



ENVIRONMENTAL IMPACT SIGNIFICANCE DETERMINATION
Construction Phase

Aspect	Activity and Impact Description				Positive or Negative Impact	Impact significance before mitigation						Mitigation	Impact significance after mitigation							
	Mining Phase	Activity/Operation of facility	Impacted Environment	Impact		EIA Reference	Severity	Spatial Scale	Duration	CONSEQUENCE	PROBABILITY		Significance / 100	Management/Mitigation Measure	EMP Reference	Severity	Spatial Scale	Duration	CONSEQUENCE	PROBABILITY
Physical environment	Construction	Infrastructure Construction	Topography	Topographical changes due to levelling and infrastructure construction	N		1	1	3	5	5	33	Engineer and environmental consultant will supervise construction activities in accordance with post mining topographical plan.		1	1	3	5	5	33
	Construction	Topsoil/Overburden stripping	Topography	Topographical changes due to stripping and excavation	N		2	1	3	6	5	40	Engineer and environmental consultant will supervise construction activities in accordance with post mining topographical plan.		2	1	3	6	4	32
	Construction	Open pit establishment	Topography	Topographical changes due to excavation and creation of soil piles	N		3	1	3	7	5	47	Engineer and environmental consultant will supervise construction activities in accordance with post mining topographical plan.		3	1	3	7	5	47
	Construction	Haul road construction	Topography	Construction of haul roads within the project area and to the Valencia Uranium main complex	N		2	1	3	6	5	40	Engineer and environmental consultant will supervise construction activities in accordance with post mining topographical plan.		1	1	3	5	5	33
	Construction	Infrastructure Construction	Soils	Removal, disturbance and compaction of soil due to construction activities	N		3	1	3	7	5	47	Equipment which minimises soil compaction will be used. Heavy machinery vehicles will be instructed to stay inside designated areas. Soil stockpiles shall not exceed pre-determined height.		3	1	3	7	5	47
	Construction	Infrastructure Construction	Soils	Potential for contamination of soil by hydrocarbons and chemicals by construction machines, workshop waste and effluent and waste disposal	N		2	1	2	5	4	27	Hazardous materials, such as hydrocarbons and chemicals, will be stored in bunded areas. Spillages will be reported, removed and rehabilitated.		2	1	2	5	3	20
	Construction	Topsoil/Overburden stripping	Soils	Negative effect on soil structure due to handling and compaction	N		3	1	3	7	4	37	Soils will be stockpiled according to their form. Stockpiles will not exceed pre-determined height restrictions.		2	1	3	6	3	24
	Construction	Topsoil/Overburden stripping	Soils	Removal of vegetation increases the erodibility of soils	N		3	1	4	8	3	32	Soil stockpiles will be vegetated to reduce the risk of erosion.		3	1	4	8	3	32
	Construction	Topsoil/Overburden stripping	Soils	Depletion of nutrients in soil during topsoil storing in stockpiles	N		2	1	2	5	4	27	Soil stockpile will be vegetated in order to preserve soil nutrients and fertility.		2	1	2	5	4	27
	Construction	Topsoil/Overburden stripping	Soils	Loss of topsoil during stripping/mixing with overburden	N		3	1	5	9	3	36	The loss of topsoil during stripping is unavoidable, however soil will be stockpiled to reduce the effect thereof.		3	1	5	9	3	36
	Construction	Topsoil/Overburden stripping	Soils	Potential for contamination of soil by hydrocarbons and chemicals by construction machines	N		2	1	2	5	4	27	Construction machines will be checked, serviced and maintained to reduce the risk of soil contamination.		2	1	2	5	3	20
	Construction	Haul road construction	Soils	Removal, disturbance and compaction of soil due to construction activities	N		3	1	3	7	5	47	Equipment will be used which minimises compaction. Heavy machinery will stay inside designated areas. Stockpiles shall not exceed pre-determined height.		3	1	3	7	4	37
	Construction	Haul road construction	Soils	Removal of vegetation increases the erodibility of soils	N		3	1	5	9	3	36	Soil stockpiles & berms will be vegetated to minimise the risk of erosion.		3	1	5	9	3	36
	Construction	Haul road construction	Soils	Potential for contamination of soil by hydrocarbons and chemicals by construction machines	N		2	1	2	5	4	27	Construction machines will be checked, serviced and maintained to reduce the risk of soil contamination during haul road construction.		2	1	2	5	3	20
	Construction	Haul road construction	Soils	Deposition of silt containing run-off on directly unaffected soils, affecting soil structure, permeability	N		3	2	1	6	4	32	Soil stockpiles will not exceed the pre-determined designated height, and berms will be build around them to restrict run-off. In addition to this, the stockpiles & berms will be vegetated.		3	1	1	5	4	27

	Construction	Open pit cut establishment	Ground water quality	Potential for Acid Mine Drainage formation due to exposed spoils and uranium	N		4	2	4	10	4	53	Groundwater within the mini-pits during construction will be pumped out straight away to reduce the risk of AMD.		4	2	4	10	3	40
	Construction	Haul road construction	Ground water quality	Potential for contamination of ground water by hydrocarbons and chemicals by construction machines	N		2	1	1	4	5	27	Hydrocarbon or chemical spills will be contained and remediated as soon as possible and an emergency spill response plan will be developed and implemented.		2	1	1	4	4	21
	Construction	Topsoil/Overburden stripping	Ground water quantity	Removal of vegetation decreases the recharge of aquifers	N		2	2	1	5	5	33	The removal of vegetation will be minimised during stripping and dump construction to reduce the effects of a decrease in the recharge of aquifers.		2	2	1	5	4	27
	Construction	Haul road construction	Ground water quantity	Removal of vegetation decreases the recharge of aquifers	N		2	2	1	5	5	33	The removal of vegetation will be minimised during haul road construction to reduce the effects of a decrease in the recharge of aquifers.		2	2	1	5	4	27
	Construction	Infrastructure Construction	Land Capability	Disturbance of soils reduces the land capability for the duration of the project	N		5	1	3	9	5	60	All construction activities will be planned and restricted to demarcated areas to reduce the impact on the capability of the land.		5	1	3	9	5	60
	Construction	All construction activities	Land Capability	Potential for contamination of soil by hydrocarbons and chemicals by construction machines	N		3	1	3	7	4	37	Construction machines used during construction activities will be checked, serviced and maintained to reduce a reduction in land capability resulting from hydrocarbon or chemical pollution.		3	1	3	7	3	28
	Construction	All construction activities	Land Capability	Disturbance, removal and stockpiling of soils reduces the land capability for the duration of the project	N		5	1	3	9	5	60	All construction activities will be planned, and restricted to demarcated areas to reduce the disturbance, removal and stockpiling of soils.		5	1	3	9	5	60
	Construction	All construction activities	Land Capability	Movement of construction machines cause compaction of soils, destruction of soil structure and reduction of land capability	N		4	1	1	6	4	32	Movement of people, vehicles and machines will be restricted to demarcated areas to reduce the destruction of soil structure and a reduction in land capability.		4	1	1	6	3	24
	Construction	Topsoil/Overburden stripping	Land Capability	Incorrect stripping and/or stockpiling of topsoil causes the effective loss of topsoil through mixing with overburden which leads to an eventual reduction in land capability (after rehabilitation)	N		4	1	5	10	3	40	All construction activities will be planned to prevent the incorrect stripping of topsoil which leads to the reduction in land capability.		3	1	5	9	3	36
	Construction	All activities	Land Use	All activities during the construction phase will change the current land use from grazing and tourism to wilderness in preparation for	N		5	1	3	9	5	60	Construction activities will be restricted to demarcated areas, all other areas will be regarded as "no go" areas to minimise the removal of productive land.		5	1	3	9	5	60
	Construction	Infrastructure Construction	Air quality	The removal of vegetation, movement of machines and establishment of soil and overburden stockpiles will cause dust pollution	N		2	2	1	5	5	33	Removal of vegetation, and movement of construction machines will be minimised to reduce effects of dust pollution.		1	2	1	4	4	21
	Construction	Topsoil/Overburden stripping	Air quality	The removal of vegetation, movement of machines on denuded areas and the construction of infrastructure will cause dust pollution	N		3	2	1	6	5	40	Removal of vegetation during stripping and dump construction will be minimised to reduce the risk of dust pollution.		3	2	1	6	4	32
	Construction	Open pit cut establishment	Air quality	Drilling, blasting, loading and hauling will cause dust pollution	N		3	2	1	6	5	40	During open pit cut establishment drilling, blasting and hauling operations will be monitored for dust pollution, and managed accordingly		3	2	1	6	4	32
	Construction	Haul road construction	Air quality	Haul road construction will cause dust pollution	N		2	2	1	5	5	33	The access road will be treated with a chemical suppressant to ensure >85% control efficiency and haul roads will be treated with a chemical water solution.		2	2	1	5	3	20
	Construction	All activities	Air quality	Use of construction machines will cause air pollution in the form of CO, CO ₂ and NO _x , amongst others	N		1	2	1	4	5	27	Construction machines used during the construction phase will be serviced, inspected and maintained to minimise the amount of greenhouse gasses being emitted from these vehicles.		1	2	1	4	4	21
	Construction	All construction activities	Noise	Construction activities, including the movement of machines will affect noise levels in the area negatively	N		2	2	1	5	5	33	Construction activities will be restricted to normal working hours to reduce the impact of unwanted noise.		2	2	1	5	4	27
	Construction	open pit cut establishment	Noise	Blasting during open pit establishment will cause noise and vibration	N		3	2	1	6	5	40	Construction activities will be restricted to normal working hours to reduce the impact of unwanted noise.		2	2	1	5	4	27
	Construction	All Activities	Visual	The visual aspect of the affected area will change from farming land to mining land	N		3	2	3	8	5	53	Visual changes to the area are unavoidable and it will be very difficult to implement mitigation measures. Some mitigation measures which will be introduced to are to use natural colour tones when painting structures; roofs of buildings will be angled so as to not reflect sunlight and night lighting will be minimised. Infrastructure to be designed to be hidden behind surrounding ridges.		1	2	3	6	4	32

Ecological environment (For detailed impact description refer to F&F report (App. E3))	Construction	Infrastructure Construction	Natural Vegetation	Construction of infrastructure involves the removal of vegetation	N			3	1	3	7	5	47	Care will be taken to not remove any unnecessary vegetation. Any individual plants with Red Data status will be removed and relocated to a safe place to avoid destruction.			3	1	3	7	4	37		
	Construction	Topsoil/Overburden stripping	Natural Vegetation	Topsoil stripping for establishment of the open pit and will cause the destruction of natural and some wetland vegetation	N			3	1	3	7	5	47	Care will be taken to not remove any unnecessary vegetation. Any individual plants with Red Data status will be removed and relocated to a safe place to avoid destruction.			2	2	3	7	5	47		
	Construction	Haul road construction	Natural Vegetation	Construction of the road through the Khan involves the removal of vegetation	N			2	2	3	7	5	47	The removal of vegetation will be minimised during haul road construction.			3	1	3	7	4	37		
	Construction	All activities	Fauna	Noise created during the construction phase will have negative effect on local fauna	N			2	1	2	5	4	27	Vehicles used during the construction phase will be serviced and maintained to reduce the noise emitted from these vehicles.			2	1	2	5	4	27		
	Construction	Topsoil/Overburden stripping	Fauna (Mammals)	Removal of natural vegetation destroys the natural habitat of mammals, causing them to move away	N			1	1	3	5	4	27	Changes in habitat areas, due to striping-, dump- and haul road construction will be monitored to avoid the removal of excess vegetation. .				3	1	3	7	3	28	
	Construction	Topsoil/Overburden stripping	Fauna (Terrestrial Invertebrates)	Removal of natural vegetation destroys the natural habitat of terrestrial invertebrates, causing them to perish or move away	N			1	1	3	5	5	33	Changes in habitat areas, due to striping-, dump- and haul road construction will be monitored to avoid the removal of excess vegetation. .				3	1	3	7	4	37	
	Socio-economic environment	Construction	All activities	Archaeological and heritage impacts	Damage to sites of archaeological significance due to construction activities and/or vehicle movement	N			3	2	5	10	3	40	Significant sites will be mitigated according to recommendations by archaeologist and other sites will be avoided/protected (buffer zones)				2	2	5	9	3	36
		Construction	Infrastructure Construction	Socio-economic	Increased employment opportunities during infrastructure construction for local contractors	P			3	3	1	7	5	47	Where possible local service providers and workers will be recruited from the local area (Arandis/Usakos) to increase employment opportunities during the construction phase.				2	3	1	6	5	40
		Construction	All activities	Socio-economic	Influx of construction workers which often result in increased crime levels, prostitution, cultural degradation	N			3	2	2	7	5	47	House construction workers on site, implement basic employment policy to maximise the number of locals employed during construction and provide sufficient facilities and services on site to cater for the needs of the construction workers				2	2	2	6	4	32
		Construction	All activities	Socio-economic	Increased employment opportunities during topsoil stripping, dump construction and haul road construction for locals	P			2	3	1	6	4	32	Where possible local service providers and workers will be recruited from the local area () to increase employment opportunities during the stripping, and cut establishment.				2	3	1	6	4	32
Construction		All activities	Socio-economic	Disruption or loss of farming activities due to a loss of farming land and ground water for stock watering	N			2	1	3	6	5	40	The loss of jobs resulting from the loss of farming activities will be managed by the affected farmer.				2	2	3	7	4	37	
Construction		All activities	Interested and affected parties	Disruption or loss of farm workers seeking employment for higher salaries due to mining	N			2	1	3	6	5	40	The loss of jobs resulting from the loss of farming activities will be managed by the affected farmer.				2	1	3	6	5	40	
Construction		All activities	Interested and affected parties	Farm security and trespassing problems due to contract workers/mine employees on site.	N			4	2	3	9	3	36	Contractors and mine employees will be made aware that trespassing on private land is an offence and that they should respect this.				3	2	3	8	3	32	
Construction		Topsoil stripping, erection of infrastructure and open pit cut construction	Interested and affected parties	Dust, noise and vibration impacts	N			3	1	3	7	5	47	Dust, noise and vibration impacts will be kept to a minimum during the construction phase of the project. Blasting operations will be planned and executed according to current professional standards to minimise the effect of vibration.				2	1	3	6	4	32	
Construction		Movement of heavy vehicles	Traffic and Safety	Increased traffic and associated safety risks	N			3	3	3	9	4	48	Ensure drivers adhere to speed limits, implement dust suppression measures, e.g. wetting road and ensure vehicles are roadworthy				2	3	3	8	3	32	
Construction		All activities	Health and Safety (Radiation) - Employees	Possible exposure to radiation >1 mSv per annum.	N			2	1	1	4	4	21	Radiation monitoring of the environment and the individual and implementation of safety assessments, wet drilling (to reduce dust levels), dose records and site entry records. Safety gear will be worn by employees and training would be compulsory.				1	1	1	3	3	12	
Construction	All activities	Health and Safety (Radiation) - Public	Possible exposure to radiation <0.01 mSv per annum.	N			1	1	1	3	5	20	Radiation monitoring of the environment, safety assessment and strict management and controlling of site entries. Entry records will be kept. Dust suppression will be implemented.				1	1	1	3	2	8		



ENVIRONMENTAL IMPACT SIGNIFICANCE DETERMINATION
Operational Phase - open pit

Activity and Impact Description					Positive or Negative Impact	Impact significance before mitigation						Mitigation	Impact significance after mitigation							
Aspect	Mining Phase	Activity/Operation of facility	Impacted Environment	Impact		EIA Reference	Severity	Spatial Scale	Duration	CONSEQUENCE	PROBABILITY		Significance / 100	Management/Mitigation Measure	EMP Reference	Severity	Spatial Scale	Duration	CONSEQUENCE	PROBABILITY
Physical environment	Operational	Topsoil and Overburden Pre-strip	Topography	Topographical changes due to stripping and excavation	N		3	1	3	7	5	47	Overburden and soil stock piles will be stored temporarily and will be placed back into the mined out area once the uranium has been removed.		4	1	3	8	5	53
	Operational	Topsoil and Overburden Pre-strip	Topography	Creation of temporary overburden and topsoil stockpiles	N		3	1	3	7	5	47	Overburden and soil stock piles will be stored temporarily and will be placed back into the mined out area once the uranium has been removed.		3	1	3	7	5	47
	Operational	Load & Haul	Topography	Creation of temporary spoil piles	N		3	1	3	7	5	47	Overburden and soil stock piles will be stored temporarily and will be placed back into the mined out area once the uranium ore has been removed.		3	1	3	7	5	47
	Operational	Drill & Blast/Load & Haul	Geology	Destruction of local geology by disturbance of sequences and removal of uranium ore	N		5	1	5	11	5	73	No mitigation for impacts on geology are possible.		5	1	5	11	5	73
	Operational	Topsoil/Overburden pre-strip	Soils	Negative effect on soil structure due to handling and compaction	N		3	1	3	7	4	37	Soils will be stockpile separately according to their forms and potentials. This will reduce the risk of soil mixing. It will be ensured that contractors hired have appropriate experience in soil stripping to reduce the risk of soil/overburden mixing.		4	1	3	8	3	32
	Operational	Topsoil/Overburden pre-strip	Soils	Removal of vegetation increases the erodibility of soils	N		3	1	3	7	4	37	The removal of vegetation will be kept to a minimum to decrease the potential for soil erosion.		4	1	3	8	4	43
	Operational	Topsoil/Overburden pre-strip	Soils	Depletion of nutrients in soil during temporary storage of topsoil	N		2	1	2	5	4	27	Soils will be stockpile separately according to their forms and potentials. This will reduce the risk of soil mixing.		4	1	2	7	3	28
	Operational	Topsoil/Overburden pre-strip	Soils	Loss of topsoil during stripping/mixing with overburden	N		3	1	5	9	4	48	Soils will be stockpile separately according to their forms and potentials. This will reduce the risk of soil mixing. It will be ensured that contractors hired have appropriate experience in soil stripping to reduce the risk of soil/overburden mixing.		4	1	5	10	3	40
	Operational	Topsoil/Overburden pre-strip	Soils	Deposition of silt containing run-off on directly unaffected soils, affecting soil structure, permeability	N		3	2	3	8	4	43	The use of in-pit water and underground water will be controlled so that it is restricted to "dirty" operational areas. Spraying will also be done in such a way as to prevent excessive run-off to adjacent soils.		3	2	3	8	3	32
	Operational	Topsoil/Overburden pre-strip	Soils	Potential for contamination of soil by hydrocarbons and chemicals by mining machines	N		2	1	2	5	4	27	Contaminated soils will be rehabilitated either through in situ use of microbial agents, or either by excavation of the contaminated soils which will be rehabilitated in a central soil farm using microbial agents.		3	2	2	7	3	28
	Operational	Fuel and Lubricant storage	Soils	Potential for contamination of soil due to leaks, failure or normal operation and the disposal of absorbent materials.	N		3	1	2	6	3	24	Contaminated soils will be rehabilitated either through in situ use of microbial agents, or either by excavation of the contaminated soils which will be rehabilitated in a central soil farm using microbial agents.		3	2	2	7	3	28
	Operational	Offices, workshop and ablutions	Soils	Potential for the contamination of soil due to incorrect sewerage handling and spillage of hydrocarbons.	N		3	1	3	7	3	28	Contaminated soils will be rehabilitated either through in situ use of microbial agents, or either by excavation of the contaminated soils which will be rehabilitated in a central soil farm using microbial agents.		3	2	3	8	3	32
	Operational	Offices, workshop and ablutions	Soils	Potential for soil contamination due to the incorrect disposal of domestic waste and waste containing hazardous agents	N		2	1	4	7	3	28	Contaminated soils will be rehabilitated either through in situ use of microbial agents, or either by excavation of the contaminated soils which will be rehabilitated in a central soil farm using microbial agents.		3	1	4	8	3	32

	Operational	Topsoil and Overburden Pre-strip	Flora	Pollution of soil water and vegetation	N		2	1	2	7	3	28	The proper storage and transportation of hazardous materials, and adequate responses to spills				1	1	2	4	2			11
		Topsoil and Overburden Pre-strip	Natural Vegetation	Invasion of alien invasive and exotic plants	N		2	1	3	6	3	24	Removal of alien species, and revegetation				1	1	2	4	2			11
	Operational	Topsoil and Overburden Pre-strip	Fauna (Mammals)	Removal of natural vegetation destroys the natural habitat of mammals, causing them to move away	N		2	1	3	6	4	32	As far as possible care will be taken not to destroy natural habitat.				2	1	3	6	3			24
	Operational	Topsoil and Overburden Pre-strip	Fauna (Birds)	Removal of natural vegetation destroys the natural habitat of birds, causing them to move away.	N		2	2	3	7	5	47	All workers, contractors and visitors will be informed about any rare and endangered species through and environmental awareness plan and he distributing of poster, containing pictures of any potential rare and endangered species.				3	2	3	8	3			32
	Operational	All activities	Fauna	Noise created during the open pit mining phase will have negative effect on local fauna	N		1	1	2	4	3	16	Physical noise control structures will be implemented, where required, to reduce the impact of noise on animal life. These may include the establishment of berms around noise producing equipment to limit the propagation of noise and insulating cladding around infrastructure.				3	1	2	6	3			24
	Operational	Topsoil and Overburden Pre-strip	Fauna (Reptiles)	Removal of natural vegetation destroys the natural habitat of reptiles, causing them to perish or move away	N		3	1	3	7	5	47	As far as possible care will be taken not to destroy natural habitat				3	1	3	7	4			37
	Operational	Topsoil and Overburden Pre-strip	Fauna (Terrestrial Invertebrates)	Removal of natural vegetation destroys the natural habitat of terrestrial invertebrates, causing them to perish or move away	N		2	1	3	6	5	40	As far as possible care will be taken not to destroy natural habitat.				3	1	3	7	3			28
Socio-economic environment	Operational	All activities	Socio-economic	Increased employment opportunities during open pit mining	P		4	3	3	10	5	67	Employees will be sourced from the local area where possible during the operational phase of the mine, subject to the need for specialised skills.				5	3	3	11	5			73
	Operational	All activities	Socio-economic	Disruption or loss of farming activities due to a loss of farming land and ground water for stock watering	N		3	1	3	7	5	47	The continuation of agricultural activities will be encourage in the area surrounding the mining activities that are not affected by mining. Where mining operations cause the drying up of boreholes used for domestic or farming purposes, the supply of alternative water resources will be arranged for on a case-by-case basis.				3	1	3	7	4			37
	Operational	All Activities	Socio-economic	Decrease in tourism potential	N		3	2	3	8	5	53	Develop a database of local lodges in the area that can be used to accommodate staff members and visitors, implement mitigation measures outlined in the traffic-, noise-, and visual specialist studies.				2	2	3	7	3			28
	Operational	All Activities	Socio-economic	Influx of jobseekers looking for work but who are unsuccessful , which can result in various negative social impacts such as the transmission of STD's, increase prostitution, crime, pressure on local services, increase in local prices and competition for available jobs and resources.	N		3	2	3	8	4	43	Treat local employment as a priority, manage expectations of jobseekers to make potential jobseekers more cautious about moving into the area.				2	2	3	7	3			28
	Operational	All activities	Interested and affected parties	Disruption and loss of farm workers seeking employment for higher salaries due to construction of mine	N		4	1	3	8	4	43	The loss of jobs resulting from the loss of farming activities will be managed by the affected farmer.				3	2	3	8	3			32
	Operational	All activities	Interested and affected parties	Farm security and trespassing problems due to contract workers/mine employees on site.	N		4	2	3	9	3	36	I&AP's affected mining activities will be consulted with on a regular basis. A complaints management system will be maintained by the mine to ensure that all issues raised by community members are followed up and addressed appropriately.				3	2	3	8	3			32
	Operational	Drill & Blast/Load & Haul	Interested and affected parties	Dust, noise and vibration impacts	N		3	1	3	7	5	47	a regular basis. A complaints management system will be maintained by the mine to ensure that all issues raised by community members are followed up and addressed appropriately.				3	2	3	8	3			32
	Operational	All activities	Archaeological and heritage impacts	Damage to sites of archaeological significance due to construction activities and/or vehicle movement	N		2	2	4	8	3	32	Significant sites will be mitigated according to recommendations by archaeologist and other sites will be avoided/protected (buffer zones)				2	2	4	8	3			32



ENVIRONMENTAL IMPACT SIGNIFICANCE DETERMINATION
Decommissioning Phase

Aspect	Activity and Impact Description				Positive or Negative Impact	Impact significance before mitigation						Mitigation	Impact significance after mitigation							
	Mining Phase	Activity/Operation of facility	Impacted Environment	Impact		EIA Reference	Severity	Spatial Scale	Duration	CONSEQUENCE	PROBABILITY		Significance / 100	EMP Reference	Severity	Spatial Scale	Duration	CONSEQUENCE	PROBABILITY	Significance / 100
Physical environment	Decommissioning	Surface Infrastructure dismantling	Topography	Inert building rubble generated during dismantling may be used as fill for the restoration of topography	P		2	1	1	4	4	21	Inert building rubble generated during dismantling may be used as fill for the restoration of topography		2	1	1	4	4	21
	Decommissioning	All activities	Soils	Potential for contamination of soil by hydrocarbons and chemicals by earthmoving machines	N		2	1	2	5	4	27	Hazardous materials, such as hydrocarbons and chemicals, will be stored in bunded areas. Spillages will be remediated <i>in situ</i> using appropriate microbial technologies.		2	1	2	5	3	20
	Decommissioning	All activities	Soils	Potential for the contamination of soil due to the incorrect disposal of industrial and hazardous wastes	N		2	1	1	4	3	16	Hazardous waste will be disposed of at a appropriately authorised landfill site. Either French drains or sewage handling facilities which have been built during construction will still be used.		2	1	1	4	3	16
	Decommissioning	All activities	Soils	Potential for contamination of soil due to the incorrect handling of sewerage and removal of sewerage infrastructure.	N		2	1	1	4	3	16	Sewage will be handled in portable chemical latrines to reduce the risk of contamination and disposed of in a manner that will not cause soil contamination.		2	1	1	4	3	16
	Decommissioning	Open pit and Infrastructure areas - Shaping and re-vegetation	Soils	Potential for a impacts on soils structure due to incorrect placement and mixing of topsoil and subsoils.	N		2	1	5	8	4	43	Rehabilitated areas will not be compacted more than which is necessary.		2	1	5	8	3	32
	Decommissioning	All activities	Soils	Movement of vehicles and construction machines may cause the compaction of soil on already revegetated areas and areas unaffected by open pit mining	N		3	1	3	7	3	28	Equipment which minimises soil compaction will be used during decommissioning phase. In addition to this the movement of vehicles will be limited to avoid compaction of unaffected areas.		2	1	3	6	3	24
	Decommissioning	Rehabilitation	Soils	Erosion of rehabilitated areas	N		3	2	3	8	4	43	Erosion controls will be put in place to prevent the uncontrolled run off over unconsolidated soils.		2	1	3	6	3	24
	Decommissioning	All activities	Surface Water Quality	The potential spillage of hydrocarbons by construction machines may contaminate surface water in the case of precipitation.	N		3	3	2	8	2	21	Accidental hydrocarbon spillages will be remediated <i>in situ</i> using appropriate microbial technologies.		3	2	2	7	2	19
	Decommissioning	All activities	Surface Water Quality	Incorrect disposal of hazardous, industrial and domestic waste may affect surface water quality, if surface water is present	N		3	3	2	8	2	21	A waste management system will be implemented which will make sure that domestic and hazardous waste, including sewage, generated during decommissioning and closure are disposed of in a manner that will not affect surface water quality.		3	3	2	8	2	21
	Decommissioning	All activities	Surface Water Quality	Potential for the contamination of surface water due to incorrect sewerage handling	N		3	3	2	8	2	21	A waste management system will be implemented which will make sure that domestic and hazardous waste, including sewage, generated during decommissioning and closure are disposed of in a manner that will not affect surface water quality.		3	3	2	8	2	21
	Decommissioning	All activities	Ground Water Quality	The potential spillage of hydrocarbons by construction machines may contaminate ground water.	N		3	3	2	8	4	43	Accidental hydrocarbon spillages will be remediated <i>in situ</i> using appropriate microbial technologies.		3	3	2	8	3	32

	Decommissioning	All activities	Ground Water Quality	Incorrect disposal of hazardous, industrial and domestic waste may affect ground water quality	N			3	3	2	8	4	43	A waste management system will be implemented which will make sure that domestic and hazardous waste, including sewage, generated during decommissioning and closure are disposed of in a manner that will not affect groundwater quality.			2	2	2	6	3	24
	Decommissioning	All activities	Ground Water Quality	Potential for the contamination of ground water due to incorrect sewerage handling.	N			3	3	2	8	4	43	A waste management system will be implemented which will make sure that domestic and hazardous waste, including sewage, generated during decommissioning and closure are disposed of in a manner that will not affect groundwater quality.			2	2	2	6	3	24
	Decommissioning	Rehabilitation	Land Capability	Loss of land capability due to loss of nutrient rich soil or rehabilitated back to lower capability	N			3	1	4	8	4	43	Soil analysis will be carried out on available topsoil for rehabilitation to determine if fertiliser is required and to what extent			2	1	4	7	3	28
	Decommissioning	Rehabilitation	Land Use	Change of land use from mining to grazing and ecotourism	P			3	1	5	9	3	36	Re-introduce soils to disturbed areas after areas have been contoured and ensure that soil treatment and vegetation cover practices aim to achieve a land use of at least grazing and ecotourism. Ensure trucks, heavy machinery and all equipment utilising hydrocarbons stay in designated areas to reduce area of influence.					5			
	Decommissioning	All activities	Air Quality	Dust generation due to dismantling of infrastructure and earthworks	N			2	1	1	4	4	21	Dust abatement techniques will be applied during the dismantling of infrastructure. i.e. the access road will be treated with a chemical suppressant to ensure >85% control efficiency and haul roads will be treated with a chemical water solution.			2	1	1	4	3	16
	Decommissioning	Management and monitoring of tailings	Air quality	Significantly increase the levels of fugitive dust in the regional surrounding	N			3	1	4	8	4	43	Walls of the tailings dam will be covered (rock gladded) up to 1 m from the top throughout the life of mine and screens will be installed on the crest of the tailings dam walls mainly to act as wind breaks			2	1	4	7	3	28
	Decommissioning	All activities	Air quality	Use of construction machines will cause air pollution in the form of CO, CO ₂ , and Nox, amongst others	N			1	2	1	4	5	27	Construction machines will be serviced, inspected and maintained properly to minimise the amount of greenhouse gasses being emitted from these vehicles.			1	2	1	4	3	16
	Decommissioning	All activities	Noise	Decommissioning activities, including the movement of machines will affect noise levels in the area negatively	N			2	2	1	5	5	33	Vehicles and equipment used during the decommissioning and closure phase will be equipped with standard silencing systems and will be serviced to relevant specifications.			2	2	1	5	3	20
	Decommissioning	All activities	Visual	Decommissioning activities will reduce the visual intrusion.	P			2	2	1	5	5	33	Adequate decommissioning results in mitigated visual impact			2	2	1	4	5	27
Ecological environment (For detailed impact description refer to F&F report (App. E3))	Decommissioning	Rehabilitation	Flora	Re-vegetation of affected/disturbed areas, to allow vegetation to naturally recover over time	P			4	1	2	7	5	47	Allowing natural vegetation to return to the required levels for animals			4	1	2	7	5	47
		Rehabilitation	Flora	Prevent the spreading of any invasive alien plant species, to un mined areas.	P			4	2	3	9	4	48	Establishing alien invasive control programs			4	1	2	7	5	47
	Decommissioning	Rehabilitation	Fauna	To allow creation of favourable habitat	P			4	1	2	7	5	47	Allowing natural vegetation to return to the required levels for animals			4	1	2	7	5	47
Socio-economic environment	Decommissioning	All activities	Socio-economic	Increased employment opportunities during decommissioning for local contractors	P			2	3	1	6	5	40	Increased employment opportunities during decommissioning for local contractors			2	3	1	6	5	40
	Decommissioning	Mine closure	Socio-economic	Loss of jobs and income	N			4	3	3	10	5	67	Implement a skills training programme to equip employees with non-mine related skills they can use when the mine closes, provide employees with a basic financial management course to enable them to make informed decisions with regard to investigating their earnings and establish a fund that can be used to assist mine workers affected by mine closure and retrenchment			2	3	3	8	4	43
	Decommissioning	All activities	Interested and affected parties	Dust and noise impacts during decommissioning	N			3	1	3	7	5	47	Dust and noise pollution impacts will be managed and described above.			2	1	3	6	4	32
	Decommissioning	Movement of vehicles	Traffic and safety	Gradual decrease in traffic volumes	P			2	2	3	7	5	47	No mitigation required			2	2	3	7	5	47

PARAMETER WEIGHTING	
	Significance = Consequence X Probability
	Consequence = Severity + Spatial Scale + Duration
	Probability - with reference to history, industry knowledge and a good dose of common sense

PARAMETER VALUES		
Severity		
	Severity - Environmental	Severity - Social/Cultural/Heritage
5	Very significant impact/total destruction of a highly valued species, habitat or ecosystem	Irreparable damage to/destruction of highly valued items of great cultural significance or complete breakdown of social order
4	Serious impairment of ecosystem function	Serious social issues/Permanent damage to items of cultural significance
3	Moderate alteration of ecosystem functioning	Moderately important social issues and/or significant damage to items of cultural significance
2	Moderate effects not affecting ecosystem functioning	Impacts on the local population, repairable over time. Temporary impairment of the availability of items of cultural significance.
1	Minor/insignificant effects on the biophysical environment	Insignificant social issues / low-level repairable damage to commonplace structures.

Spatial Scale	
5	National/International
4	Provincial/Regional
3	Regional (substantially beyond site boundary)
2	Local (beyond site boundary and affects neighbours)
1	Site (does not extend beyond site boundary)

Duration	
5	Permanent/Irreversible (more than 50 years)
4	Long Term (25 to 50 years or beyond closure)
3	Medium Term (5-25 years)
2	Medium-Short Term (1-5 years)
1	Short term (Less than a year)

PROBABILITY	
5	Certain/ Normally happens in cases of this nature
4	Will more than likely happen
3	Could happen and has happened here or elsewhere
2	Has not happened yet, but could
1	Conceivable, but only in a set of very specific and extreme circumstances