
APPENDIX 6: IMPACT ASSESSMENT MATRIX

AIR QUALITY											
Project Activity	Air Quality		Likelihood		Consequence			Significance Rating			
	Phase of Project	Construction Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
All mining activities which generate particulate emissions (underground)	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Elevated PM10 and PM2.5 Concentrations	4	3	3	2	4	63			
	Significance Post- Mitigation						4	3	2	1	4

Project Activity	Air Quality		Likelihood		Consequence			Significance Rating			
	Phase of Project	Operational Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
Mining, Material Handling and Transportation (underground)	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Elevated Dust Fall Levels	4	3	3	2	4	63			
	Significance Post- Mitigation						4	3	2	1	4

GROUNDWATER											
Project Activity	Geohydrology		Likelihood		Consequence			Significance Rating			
	Phase of Project	Operational	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
Mine dewatering	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Lowering of groundwater levels in private boreholes, thus affecting the performance of the boreholes that fall within the dewatering cone	4	4	4	3	4	88			
	Significance Post- Mitigation						4	4	2	3	4

Project Activity	Geohydrology		Likelihood		Consequence			Significance Rating			
	Phase of Project	Operational	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
Underground mining	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Contamination of groundwater in private boreholes, making the groundwater unfit for use	4	4	3	2	5	80			
	Significance Post- Mitigation						4	3	2	2	4

Project Activity	Geohydrology		Likelihood		Consequence			Significance Rating			
	Phase of Project	Closure and Decommissioning	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
Underground mining	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Contamination of groundwater in private boreholes, making the groundwater unfit for use	1	2	3	2	5	30			
	Significance Post- Mitigation						1	2	2	2	4

CULTURAL HERITAGE											
Project Activity	Cultural Heritage (Archaeology and Palaeontology)		Likelihood		Consequence			Significance Rating			
	Phase of Project	Preparation - Closure Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
Underground mining	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Disturbance/Loss of Significant Archaeological or Cultural Heritage Sites/Remains	2	2	2	1	5	32			
	Significance Post- Mitigation						2	1	2	1	5

BLASTING AND VIBRATION											
Project Activity	Blasting and Vibration		Likelihood		Consequence			Significance Rating			
	Phase of Project	Preparation, Construction and Operational Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration				
Blast-induced ground vibration damage to buildings closer than 500 m from blasting	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Minor damage to buildings (real or perceived by building owners) in the form of cracks in walls	4	3	2	3	4	63			
	Significance Post- Mitigation						4	2	2	3	4
Blast-induced ground vibration damage to buildings farther than 500 m from blasting	Impact Classification	Negative - Direct Impact	Significance Pre-Mitigation								
	Resulting Impact from Activity	Serious to fatal injury or damage to property and infrastructure caused by uncontrolled fly rock	4	2	1	3	4	48			
	Significance Post- Mitigation						4	1	1	3	4

SOCIO-ECONOMIC								
Project Activity	Socio-Economic		Likelihood		Consequence			Significance Rating
	Phase of Project	All	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
All activities involving employment and procurement of goods and services	Impact Classification	Positive - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Local employment	4	4	4	3	4	88
	Significance Post- Mitigation							
			4	5	5	3	4	108
All activities involving employment and procurement of goods and services	Impact Classification	Positive - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Local economic development	3	4	4	3	4	77
	Significance Post- Mitigation							
			3	5	5	3	4	96
All activities involving employment and procurement of goods and services	Impact Classification	Positive - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Training and development	5	4	3	3	5	99
	Significance Post- Mitigation							
			5	5	4	3	5	120
All activities involving employment and procurement of goods and services	Impact Classification	Positive - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Community infrastructure development	3	4	3	3	4	70
	Significance Post- Mitigation							
			3	5	3	3	5	88
All activities involving employment and procurement of goods and services	Impact Classification	Negative - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Local inflation	3	5	3	3	2	64
	Significance Post- Mitigation							
			3	4	3	3	2	56
All activities involving employment and procurement of goods and services	Impact Classification	Negative - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Influx of job seekers - demand on municipal services	3	5	3	3	3	72
	Significance Post- Mitigation							
			3	4	3	3	2	56
All activities involving employment and procurement of goods and services	Impact Classification	Negative - Direct and indirect	Significance Pre-Mitigation					
	Resulting Impact from Activity	Influx of job seekers - disruption in community dynamics	3	5	4	3	3	80
	Significance Post- Mitigation							
			3	4	3	3	2	56

Project Activity	Socio-economic		Likelihood		Consequence			Significance Rating
	Phase of Project	All	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
All mine-related activities	Impact Classification	Negative - Direct	Significance Pre-Mitigation					108
	Resulting Impact from Activity	Mine health and safety	4	5	5	3	4	
			Significance Post- Mitigation					72
			3	3	5	3	4	

Project Activity	Socio-Economic		Likelihood		Consequence			Significance Rating
	Phase of Project	All	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
All mine-related activities	Impact Classification	Negative - Direct	Significance Pre-Mitigation					88
	Resulting Impact from Activity	Security risk	4	4	5	2	4	
			Significance Post- Mitigation					55
			2	3	5	2	4	

Project Activity	Socio-Economic		Likelihood		Consequence			Significance Rating
	Phase of Project	Construction and Operational	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
All mine-related activities	Impact Classification	Positive - Direct and indirect	Significance Pre-Mitigation					70
	Resulting Impact from Activity	Contribution of royalties, rates and taxes	3	4	3	3	4	
			Significance Post- Mitigation					70
			3	4	3	3	4	

Project Activity	Socio-Economic		Likelihood		Consequence			Significance Rating
	Phase of Project	All	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
All mine-related activities	Impact Classification	Negative - Direct and indirect	Significance Pre-Mitigation					108
	Resulting Impact from Activity	Community health and safety	4	5	5	3	4	
			Significance Post- Mitigation					48
			2	2	5	3	4	

Project Activity	Socio-Economic		Likelihood		Consequence			Significance Rating
	Phase of Project	Decommissioning and Closure	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
All mine-related activities	Impact Classification	Negative - Direct and indirect	Significance Pre-Mitigation					78
	Resulting Impact from Activity	Mine closure and associated effects on the local economy	1	5	5	3	5	
			Significance Post- Mitigation					66
			1	5	3	3	5	

MEERKAT/SKA OBSERVATORY

Project Activity	EM and RF Interference		Likelihood		Consequence			Significance Rating
	Phase of Project	All phases of project	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
Operating of mine equipment and machinery, including communication devices (underground)	Impact Classification	Negative - Direct	Significance Pre-Mitigation					117
	Resulting Impact from Activity	Interference with the MeerKAT / SKA radio telescopes	4	5	4	5	4	
			Significance Post-Mitigation					48
			4	2	4	3	1	