



Preston
Consulting

PRIMARY GOLD LIMITED

TOMS GULLY UNDERGROUND PROJECT

RISK REGISTER

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Toms Gully Underground Project - Environmental Risk Assessment

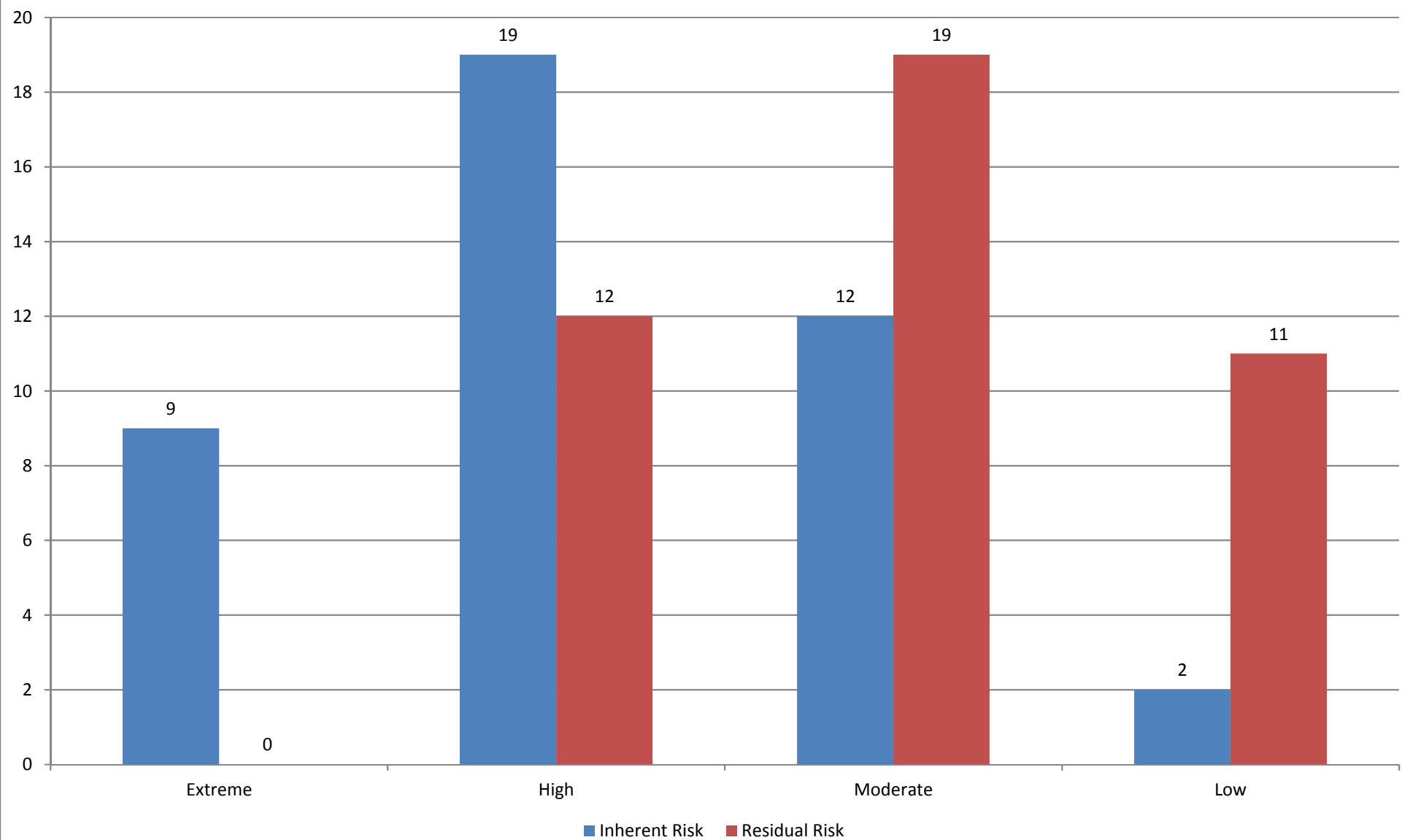
Inherent Risk																Residual Risk			
Risk #	Type	Function / Department	Hazard	Impact	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating				
1.0 Water and Acid Mine Drainage			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating				
Risk 1	Environmental	Infrastructure failure	Embankment failure of TSF 2	Contamination of Mount Bunday Creek and downstream ecosystems	D	5	7	Extreme	Mining Management Plan (detailed design and quality assurance/control of New Tailings Dam). Use tailings lift design as opportunity to reduce seepage Geotechnical studies, mine closure plan (in-pit storage of tails on closure) Engineering design to ANCOLD Standard Tailings Management Plan (TARPs) Groundwater monitoring (bores to be installed) Acid Mine Drainage Management Plan. Water Management Plan.	E	5	11	High	High. Based on data analysis, engineering design and modelling.	Administrative, Elimination, Substitution, Engineering Controls & Clean-up/remediation Controls.				
Risk 2	Environmental	Infrastructure failure	Seepage from TSF2	Contamination of surface water and groundwater quality and ecosystems	B	3	9	High	TSF lift will address existing seepage at new tailings dam Engineered design Inspections as per O&M Manual	E	3	20	Moderate	High. Based on engineering design.	Administrative, Elimination & Engineering Controls.				
Risk 3	Environmental	Infrastructure failure	Embankment failure of TSF 1	Contamination of Mount Bunday Creek and downstream ecosystems	D	5	7	Extreme	Mining Management Plan Geotechnical inspections Engineering design Tailings Management Plan (TARPs) Groundwater monitoring (bores to be installed) Acid Mine Drainage Management Plan. Water Management Plan, Mine closure plan (cap and rehab or move to pit/TSF2), downstream water storage dam.	E	5	11	High	Moderate, Based on data analysis, engineering design qualitative analysis (engineering inspection & Toms Gully history).	Administrative, Elimination, Substitution, Engineering Controls & Clean-up/remediation Controls.				
Risk 4	Environmental	Infrastructure failure	Seepage from TSF1	Contamination of surface water quality and ecosystems	B	3	9	High	Cap and rehabilitate or move to pit/TSF2 Engineered design Inspections as per O&M Manual	E	3	20	Moderate	High. Based on engineering design.	Administrative, Elimination & Engineering Controls.				
Risk 5	Environmental	Infrastructure failure	Failure or overtopping of process water pond	Water release from process water circuit	C	3	13	High	Drainage to processing area sump Operating manual Level alarms	D	2	21	Low	Moderate, Based on qualitative analysis and similar conditions.	Administrative, Engineering & Clean-up/remediation Controls.				
Risk 6	Environmental	Infrastructure failure	Water treatment system fails to deliver required water quality	Water does not meet planned quality requirements	D	3	17	Moderate	Contractual obligation for contractor to meet water quality criteria Contingency to release treated water at lower rates (higher dilution) to meet discharge outcomes Contingency to re-treat/continue treatment in-pit to meet water quality criteria, ability to re-treat water in new WSD prior to discharge	E	2	23	Low	High. Based on data analysis, engineering design and modelling.	Administrative & Engineering Controls.				
Risk 7	Environmental	Infrastructure failure	Embankment failure of new freshwater dam	Uncontrolled water release to Mt Bunday Creek with movement and deposition of sediments and damage to vegetation and fauna downstream	D	5	7	Extreme	Mining Management Plan (detailed design and quality assurance/control of Freshwater Dam) Geotechnical studies Engineering design to ANCOLD standard Spillway to prevent overtopping Water Management Plan TSF2 hold treated water only.	E	5	11	High	High. Based on data analysis, engineering design and modelling.	Administrative, Engineering & Substitution Controls.				
Risk 8	Environmental	Infrastructure failure	Failure of process tanks/pipes/pumps	Slurry or water release from process water circuit	C	3	13	High	Tank bunding Engineering standards and inspections Drainage to processing area sump Operating manual Level alarms	D	3	17	Moderate	High. Based on engineering design. Standard Industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Clean-up/remediation Controls.				
Risk 9	Environmental	Infrastructure failure	Overtopping of evaporation ponds in extreme weather event	Contamination of surface water quality and ecosystems	D	3	17	Moderate	Maximise pond capacity prior to wet season Management of site water balance and pond freeboard Emergency storage in WSD	E	2	23	Low	High. Based on engineering design and modelling. Standard Industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Elimination, Engineering & Clean-up/remediation Controls.				
Risk 10	Environmental	Infrastructure failure	Water levels above tailings	Reduced freeboard and flood storage leading to uncontrolled discharge. Adverse impacts on downstream water quality, aquatic environment and downstream users.	D	5	7	Extreme	Develop manual detailing appropriate tailings and water management. Undertake regular routine surveillance inspections. Establish sufficient freeboard to contain excess water and pump infrastructure to transfer excess water to alternative locations. Instrumentation (i.e. piezometers, movement monitoring, tailings beach indicators) to enable monitoring.	E	5	11	High	High. Based on engineering design and modelling.	Administrative, Engineering & Clean-up/remediation Controls.				
Risk 11	Environmental	Seepage	Poor quality runoff or seepage from existing sulphide WRD	Contamination of surface water and groundwater quality and ecosystems	B	3	9	High	Continued use of drainage controls and bunds Maximise pond capacity prior to wet season Ongoing monitoring of existing groundwater bores	B	3	9	High	High. Based on historical data. Similar mitigation used previously at Toms Gully.	Administrative, Elimination, Engineering & Clean-up/remediation Controls.				

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					Prob	Cons	Risk	Risk		Prob	Cons	Risk	Risk		
Risk 12	Environmental	Seepage	Poor quality runoff or seepage from existing oxide WRD	Contamination of surface water and groundwater quality and ecosystems	B	3	9	High	Continued use of drainage controls and wetland Improve drainage control Investigation and consideration of long term closure options Ongoing monitoring of existing groundwater bores	B	3	9	High	High. Based on historical data and engineering designs. Similar mitigation used previously at Toms Gully.	Administrative, Elimination, Engineering & Clean-up/remediation Controls.
Risk 13	Environmental	Seepage	Seepage from evaporation ponds	Contamination of groundwater	A	2	10	High	Treat existing water in evaporation ponds Surface drainage plan to divert clean surface water run off Treat water ex-pit and use ponds for short term storage Manage water inventory Containment and capture of contaminated water Ongoing identification of all sources of contaminated water Ongoing monitoring of existing groundwater bores	C	2	18	Moderate	Moderate. Based on similar conditions. Similar mitigation used previously at Toms Gully.	Administrative, Elimination & Engineering Controls.
Risk 14	Environmental	Seepage	Pit and underground dewatering exposing PAF and causing AMD.	Decreases in onsite water quality and potential exceedance of SSTVs if discharged. Adverse impacts on downstream water quality, aquatic environment, and downstream users.	D	4	12	High	Water captured within the pit/underground to be transferred to treatment and then storage onsite. Implementation of AMD Management Plan including ore and waste rock controls and tailings controls.	E	4	16	High	High. Based on engineering designs.	Administrative, Elimination & Engineering Controls.
Risk 15	Environmental	Precipitate	Precipitates from water treatment being released to the environment	Contamination of soil. Creation of contaminated laden dust. Release of precipitates to the environment.	D	3	17	Moderate	In-pit water treatment option: Wash down sides of pit walls to remove precipitate. Remove precipitate to TSF2 or leave in pit. Out of pit water treatment option: Remove precipitate to TSF2 or pit.	E	3	20	Moderate	High. Based on engineering designs.	Administrative, Elimination & Engineering Controls.
Risk 16	Environmental	Waste Rock	Inappropriate storage and disposal of waste rock	Contamination of surface water and groundwater systems Storage outside of footprint or structure failure	B	3	9	High	Waste characterisation work completed Waste rock left in or returned to underground or stored within base of pit Acid Mine Drainage Management Plan Water Management Plan Project EMP On-going and regular inspections of project areas	E	1	25	Low	High. Based on data analysis.	Administrative, Elimination, Substitution, Engineering & Clean-up/remediation Controls.
Risk 17	Environmental	Waste Rock	Indiscriminate use of existing waste rock for construction	AMD leading to contamination of surface water and groundwater systems Storage outside of footprint or structure failure	A	3	6	Extreme	No disturbance to WRDs Acid Mine Drainage Management Plan Water Management Plan Project EMP On-going and regular inspections of project areas	E	3	20	Moderate	High. Based on historical basis.	Administrative, Elimination, Substitution & Clean-up/remediation Controls.
Risk 18	Environmental	Erosion and sedimentation	General erosion and sedimentation from bare ground escapes to Mount Bunday Creek	Reduces surface water quality in Mount Bunday Creek with increased sedimentation in creek bed	D	3	17	Moderate	Project EMP Documented routine (quarterly) inspections Water Management Plan, drainage, dust control	E	3	20	Moderate	Moderate. Based on similar conditions. Similar mitigation used previously at Toms Gully.	Administrative, Elimination, Engineering & Clean-up/remediation Controls.
Risk 19	Environmental	Water discharge	Release off site of low quality water from bores dewatering new underground workings (i.e. water does not meet livestock water quality standards)	Insufficient dilution leading to surface water contamination. Inundation of vegetation and flora. Increased potential for biting insect breeding grounds.	E	3	20	Moderate	Water Management Plan Waste Discharge Licence Discharge Plan Maximise dam capacity prior to onset of wet season Management of general site water balance and dam freeboard Understand water use requirements Site water balance	D	3	17	Moderate	High. Based on data analysis, engineering design and modelling.	Administrative, Elimination, Engineering & Substitution Controls.
Risk 20	Environmental	Water discharge	Controlled and uncontrolled release off site of low quality mine water during low flow in creek	Water unsuitable for livestock consumption.	C	4	8	Extreme	Water Management Plan including monitoring program Bore test pumping Site water balance Water supply dam and other water storages Water treatment Water Discharge Licence	D	4	12	High	High. Based on existing water quality data	Administrative and Substitution Controls
Risk 21	Environmental	Water discharge	Uncontrolled release off site of low quality mine water during extreme weather events	Insufficient dilution leading to surface water contamination. Inundation of vegetation and flora. Increased potential for biting insect breeding grounds.	D	3	17	Moderate	Water Management Plan Waste Discharge Licence Discharge Plan Maximise dam capacity prior to onset of wet season Management of general site water balance and dam freeboard Understand water use requirements Site water balance	D	3	17	Moderate	High. Based on data analysis, engineering design and modelling.	Administrative, Elimination, Engineering & Substitution Controls.

Inherent Risk																Residual Risk				
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2.0 Biodiversity			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating					
Risk 22	Environmental	Weeds	Construction and operational activities (incl. vegetation clearing) result in introduction of new weeds and spread of existing weeds into new areas	Decline in habitat quality. Impact on native vegetation. Increased fire risk	B	3	9	High	Annual weed mapping (by June each year) to understand nature of the spread of weeds and plan weed control activities accordingly Conduct seasonal weed control activities in consultation with local landholder as necessary and in accordance with the site Weed Action Plan (grazing control as option). Biodiversity MP Project EMP (incorporating fire management measures)	C	2	18	Moderate	Moderate. Based on similar conditions. Similar mitigation used previously at Toms Gully.	Administrative, Elimination & Clean-up/remediation Controls.					
Risk 23	Environmental	Listed threatened species	Cumulative impacts of clearing, dust, noise, artificial light associated with construction and/or operation of the mine site	Disrupt lifecycle processes and or impact on the size of the population	B	2	14	High	Project EMP (incorporating fire and dust management measures) Biodiversity MP (incorporating dust mitigation and artificial lighting mitigation measures) Site planning to minimise clearing activities Comply with approved vegetation clearance Ground Disturbance Permit (GDP) procedure	E	2	23	Low	Moderate. Based on similar conditions. Similar mitigation used previously at Toms Gully.	Administrative & Elimination Controls.					
Risk 24	Environmental	Listed threatened species	Poor water quality released from site during wet season	Habitat modification and/or lifecycle disruption and/or impact on the size of a population Decrease in fish populations and species richness	C	4	8	Extreme	Compliance with the Waste Discharge Licence Project Water Management Plan Dam design (to ANCOLD guidelines) Water quality monitoring program including annual sediment and macroinvertebrate monitoring	D	4	12	High	Moderate. Based on similar conditions, qualitative analysis.	Administrative, Elimination & Clean-up/remediation Controls.					
Risk 25	Environmental	Listed threatened species	Vegetation clearing for water supply dam	Fragmentation of a population and/or Habitat modification and/or lifecycle disruption and/or impact on the size of a population	C	2	18	Moderate	Adhere to buffer widths recommended by the Northern Territory Land Clearing Guidelines with regard to riparian vegetation in drainage lines Avoid land clearing during the Wet Season (Dec-May) Clearly mark limits of clearing Have a trained fauna spotter on site during clearing operations	D	2	21	Low	Moderate. Based on similar conditions, qualitative analysis.	Administrative & Elimination Controls.					
Risk 26	Environmental	Groundwater	Groundwater drawdown	Impact to any groundwater dependent ecosystems including aquatic ecosystems that are dependent on groundwater to provide dry season refuge Impact to local water users	D	3	17	Moderate	Hydrogeological assessment Water MP No known drawdown impacts from previous operations	E	3	20	Moderate	Moderate. Based on similar conditions, qualitative analysis.	Administrative & Elimination Controls.					
3.0 Rehabilitation and Closure			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating					
Risk 27	Environmental	Rehabilitation and closure	Unfinished/unsuccessful rehabilitation of Project due to inadequate funds	Site not rehabilitated to required standards. Increased potential for off site impacts from AMD, erosion and sedimentation. Potential legacy issues.	C	4	8	Extreme	Rehabilitation Bond Mine rehabilitation fund	D	3	17	Moderate	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative, Substitution & Clean-up/remediation Controls.					
Risk 28	Environmental	Rehabilitation and closure	Unfinished/unsuccessful rehabilitation due to natural disaster (eg cyclone, earthquake)	Site not rehabilitated to required standards. Increased potential for offsite impacts from AMD, erosion and sedimentation. Potential legacy issues.	D	4	12	High	Infrastructure design Ongoing management of levels in water infrastructure Improve site drainage controls Rehabilitation Bond Mine rehabilitation fund	E	3	20	Moderate	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative, Substitution & Clean-up/remediation Controls.					
Risk 29	Environmental	Rehabilitation and closure	Pit lake becomes a groundwater source	Gradual development of plume of contaminated groundwater	D	4	12	High	Treat pit water and discharge Improve site drainage Complete contaminant transport modelling Limit pit catchment post closure to reduce inflow	E	4	16	High	Moderate. Based on qualitative analysis.	Administrative & Substitution Controls.					
Risk 30	Environmental	Rehabilitation and closure	Long term positive water balance and AMD issues from WRDs	Need for long term treatment of contaminated water	D	4	12	High	Improve site drainage Review options for WRD Rehabilitation Bond Mine rehabilitation fund	D	4	12	High	Low.	Administrative, Substitution & Clean-up/remediation Controls.					
Risk 31	Environmental	Rehabilitation and closure	Lack of rehabilitation materials leads to inadequate tailings closure and poor quality site rehabilitation	Exposed tailings and poor rehabilitation of cleared land	A	3	6	Extreme	Win construction materials and topsoil from water supply dam footprint Mine Closure Plan Rehabilitation bond Mine rehabilitation fund, In-pit storage option	E	3	20	Moderate	High. Based on field investigations and data analysis.	Administrative, Substitution & Clean-up/remediation Controls.					
4.0 Cultural Heritage			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating					
Risk 32	Environmental	Cultural heritage	Disturbance of sites/objects of heritage significance heritage items or places and sacred sites	Damage, destruction or removal of heritage item, place or sacred site	C	2	18	Moderate	Undertake a search of the Project area with the AAPA regarding Aboriginal Sacred Sites. Undertake consultation with the Heritage Group of DLPE with regards to potential heritage sites in the area. Project EMP	D	2	21	Low	High. Based on database searches, and AAPA certificate.	Administrative Controls.					

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			Hazard	Impact	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	
5.0 Miscellaneous Risks			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 33	Environmental	Environmental Management System	Ineffective operational implementation of site environmental management system, plans and procedures	Environmental incidents. Reputational damage.	B	3	9	High	Corporate commitment to EMS implementation via policy Environmental Management System and various management plans (EMP, WMP, AMD MP, MMP etc). All events/incidents to be reported and managed through to resolution via event/incident reporting procedures. All personnel will be inducted into the area and informed of the hazards and relevant management protocols of the areas. All personnel will be trained in the appropriate management practices as is relevant to their position.	D	2	21	Low	Moderate. Based on similar conditions.	Administrative, Elimination, Substitution, Engineering Controls & Clean-up/remediation Controls.
Risk 34	Environmental	Fire	Fire impacts on Project or nearby infrastructure, personnel and local environment	Loss of infrastructure Loss of habitat and local fauna populations Potential for loss of human lives	C	3	13	High	Liaise with Bushfires NT regarding regional (and site) fire break scheduling and implementation Project EMP	D	3	17	Moderate	Moderate. Based on similar conditions.	Administrative, Elimination, Substitution, Engineering Controls & Clean-up/remediation Controls.
Risk 35	Environmental	Biting insects	Creation of biting insect breeding grounds	Increase in biting insect populations Increase potential for biting insect borne diseases	C	1	22	Low	Project EMP Minimise surface water ponding	D	1	24	Low	Moderate. Based on similar conditions.	Administrative, Elimination, Substitution, Engineering Controls & Clean-up/remediation Controls.
Risk 36	Environmental	Groundwater	Inappropriate liquid and solid waste disposal	Production of leachate leading to the contamination of groundwater.	C	3	13	High	Manage disposal of wastes in accordance with the Project EMP.	D	3	17	Moderate	High. Based on historical basis.	Engineering Controls & Clean-up/remediation Controls.
Risk 37	Environmental	Groundwater	Chemical spills and leaks	Seepage of liquids into groundwater leading to contamination of the aquifer	C	3	13	High	Chemical and hydrocarbon storage facilities bunded and managed in accordance with the Hazardous Materials Management Plan and the Project EMP.	D	3	17	Moderate	High. Based on historical basis.	Engineering Controls & Clean-up/remediation Controls.
Risk 38	Environmental	Mining	Dust emissions	Dust emissions impact upon neighbours or Arnhem Highway	D	3	17	Moderate	Industry standard dust controls Project EMP	E	3	20	Moderate	Moderate. Based on standard industry practice & similar conditions prevailing during previous mining phases at TG.	Administrative, & Elimination Controls.
Risk 39	Environmental	Mining	Noise and vibration emissions	Noise levels impact upon neighbours	D	3	17	Moderate	All mining underground Project EMP	E	3	20	Moderate	Moderate. Based on standard industry practice & similar conditions prevailing during previous mining phases at TG.	Administrative, & Elimination Controls.
Risk 40	Environmental	Mining	Visual	Viewscape from Arnhem Highway or lookout significantly impacted	C	1	22	Low	No new waste rock dump Vegetation for screening	C	1	22	Low	Moderate. Based on standard industry practice & similar conditions prevailing during previous mining phases at TG.	Administrative, & Elimination Controls.
Risk 41	Environmental	Transport	Dangerous Goods Spillage en-route	Toxic material kills vegetation, fauna, or harms people Contamination	D	3	17	Moderate	Dangerous goods haulage controls Emergency and Crisis Management Plan Hazardous Materials Management Plan Traffic Management Plan	D	2	21	Low	Moderate. Based on standard industry practice & similar conditions prevailing during previous mining phases at TG.	Administrative, Elimination & Clean-up/remediation Controls.
Risk 42	Environmental	Mining	Sterilising gold resources	Reduces future options	D	4	12	High	Resource model, exploration drilling, mine design Accurate post-closure survey	E	4	16	High	High. Based on testing and modelling.	Administrative, Elimination & Engineering Controls.

Primary Gold Environment Risk Assessment and Reduction



Toms Gully Underground Project - Health and Safety Risk Assessment

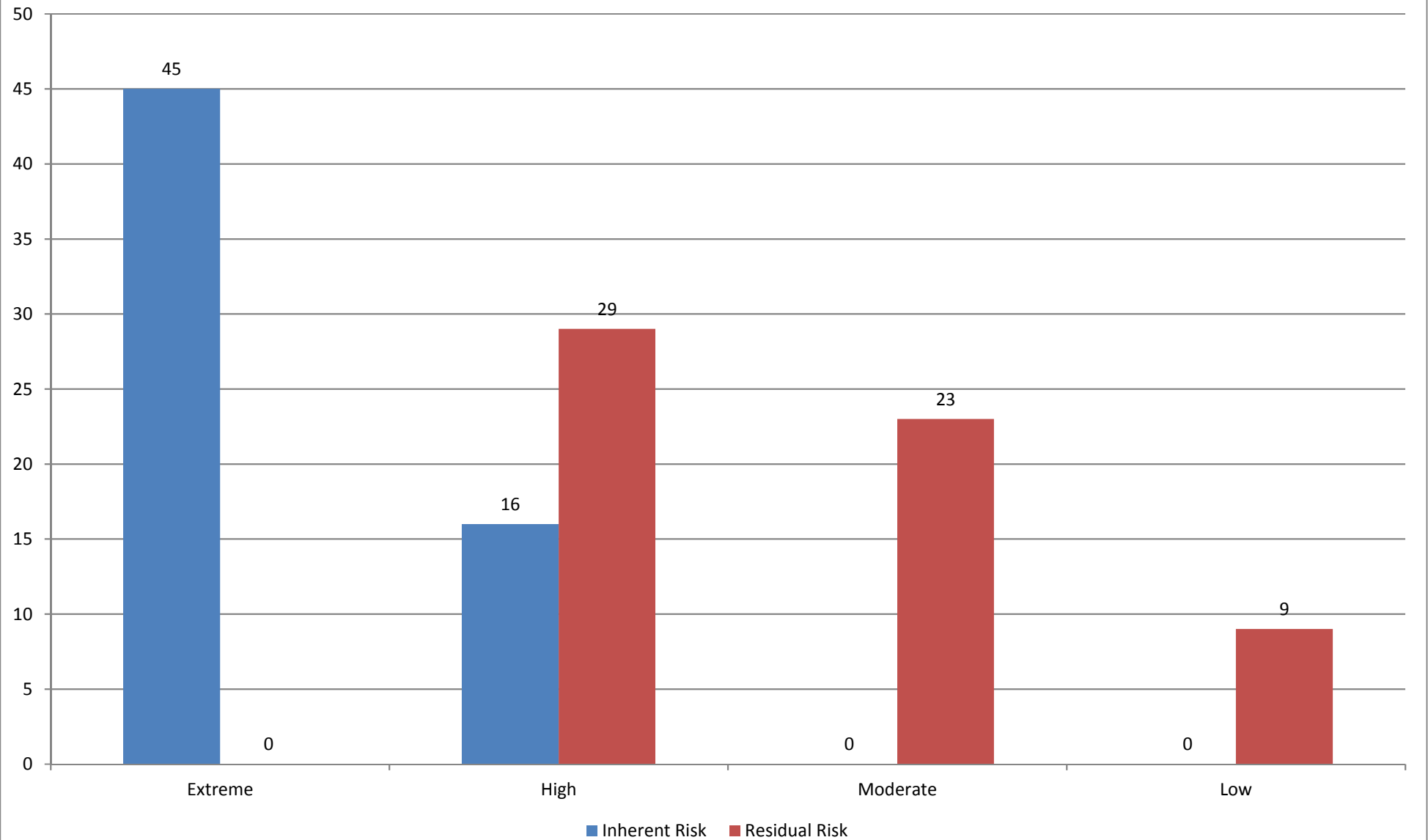
Inherent Risk																	Residual Risk				
Risk #	Type	Function / Department	Hazard	Impact	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating						
1.0 Expl /Enviro /Survey			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating						
Risk 1	Safety	Fieldwork	Aircraft Operations	Injury/mortality of personnel	C	5	4	Extreme	All aviation work to be conducted following a risk assessment and only by reputable, competent operator	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.						
Risk 2	Safety	Fieldwork	Lost / Stranded Personnel / Croc attack	Injury/mortality of personnel	B	4	5	Extreme	Remote work procedure, environment procedures for Croc risk mitigation, radio communications,	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation currently being used & previously used at Toms Gully.	Administrative Controls.						
Risk 3	Safety	Fieldwork	Falling into old workings	Injury/mortality of personnel	D	5	7	Extreme	Pre-task risk assessment, area survey, Take 5, survey control, fencing	E	3	20	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 4	Safety	Fieldwork	Injury to Person/ Manual Handling	Injury of personnel	B	3	9	High	Manual handling awareness training, Take 5 pre-task hazard assessment, JHA process, work procedures, dedicated lifting equipment	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 5	Safety	Fieldwork	Heat Exposure	Injury/mortality of personnel	B	3	9	High	Hydration and heat exposure awareness training, site induction, fatigue management procedures and training,	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.						
Risk 6	Safety	Drilling	Uncontrolled Movement of Equipment	Injury/mortality of personnel	C	5	4	Extreme	Trained drill operators, specialised equipment operated by competent contractors, demarcated work areas, isolation procedure for maintenance	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 7	Safety	Drilling	Compressed Air Release	Injury/mortality of personnel	C	5	4	Extreme	Trained and competent operators, minimum equipment specifications, equipment pre-start checks, hose whip chains, hazard reporting,	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 8	Safety	Drilling	Crush Injury	Injury/mortality of personnel	C	5	4	Extreme	Compliance to regulations re machine guarding, workplace inspections, trained and competent maintenance personnel, isolation procedures,	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 9	Safety	Drilling	Manual Handling	Injury of personnel	A	3	6	Extreme	Site induction, manual handling awareness training, minimum equipment specifications	B	2	14	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 10	Safety	Drilling	Fall from Heights	Injury/mortality of personnel	D	5	7	Extreme	Handrails, fall prevention procedures, working at height procedures and training, maintenance procedures, trained and competent operators and maintainers	E	4	16	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 11	Safety	Drilling	Rotating Equipment	Injury/mortality of personnel	C	4	8	Extreme	Trained drill operators, specialised equipment operated by competent contractors, demarcated work areas, isolation procedure for maintenance, machinery guarding and limit switches	E	4	16	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 12	Safety	Drilling	Chemical Handling	Injury/mortality of personnel	B	3	9	High	Specialised contractor, site induction, hazardous material training (as appropriate), MSDS, first aid, emergency response, Take 5 pre-task risk assessment, Hazardous Materials Management Plan	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.						
Risk 13	Safety	Drilling	Drilling into Workings old/new	Injury/mortality of personnel	D	4	12	High	Survey control, all work requires a signed plan,	E	4	16	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls						
Risk 14	Safety	Drilling	Fire	Injury/mortality of personnel	C	3	13	High	Equipment specifications and maintenance system, fire extinguishers on equipment, evacuation procedures, emergency response	D	2	21	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
2.0 Surface Mining			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating						
Risk 15	Safety	Surface Mining General	Light Vehicle – Equipment Collision	Injury/mortality of personnel	B	5	2	Extreme	Traffic management plan, Mobile equipment standard / procedures, operating procedures, drivers license required, 4 x 4 (where required), radios in vehicles and heavy equipment, heavy equipment operator training, demarcation of pedestrian areas, where practicable segregation of heavy and light vehicles, road rules and signs aligned to public roads (as far as reasonably practicable),	D	4	12	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 16	Safety	Surface Mining General	Heavy Equipment Collision	Injury/mortality of personnel	B	5	2	Extreme	Traffic management plan, Road design construction and maintenance, competent operators, competency based training, site inductions and training processes, demarcation of HV/ LV & Pedestrians where appropriate, minimum equipment standards, preventative maintenance program, hazard reporting process,	D	4	12	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 17	Health	Surface Mining General	Dust or Noise related Health Hazards	Health issues	A	4	3	Extreme	Operating procedures, enclosed dust collection systems, hearing protection, health monitoring, dust suppression, PPE where required, noise suppression, personal risk assessment, water monitoring procedures, minimum equipment specifications	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						
Risk 18	Safety	Surface Mining General	Uncontrolled pressure / air / hydraulic	Injury/mortality of personnel	B	4	5	Extreme	Specific isolation procedures, trained qualified and competent mechanical personnel, JHA and take 5 risk assessment processes, supervision, audits and inspections, equipment preventative maintenance system and procedures, lanyards	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.						

Inherent Risk									Residual Risk						
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Risk 19	Safety	Surface Mining General	Flooding	Injury/mortality of personnel	B	4	5	Extreme	Water management plan, cyclone procedure, supervision, redundancy in dewatering capacity, appropriate drainage, Emergency and Crisis Management Plan	B	2	14	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 20	Safety	Surface Mining General	Slips/Trips due to ground	Injury/mortality of personnel	A	3	6	Extreme	Site and area inductions, housekeeping standards, workplace inspections, Take 5 hazard assessment, appropriate construction	B	2	14	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 21	Safety	Surface Mining General	Subsidence / Voids	Injury/mortality of personnel	D	5	7	Extreme	Mine design, survey control, void monitoring if required, pit slope design, geotechnical control / oversight as required, bunding	E	3	20	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 22	Safety	Surface Mining General	Equip accidents on waste dump /over edge	Injury/mortality of personnel	D	5	7	Extreme	All edges bunded minimum 1/2 height of wheel, competent operators, supervision, hazard awareness training, hazard reporting process, equipment operating procedures, procedure for dump operation,	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering controls & Substitution (underground and in-pit dumping only).
Risk 23	Safety	Surface Mining General	Explosives incident	Injury/mortality of personnel	D	5	7	Extreme	Explosives management plan, trained and competent operators, explosives handling procedures, explosives inventory procedures, supervision, auditing, workplace inspections, magazine control procedures, delegated magazine keeper, minimum equipment specifications	E	4	16	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 24	Safety	Surface Mining General	Extreme Weather, cyclone, dehydration etc	Injury/mortality of personnel	D	5	7	Extreme	Hydration and heat exposure awareness training, site induction, fatigue management procedures and training, cyclone management plan, Emergency and Crisis Management Plan	B	2	14	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.
Risk 25	Safety	Surface Mining General	Tyre/Fires/Explosions	Injury/mortality of personnel	C	4	8	Extreme	Tyre management procedures, emergency response, tyre fire risk training, equipment operator training includes risk and actions required, trained and competent maintenance personnel, minimum standards for tyres and tyre fitting, trained and competent tyre fitters, third party engagement as required to monitor standards/ procedures/ compliance.	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 26	Safety	Surface Mining General	Fatigue / Fitness for Work	Injury/mortality of personnel	B	3	9	High	Fitness for work procedures, fit for work assessment, health monitoring (as appropriate), drug and alcohol testing /procedures/ and awareness training, fatigue awareness training,	C	1	22	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 27	Safety	Surface Mining General	Chemical Contamination	Injury/mortality of personnel	B	3	9	High	site induction, hazardous material training (as appropriate), MSDS, first aid, emergency response, Take 5 pre-task risk assessment,	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 28	Safety	Surface Mining General	Lightning Strike	Injury/mortality of personnel	E	5	11	High	Lightening management procedure including minimum operating practices	E	1	25	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
3.0 Mining Underground			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 29	Safety	Underground	Rock falls	Injury/mortality of personnel	B	5	2	Extreme	Geotechnical engineering, ground control management plan, minimum ground support standards, ground support installation procedures, ground monitoring procedures, survey standards, work procedures and training, competent operators, bunding/fencing/signage	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 30	Safety	Underground	Ground Support Failure / Inadequate Support Design	Injury/mortality of personnel	B	5	2	Extreme	Geotechnical engineering, ground control management plan, minimum ground support standards, ground support installation procedures, ground monitoring procedures, survey standards, work procedures and training, competent operators, bunding/fencing/signage	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 31	Safety	Underground	Seismicity/ rock burst	Injury/mortality of personnel	C	5	4	Extreme	Geotechnical engineering, ground control management plan, minimum ground support standards, ground support installation procedures, ground monitoring procedures, survey standards, work procedures and training, competent operators, backfilling of mined areas as required	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 32	Safety	Underground	Working around stope brows / rock fall / backfill	Injury/mortality of personnel	C	5	4	Extreme	Specific procedure for working around a brow or open hole, demarcation / sign standards, backfill procedure, trained and competent operators, JHS & Take 5	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 33	Safety	Underground	Uncontrolled break throughs (fly rock, blast percussion etc)	Injury/mortality of personnel	C	5	4	Extreme	Minimum standards for drill and blast procedures, survey procedures, specific "breakthrough" procedure including minimum exclusion distances, evacuation before blast, barricade	D	1	24	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls.
Risk 34	Safety	Underground	Blasting	Injury/mortality of personnel	C	5	4	Extreme	Explosives management plan, trained and competent operators, explosives management and handling procedures, explosives inventory procedures, supervision, auditing, workplace inspections, magazine control procedures, delegated magazine keeper, reactive ground assessment prior to recommencement of mining, evacuation prior to blast, barricade area	D	2	21	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls.
Risk 35	Safety	Underground	Flooding	Injury/mortality of personnel	C	5	4	Extreme	Water management plan, cyclone procedure, supervision, redundancy in dewatering capacity, geotechnical monitoring of evap dam, water (and dam) monitoring programme, back-up power generation, barricade & evacuation, Emergency and Crisis Management Plan	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls.

Inherent Risk									Residual Risk						
Risk #	Type	Function / Department	Hazard	Impact	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 36	Safety	Underground	Hazards with entry into Open Stope	Injury/mortality of personnel	C	5	4	Extreme	Geotechnical engineering, ground control management plan, minimum ground support standards, ground support installation procedures, ground monitoring procedures, survey standards, work procedures and training, competent operators, barricades.	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls.
Risk 37	Safety	Underground	Remote Boggging (Hit by)	Injury/mortality of personnel	D	5	7	Extreme	Tele remote loaders, trained and competent operators, demarcated areas, pedestrian exclusion zone, proximity detection hardware (or procedures), deadman controls,	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls (minimise practice).
Risk 38	Safety	Underground	Hazards with re-entry to old workings	Injury/mortality of personnel	D	5	7	Extreme	Underground ground control standard, ground control management plan, minimum ventilation requirements, gas monitoring, ground control inspection procedures, trained and competent operators and supervisors, re-entry procedure, barricades	D	2	21	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls (minimise practice).
Risk 39	Safety	Underground	Ventilation failure / Fuming	Injury/mortality of personnel	B	3	9	High	Minimum standards for mine ventilation, delegated trained and competent ventilation officer, mine ventilation design, hazard reporting and action processes, supervision, legislative requirements, vent failure warning system, barricades	D	2	21	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Engineering & Eliminating controls (minimise practice).
Risk 40	Safety	Underground	Intersecting Gas	Injury/mortality of personnel	B	3	9	High	Specialised drilling contractor, site induction, gas management procedure, gas detection, various ventilation risk controls	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 41	Safety	Underground	Electrical Equipment Failure	Injury/mortality of personnel	B	3	9	High	Electrical equipment minimum specifications, competent and qualified electrical personnel, electrical maintenance processes and procedures, minimum standards for electrical installations and infrastructure,	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 42	Safety	Underground	Entrapment of Personnel	Injury/mortality of personnel	D	4	12	High	Emergency response procedures, training, emergency drills, second means of egress, ground control management systems and processes, mobile equipment management and maintenance processes, Emergency and Crisis Management Plan	E	3	20	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
5.0 Process Plant			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 43	Safety	Process Plant	Working in Confined space	Injury/mortality of personnel	B	5	2	Extreme	Confined space procedures, gas testing and monitoring, confined space survey, signage for all confined spaces, confined space entry training and competency assessment,	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 44	Safety	Process Plant	Lifting and Slinging, equipment falling	Injury/mortality of personnel	B	5	2	Extreme	Work procedures, JHA process, trained and certified riggers and crane operators, kickboards on walkways/ work areas where required, demarcation and signage procedures, minimum equipment specifications	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 45	Safety	Process Plant	Potable Water Contamination	Injury/mortality of personnel	B	4	5	Extreme	Potable water management and control delegated, potable water quality monitoring / testing, minimum equipment specifications	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 46	Safety	Process Plant	Slips / Trips	Injury/mortality of personnel	A	3	6	Extreme	Housekeeping standards and procedures, workplace inspections, step grips, take 5 pre-task risk / hazard assessment, hazard awareness training, hand rails	B	3	9	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 47	Safety	Process Plant	High Voltage contact	Injury/mortality of personnel	D	5	7	Extreme	Electrical installations as per AS, qualified and certified electricians, isolation procedures, regular testing and tagging of equipment, specific procedures for HV management	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 48	Safety	Process Plant	Slope Stability / wall failure - Tailings Dam/ water storage dams	Injury/mortality of personnel	D	5	7	Extreme	Tailings dam and water storage dams engineer designed, site management of tails dam, monitoring and management of all water storage dams	E	3	20	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 49	Safety	Process Plant	Molten Metal Handling	Injury/mortality of personnel	C	4	8	Extreme	Gold room operator competency based training, PPE, Gold room work procedures, hazard identification and action management process	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 50	Safety	Process Plant	Uncontrolled Digging / Excavations	Injury/mortality of personnel	B	3	9	High	Permit to dig procedure, hazard identification, take 5 pre-task hazard assessment, JHAs,	C	2	18	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Elimination controls (minimise practice).
Risk 51	Safety	Process Plant	Structural Failure	Injury/mortality of personnel	E	5	11	High	Fixed plant inspection and maintenance processes, mill / infrastructure review prior to commencement, barricades	E	1	25	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 52	Safety	Process Plant	Radiation Source risks	Injury/mortality of personnel	D	4	12	High	Appointment of trained and competent radiation officer, radiation source management procedures, legislative requirement compliance, workplace inspections, signage, demarcation as required / appropriate	E	4	16	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
6.0 Services (Other)			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 53	Safety	Stores	Dangerous Goods Transport, Storage, Handling, spillage etc either on or off site (eg cyanide, fuel, etc)	Injury/mortality of personnel	C	4	8	Extreme	DG legislation, minimum equipment specifications, equipment pre-start checks, hazard reporting, maintenance systems and procedures, fire suppression on mobile equipment, fire extinguishers, emergency response training and procedures, emergency exits, fire response training, Hazardous Materials Management Plan	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 54	Safety	Stores	Equipment / goods fall from storage racks/ area	Injury/mortality of personnel	C	4	8	Extreme	Minimum standards for storage of goods, housekeeping standards, dedicated lifting equipment, hazard awareness training, Take 5 pre task risk assessment, Hazardous Materials Management Plan	D	2	21	Low	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.

Inherent Risk									Residual Risk						
Risk #	Type	Function / Department	Hazard	Impact	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 55	Safety	Transport/ Persons	Livestock on Roads	Injury/mortality of personnel	B	5	2	Extreme	Trained and competent operators, NT Licence required for main roads, equipment pre-start checks, site induction, and LV permit, speed limits, fence maintenance, Traffic Management Plan	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 56	Safety	General	Snakes, wildlife, mosquitoes, spiders,	Injury/mortality of personnel	B	5	2	Extreme	Emergency response procedures, training, inductions and hazard awareness, medical assistance on site, personnel trained in FA, ambulance on site, PPE, Emergency and Crisis Management Plan	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 57	Safety	General	Cyclone / infrastructure damage / people incidents	Injury/mortality of personnel	C	5	4	Extreme	Rated buildings, cyclone management plan, emergency response procedures and training, barricade & evacuate site, Emergency and Crisis Management Plan	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative, Eliminate & Engineering controls.
Risk 58	Health	General	Health hazards; bacteria / contaminants/ bugs in water or soil	Health issues. Injury/mortality of personnel	B	3	9	High	Water monitoring procedures, health monitoring (as appropriate), PPE, minimum equipment specifications	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
Risk 59	Safety	Mine to Mill	Contact with Power Line	Injury/mortality of personnel	C	5	4	Extreme	Electrical installations as per AS, qualified and certified electricians, isolation procedures, regular testing and tagging of equipment, minimum clearances, enhance visibility of lines	E	3	20	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering controls.
7.0 Workshops			Hazard	Impact	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 60	Safety	Services/Workshop	Incorrect use of cranes / forklifts	Injury/mortality of personnel	B	5	2	Extreme	Site wide competency based training, inductions, trained and competent supervisors, equipment pre-start checks, audits and inspections, hazard reporting, pre-shift meetings	E	5	11	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.
Risk 61	Safety	Services/Workshop	Poor Maintenance Procedures	Injury/mortality of personnel	B	4	5	Extreme	Trained and competent maintenance supervisors, equipment pre-start checks, audits and inspections, hazard reporting, pre-shift meetings	C	3	13	High	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative controls.

Primary Gold H&S Risk Assessment and Reduction

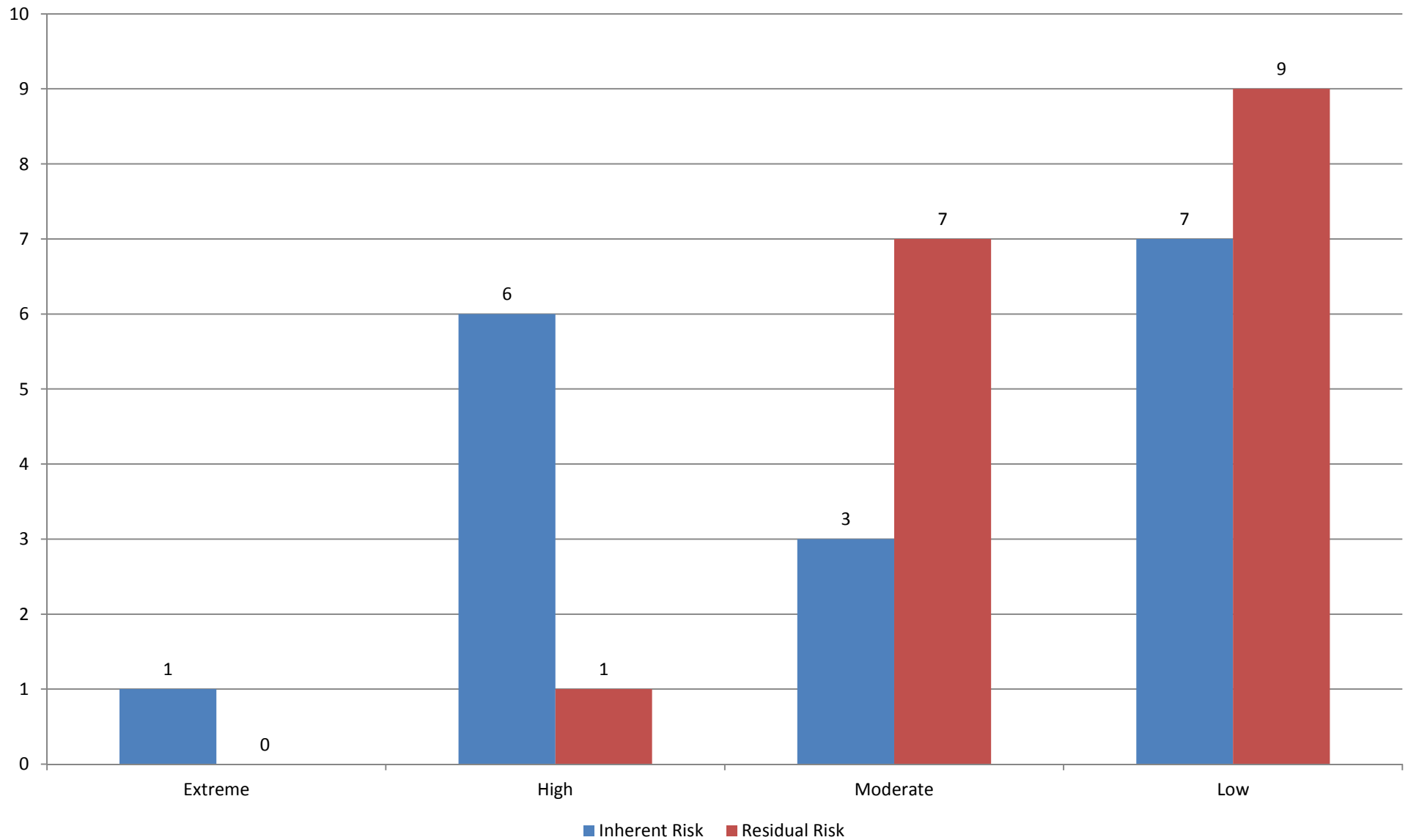


Toms Gully Underground Project - Economic & Social Risk Assessment

Inherent Risk														Residual Risk			
Risk #	Type	Function / Department	Hazard	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating			
1.0 Economic			Hazard	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating			
Risk 1	Economic	Financial	Adverse Change in Au price	C	3	13	High	Target Opex costs in lower quartile of Australian production costs combined with a forward gold price hedging strategy	D	3	17	Moderate	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative & Substitution Controls.			
Risk 2	Economic	Financial	Adverse change in US\$ FX rate	C	3	13	High	Target Opex costs in lower quartile of Australian production costs. Consider FX hedge	D	3	17	Moderate	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative & Substitution Controls.			
Risk 3	Economic	Financial	Adverse change in fuel prices	C	3	13	High	Target Opex costs in lower quartile of Australian production costs. Consider and review any potential advantages of a diesel fuel price hedging strategy	D	3	17	Moderate	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative & Substitution Controls.			
Risk 4	Economic	Site Conditions	Adverse Ground stability	C	3	13	High	Geotechnical engineering, implement a ground monitoring programme that effectively captures changes in ground conditions and stress	D	3	17	Moderate	High. Historical basis - standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.			
Risk 5	Economic	Site Conditions	Adverse rainfall event	C	4	8	Extreme	Ensure adequate pumping capacity available at all times. Ensure availability of effective drainage which can be used during high rainfall events. Install and maintain effective water drainage control bunds around potential water ingress channels	D	4	12	High	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative & Engineering Controls.			
Risk 6	Economic	Mining	Adverse change in metallurgical recoveries of ore	C	3	13	High	Metallurgical recovery testing of exploration samples on an appropriate density to undertake recovery modelling, monitor in production reconciliation studies	D	3	17	Moderate	Moderate. Similar conditions. Similar mitigation used previously at Toms Gully.	Administrative & Engineering Controls.			
Risk 7	Economic	Processing	Major mechanical failure (plant)	D	3	17	Moderate	Ensure appropriate warranties in place and maintain appropriate critical mechanical spares inventory	E	3	20	Moderate	Moderate. Standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative & Engineering Controls.			
Risk 8	Economic	Processing	Ore Reserve modelling estimation error	D	2	21	Low	Grade control and mapping programmes combined with effective production reconciliation studies both present and historical	E	2	23	Low	Moderate. Standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.			
Risk 9	Economic	Financial	Serious Contractual Dispute	D	2	21	Low	Use of Australian Standards for preparation of applicable and appropriate contract conditions; Conduct appropriate legal and commercial due diligence; Use only reputable established contract companies with record of successful completion	E	2	23	Low	Moderate. Standard industry practice. Similar mitigation used previously at Toms Gully.	Administrative Controls.			
Risk 10	Economic	Labour	Skilled labour shortages	D	2	21	Low	Slowdown in Australian Mining industry relieving labour shortages. Major industry of employment in local area is mining. Preferred employer	E	2	23	Low	Moderate. Similar conditions.	Administrative Controls.			
2.0 Social			Hazard	Prob	Cons	Risk	Risk	Controls	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating			
Risk 11	Social	Traffic	Additional highway commuter traffic and associated road safety concerns	C	3	13	High	Implement bus/coach transport on shift by shift basis to transport employees to work and home	D	3	17	Moderate	Moderate. Similar conditions.	Administrative Controls.			
Risk 12	Social	Traffic	Additional general freight haulage traffic impacts and associated road safety concerns	C	2	18	Moderate	Engage with general freight haulage companies with established routes on Arnhem Highway and utilise any excess capacity	D	2	21	Low	High. Based on data.	Administrative Controls.			
Risk 13	Social	Housing	Negative impact on housing availability and affordability	C	2	18	Moderate	Recruit locally from within existing labour pool	D	2	21	Low	High. Based on data.	Administrative Controls.			

Inherent Risk								Residual Risk						
Risk #	Type	Function / Department	Hazard	Prob	Cons	Risk	Risk	Mitigation & Monitoring	Prob	Cons	Risk	Risk	Certainty	Justification of Residual Risk Rating
Risk 14	Social	Tourism	Negative impact on tourism	D	2	21	Low	Lower visual impact of project site from highway using vegetation placement and good design	E	2	23	Low	Moderate. Similar conditions.	Administrative Controls.
Risk 15	Social	Services	Negative impact on demand for NT provided services	D	2	21	Low	Required services already in place. Acquire any additional services on commercial terms	E	2	23	Low	Moderate. Similar conditions.	Administrative Controls.
Risk 16	Social	Community	Negative impact on community cohesion and inclusion	D	2	21	Low	Recruit locally from a demographic where mining is already significant proportion of industry of employment	E	2	23	Low	Moderate. Similar conditions.	Administrative Controls.
Risk 17	Social	Land Users	Negative impact on other land users	D	2	21	Low	Operating service agreement and executed land use agreement in place	E	2	23	Low	High. Based on data.	Administrative Controls.

Primary Gold Social Risk Assessment and Reduction



Risk Ranking Table

Probability	Consequence				
	1	2	3	4	5
A	15	10	6	3	1
B	19	14	9	5	2
C	22	18	13	8	4
D	24	21	17	12	7
E	25	23	20	16	11

Extreme	1	8
High	9	16
Moderate	17	20
Low	21	25

Probability	Consequence				
	1	2	3	4	5
A	H	H	E	E	E
B	M	H	H	E	E
C	L	M	H	E	E
D	L	L	M	H	E
E	L	L	M	H	H

Extreme	E
High	H
Moderate	M
Low	L

Probability	Description	Rating
Almost Certain	More than once per month	A
Likely	Less than once per month, but more than once per year	B
Possible	Less than once per year, but more than once per five years	C
Unlikely	Less than once per five years	D
Rare	Unlikely to ever occur	E

Consequence Rating	Insignificant 1	Minor 2	Moderate 3	Major 4	Significant 5
People	No injuries or illness	First Aid treatment	Medical treatment required	Extensive injuries or illness	Death
Environment	Minor localised spill	On site release immediately contained	On site release with detrimental effects	Off site release with detrimental effects	Toxic release off-site with massive detrimental effects
Production delay / loss	Low financial loss	Medium financial loss	High financial loss	Major financial loss	Huge financial loss
Damage	Less than \$5k delay / loss	\$5k to \$500k delay / loss	\$500k to \$1m delay / loss	\$1m to \$5m delay / loss	More than \$5m