis of the scientific monitoring and analysis program.
- consult, inform and educate other stakeholders on other matters referred by DWER for input or comment, including further development of the Strategy, implementation of the Strategy and 5 yearly reviews
- inform the Government's broader consideration of other strategic issues relating to the protection of the rock art on Murujuga.

Where key emissions from the Proposal have potential to impact the Murujuga rock art, management measures have been proposed in line with the work that Woodside is participating in through the Strategy and the Stakeholder Reference Group.

4. EMP Provisions

This section describes the provisions of this CHMP which, when implemented, achieve the objective of the Social Surroundings (Heritage) environment factor and the objective of the CHMP, to uphold the relevant environmental values and avoid potential impact to heritage features from the Proposal.

Table 4-1 lists the management-based provisions that will be implemented with the Proposal. These are based on the rationale and approach described in **Section 2.4**. Existing cultural heritage management measures for the NWS Project have been included in this CHMP.

4.1 Management Based Provisions Summary

Table 4-1: Management-based Provisions

Management Actions	Targets	Monitoring	Reporting
MA 1: Educate Project personnel on the sensitivity of the cultural heritage features on the Burrup Peninsula	No direct or indirect disturbance to rock art within the Proposal development envelope attributable to Project personnel All personnel entering the Project facilities attend relevant inductions.	Annual audits of at risk rock art within the Proposal development envelope are conducted by a qualified archaeologist accompanied by Traditional Owners. Rock art subject to audit will be determined annually based on advice from a qualified archaeologist considering likely sources of impact, and Traditional Owner requests. Induction attendance is recorded and confirmation that all personnel have attended is required.	Instances of direct or indirect physical damage to rock art within the Proposal development envelope are reported in an annual environment report to the EPA.
MA 2: Provide access for Traditional Owners to Aboriginal cultural heritage sites within the Proposal development envelope when requested	Access provided to the NWS Project for Traditional Owners when requested	Requests for access and outcomes to be recorded in a register and monitored for unaddressed/unmet requests.	Record of instances of Traditional Owners requests for access and outcomes of those requests are maintained internally.
MA 3: Investigate and respond to instances of odour complaints from the Murujuga National Park or the National Heritage Place	Respond to all complaints of odour from within the Murujuga National Park or the National Heritage Place in accordance with Woodside's Community Grievance Mechanism Procedure.	Community complaints are monitored for instances of recorded odour complaints from within the Murujuga National Park or the National Heritage Place, and investigated to determine whether they are attributable to the Proposal	All instances of odour complaints from within the Murujuga National Park or the National Heritage Place and Woodside response to those complaints are reported in the annual environment report

MA4: Adopt practicable and efficient technologies to reduce air emissions to prevent impacts to terrestrial and nearshore vegetation of heritage and conservation value	40% reduction of NO _x achieved by 31 December 2030.	Monitor, estimate and report facility emissions after installation of emission reduction technologies to verify achievement of emission reduction targets.	Performance against emission reduction targets summarised in the AER Annual reporting in accordance with the NPI.
MA 5: Implement an adaptive management plan addressing the potential impact to rock art from industrial emissions	See Section 5 .		
MA6: Support the implementation of, and participate in, the DWER Murujuga Rock Art Strategy ¹			

Note 1: DWER is responsible for awarding monitoring studies in support of the Murujuga Rock Art Strategy.

4.2 Management Actions

4.2.1 MA1 – Educate project personnel on the sensitivity of the cultural heritage features on the Burrup Peninsula

All personnel, including third party contractors and visitors are required to undertake a site induction prior to accessing the NWS Project. The induction informs personnel of the sensitivity of the cultural heritage features on the Burrup Peninsula and their obligations under the AH Act.

Discrete disturbance zones have been established for the NWS Project development envelope to ensure operational activities do not damage Aboriginal cultural heritage. All activities must remain within the designated disturbance zones unless appropriate permits and approvals have been obtained. The North West Shelf Cultural Heritage Management Procedures – Onshore Operations (Woodside ID 8915252) provides detail on the required procedures (including the permit system and notifications) in the event that:

- Ground disturbance work is required outside the designated disturbance zone;
- Access is required outside the designated disturbance zone;
- Human skeletal remains are discovered;
- New cultural heritage material or site is discovered;
- An incident occurs; or
- Traditional Owners request access to the NWS Project development envelope

As defined in the procedure, personnel wanting to access areas outside the KGP disturbance zone or undertake ground-disturbing activities must submit a request form to the NWS Project Heritage Manager for approval. The Heritage Manager assesses the potential for impact to heritage sites from the execution of the proposed activity and issues a permit that contains conditions to ensure compliance with the AH Act and this CHMP.

In addition, Woodside maintains a register of Aboriginal heritage sites within the NWS Project development envelope and undertakes annual heritage audits over the onshore components to monitor and report on the condition of heritage features within the Proposal development envelope. The location of monitoring sites is determined on an annual basis, from advice provide by an

independent qualified archaeologist and any specific Traditional Owner requests received. Considerations for the archaeologist in selecting sites include proximity to operational areas, sources of likely impact, sensitivity and exposure of sites and continuity with previous audits to enable identification of any changes or impacts.

The annual selection of sites offers the flexibility to incorporate additional sites where deemed necessary or exclude those that do not merit regular inspection in the opinion of the independent archaeologist, however the need for consistent results is recognised and required in the site selection process.

Traditional Owner requests to inspect sites are subject to their own concerns and priorities which are not prescribed by Woodside. Due to the cultural sensitivity of these sites, the specific monitoring locations are confidential. Initial records of heritage sites from early surveys of the NWS lease areas have been recently augmented with uniform digital recording forms, digital photography and DGPS spatial recording. These form the current baseline conditions for which future audits are compared against.

A paper archive of individual heritage features within the development envelope is maintained and is used in the field during annual heritage audits to ensure correct site features are visited and to visually compare the condition of those features over time. Annual heritage audits are conducted by a qualified archaeologist and accompanied by Traditional Owners. Discussions about the state of the site and nearby impacts is held with Traditional Owners to identify risks and appropriate mitigation measures. The audit report provides recommendations for future heritage work to ensure the continued protection and preservation of heritage features within the NWS Project development envelope.

4.2.2 MA2 – Provide access for Traditional Owners to Aboriginal cultural heritage sites within the Proposal development envelope when requested

The Traditional Owners of the area have requested ongoing access to NWS Project development envelope to visit heritage sites. The NWS Project welcomes the Traditional Owners and facilitates access subject to site access protocols, operational and safety considerations. To arrange access, Traditional Owners contact Woodside Karratha or Roebourne offices, who can organise access and the associated safety inductions. Woodside endeavours to meet each request, noting that on-site activities may dictate the timing, number of visitors and/or duration of any site visit.

The NWS Project heritage manager must:

- Confirm the area to be visited, duration of the visit and the names of people attending.
- Develop a Job Hazard Analysis, prior to the visit in accordance with Woodside's Golden Safety Rules and appropriate steps taken to consider gender.
- Be present during the site visit as safety focal point and will not attend the site visit with the Traditional Owners unless requested by the group to do so. However, the NWS heritage manager or nominee is to stay in visual contact with the visiting party to ensure safety obligations are met and an immediate response in the case of an emergency can be enacted.

4.2.3 MA3 - Investigate and respond to instances of odour complaints from within the Murujuga National Park or the National Heritage Place

Woodside has an established community grievance mechanism procedure (Woodside ID WM0000PG9539696) to report, review and remedy community grievances. Any concerns in relation to odour from within the Murujuga National Park or the National Heritage Place can be raised through a variety of communication channels including:

- The online form on the Woodside internet page [<https://www.woodside.com.au/contact>]
- Email via communities@woodside.com.au or feedback@woodside.com.au
- Telephone Woodside's head office or regional offices in Karratha or Roebourne
- Hardcopy letter.

4.2.4 MA4 - Adopt practicable and efficient technologies to reduce air emissions to prevent impacts to terrestrial and nearshore vegetation of heritage and conservation value

There is limited information available regarding the impacts of atmospheric deposition on Australia flora and vegetation in arid conditions and very little is known regarding air pollution impacts on vegetation occurring on the Burrup Peninsula. All predicted concentrations of NO_x and SO₂ are below the EU Air Quality Standards for the Protection of Vegetation (EU, 2008), as such significant impacts to vegetation of heritage or conservation significance are not expected due to emissions contribution from the Proposal.

In accordance with the principle of waste minimisation and application of the hierarchy of controls, Woodside will take reasonable and practicable measures to minimise emissions to air and therefore will reduce NO_x emissions by 40%¹ by 31 December 2030. Monitoring of performance against this target will be performed annually and progress reported through the Annual Environment Report.

If substantial emissions reductions can be achieved through installation of new equipment (particularly emission reduction equipment), point source emissions will be monitored before and after installation to verify that the equipment operates within the expected parameters.

Woodside will present the results of the point source emissions testing against anticipated emissions reduction performance in the annual environment report.

4.2.5 MA5 - Implement an adaptive management plan addressing the potential impact to rock art from industrial emissions

The adaptive management approach adopted in this CHMP (**Section 5**) has been developed cognisant of the Strategy and the EQMF that will be implemented. Woodside anticipate that the management framework in this CHMP will be updated once the environmental quality criteria for management of the rock art on the Burrup Peninsula are released. This management plan will be revised in accordance with **Section 5**.

4.2.6 MA6 - Support the implementation of, and participate in, the DWER Murujuga Rock Art Strategy

Woodside propose to manage potential impacts to Aboriginal rock art on the Burrup Peninsula in accordance with the Strategy and as a member of the Stakeholder Reference Group.

As described in **Section 3.3.1**, the purpose of the strategy is to protect the Aboriginal rock art on the Burrup Peninsula by providing a long term framework for monitoring and analysing potential changes to the rock art and describing a process by which management responses should be put in place to address adverse impact on the rock art. The monitoring program and associated scientific studies are being designed and implemented by DWER to monitor, evaluate and report on changes and trends in the integrity of the rock art, specifically to determine whether anthropogenic emissions are accelerating the natural weathering/alteration/degradation of Aboriginal rock art.

The implementation of the Strategy, Framework and Monitoring Program (DWER, 2019a)¹ will remove much uncertainty surrounding potential pathways linking industrial emission and accelerated weathering, and allow for timely investigation and management where required. The proposed program of monitoring and analysis will determine whether change is occurring to the rock art and if this change is being accelerated by industrial emissions. Monitoring of rock, and rock art in particular allows for early warning indicators and response mechanisms to ensure that long term significant impact due to accelerated weathering is avoided. The implementation of the risk based, adaptive management program using guidelines and standards, derived from sound scientific information, will

¹ Based on the percentage of reported emissions from KGP over the five-year annual average, covering the 2013/14 to 2017/18 financial years.

ensure that the rock art is protected from potentially significant harm associated with industrial emissions.

Historically, Woodside has made a significant financial contribution to a range of scientific studies on the Burrup Peninsula and will continue to contribute to a range of scientific studies on the Burrup Peninsula by providing funds to support the Strategy's implementation. Woodside will also assist with implementing the Strategy through its role on the Stakeholder Reference Group, which has been established by the Minister for Environment to assist with communication and stakeholder engagement.

5. Adaptive Management and Review of the CHMP

The ability to respond to scientific advances is particularly important for managing potential impacts from air emissions (in particular NO_x) on the rock art of the Burrup Peninsula. Currently, there is a lack of scientific understanding of the impacts of air emissions on petroglyphs and therefore it is difficult to set appropriate management actions in this CHMP. In line with the concept of adaptive management, the management actions presented in this CHMP shall be monitored, reviewed, evaluated and updated, as required, considering:

- outcomes of any technical review of and evaluation of the emissions and ambient air quality monitoring programs (undertaken in accordance with the NWS Project Extension Air Quality Management Plan).
- new scientific information is published, as part of the Strategy, about the potential impacts of industrial air emissions on Aboriginal rock art of the Burrup Peninsula and that information suggests new or updated provisions should be included in this CHMP.
- new and relevant data/information gained as a result of implementing this CHMP, or from external sources
- changes in State or Commonwealth legislation or policy.

With relevant updates included in a revised CHMP. In addition, this CHMP may be reviewed:

- based on EPA and decision-making authorities (DMAs) comments during the ERD approval process
- if a significant incident occurs related to the protection of Aboriginal heritage.
- Traditional Owners request that a review is undertaken due to a relevant concern
- complaints indicate instances of odour within the Murujuga National Park or the National Heritage Place
- If relevant legislative requirements are updated or amended in relation to Aboriginal Heritage

Technical review and evaluation of the management actions outlined in this CHMP will be conducted every five years¹ (if not initiated prior to that time) to ensure the management actions are adequately addressing the key risks and meeting EPA objectives. If, as a result of any review, any significant changes are required to be made to this CHMP, a revised CHMP will be provided to the EPA for approval.

When the five-yearly review cycle is triggered, or if a significant change to either the facility, activity, or risk is identified, a revised CHMP will be submitted to the EPA. When approved, the revised plan will be made publicly available.

¹ Frequency no more than annually.

6. Stakeholder Consultation

This CHMP is included as an appendix to the ERD for the Proposal (Woodside, 2019) and therefore will be reviewed by the EPA, key DMAs, and the general public as part of the assessment process for the ERD. Comments received from the EPA and DMAs during the initial review will be incorporated into this CHMP before publication of the ERD (and associated management plans) for public review and comment. All comments received during the public review period that relate to this CHMP will be considered, and changes made to this CHMP where required.

7. References

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- Environmental Protection Authority (EPA) 2018. *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*. Environmental Protection Authority, Government of Western Australia, Perth, WA. Available from: <http://www.epa.wa.gov.au/forms-templates/instructions-part-iv-environmental-management-plans> [Accessed May 2019]
- Woodside 2018. *North West Shelf Project Extension Proposal Section 38 Referral Supporting Information*. Woodside Energy Limited, Perth WA. Available from: http://www.epa.wa.gov.au/sites/default/files/Referral_Documentation/North%20West%20Shelf%20Project%20Extension%20Proposal%20Section%2038%20Referral%20Supporting%20Information.pdf [Accessed March 2019]
- Woodside 2019. *North West Shelf Project Extension Environmental Review Document*. Woodside Energy Limited, Perth WA. Woodside ID: G2000RF1401194374

8. Terms

Terms	Definitions
AQMP	Air Quality Management Plan
ATSIHP Act	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)</i>
AH Act	<i>Aboriginal Heritage Act 1972 (WA)</i>
CHMP	Cultural Heritage Management Plan
DMA	Decision-making Authority
DPLH	Western Australian Department of Planning, Lands and Heritage
DWER	Western Australian Department of Water and Environmental Regulation
CHMP	Cultural Heritage Management Plan
EP Act	<i>WA Environmental Protection Act 1986 (EP Act)</i>
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
EPA	Western Australia Environmental Protection Authority
ERD	Environmental Review Document
IMR	Inspection, Maintenance and Repair Program
KGP	Karratha Gas Plant
LNG	Liquefied Natural Gas
MAC	Murujuga Aboriginal Corporation
MCMP	Murujuga Cultural Management Plan
MEQMP	Marine Environment Quality Management Plan
Murujuga	Traditional name for the Burrup Peninsula and surrounding islands of the Dampier Archipelago
NT Act	<i>Native Title Act 1983 (Cth)</i>
National Heritage Place	National Heritage Place – Dampier Archipelago (including Burrup Peninsula)
NWS	North West Shelf
NWSJV	North West Shelf Joint Venture
North West Shelf Joint Venture	A joint venture comprising six companies; Woodside Energy Ltd. (operator), BHP Billiton Petroleum (North West Shelf) Pty Ltd, BP Developments Australia Ltd, Chevron Australia Pty Ltd, Japan Australia LNG (MIMI) Pty Ltd, and Shell Australia Pty Ltd. The North West Shelf Joint Venture owns the infrastructure used as part of the North West Shelf Project and, together with CNOOC NWS Private Limited, the North West Shelf Joint Venture owns the resources processed as part of the NWS Project.
North West Shelf Project	The North West Shelf Project is one of the world's largest liquefied natural gas producers, supplying oil and gas to Australian and international markets from offshore gas, oil, and condensate fields in the Carnarvon Basin off the north-west coast of Australia. The NWS Project is owned by the NWSJV participants and for more than 30 years, it has been Western Australia's largest producer of domestic gas. The NWS Project currently processes resources owned by the NWSJV and CNOOC NWS Private Limited and is proposed to also process third-party gas and fluids as part of the NWS Project Extension Proposal.

Terms	Definitions
NWS Project Extension Proposal (the Proposal)	The Proposal as described in the NWS Project Extension Section 38 Referral Supporting Information (November 2018) to continue to use the existing NWS Project facilities for the long-term processing of third-party gas and fluids and NWSJV field resources through the NWS Project facilities; and Ongoing operation of the NWS Project to enable long-term processing at the NWS Project facilities, currently expected to be until around 2070.
pH	Measure of acidity or basicity of a solution
TL	Trunklines
WA	Western Australia
WMS	Woodside Management System
Woodside	Woodside Energy Ltd

North West Shelf Project Extension Cultural Heritage Management Plan

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