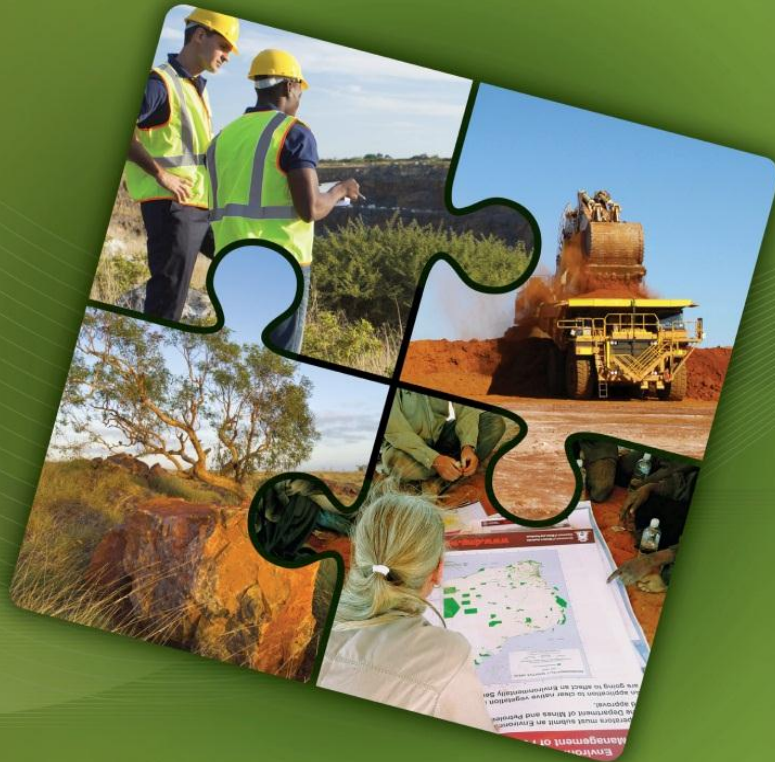




Government of Western Australia
Department of Mines and Petroleum



Draft Mining Proposal Guidelines

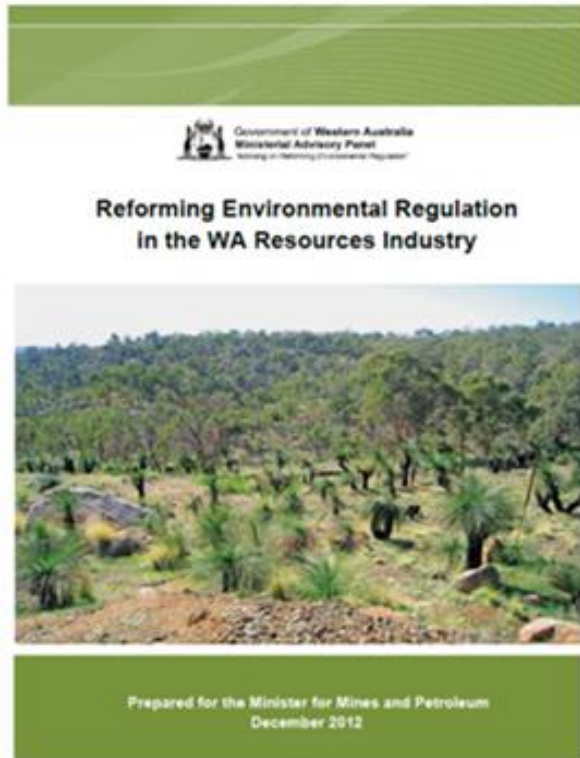
4th & 5th November 2015

Daniel Endacott
Team Leader
Environment Division

Overview

- RER: Context of Mining Proposal Reform
- Goals of the reform
- Key Changes to the Mining Proposal Guidelines
- Transitional Arrangements
- Next Steps

RER: Context of Mining Proposal Reform



Clear Environmental Objectives

Recommendation 1:	Establish clear and appropriate environmental objectives
Recommendation 2:	Develop meaningful outcomes-based performance indicators
Recommendation 3:	Establish clear and enforceable environmental obligations for mining activities
Recommendation 4:	Implement a robust and transparent relinquishment and abandonment process

Efficient Environmental Regulation

Recommendation 5:	Implement a full risk-based assessment and compliance methodology for environmental regulation
Recommendation 6:	Revise timelines and efficiency performance indicators, in line with risk-based regulation
Recommendation 7:	DMP will work with other agencies to improve efficiency and eliminate duplication

Goals of MP Reform

- Risk and outcome based approval process
- Shift assessment responsibility to industry – DMP reviews the assessment
- ‘Activity approval’ rather than ‘document approval’
- Reduce regulatory overlap
- One Mining Proposal for each mine
- Clearer approvals
- Consistent with legislative changes

Clarity in approvals and reporting



Mine Site



Mining Proposal

Mine Closure
Plan



Stakeholder Engagement To Date

- Industry Briefing Session – 7 Oct 2014
- MP Discussion Paper – Oct/Nov 2014
- MP Reform Industry Reference Group
- AMEC Environment Conference 2015
- RERAP
- DMP Environment E-Newsletter
- Public release of Draft MP Guidelines
Sep-Nov 2015

Risk Management Process

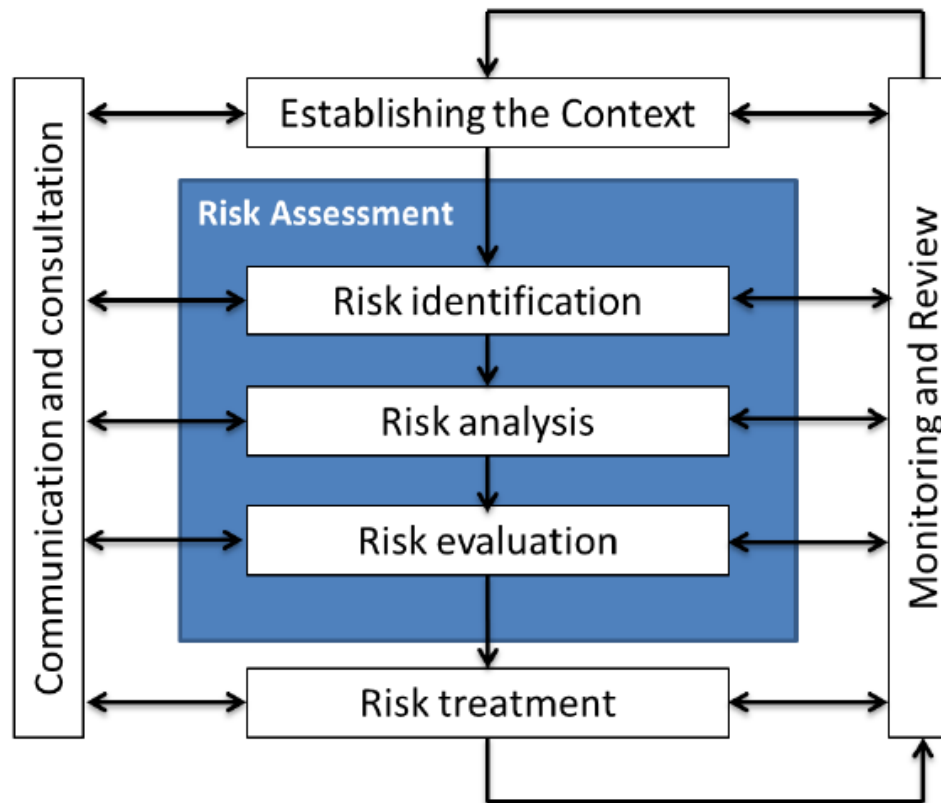


Figure 1: Risk Management Process ISO 31000:2009

MP Structure

1. Environmental Group Site Details

2. Activity Details

3. Environmental Legislative Framework

4. Stakeholder Engagement

5. Baseline Environmental Data

6. Environmental Risk Management

7. Environmental Outcomes and Reporting

8. Environmental Management System

Mine Closure Plan

Environmental Factors and Objectives

DMP's principle objective:

Resource industry activities are designed, operated, closed, decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed environmental outcomes and end land-uses without unacceptable liability to the State.

Environmental factor	Objective
Biodiversity/Flora/Fauna/ Ecosystem	To maintain representation, diversity, viability and ecological function at the species, population and community level.
Water resources	To maintain the hydrological regimes, quality and quantity of groundwater and surface water to the extent that existing and potential uses, including ecosystem maintenance, are protected.
Landforms	Mining will not result in appreciable land degradation ⁴ , or the contamination or pollution of the land.
Mine closure	Mines are closed in a manner to make them (physically) safe to humans and animals, (geo-technically) stable, (geo-chemically) non-polluting/non-contaminating, and capable of sustaining an agreed post-mining land use, and without unacceptable liability to the State.

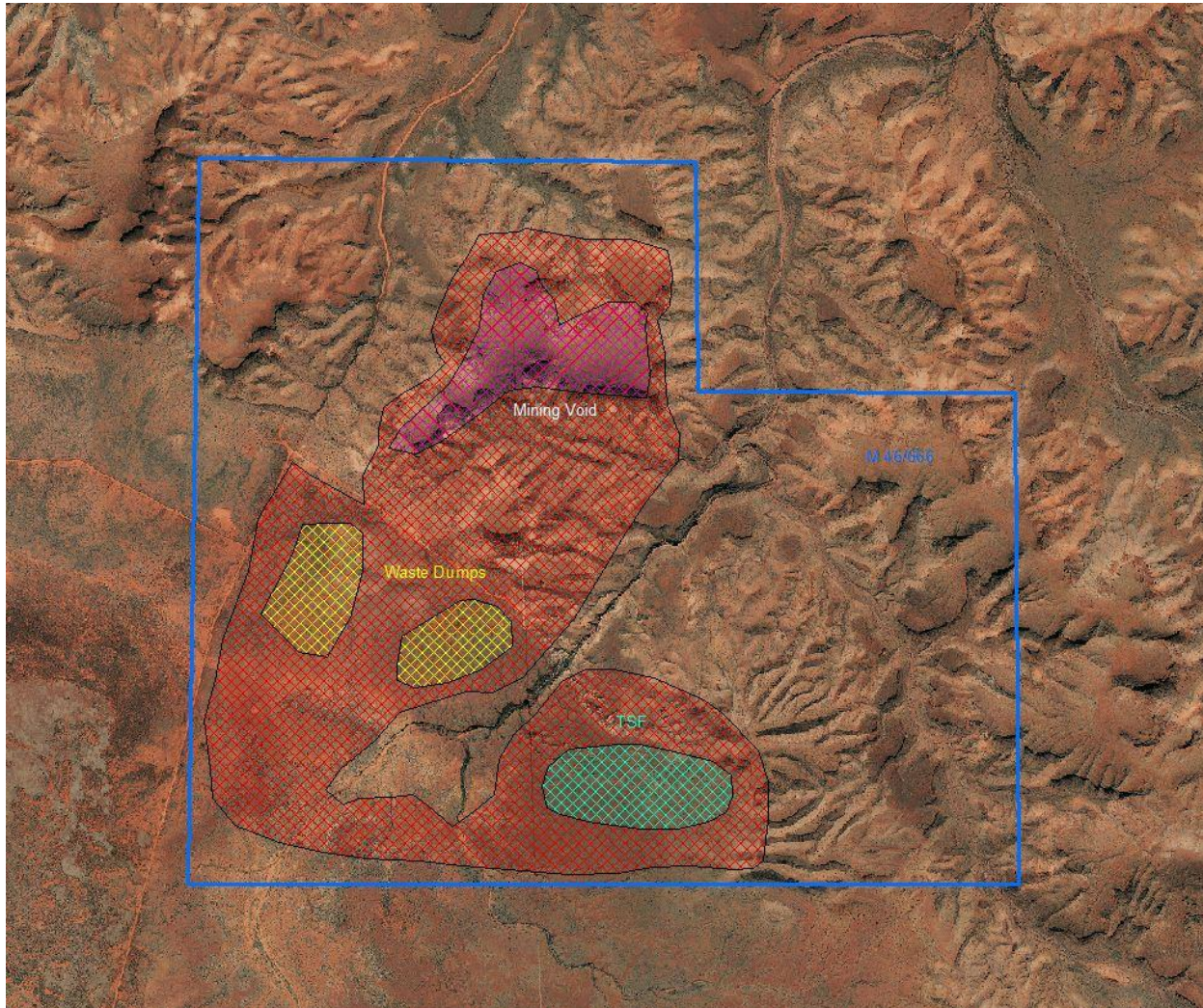
Mine Activity Types – Key Mine Activities

Mine Activity Type	Key Mine Activity	Area (Ha) ⁶	Spatial Locality	Other information requirements
Key Mine Activities				
Tailings or residue storage facility (class 1)	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Waste dump or overburden stockpile (class 1)	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Heap or vat leach facility	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Evaporation pond	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Dam – saline water or process liquor	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Tailings or residue storage facility (class 2)	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Waste dump or overburden stockpile (class 2)	Y	✓	Specific	Max. Height, Type/Design, Materials Characteristics
Low-grade ore stockpile (class 1)	Y	✓	Specific	Max. Height, Materials Characteristics
Plant site	Y	✓	Specific	Type/Design
Mining void (depth greater than 5m – below ground water)	Y	✓	Specific	Max. Depth, Materials Characteristics
Mining void (depth greater than 5m – above groundwater)	Y	✓	Specific	Max. Depth, Materials Characteristics
Run-of-mine pad	Y	✓	Specific	No further information

Mine Activity Types - Miscellaneous

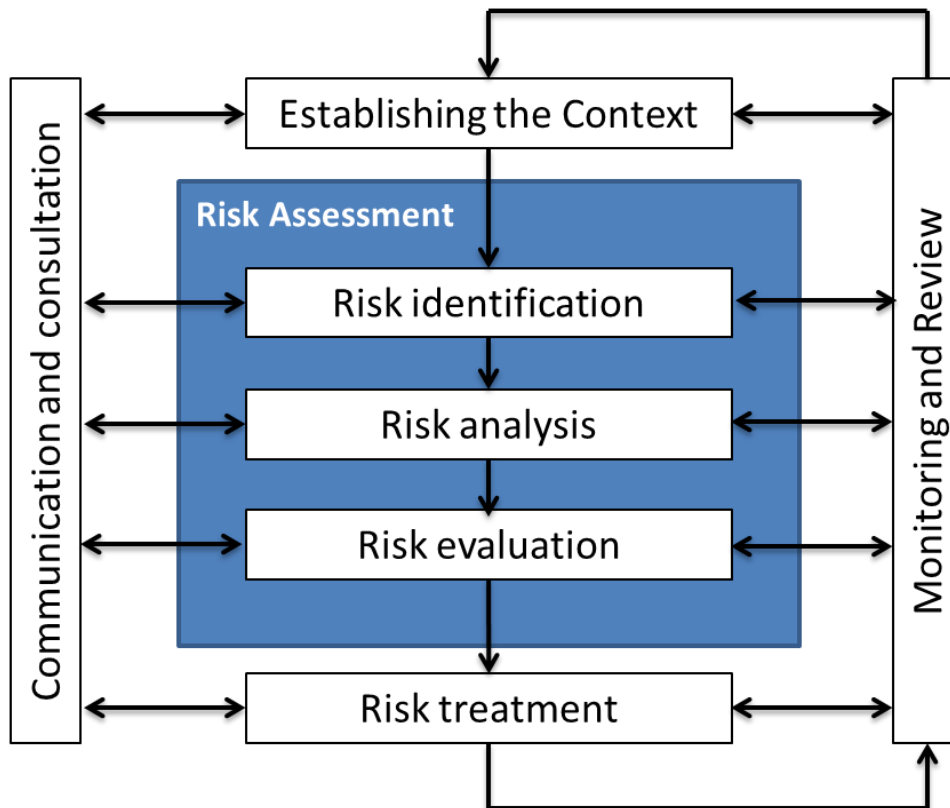
Mine Activity Type	Key Mine Activity	Area (Ha) ⁶	Spatial Locality	Other information requirements
Miscellaneous Mine Activities				
Fuel storage facility	N	x	Envelope	<i>No further information</i>
Workshop	N	x	Envelope	<i>No further information</i>
Landfill site	N	x	Envelope	<i>No further information</i>
Diversion channel or drain	N	x	Envelope	<i>No further information</i>
Dam – fresh water	N	x	Envelope	<i>No further information</i>
Low-grade ore stockpile (class 2)	N	x	Envelope	<i>No further information</i>
Sewage pond	N	x	Envelope	<i>No further information</i>
Building (other than workshop) or camp site	N	x	Envelope	<i>No further information</i>
Transport or service infrastructure corridor	N	x	Envelope	<i>No further information</i>
Airstrip	N	x	Envelope	<i>No further information</i>
Laydown or hardstand area	N	x	Envelope	<i>No further information</i>
Core yard	N	x	Envelope	<i>No further information</i>
Borrow pit of shallow surface excavation	N	x	Envelope	<i>No further information</i>
Borefield	N	x	Envelope	<i>No further information</i>
Processing equipment or stockpile associated with basic raw material extraction	N	x	Envelope	<i>No further information</i>
Land that is cleared of vegetation (other cleared land)	N	x	Envelope	<i>No further information</i>
Topsoil stockpile	N	x	Envelope	<i>No further information</i>

Example Activity Envelope

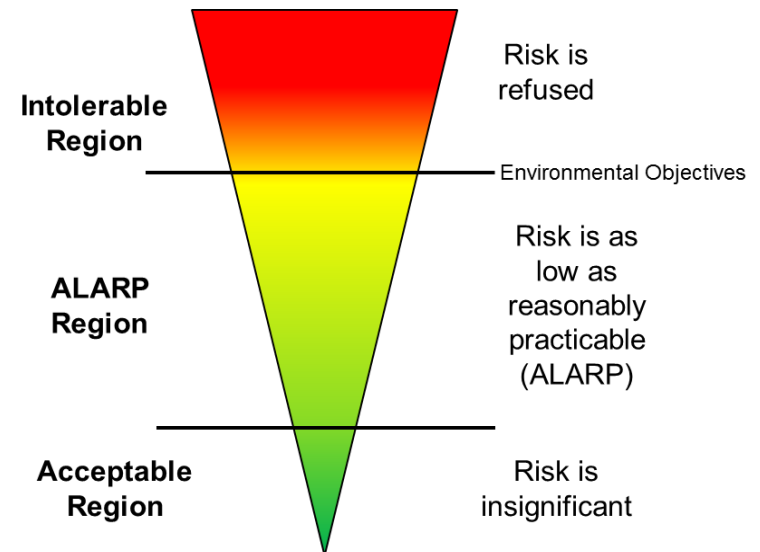


Risk Management Framework

ISO 31000:2009 Process



ALARP & Risk



Example Likelihood Table

DESCRIPTOR		EXPECTED FREQUENCY	PROBABILITY Select most relevant to the activity / risk (e.g. Probability of occurrence within lifetime of the project or Probability %)		
1	Rare	Once in 15 years	Highly unlikely, but it may occur in exceptional circumstances. It could happen, but most probably never will.	0 – 10%	0.0001
2	Unlikely	At least once in 10 years	Not expected, but there's a slight possibility it may occur at some time.	11 – 40%	0.001
3	Possible	At least once in 3 years	The event might occur at some time as there is a history of casual occurrence of similar issues with past projects / activities internally or externally.	41 – 60%	0.01
4	Likely	At least once per year	There is a strong possibility the event will occur as there is a history of frequent occurrence with past projects / activities internally or externally	61 – 90%	0.1
5	Almost Certain	More than once per year	The event is expected to occur at some time as there is a history of continuous occurrence with past projects / activities internally or externally.	91 – 100%	1

Example Consequence Table

Environmental factor	Insignificant	Minor	Moderate	Major	Catastrophic
Biodiversity/ Flora/Fauna/ Ecosystem	Alteration or disturbance to an isolated area that is unlikely to affect the habitat, species or ecosystem.	Alteration or disturbance to less than 5% of a habitat, species or ecosystem resulting in a minor, recoverable impact within 1 year.	Alteration or disturbance to 5-30% of a habitat, species or ecosystem resulting in a moderate, recoverable impact within 1-2 years.	Alteration or disturbance to 30-70% of a habitat, species or ecosystem resulting in a major, recoverable impact within 3-10 years.	Alteration or disturbance to more than 70% of a habitat, species or ecosystem resulting in an extinction or permanent changes, recovery if possible greater than 10 years.
Water Resources	Low impact to isolated area without affecting any use of the water.	Contained low impact with negligible effect on the use of the water.	Uncontained impact that will materially affect the use of the water, but able to be rectified in short-term.	Extensive hazardous impact requiring long-term rectification.	Uncontained hazardous impact with residual effect.
Land Degradation	Negligible impact to isolated area.	Contained low impact, not impacting on any environmental value.	Uncontained impact, able to be rectified in short-term without causing pollution or contamination.	Extensive hazardous impact requiring long-term rectification.	Uncontained hazardous impact with residual effect.
Air Quality	No detectable impact.	Contained low impact not impacting on any environmental value.	Uncontained impact that will materially affect an environmental value, but able to be rectified in short-term.	Extensive hazardous impact on an environmental value requiring long-term rectification.	Uncontained hazardous impact with residual effect.
Mine Closure	Site is safe, stable and non-polluting and post mining land use is not adversely affected.	The site is safe, all major landforms are stable, and any stability or pollution issues are contained and require no residual management. Post-mining land use is not adversely affected.	The site is safe, and any stability or pollution issues require minor, ongoing maintenance by end land-user	The site cannot be considered safe, stable or non-polluting without long-term management or intervention. Agreed end land-use cannot proceed without ongoing management.	The site is unsafe, unstable and/or causing pollution or contamination that will cause an ongoing residual affect. The post-mining land use cannot be achieved.

Example Risk Matrix

RISK MATRIX							
		CONSEQUENCE					
			Insignificant	Minor	Moderate	Major	Catastrophic
LIKELIHOOD	1	Rare	Very Low	Very Low	Very Low	Low	Medium
	2	Unlikely	Very Low	Very Low	Low	Medium	High
	3	Possible	Very Low	Low	Medium	High	High
	4	Likely	Low	Medium	High	Very High	Very High
	5	Almost Certain	Medium	High	High	Very High	Extreme

Example Risk Assessment

Phase	Date	Risk Pathway	Likelihood	Consequence	Risk	Treatment	Likelihood	Consequence	Treated risk
Commissioning	1/1/2015	Clearing of TEC resulting in reduction of threatened species	Likely	Major	Very high	Alter mine plan to avoid all clearing of TEC	Unlikely	Major	Medium
Operation/Closure	2/1/2015	Inappropriate placement of waste materials causing unstable landforms	Possible	Major	High	Develop and maintain a materials handling plan using materials characterisation information.	Unlikely	Major	Medium
Closure	21/1/2015	Incomplete rehabilitation reducing overall biodiversity of the region	Possible	Moderate	Medium	Develop, implement and maintain a rehabilitation plan Develop a ground disturbance permit process to ensure sufficient materials for closure.	Unlikely	Minor	Very low
Operation/Closure	21/1/2015	Flooding removing topsoil and diminishing rehabilitation success	Unlikely	Major	Medium	Develop, implement and maintain a surface water management regime suitable for the life of mine	Unlikely	Minor	Very low

Example Environmental Outcomes

Environmental Factor	DMP Objective	Risk Pathways	Environmental Outcome	Performance Criteria*	Monitoring
Biodiversity / Flora / Fauna / Ecosystem	To maintain representation, diversity, viability and ecological function at the species, population and community level.	Clearing and loss of habitat, dewatering, invasive pest introduction, pit lakes,	Adverse impacts to TEC as a result of mining activities are avoided.	<p>0% of TEC is cleared.</p> <p>No change in water level at bores X, Y, Z (located at the edge of TEC closest to mine) beyond the background variance of 'X' metres, due to mining activities</p> <p>No introduction of new weeds species across the minesite envelope.</p> <p>No change in water level at bores X, Y, Z beyond the background variance of 'X' metres, due to mining activities</p> <p>Less than 10% reduction in vegetation cover and health in areas of groundwater dependent vegetation within drawdown areas when compared to pre-mining condition.</p>	<p>Quarterly survey of disturbance areas.</p> <p>Monthly regional groundwater levels</p> <p>Monthly weed surveys.</p> <p>Quarterly vegetation health survey of groundwater dependent ecosystem within 1km of mine.</p>

*These performance criteria are only intended as generic examples, and are not be used as examples of what is acceptable across WA. Specific criteria must be based on the existing environmental conditions on site, and usually refer to baseline conditions, analogue sites or environmental standards/guidelines.

Reporting

- Reportable incident:
 - an incident that breaches a performance criteria of the approved Mining Proposal; or
 - an incident arising from the mining activity that has caused, or has the potential to cause, significant environmental harm.
- DMP notified within 24 hours of reportable incident detection.
- Follow up investigation report



Environmental Management System

- Legislative requirement

Mining Proposal Requirement(s):

Proponents are required to have and maintain an EMS to ensure that environmental impacts are minimised. The EMS means a system of practices and procedures relating to:

- The identification and assessment of the risk of environmental harm occurring as a result of the carrying out of mining operations; and
- The implementation of practicable measures to avoid or minimise the risk of such environmental harm occurring, or reduce such environmental harm if it occurs.

- Description of EMS in mining proposal
- Separate guidance material to support proponents will be developed

Revision and variations

A Mining Proposal must be revised and resubmitted for approval when:

- New or increased risks identified
- Proposed changes to agreed environmental outcomes
- New disturbance is proposed outside the approved activity envelope
- Location of 'Key Mine Activities' needs to change
- A new activity or change to an activity type is proposed

Transition of Existing Projects

New projects

- Submit in accordance with new Guidelines (6 months transition period between current and new guidelines)

Existing projects

- Transition within 6 years to submit a MP for existing and proposed disturbance
- Expansions/alterations – optional to use new guidelines (this will be strongly encouraged)



Next Steps

- Closure date for stakeholder comment on MP Guidelines – **23 November 2015**
- DMP to work with Industry Reference Group to incorporate comments into Guidelines
- Aim to publish final Guidelines – February 2016
- DMP developing internal processes to implement the MP changes – will involve Industry Reference Group

On the horizon

- DMP developing guidance material for EMS, Materials Characterisation and Mining Proposals for Small Operators
- DMP developing online system for Mining Proposals
- DMP accepting spatial data for Mining Proposals from 1 January 2016 (voluntary)
- TSF Design Report Guidelines released Aug 2015

