Offshore Oil and Gas Decommissioning Decision-making Guidelines

July 2016

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Introduction

The Australian oil and gas industry is facing a significant decommissioning portfolio over the next few decades. Industry is seeking to work with relevant regulators and other stakeholders to create a common framework to decommission safely, cost effectively and with regard to the environment – with a uniform approach across State and Federal Governments.

This discussion paper is organised around what the industry believes are the core components of a practical, effective and flexible approach that governments can adopt or adapt to manage decommissioning.

The key components include:

1. A robust and uniform policy, legal and regulatory framework that specifically addresses decommissioning;
2. A methodology for assessing decommissioning options and comparing their relative impacts to identify the option that reduces risks to as low as reasonably practicable (ALARP); and
3. Stakeholder consultation and engagement

This document is intended as a starting point for discussion between industry, government and community in the development of a recommended approach for decision-making on decommissioning oil and gas facilities in Australia's Commonwealth and State waters. Recognising the objective-based nature of the relevant legislation, this draft guideline outlines a suggested methodology for evaluating the relative merits of different decommissioning options on a case-by-case basis. Using this approach, the outcome for a particular facility will depend on the facility's location and its inherent characteristics and impacts.

Summary

The Guideline is intended to provide a high-level summary of relevant factors to be considered when determining the most appropriate scope for decommissioning offshore oil and gas facilities. These are outlined below.

Legislation and regulations:

- The legal framework around decommissioning is evolving. It initially focused on full removal of all offshore installations, but has more recently recognised other options, such as in-situ decommissioning, may provide better overall benefits.
- Legislation requires companies to assess a range of decommissioning options including full or partial removal or complete in-situ decommissioning.
- Legislation emphasises a risk-based approach to ensure the final outcome reduces overall risks to as low as reasonably practicable (ALARP) and acceptable levels.

Facility design and construction:

- Due to the significant diversity of facilities installed to access hydrocarbon resources, determining the appropriate decommissioning option for a specific installation or facility needs to be considered on a case by case basis.

Decommissioning approach:

- Decommissioning must be conducted in accordance with an approved Environmental Plan (EP) which must include risk-based analysis to ensure activity risk levels are reduced to the extent practicable, to acceptable levels and must ensure affected stakeholders have been adequately consulted to ensure risks are appropriately assessed and impacts understood.

Post-decommissioning:

- Following completion of decommissioning activities in accordance with an approved EP, titleholders will look to surrender their title interests.

Acknowledgements

These decision-making guidelines were developed by an APPEA Decommissioning Industry Reference Group, comprising representatives from 12 of APPEA's full member companies. This technical working group has since been established as a committee of the Board.

Legislative background

International

International Conventions

Australia is signatory to a number of international conventions relevant to offshore oil and gas decommissioning:

- The 1958 Geneva Convention on the Continental Shelf (Geneva Convention).
  The Geneva Convention determines the sovereign rights of coastal States to explore the continental shelf and produce its natural resources. Under Article 5(5) of the Geneva Convention, any installations on the continental shelf which are abandoned or disused must be entirely removed.
- The 1982 United Nations Convention on the Law of the Sea (UNCLOS) (which modified the Geneva Convention).
  Article 60 of UNCLOS states that removal of installations or structures in the exclusive economic zone of a coastal State should take into account generally accepted international standards established by the competent international organisation. In addition, Article 210 of UNCLOS requires States to adopt laws and regulations to prevent pollution from dumping at sea and requires national laws to be no less effective than global rules and standards in this regard.
- The 1972 United Nations Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention).
  The 1996 protocol to the London Dumping Convention broadened the definition of "dumping" to include requirements for abandonment or toppling at site of platforms or other man-made structures at sea. The International Maritime Organization (IMO) is responsible for administering the London Protocol.

IMO Guidelines

The International Maritime Organization is the competent organisation for the purposes of Article 60 of UNCLOS. In 1989 the IMO adopted Resolution A.672 (16) "1989 Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and Exclusive Economic Zone" (IMO Guidelines). Although the IMO Guidelines should be taken into account under UNCLOS, they do not have the status of international law and are not binding on Australia as a signatory to UNCLOS.

The general requirement of the IMO Guidelines is that all installations and structures on any continental shelf or any exclusive economic zone should be removed except where such non-removal or partial removal is consistent with the IMO Guidelines, as summarised below.

Under the IMO Guidelines, any non-removal or partial removal decision should take into account:

- potential effects on safety of navigation or other uses of the sea;
- rate of deterioration of materials and possible future effect on the marine environment;
- effect on the marine environment;
- potential for materials to move on the sea bed;
- cost, technical feasibility, and safety of personnel; and
- any new uses for the installation or structure remaining on the sea-bed or other reasonable justification.

IMO Guidelines require ensuring that materials left on the sea-bed do not adversely affect navigation or the marine environment. States should identify a responsible party to maintain aids to navigation and monitor the condition of materials under specific plans for these purposes.

States should also ensure that the ownership of installations and structures that have not been entirely removed is unambiguous and that responsibility for maintenance and future damages is clearly established.

In 2000 the IMO adopted "Specific Guidelines for Assessment of Platforms or Other Man-Made Structures at Sea" for use by national authorities where disposal of a platform or other structure at sea is to be disposed of by dumping.

Commonwealth

Commonwealth legislation relating to offshore oil and gas decommissioning applies to petroleum facilities located in Australian waters that extend beyond 3 nautical miles from the coastline and may, in some circumstances, be relevant to water under the jurisdiction of State or Territories. The purpose of the legislation is primarily to regulate resource management, safety and environmental impact. The *Petroleum Resource Rent Tax Assessment Act 1987* (Cth) and the *Income Tax Assessment Act 1997* (Cth) may also be relevant to the extent that costs are deductable for taxation purposes.

Offshore Petroleum and Greenhouse Gas Storage Act

The principal Commonwealth legislation relating to offshore oil and gas decommissioning is the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) (OPGGSA). The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) assesses Environment Plans required under the regulations for decommissioning, which may include full or partial removal of facilities.

Section 572(3) of the OPGGSA contains a general requirement for a titleholder to remove "all structures that are, and all equipment and other property that is, neither used nor to be used in connection with the operations".

Section 572(3) of the OPGGSA is subject to directions by NOPSEMA or the responsible Commonwealth Minister under subsections 574, 574A and 574B of the OPGGSA. These directions could permit the partial removal or leaving equipment or other property in-situ if it is not being used or to be used by a titleholder. Section 572(3) of the OPGGSA is also subject to any other provision of the OPGGSA or regulations made under the OPGGSA.

Importantly, section 270 of the OPGGSA addresses the requirements for the surrender of a title, which is typically the final step taken at the end of a title's useful life. Under section 270, the Joint Authority must not unreasonably withhold consent to the surrender of a title if (among other things) a titleholder has removed all property brought onto the area to be surrendered or made arrangements regarding that property that are satisfactory to NOPSEMA.

The Explanatory Memorandum to the Offshore Petroleum Bill in 2005 expressly contemplates the IMO Guidelines where "arrangements satisfactory to the Designated Authority" [now NOPSEMA] are permitted, stating these allow "an operator to leave or partially remove certain items if the complete removal involves significant cost or safety implications".

Decommissioning an offshore facility is a "petroleum activity" for the purposes of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 made under the OPGGSA (Regulations). Under the Regulations, NOPSEMA determines the acceptability of a decommissioning proposal through its acceptance of an environment plan prepared by the titleholder.

The Environment Plan must demonstrate to NOPSEMA that the environmental impacts and risks of the activity will be reduced to "as low as reasonably practicable" (ALARP). Issues to be considered in an ALARP assessment are broad and are discussed in more detail in Section 5 of these guidelines.

Environmental Protection and Biodiversity Conservation Act (EPBC Act)

The EPBC Act provides for the environmental impact assessment and approval of proposals that may involve significant impact to a matter of National Environmental Significance. Projects assessed and approved under the EPBC Act will be subject to commitments made by the proponent and conditions that may have been imposed by the relevant Environment Minister.

Since 2014, all petroleum activities undertaken in Commonwealth waters in accordance with the OPGGSA have been approved as "approved classes of actions" that do not require referral, assessment and approval under the EPBC Act. Decommissioning offshore facilities is an approved class of action and is therefore subject to NOPSEMA's regulation.

Environmental Protection (Sea Dumping) Act

The Environmental Protection (Sea Dumping) Act 1981 (Sea Dumping Act) enshrines the London Protocol in Australian legislation.

Under the Sea Dumping Act, any proposal to dump a platform or other man-made structure at sea must be assessed. This assessment must include evaluation of alternatives and waste management and minimisation options, and must also consider potential impacts on the marine environment and other users. A permit must be obtained for disposal by dumping of a platform or other man-made structure at sea.

The Sea Dumping Act is administered by the Commonwealth Department of Environment. An application for a permit for sea-dumping may logically follow acceptance of an Environment Plan by NOPSEMA that includes a platform or other man-made structure being "dumped" in the course of decommissioning an offshore facility.

States

State and Northern Territory legislation applying to offshore petroleum facilities located in State and Northern Territory waters generally mirrors the Commonwealth OPGGSA. State environmental regulations concerning petroleum facilities have much in common (being objective-based regimes) but are not identical in content nor in how these regulations are administered.

Each State and the Northern Territory also have environmental impact assessment legislation that may be applicable to decommissioning petroleum facilities in a State or Northern Territory waters.

The Commonwealth EPBC Act may also apply in State or Northern Territory waters to activities that may affect a matter of national environmental significance (Matter of NES). In these circumstances, there may be a bilateral agreement in place to allow the State assessment process to be relied upon by the Commonwealth. Projects that have been assessed and approved under environmental impact assessment legislation may be subject to commitments made by the proponent and conditions relevant to a Matter of National Environmental Significance.

Regardless of whether the decommissioning project is in Commonwealth or a State or Northern Territory waters, the fundamentals set out in the international legislation should provide the basis for determining the best decommissioning option (as set out in this draft guideline) to be assessed by the relevant regulator under the applicable legislation.

Types of facilities and infrastructure

Australia has oil and gas facilities in both Commonwealth and State waters. There is a wide range of offshore facilities because of the technical and environmental conditions for which they are designed. The techniques used to install various facilities are also diverse, as will be the challenges associated with removing them from service once the hydrocarbon reserves they produce are depleted.

A description of common facility types along with typical associated infrastructure follows.

Many offshore Australian oil and gas facilities have been developed using fabricated steel structures fixed to the seabed that support production facilities and accommodation for workers. These are common in Australia on the continental shelf areas where the water depth is not excessive, such as much of the North West Shelf, and Bass Strait. These facilities generally host wells with “dry trees” – i.e. the well control and isolation equipment is all located above the waterline on the facility. Generally these facilities are installed with “piles” that are either, drilled and grouted into place, or are driven into the seabed.

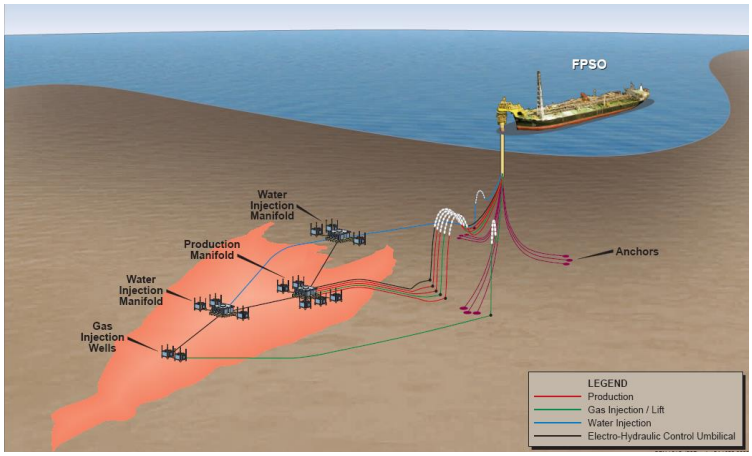
An alternate structure used occasionally in Australia is to build a “gravity base” from steel-reinforced concrete or steel alone that can be floated into place and sunk into position. This structure sometimes also includes tanks that can store crude oil. Gravity-based structures hold the facilities in place through their considerable weight on the seabed.

In shallow waters, typically located close to islands or the coastline, oil and gas is sometimes produced through very simple small unmanned facilities such as a “monopod” or small platform with production controlled remotely from the nearby island and with production facilities located on that island.

Oil and gas offshore facilities can either be transferred directly from the offshore facility to a seagoing tanker or transported via pipelines to onshore facilities for treatment, storage and then further transportation to market.

Oil and gas pipelines vary in size up to more than 1 metre in diameter and are often installed with outer coatings such as insulation and concrete which provide additional weight to hold the pipeline in place.

Where the pipeline traverses shallow water such as the shore crossing it may need to be bolted in place, have rocks placed over it or be trenched or occasionally even installed well below the seabed in a “tunnel” that has been drilled from the shore.



In Western Australia and the Northern Territory, oil installations frequently feature subsea wells with control and isolation equipment located on the seabed. Generally, oil is stored in oil tankers converted to production facilities called an “FPSO” or floating production, storage and offtake vessels. Gas is generally piped to shore from these facilities depending on the quantities involved.

Floating production storage and offloading

FPSOs are either permanently moored or disconnectable (to deal with severe weather).

In either case, these facilities are removed at the end of field life and are then either reused or scrapped if they are no longer serviceable.

FPSOs are held in place by various means, most commonly via mooring systems using large steel drag anchors or special piled arrangements such as suction piles.

In subsea developments several common components are generally installed onto the seabed.

Subsea trees and well heads

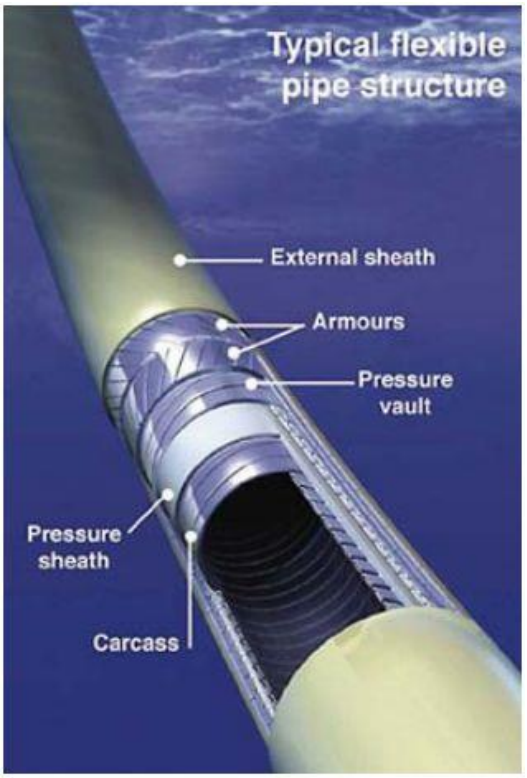
Located at the top of the well, these provide a means of controlling the well flow and connecting the well to the flowline system.

Infield gathering systems

These gather oil or gas from the subsea wells and route them generally to surface facilities offshore via manifolds or sometimes directly to an onshore facility.

Pipelines may be constructed from various types of steel or composite flexible pipes manufactured from both steel and plastics.

In the case of flexible pipes their weight is generally sufficient to hold them in place on the seabed whilst steel pipelines often use additional weight such as concrete. Mattresses may be used for protection and or crossings.



Manifold structures

Subsea installations often include seabed gathering manifolds that contain simple fluid controls, metering and monitoring equipment.

Fluid processing and pumping and compressing on the seabed has become technically feasible and is expected to become more common.

Manifolds are generally lowered into place on the seabed and held there by mats around the periphery or skirts on the underside that penetrate the seabed.

Subsea controls and umbilicals

These components distribute electrical power and signals, water-based hydraulic control fluid to the subsea trees and manifolds.

They generally comprise umbilical flowlines (bundled electrical cables and steel or thermoplastic hydraulic tubing), umbilical riser and subsea control units, including associated computers and distribution equipment.

Subsea control units are often placed in the manifolds or subsea trees but can also be on separate subsea distribution units.

Like flexible flowlines, umbilicals are generally heavy enough to remain in position after installation.

Technical decommissioning and disposal options

Decommissioning options will be influenced by each individual development and external circumstances at the time of decommissioning and may include:

- finding an alternative use for part or all of the structure;
- recycling part or all of the structure;
- final disposal onshore of part or all of the structure;
- leaving the structure in place;
- toppling the structure on location; and
- disposing of the structure elsewhere at sea, such as an artificial reef or deep sea disposal.

Decommissioning a petroleum production facility of any sort will always include plugging and abandoning the wells so that no fluids can escape after the site has been decommissioned.

Wells

The main objective of plugging and abandoning a well is to avoid reservoir fluids leaking to the environment.

This requires containing the formation fluids within the well and preventing the communication between originally separated zones. A series of barriers is placed inside the well at various depths determined by engineering criteria. These barriers ensure that the well integrity is maintained over time.

Well barriers have the capability to withstand the different loads they will be exposed to during the life of the well.

In plugging and abandoning a well, the objective is to have the determined barriers set in perpetuity.

Several techniques are used to install or set the barriers and different materials qualify for use in constructing these barriers.

The techniques include, but are not limited to, cement placement through pipes, plugs placement through wireline or pipe or cement squeezed into the formation. In recent times, resins have also been used more widely as a plugging material, and sometimes resin is combined with cement to create a flexible mixture.

Facilities

A range of technical decommissioning and disposal options exists for offshore facilities, each of which must be evaluated on a case-by-case basis. The scope of consideration should include a broad range of aspects and not only focus on the vicinity of the structure.

Decommissioning options include:

- Complete removal, disposal onshore or offshore
- Partial removal, disposal onshore or offshore
- Abandonment in-situ
- Alternate use, either within the oil and gas industry or other industries / purposes.

The method of removing and disposing of a structure depends on factors such as the type of construction, size, distance to shore, weather conditions, the complexity of the removal operation and the environmental impact. It must also consider the safety of workers.

The most common options are listed in the following table:

Table 1: Decommissioning options

OPTIONS	DESCRIPTION
Disposing at land	Bringing the installation onshore, cleaning it, breaking it up into scrap for recycling in the steel industry, or disposal at licensed sites.
Toppling on site	Cleaning the installation, placing or toppling the cut section on the seabed.
Placing in deep water	Cleaning the installation, and then towing it and placing it a deep water site.
Leaving on site	Making the installation safe and leaving in-situ.
Artificial reef	Cleaning the installation and using it to form an artificial reef to improve local marine life.
Re-use in another location	Cleaning the installation, carrying out non-destructive tests, removing and transporting it to another site suitable for the platform's characteristics, then installing it at the new site.
Re-use for another scope	Making the installation safe and transferring use/purpose and potential ownership.

Any parts of a structure not brought onshore for disposal must be adequately cleaned of oily wastes and residual contamination. They must also be assessed as to whether they should remain in-situ, remediated in place, or removed for disposal.

The benefit of leaving structures in place or 'in-situ' has been demonstrated in several parts of the world, notably in the US Gulf of Mexico where the facilities are valued as "artificial reefs" that support fishing activity. Elsewhere submerged structures have been left in-situ to become diving attractions to support the local tourism industry.

It is possible that alternative uses might be found for some structures to support activities such as wind farms, carbon geosequestration injection sites, or as hubs for fish farms.

Any new operator of a facility would need to satisfy all relevant regulators that the facility is fit for the proposed alternative use.

Decommissioning options analysis and comparative assessment

A comparative assessment approach should be used to evaluate and understand the best decommissioning options for specific assets.

This is achieved by undertaking a risk, benefit and feasibility assessment and reviewing the outcomes of each to determine the preferred approach to decommission the assets.

The **risk**, **benefit** and **feasibility** assessments may include qualitative and quantitative data.

Generally, no single decommissioning option will satisfy all criteria or stakeholders, especially given the differing nature and location of assets.

Therefore to avoid a "lowest common denominator" effect, where individuals or groups drive outcomes based on expectations, without regard for a comprehensive view, decommissioning options should viewed holistically and chosen considering risk reduction against the lost benefits and feasibility, to reduce overall risk to ALARP.

Separate comparative assessments may be required to suit different asset types as outcomes may be different (e.g. platforms, jackets, riser towers, mooring anchors, subsea manifolds, flexible/rigid pipelines, umbilicals, well heads, etc).

Risk assessment

A risk assessment aligned with the Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2009 Risk Management should be undertaken.

If an existing corporate risk management processes and standard risk matrix is available, this may be used to ensure consistency across the corporation in assessing risk.

Risk assessment should include consultation with:

- personnel familiar with the infrastructure's design and status; and
- subject matter experts for the risk aspects being considered (e.g. marine environmental specialists, subsea engineers, external stakeholder engagement, and health and safety professionals).

Criteria evaluated in the risk assessment may include relevant aspects such as those listed in Table 2 overleaf.

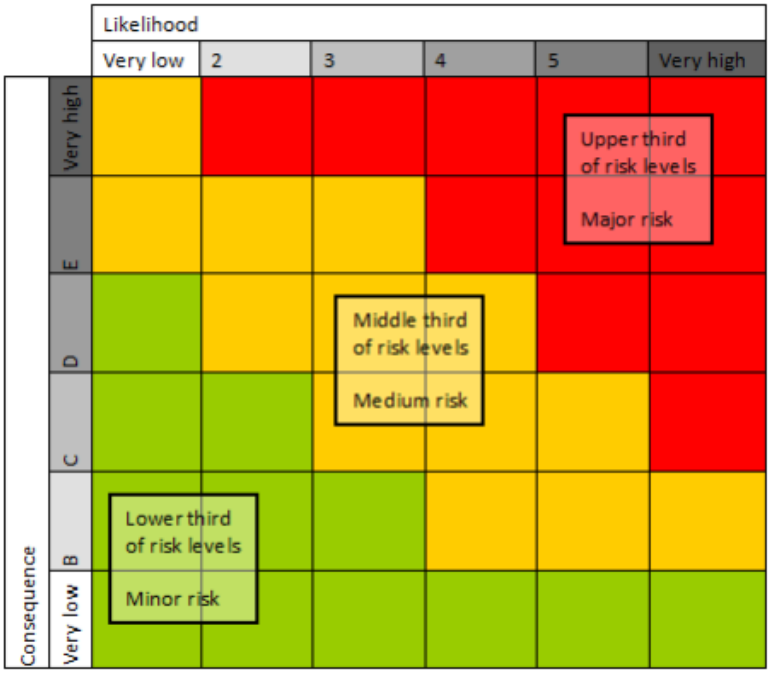
These may be modified where required based on project-specific circumstances. These aspects should be described in detail and the risk level explained in relation to each aspect considered.

Table 2: Example Categories for risk assessment

Criteria	Example Aspects
Health	Public health impacts Workforce health impacts
Environment	Seabed habitat impacts Marine fauna impacts Greenhouse gas emissions Volume of waste Impact to water quality/contamination Execution incident events
Safety	Diver safety Public safety Major accident events Navigational safety
Socio-economic	Recreational fishing community impacts Commercial fishing impacts Impacts to other marine users

The overall risk rating or level of risk is derived by combining the consequence and likelihood of the risk using a risk matrix that broadly aligns with AS/NZS ISO 31000:2009. An example risk matrix is shown in Figure 1 below.

Figure 1: Example Risk Matrix



Benefit assessment

The net benefits assessment can be used to provide an overarching framework that an operator can use to holistically consider benefits associated with each option, considering environmental, social, safety, and economic factors and the ability to meet sustainability goals. The effects of alternative actions on safety and the environment can be quantitatively or qualitatively compared, to enhance understanding and ensure environmental, public, and workforce safety benefits are considered in the overall comparative assessment (i.e. to achieve ALARP).

Safety risk associated with alternative options can be assessed using quantitative risk assessment techniques commonly used in the oil and gas industry.

Environmental considerations should be directed toward a net environmental benefit analysis (NEBA). Criteria evaluated during the benefits assessment may include relevant aspects such as those listed in Table 3, but these can be modified as required based on project-specific circumstances. These aspects should be described in detail and the benefit level quantified in relation to each aspect considered.

Table 3: Example Categories for Benefit Assessment

Criteria	Example Aspects
Ecological Services	Seabed habitat and composition Fish and other marine fauna biomass, abundance and production Threatened and special significance species
Environment	Contaminant exposure to ecological receptors Greenhouse gas emissions Volume of waste and landfill utilisation
Health and Safety	Contaminant exposure to human receptors Potential Loss of Life
Economic Value	Recreational fishing Commercial fishing Benefits to other marine users

NEBA is an analytical framework that incorporates ecosystem service values. It can be used to quantify and compare the effects of alternative actions on the environment.

Understanding these effects helps maximise benefits to the environment and the public while managing costs and site risks (i.e. meeting ALARP goals).

Net environmental benefits are the gains in value of environmental services or other ecological properties attained by the action(s) minus the value of adverse environmental effects caused by the action(s).

The formalised NEBA Framework is recognised by the Australian Maritime Safety Authority, the National Oceanic and Atmospheric Administration, the United States Environmental Protection Agency (US EPA), and US EPA Science Advisory Board, and other organisations. NEBA incorporates the use of ecosystem service valuation methods to evaluate changes in habitat value over time.

Feasibility assessment

The feasibility of executing certain options can increase the risk and uncertainty of successfully executing decommissioning projects. Therefore, feasibility must be considered in when selecting a preferred option.

Criteria evaluated during the benefits assessment may include relevant aspects such as those listed in Table 4. However, these can be modified based on project-specific circumstances and requirements.

Table 4 : Feasibility Assessment Categories

Category	Example Aspects
Technical	Technical complexities Execution methodology Original design constraints
Corrosion Persistence	Corrosion life (particularly for leave in-situ options)
Long Term Stability	Equipment stability (particularly for leave in-situ options)
Waste Generation	Waste volume Waste type (recyclable)
Cost	Execution Cost

The feasibility assessment provides evaluation of alternatives to assist in selecting a preferred option. There are many different ways that feasibility can be evaluated. One often-used method is to evaluate through ranking/scoring.

In using a scoring method, the summation of the score for an option may help determine its feasibility ranking with the lowest score representing the most feasible option.

Comparative assessment

The objective of the comparative assessment is to review the risk, benefit and feasibility assessments to determine the preferred option for decommissioning.

It may not be possible to select the option with the lowest residual risk, highest net benefit, or the highest feasibility when holistically considering all of the assessment outcomes together. Therefore, the preferred option should be that which has low residual risk, reduced to a level that is ALARP considering the combination of high net benefit and high feasibility.

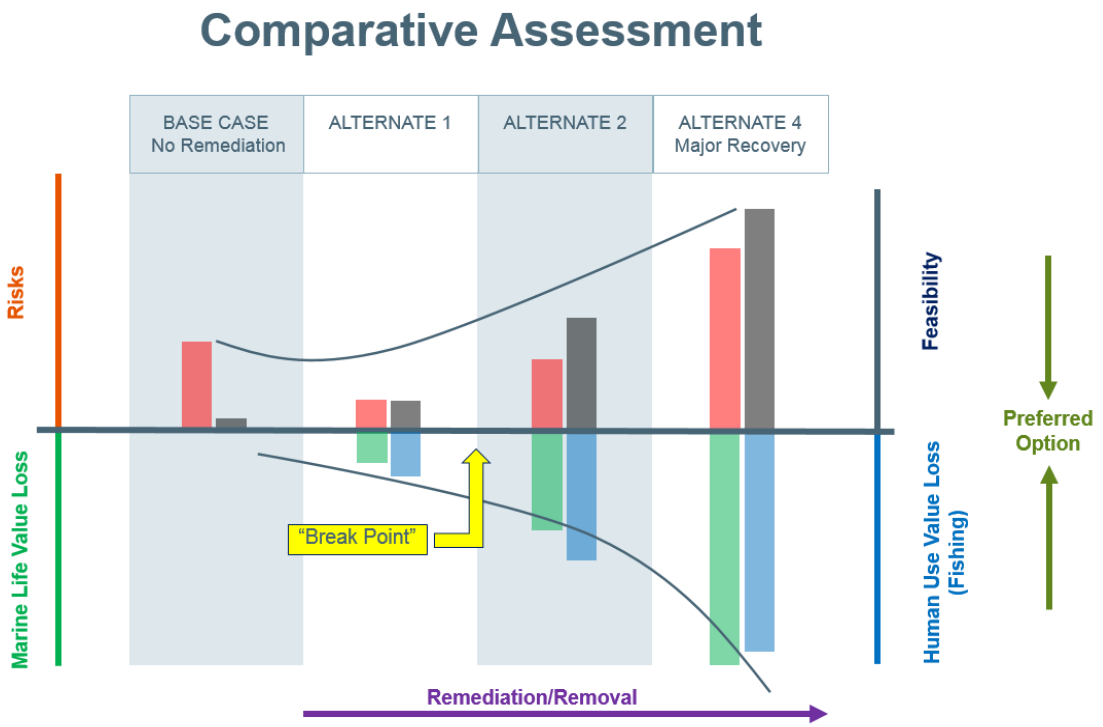
The comparative assessment may also be used to rule out options where the risks are considered unmanageable and unacceptable, or the feasibility assessment results in an option being considered unfeasible.

An example method for illustrating a comparative assessment is provided in Figure 2 (overleaf).

All of the assessment criteria can be plotted together for a holistic comparison of a range of decommissioning options. A favourable score for each criterion is as close to zero as possible, with the preferred option represented collectively as the smallest grouping of columns.

The “break point” can be used to signify the point where further remediation actions can actually result in a disproportionate net loss considering overall risk, benefit and feasibility.

Figure 2: Comparative assessment example



Following a comparative assessment of alternatives, a recommended outcome for each component may be presented, including any defined remediation and controls. The outcomes recommended via this approach can then be used to demonstrate that risks have been reduced to ALARP, via direct comparison to the other feasible alternatives.

Responsibility post-decommissioning

Section 270 of the OPGGSA addresses the surrender of a title in Commonwealth waters.

The National Offshore Petroleum Titles Administrator (NOPTA) may not accept the surrender of title until NOPSEMA has accepted a titleholder's notification that obligations set out in the decommissioning Environment Plan have been completed.

NOPTA may require further evidence from titleholders beyond the Environment Plan to support the surrender of title. Petroleum facilities in State waters (up to 3 nautical miles from the coastline) fall under similar State legislation.

Titleholders should therefore evaluate potential pollution risks from items left in-situ and seek to reduce these risks to ALARP before surrendering title.

Pollution risk reduction measures include removing hydrocarbon inventory, flushing equipment to an appropriate level of cleanliness, and/or remediating components in-situ.

Following precedents set in other regions (such as the US Gulf of Mexico), any equipment left in-situ that poses a potential navigational hazard should be marked on navigation maps.

Prior to being marked on maps, marker buoys and navigation hazard beacons may be required for a period (one year in US Gulf of Mexico). Objects remaining above sea level (such as gravity-based structures) may require the use of permanent navigation hazard beacons.

If risks are adequately mitigated, ongoing monitoring of abandoned sites should generally not be necessary.

Some initial project approvals include Ministerial Commitments around post-decommissioning monitoring requirements that may also need to be satisfied. If monitoring is required, titleholders may remain on the title until monitoring activities are complete.

It is recognised that some abandonment alternatives may carry risk of ongoing continuing liability, which would need to be understood on a case-by-case basis.

Potential future liability should not override the objective to undertake the holistically "highest benefit" option arising from the comparative and risk assessments.

Stakeholder consultation

The Offshore Petroleum and Greenhouse Gas Storage Act requires titleholders to undertake an effective consultation process for petroleum activities, including decommissioning.

Consultation is intended to ensure that potentially affected parties have an adequate opportunity to consider and provide feedback on the potential impacts of decommissioning activities/proposals relevant to their functions, interests or activities.

To be effective, consultation should be approached as a preventative and ongoing mechanism for addressing the impacts and risks associated with decommissioning. Consultation is intended to ensure that any objections or environmental, social or economic concerns are considered and addressed in regulatory submissions (e.g. Environment Plan).

All consultation activities should be conducted in accordance with the principles of:

- **Inclusivity**: All consultation activities are inclusive of culture, gender and differing viewpoints. The views of vulnerable or marginalised groups that may be affected by the activities are sought out.
- **Integrity and Respect**: All consultation activities demonstrate openness, honesty and fairness.
- **Transparency**: Transparency is maintained with stakeholders, particularly in providing timely information on any plans, developments and alterations that may affect them and notifying them of any decisions relating to concerns they have raised.
- **Accessibility**: Information is disclosed in a way that is easy to access and to understand for all stakeholders. In particular, technical information is communicated in an accessible format and in the languages spoken by the relevant stakeholders.
- **Responsiveness**: Identified stakeholder issues and concerns are responded to in a timely manner.
- **Informed Consultation and Participation**: The engagement and consultation process should result in the affected stakeholders' informed participation. This requires an in-depth exchange of views and information through organised and iterative consultation that uses feedback to shape decision-making. The process must be documented and capture individuals' views and reflect their different concerns and priorities regarding impacts, mitigation mechanisms and benefits. The process must also inform those affected about how their concerns have been considered.

Analysis and mapping should be used to identify stakeholder groups. Early engagement, appropriate consultation strategies and respectful communication techniques will enhance interaction with stakeholders and is likely to increase the likelihood of meeting the environment regulations' consultation requirements.

Stakeholders may include government departments, maritime organisations, fisheries groups, conservation societies, science organisations, marine users, wilderness society, wildlife organisations, offshore contractors, tourism businesses, local communities and other groups.

Consultation for new decommissioning activities should consider previous consultation undertaken across the industry and by Government.