



 SHE Baseline Risk Assessment for Projects Form: SAM SHE 00304F Template Rev: 02 Date: February 2018

Project Site:	H39 pipeline Midrand
Project Description:	H39 pipeline: Additional SOW for the construction of concrete stairs, berm, steel platforms and stormwater discharge pipe
System	PMS
Specification No.	HS.03.09.23
Risk Register Rev.No.	1
Date Compiled/revised:	04-Sep-23
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Tolerable risk	Medium risk	High risk
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Risk no.	Department / Location	Activity	Hazards/ Aspects	Risks/ Impacts	Risk Context	Impact		Exposure		Likelihood		Inherent Risk	Existing Controls - Elimination, Substitution, Engineering Controls, Administration Controls	Control Effectiveness		Residual Risk Exposure	Identify Opportunities from process or activities / Further mitigation			
					Risk Category	Rating	Basis Points	Rating	Factor	Rating	Basis Points	Basis Points		Rating	Factor	Factor	Description	Action Owner	Due Date	Update
1	Capital Projects/Palmiet System -	Site establishment	Site identification, clearing area and ground, underground service, site layout plan, encroachments, fence erection, loading and off loading, noise and dust, poor housekeeping, inadequate stacking and storage	underground services, electrocution, flooding, gas leaks, property damage, third party claims, environmental impacts,	Infrastructure	Extreme	100	High	0,80	Very Likely	0,82	66	Site security. Induction. Keeping of firearms in a safe. Signage, inspections and monitoring, legal appointment letters, procedures	Good	0,20	13				
2	Capital Projects/Palmiet System -	Access, egress and working in confined spaces	Asphyxiation arising from inhalation of hazardous gas, fumes, vapour or lack of oxygen. Falls from ladders. Poor lighting, snakes and bees. Water accumulation. Restricted space.	Disorientation, unconsciousness/ body burns. Drowning. Muscle strains and fractures.	Safety	Major	50	High	0,80	Very Likely	0,82	33	Measuring of oxygen content and other gases. Supervision. Extractor fans. Confined space procedure and training. Confined space inspector. Daily checks of confined spaces. Provision for ladders. Emergency rescue procedure. Only medical and psychological fit employees will be allowed in confined spaces. Provision for torches or spots lights.	Good	0,20	7				
5	Capital Projects/Palmiet System -	Site Access and Security	Unauthorised access. Intruders. Burglary. Public violence. Open trenches whereby children/ passengers can fall into.	Theft of plant/ equipment and machinery. 3rd party claims. Work Stoppages. Penalties.	Safety	Extreme	100	Very High	1,00	Very Likely	0,82	82	Perimeter fences and lockable gates along the site camp. Security guards registered with PSIRA (PSIRA card displayed on uniform). Guard house available. Security tools provided (two-way radio, torch, uniform). Security registers available (visitor's register & occurrence book). Provision for ablutions. Emergency response plan. Lockable storage containers and offices. Medical fit security personnel. All work areas and open trenches to be demarcated by robust wire fencing. Signage for hazardous areas an visible to public.	Satisfactory	0,35	29				
6	Capital Projects/Palmiet System -	Working inside and outside the chambers	Steel work, concrete pouring, shuttering, scaffold, hand tools, ladder, concrete mixer truck, concrete pump, manual mixer, banana bucket, lifting equipment	Falling objects and of personnel, engulfment, environmental impact, injuries, fatalities, property damage,	Infrastructure	Major	50	Very High	1,00	Very Likely	0,82	41	PPE, slopping of side walls, machinery checklists procedures, training & competency, calibration certificates, load test certificates	Satisfactory	0,35	14				
14	Capital Projects/Palmiet System -	Use of construction vehicles and plant on site and public roads.	Speeding/Adverse weather conditions/use of cellphone/intoxication, / overloading resulting in collision with other vehicles and pedestrians/Hijacking. Poor Conditions of the Road. Poor weather conditions. Collision with people, animals, objects on the road.Falling of heavy and unsecured loads, obstructions, Poor visibility, overturning of vehicle. Collision with plant, equipment and other vehicles. Collision with people. Poor serviced vehicles/plant	Bodily injuries, property damage, possible fatalities. 3rd party claims. Property damage/damage of material/ 3rd party claims. Project delay. Financial loss. Penalties.	Health & Safety	Extreme	100	Very High	1,00	Very Likely	0,82	82	Daily prechecks of vehicles. Regular Service of vehicles. Competent drivers with valid licence. Provision of transporting of employees with vehicles that have seat and seat belts. Emergency preparedness procedure. Substances Abuse policy.Valid driving licence. Medical fit driver. Complying to National Road Traffic Act.No workers to be transported with plant or materials, open vehicles not designed to carry passengers. Construction vehicle to remain within the demarcated /boundary of the site at all times. Servicing/maintenance schedule of construction vehicles/plant implemented by competent person (Trade Certificate-Diesel and/or Petrol Mechanics) and records kept on site. Dust suppression.	Satisfactory	0,35	29				

Factors used in Key Risk Analysis

Each risk is evaluated in terms of potential loss, likelihood of occurrence and the effectiveness of controls in place to manage the risks according to the criteria set out below

IMPACT SCALE							
	Level	Outcome description (Business Risk)	Impact Values(Basis points)	Safety	Health	Environment	Quality
1	Extreme	Extreme event with the potential to lead to collapse of business and is fundamental to the achievement of objectives. Non achievement of Rand Water mandate	100	Multiple Fatalities , Very serious irrevesable injury from 10 people and above	May cause multiple deaths	Transboundary/National environmental disaster with long term or irreversible ecological impacts with high risk of legal and public liability.	Total system failure
2	Major	Major event which can be endured but which may have a prolonged negative impact and extensive consequences.	50	Fatality,Multiple Major injuries or disability, Significant irreversable injuries to up to 10 people	Life threatening affects	National environmental disaster with long term ecological impacts with high risk of legal and public liability.	Repeat non-conformance

3	High	High impact events, which can be managed but requires additional resources and management effort.	25	Single major injury or disabling reportable	Irreversible significant health effects	Event that leads to environmental contamination (failure to manage appropriately, but contained within Rand Water boundaries)	Needs immediate corrective action within 2 weeks
4	Moderate	Event which can be managed under normal operating conditions.	13	Minor injuries, lost time,	Reversible significant health effects	Event which can be contained. Is limited to immediate area of occurrence associated with short term ecological disturbances, and/or is a transgression of internal standard	Needs immediate corrective action within 1 month
5	Minor	Events of which consequences can readily be absorbed under normal operating conditions.	6	Minor injuries, no lost time	Reversible minor health effects	Minor negative impact, no corrective action necessary. Must be monitored.	Corrective action not required but monitored
6	Insignificant	Frequent minor risks that do not disrupt business, or with no adverse health effect or injuries.	3	No Health effects	Negligible	Negligible	Does not require corrective action

QUALITATIVE ASSESSMENT OF PROBABILITY/ LIKELIHOOD OF OCCURRENCE		
Likelihood/ Probability rating	Description	Percentage
Almost certain	The event is expected to occur in most circumstances	100%
Very likely	The event will probably occur in most circumstances	67% -96%
Likely	The event should occur at sometime	51% -66%
Unlikely	The event could occur at sometime	34% -50%
Very unlikely	The event may occur only in exceptional circumstance.	2% - 33%
Almost impossible	The event may never occur	1%

QUALITATIVE ASSESSMENT OF CONTROLS		
Level	Description	Factor
Very good	Controls are totally effective, efficient and implemented.	81% - 99%
Good	Most risks are effectively controlled and mitigated	66% - 80%
Satisfactory	There is room for some improvement in	41% - 65%
Weak	Some risks appear to be controlled but	21%-40%
Unsatisfactory	The control system is ineffective	<20%

RATING MATRIX					
1%	2% to 33%	34% to 50%	51% to 66%	67% to 96%	97% to 100%

		Almost Impossible	Very Unlikely	Unlikely	Likely	Very Likely	Almost Certain
	Basis Points	1%	18%	42%	59%	82%	100%
Extreme	100	1,0	17,5	42,0	58,5	81,5	100,0
Major	50	0,5	8,8	21,0	29,3	40,8	50,0
High	25	0,3	4,4	10,5	14,6	20,4	25,0
Moderate	13	0,1	2,3	5,5	7,6	10,6	13,0
Minor	6	0,1	1,1	2,5	3,5	4,9	6,0
Insignificant	3	0,0	0,5	1,3	1,8	2,4	3,0

Exposure							
Factor	Rating	Prescribed legal limits (PLL)**	Frequency	Duration	Extent	Environment	Quality
1,00	Very high	>200%	2 X per Shift	<40Hrs	over 101m	Extensive	Extensive
0,80	High	101%-200%	1 X per Shift	<8hrs>40Hrs	51-100m	Widespread	Widespread
0,60	Medium	75%-100%	Weekly	<2hrs>8 Hrs	11-50m	Significant	Significant
0,40	Low	50%-75%	Monthly	<1Hrs>2Hrs	6-10m	Restricted	Restricted
0,20	Insignificant	< 50%	Annually	> 1 hr	1-5m	Negligible	Negligible

Colour Code	Detail	Basis Point Range
	Tolerable risk	0 to 3
	Medium risk	3.1 to 24.9
	High risk	25 to 100

