

TABLE 1: Existing Guidelines that may serve as reference materials for ISA Standards and Guidelines

Document	Issuing Body	Application of Document	Success of Implementation to Date
<ul style="list-style-type: none"> <li>• <b>IFC Performance Standards on Environmental and Social Sustainability (IFC 2016)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines: Air Emissions and Ambient Air Quality (IFC 2007)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines: Management (IFC 2007a)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines: Waste Management (IFC 2007b)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines: Hazardous Materials Management (IFC 2007c)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines: Wastewater and Ambient Water Quality (IFC 2007d)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines: Energy Conservation (IFC 2007e)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines for Mining (IFC 2007f)</b></li> <li>• <b>IFC Environmental, Health and Safety Guidelines for Offshore</b></li> </ul>	<p>The International Finance Corporation, which provides loans and financing to progress projects which bring benefits to developing nations.</p>	<p>International standard required to be met (mandatory) if proponents are sourcing funding from IFC. IFC standards are often implemented voluntarily by companies not seeking IFC funding, to demonstrate best practice.</p>	<p>IFC standards are considered best practice, and are updated approximately every 7 years with a significant stakeholder engagement process. They are reasonably high level in some regards, which can make them difficult to audit against, however the wide ranging consensus is that these guidelines demonstrate best practice.</p>

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<b>Oil and Gas Development (IFC 2015)</b>			
<ul style="list-style-type: none"> <li>• <b>ISO14001:2015: Environmental Management Systems</b></li> <li>• <b>ISO 31000:2018: Risk Assessment</b></li> </ul>	International Standards Organisation	International standard usually implemented voluntarily, however some regulatory authorities require compliance with the standard as part of their own guidelines. Sites are independently audited to maintain accreditation.	Widely implemented globally as a method of demonstrating rigorous implementation of environmental management systems. The standards listed are very much process based, and as such it is the system, not necessarily the outcome, which is prescribed (and audited).
<ul style="list-style-type: none"> <li>• <b>IMMS Code for Environmental Management of Marine Mining (IMMS 2011)</b></li> </ul>	International Marine Minerals Society, with guidance from the Minerals Council of Australia	International standard implemented voluntarily. Presents a slightly less rigorous, and more seabed-mining tailored approach to the development of an environmental management system.	Most seabed mining projects within EEZs refer to this code and commit to its implementation, however there are limited examples of it being implemented to date.
<ul style="list-style-type: none"> <li>• <b>Recommended Practice for Managing Environmental Aspects and Impacts of Seabed Mining (DNVGL 2016)</b></li> </ul>	DNVGL is an international standards organisation based in Norway.	International recommended practice relating to seabed mining (yet to be implemented).	DNVGL provides risk management and quality assurance services to the maritime, oil and gas industry, and has a strong reputation. The seabed mining document has yet to be implemented.

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<ul style="list-style-type: none"> <li>• <b>Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter – Annex 2: Assessment of Wastes or Other Matter That May Be Considered for Dumping (IMO 2006)</b></li> <li>• <b>Guidelines for Ballast Water Management and Ballast Water Management Plans under the International Convention for the Control and Management of Ships' Ballast Water and Sediments (IMO 2004)</b></li> <li>• <b>The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL)</b></li> </ul>	International Maritime Organisation	Conventions which are compulsory to the signatory States. It is assumed that all Contractors will be bound by IMO conventions due to their status as signatories. All ships flagged under countries that are signatories to the convention are subject to convention requirements, regardless of where they sail. Member nations are responsible for vessels registered on their national ship registry.	Wide ranging and successful implementation to date. IMO standards (particularly in relation to vessel construction and operation) are considered mandatory in the marine environment.
<ul style="list-style-type: none"> <li>• <b>Biodiversity and Ecosystem Services: Good Practice Guidance for Oil and Gas Operations in Marine Environments (Fauna and Flora International 2017)</b></li> </ul>	International conservation charity and NGO	Non-binding voluntary guideline developed by NGO for the oil and gas industry.	Relatively new guideline. Its contents represent best practice likely to be embedded into established regulatory frameworks.
<ul style="list-style-type: none"> <li>• <b>Mine Closure: Leading Practice Sustainable Development Program for the Mining Industry (DIISA 2016)</b></li> <li>• <b>Leading Practice</b></li> </ul>	Department of Industry, Innovation and Science, Australia – a Federal	Guideline developed by the Australian Government for the mining industry. Not binding, however many States in	Widely considered in Australia as a useful and comprehensive set of guidelines for both proponents and for government

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<p><b>Sustainable Development Program for the Mining Industry: Community Engagement and Development (DIISA 2016a)</b></p> <ul style="list-style-type: none"> <li>• <b>Leading Practice Sustainable Development Program for the Mining Industry: Monitoring and Auditing (DIISA 2016b)</b></li> <li>• <b>Leading Practice Sustainable Development Program for the Mining Industry: Risk Management (DIISA 2016c)</b></li> <li>• <b>Leading Practice Sustainable Development Program for the Mining Industry: Hazardous Materials Management (DIISA 2016d)</b></li> <li>• <b>Leading Practice Sustainable Development Program for the Mining Industry: Biodiversity Management (DIISA 2016e)</b></li> <li>• <b>Leading Practice Sustainable Development Program for the Mining Industry: Airborne Contaminants, Noise and Vibration (DIISA 2016f)</b></li> </ul>	<p>Government agency which regulates matters environmental significance (above that of State jurisdiction)</p>	<p>Australia have implemented aspects of the guidance in both regulations and guidelines as binding requirements for environmental assessment, management and monitoring.</p>	<p>agencies to take guidance on the regulation of operations within their jurisdiction.</p>
<ul style="list-style-type: none"> <li>• <b>Environmental Assessment Guideline</b></li> </ul>	<p>Environmental Protection</p>	<p>Binding guidelines (binding on both the</p>	<p>Guidelines issued by the</p>

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<p><b>No. 1: Defining the Key Characteristics of a Proposal (EPAWA 2015)</b></p> <ul style="list-style-type: none"> <li>• <b>Technical Guidance: Protection of Benthic Communities and Habitats (EPAWA 2016a)</b></li> <li>• <b>Technical Guidance: Protecting the Quality of Western Australia's Marine Environment (EPAWA 2016b)</b></li> <li>• <b>Environmental Assessment Guideline No. 11: Recommending Environmental Conditions (EPAWA 2015b)</b></li> <li>• <b>Technical Guidance: Environmental Impact Assessment of Marine Dredging Proposals (EPAWA 2011)</b></li> <li>• <b>Statement of Environmental Principles, Factors and Objectives (EPAWA 2018)</b></li> <li>• <b>Environmental Assessment Guideline No. 17: Preparation of Management Plans (EPAWA 2015)</b></li> <li>• <b>Environmental Impact Assessment Procedures Manual (EPAWA 2016)</b></li> <li>• <b>Guidelines for Mining Proposals in Western Australia (DMPWA 2016)</b></li> <li>• <b>Guidelines for Preparing</b></li> </ul>	<p>Authority and Department of Mines and Petroleum, Western Australia, which are the regulatory body for environmental protection and mining (respectively) in WA.</p>	<p>regulator and the proponent) implemented by the WA EPA under the <i>Environment Act</i> and the DMPWA under the <i>Mining Act</i>. The components which are binding on the regulator relate to timeframes for assessment of new projects, etc.</p>	<p>EPAWA/DMPWA are widely considered best practice, and are excellent examples of outcomes-based, mandatory guidance that deliver best practice while providing certainty regarding regulatory processes to the investor. The Fraser Institute rates 83 mining jurisdictions around the world on (amongst other things) policy perception and best practice. Western Australia consistently ranks among the top five, almost across the board.</p>

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<p><b>Mine Closure Plans (EPAWA 2015a)</b></p> <ul style="list-style-type: none"> <li>• <b>Environmental Assessment Guideline No. 10: Scoping a Proposal (EPAWA 2013)</b></li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Model Mining Conditions (DESQLD 2016)</b></li> </ul>	Department of Environment and Science, QLD, the regulatory body for environmental protection in Queensland, Australia.	Binding guideline implemented by DESQLD in relation to developing standardised permit conditions.	Has been successful in standardising environment permits in QLD, following a long history of ad-hoc application of environmental conditions on a case-by-case basis.
<ul style="list-style-type: none"> <li>• <b>Model Mine Development Agreement (IBA 2011)</b></li> </ul>	International Bar Association	Non-binding guideline for development of mine development agreements and contracts.	Unknown. A recent review of version 1.0 made 10 recommendations for the next revision of the document.
<ul style="list-style-type: none"> <li>• <b>Equator Principles</b></li> </ul>	Equator Principles Association	Risk management framework voluntarily adopted by financial institutions for measuring social and environmental risk associated with funding opportunities.	There is widespread uptake of the Equator Principles in determining and managing environmental risk as it relates to project finance. In this way, the principles are similar to the IFC guidance documents.
<ul style="list-style-type: none"> <li>• <b>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC &amp; ARMCANZ 2000)</b></li> <li>• <b>ANZEC/ARMCANZ</b></li> </ul>	Joint government agency project between Australia and	Guidelines mandated by most States in Australia and New Zealand, and implemented voluntarily further	Very successful implementation to date. These standards are considered best practice, and are

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<b>Sediment Quality Guidelines</b>	New Zealand	abroad.	frequently reviewed by independent bodies in Australia and New Zealand.
<ul style="list-style-type: none"> <li>• <b>Regional Environmental Management Framework – Pacific ACP States (SPC 2016)</b></li> <li>• <b>Regional Scientific Research Guidelines – Pacific ACP States (SPC 2016a)</b></li> </ul>	Secretariat of the Pacific Community	Non-binding guideline on environmental management for seabed mining.	Limited implementation to date due to the nascent nature of the industry.
<ul style="list-style-type: none"> <li>• <b>Preparation of Environmental Impact Assessments: General guidelines for offshore mining and drilling with particular reference to New Zealand (NIWA 2017)</b></li> </ul>	National Institute of Water and Atmospheric Research, New Zealand	Non-binding guideline developed by the government research body NIWA in NZ.	Reasonable uptake in NZ with oil and gas industry, and with seabed mining projects within the EEZ.
<ul style="list-style-type: none"> <li>• <b>Environmental Assessment Process (CEAA 2013)</b></li> <li>• <b>Operational Policy Statement: Determining whether a designated project is likely to cause significant adverse environmental effects (CEAA 2015)</b></li> <li>• <b>Environmental Code of Practice for Metal Mines (Environment Canada 2009)</b></li> </ul>	Canadian Environmental Assessment Agency and Environment Canada – both regulatory bodies	Binding guidelines implemented by the CEAA under the <i>Environmental Assessment Act</i> .	Similarly to EPAWA, guidelines produced by CEAA are also considered best practice, and Canadian provinces also routinely appear in the top five rankings of the Fraser Institute Survey.
<ul style="list-style-type: none"> <li>• <b>EIA Technical Review Guideline: Non-metal and metal mining (volume 1 and 2) (EPAUSA 2011)</b></li> </ul>	Environmental Protection Authority, USA, a federal	Binding guideline implemented by the EPAUSA under its environmental legislation.	Very highly regarded guidelines which are implemented consistently by the EPAUSA and

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	agency regulating environmental protection.		provide excellent guidance to proponents.
<ul style="list-style-type: none"> <li>• <b>Towards sustainable decommissioning and closure of oil fields and mines: a toolkit to assist government agencies (World Bank 2010)</b></li> <li>• <b>Guidance Notes for the Implementation of Financial Surety for Mine Closure (World Bank 2008)</b></li> </ul>	World Bank	Guidelines developed by World Bank for the oil and gas and mining industry. Not intended to be binding.	Unknown, however it is likely that these guidance documents would be implemented by projects or countries accessing IFC funding.

TABLE 2: Standards and Guidelines required by the ISA cross-referenced to relevant existing precedents

Standard / Guideline	Process or Performance	Relevant Precedents
<b>Application for a Plan of Work</b>	Process	CEAA 2013, EPAWA 2016
<b>Environmental Principles and Objectives</b>	Process	EPAWA 2018, 2016a, 2016b, 2016c, DIISA 2016e, IFC 2016, 2007f, DNVGL 2016, IMMS 2011, IFC 2007f, CEAA 2015
<b>Environmental Scoping</b>	Process	EPAWA 2018, 2016, 2013, CEAA 2015
<b>Environmental Impact Assessment</b>	Process	IFC 2016, 2015, 2007, 2007a, 2007b, 2007c, 2007d, 2007e, 2007f, IMMS 2011, Flora and Fauna International 2017, DIISA 2016, 2016a, 2016b, 2016c, 2016d, 2016e, 2016f, EPAWA 2018, 2016, 2016a, 2016b, 2016c, 2015, 2015a, 2014, 2011, DNVGL 2016, CEAA 2013, CEAA 2015, DMPWA 2016, Environment Canada 2009, EPAUSA 2011, 2011a, World Bank 2010, Minerals Council of Australia 2015
<b>Environmental Conditions</b>	Process	EPAWA 2016, 2015b, 2014, DESQLD 2016
<b>Development of</b>	Process	ISO14001:2015



<b>Standard / Guideline</b>	<b>Process or Performance</b>	<b>Relevant Precedents</b>
<b>Environmental Management System</b>		
<b>Development of Environmental Management and Monitoring Plan</b>	Process	IFC 2016, 2015, 2007, 2007a, 2007b, 2007c, 2007d, 2007e, 2007f, DNVGL 2016, MARPOL, IMO 2006, 2004, DIISA 2016, 2016a, 2016b, 2016c, 2016d, 2016e, 2016f, EPAWA 2016a, 2016b, 2016c, 2015, 2011, USAEPA 2011
<b>Environmental Risk Assessment</b>	Process	ISO31000:2018, DIISA 2016c, CEAA 2015a, DMPWA 2016, DNVGL 2016
<b>Environmental Monitoring</b>	Process	DIISA 2016b, IFC 2007f, USAEPA 2011
<b>Environmental Reporting</b>	Process	DIISA 2016b, DMPWA 2016, DNVGL 2016
<b>Development of Closure Plan</b>	Process	Flora and Fauna International 2017, EPAWA 2015a, DIISA 2016, DNVGL2016, IFC 2007f
<b>Calculation of Environmental Performance Guarantee</b>	Process	DMPWA 2014, World Bank 2008, IFC 2007f, USAEPA 2011
<b>Environmental Protection – Marine Water</b>	Performance	EPAWA 2016a, 2016b, ANZECC/ARMCANZ 2000
<b>Environmental Protection – Sedimentation</b>	Performance	EPAWA 2016a, 2016b, 2011, ANZECC/ARMCANZ 2000
<b>Environmental Protection – Pelagic and Epi-Pelagic Fauna</b>	Performance	EPAWA 2016a, 2016b
<b>Environmental Protection – Benthic Fauna</b>	Performance	EPAWA 2016a, 2016b
<b>Environmental Protection – Noise</b>	Performance	DIISA 2016f
<b>Environmental Protection – Air</b>	Performance	DIISA 2016f