

CALACA POWER COMPLEX

Title of Document				Risk Assessment for Scaffolding Erection-SCPC Unit 1 Cable Replacement from Field to DCS/MCC										Document ID No.			INCS-SW-UI-001		
Division (If applicable)				Contractor										Revision No.:			1		
Department(s)				Instrumentation and Control Specialists Inc.										Effective Date:			Oct 15-21,2018		
Activity				Erection, Modification and dismantling of scaffolding at Unit-1 Rehab															
Item No.	Procedure / Process	Activities, Equipment, Products or Services	R/ NR/A/E	Risk Category	Aspect / Hazard	Impact / Risk	Legal Compliance (if any)	INHERENT			RISK ASSESSMENT	HOC	Control Measures	RESIDUAL			RISK ASSESSMENT	Action Plan	Opportunities Identified
								Impact	Likelihood	Risk				Impact	Likelihood	Risk			
								I	L	I x L				I	L	I x L			
1	Site Survey of scaffold erection area before start erecting.	Site Evaluation for the work area. Evaluate the possible hazard and risks at the work area.	NR	Occupational Health & Safety	Site Hazards and Lay out	Bodily Injury, fracture, disability	OSHS Rule 1070 Occupational Health and Environmental Control OSHS Rule 1080 Personal Protective Equipment and Devices	4	2	8	MEDIUM RISK	EL S EC A PPE	1. All prsonnel to have completed the site specific induction. 2. precise coordination 3. Ensure that workers are educate on spotting potential hazards. Personnel to wear mandatory PPE's on site such as but not limited to hardhat, safety glass, safety shoes, earplug/earmuff.	1.843	1.024	1.887	LOW RISK		
2	Preparation of Documents or Permit to Work (PTW).	Prepare necessary documents (pen and papers)	R	Occupational Health & Safety	Misccommunication with Project Enduser and Project Owner	Delay of Permit to Work (PTW)	OSHS Rule 1070 Occupational Health and Environmental Control OSHS Rule 1080 Personal Protective Equipment and Devices	1	1	1	LOW RISK	EL S EC A PPE	Coordinate the activity to the Enduser and Project owner before commencing work.	0.800	0.800	0.640	LOW RISK		
3	Preparation and mobilization of tools, equipment and scaffolding materials	prepare tools, equipment and materials to be used for erecting of scaffold (tubular pipes, fixed/swivel clamps, toeboards, platforms, beam clams, and all necessary scaffold materials and accessories).	NR	Occupational Health & Safety	Hit againts personnel or property	bodily injuries, property damage	OSH RULE _1414 - Scaffoldings	4	3	12	HIGH RISK	EL S EC A PPE	1. Check Vehicle of its road worthiness. 2. comply with plant road speed limits and driving regulations. 3. banksman or spotter shall be provided during loading, unloading, moving operation. Personnel to wear mandatory PPE's on site such as but not limited to hardhat, safety glass, safety shoes, earplug/earmuff.	1.235	1.029	1.271	LOW RISK		
												EL S EC A PPE	1. Keep access and egress routes clear and segregate the work area from others and vehicles in access areas. 2. remove any items that may obstruct the work activity; and 3. Check for any items that may cause slips, trips and falls and remove or secure them as required. Use Suitable foot wear						
4	Mobilization of Manpower	Mobilization of manpower to the work area for the scaffolding erection	R	Occupational Health & Safety	Hit by moving machinery	Bodily injury/Fatality	OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	EL S EC A PPE	1. Ensure all workers abide to the traffic rules and regulations in the plant. 2. Ensure workers use the pedestrian walkway provided during travelling. Be extra careful when crossing the road Personnel to wear mandatory PPE's on site such as but not limited to hardhat, safety glass, safety shoes, earplug/earmuff.	0.500	0.300	0.150	LOW RISK		

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5	Manual Loading and unloading of scaffold materials	Loading and unloading of scaffold materials use for erection of scaffold	NR	Occupational Health & Safety	Ergonomically hazard	bodily injury/back injury/Hand injury	OSHS Rule 1080 Personal Protective Equipment and Devices	4	3	12	HIGH RISK	EL 1. Ensure material is carried in small quantity to minimize the weight carried. 2. use of mechanical aid if necessary (crane or boomtruck) S EC A 1. Educate worker of correct manual lifting method. 2. Advice worker to seek help if the load is to heavy/large (Buddy Buddy System) PPE Wear Safety Gloves	0.400	0.300	0.120	LOW RISK																
																			Tripping and Slipping hazard	Bodily Injury, fracture, disability	OSHS Rule 1080 Personal Protective Equipment and Devices	4	2	8	MEDIUM RISK	EL 1. Keep access and egress routes clear and segregate the work area from others and vehicles in access areas. 2. remove any items that may obstruct the work activity; and 3. Check for any items that may cause slips, trips and falls and remove or secure them as required. 4. Maintain good housekeeping at work area. S EC A 1. avoid carrying large material that could obstruct view ahead. PPE Ensure slip anti slip resistant shoe are worn	0.400	0.200	0.080	LOW RISK		
Poor or bad weather condition	Bodily injuries, property damage	OSH RULE _ 1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	4	2	8	MEDIUM RISK	EL Immediately cease work in hazardous weather conditon such as: 1. strong winds that may cause loss of balance. 2. Rain is causing a slippery work surface. S EC A PPE	0.400	0.200	0.080	LOW RISK																					
																	NR	Occupational Health & Safety	Ergonomally hazards	bodily injury/back pain	OSHS Rule 1080 Personal Protective Equipment and Devices	4	3	12	HIGH RISK	EL S Ensure material is carried in small quantity to minimize the weight. EC A 1. Educate worker of correct manual lifting method. 2. Advice worker to seek help if the load is to heavy/large (Buddy Buddy System) 3. avoid awkward position to prevent body pain/back pain.	1.024	0.768	0.786	LOW RISK		

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								Impact	Likelihood	Risk				Impact	Likelihood	Risk				
								I	L	I x L				I	L	I x L				
7	Erection/Modification of scaffolding	Lay Sole board, if required place base plates at suitable location	NR	Occupational Health & Safety	Pinch point, sharp edges around the base plate	bodily injury/hand injury/cuts	OSHS RULE_ 1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	4	4	16	EXTREME RISK	PPE EL S EC A 1. Educate worker on proper hand placement 2. Buddy buddy system 3. proper communication and coordination before lifting tubular pipes. 4. provide an awareness training regarding line of fire and hand finger safety.	1.475	2.048	3.021	LOW RISK				
																			PPE	Ensure hand gloves is worn in any operation
																			EL	
																			S	Ensure material is carried in small quantity to minimize the weight.
8	Install the lift ledgers and transoms	pitch the standard at spacing of not more than 2.5m apart. Secure foot-tie at inner side of not more than 460mm from ground.	NR	Occupational Health & Safety	Ergonomally hazards	bodily injury/back pain	OSHS Rule 1080 Personal Protective Equipment and Devices	4	3	12	HIGH RISK	A 1. Educate worker of correct manual lifting method. 2. Advise worker to seek help if the load is too heavy/large (Buddy Buddy System) 3. avoid awkward position to prevent body pain/back pain.	1.612	0.400	0.645	LOW RISK				
																			PPE	
																			EL	
																			S	
8	Install the lift ledgers and transoms	pitch the standard at spacing of not more than 2.5m apart. Secure foot-tie at inner side of not more than 460mm from ground.	NR	Occupational Health & Safety	Pinch point, sharp edges around the base plate	bodily injury/hand injury/cuts	OSHS RULE_ 1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	4	4	16	EXTREME RISK	A 1. Educate worker on proper hand placement 2. Buddy buddy system 3. proper communication and coordination before lifting tubular pipes. 4. provide an awareness training regarding line of fire and hand finger safety.	1.843	2.048	3.775	LOW RISK				
																			PPE	Ensure hand gloves is worn in any operation
																			EL	
																			S	
8	Install the lift ledgers and transoms	pitch the standard at spacing of not more than 2.5m apart. Secure foot-tie at inner side of not more than 460mm from ground.	NR	Occupational Health & Safety	Hit by falling scaffold tubes, ratchet spanner and coupling	Bodily injury/fatality/ damage to property	OSHS RULE_ 1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	EC A 1. Ensure vertical tubes are not released until the foot ties are securely installed. 2. ensure ratchet spanner is secured to the erectors body. 1. Ensure worker are trained and qualified to erect, dismantle or modify scaffold. 2. 3. Ensure close supervision implement a buddy system for assistance to hold vertical tubes during securing of foot-tie.	1.129	0.753	0.850	LOW RISK				
																			PPE	Ensure wearing of proper/basic PPE's such as but not limited to Hardhat, Safety shoes, safety glass, hand gloves.
																			EL	
																			S	

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								Impact	Likelihood	Risk				Impact	Likelihood	Risk			
								I	L	I x L				I	L	I x L			
9	Erect working platform	Install temporary platform (at least 500mm wide) and temporary access ladder	NR	Occupational Health & Safety	Ergonomally hazards	bodily injury/back pain	OSH RULE_1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	4	3	12	HIGH RISK	S EC A PPE	Ensure material is carried in small quantity to minimize the weight. 1. Educate worker of correct manual lifting method. 2. Advice worker to seek help if the load is to heavy/large (Buddy Buddy System) 3. avoid awkward position to prevent body pain/back pain.	1.024	0.768	0.786	LOW RISK		
								4	4	16	EXTREME RISK	EL S EC A PPE	1. Educate worker on proper hand placement 2. Buddy buddy system 3. proper communication and coordination before lifting tubular pipes. 4. provide an awareness training regarding line of fire and hand finger safety. Ensure hand gloves is worn in any operation	1.843	2.048	3.775	LOW RISK		
								5	3	15	EXTREME RISK	EL S EC A PPE	1. Ensure metal decking, ladder are not released until it is secured. 2. Ensure ratchet spanner is secured to the erectors body. 1. Ensure worker are trained and qualified to erect, dismantle or modify scaffold. 2. Ensure close supervision 3. implement a buddy system for assistance to hold the flatform during securing. Ensure wearing of proper/basic PPE's such as but not limited to Haardhat, Safety shoes, safety glass, hand gloves.	1.129	0.753	0.850	LOW RISK		
								5	3	15	EXTREME RISK	EL S EC A	Stop work if severe weather condition (wind speed is above 16 knots). 1. work area to be barriered off by suitable means to prevent access of unauthorized personnel. 2. Install independent lifline for anchoring points of lanyard encase of sacffold colapse. 3. Secure tools using nylon rope, provision of tool bag for small object to prevent from falling. 1. must be supplemented by the posting of prominently located signage. 2. secure PTW with secondary PTW for W@H 3. ensure 100% tie-off of FBH lanyard	0.079	0.053	0.004	LOW RISK		

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								Impact	Likelihood	Risk				Impact	Likelihood	Risk																					
								I	L	I x L				I	L	I x L																					
												PPE	1. personnel to wear safety helmets and footwear. 2. personnel to wear suitable full body harness with double lanyards.																								
10	Erection of Edge protection, ladder and toe board	Erection of scaffolding protection bay means of toe board, install ladder to access each individual lift.	NR	Occupational Health & Safety	Falling from height/fall of person during erection and dismantle/falling of ladders	Serious injury/fatality	OSH RULE _1414 - Scaffolding OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK		EL	Stop work if severe weather condition (wind speed is above 16 knots).	0.129	0.086	0.011	LOW RISK																			
													S																								
													EC	1. Ensure ladder is tie-down by putting couplers of scaffold wires 2. install independent life line for anchoring of FBH lanyard.																							
													A	1. must be supplemented by the posting of prominently located signage. 2. secure PTW with secondary PTW for W@H 3. ensure 100% tie-off of FBH lanyard 4. ensure all workers has trained and aware of working at heights 5. ensure close monitoring and supervision 6. avoid over reaching to prevent personnel from accidental falling.																							
													PPE	1. personnel to wear suitable full body harness with double lanyards and shock absorber.																							
													NR	Occupational Health & Safety							Ergonomically hazards	bodily injury/ back pain/ muscle strain	OSH RULE _1414 - Scaffolding OSHS Rule 1080 Personal Protective Equipment and Devices	4	3	12	HIGH RISK			EL		0.803	0.602	0.483	LOW RISK		
													S	Ensure material is carried in small quantity to minimize the weight.																							
													EC																								
													A	1. Educate worker of correct manual lifting method. 2. Advice worker to seek help if the load is too heavy/large (Buddy Buddy System) 3. avoid awkward position to prevent body pain/back pain. 4. avoid over reaching to prevent muscle strain																							
													NR	Occupational Health & Safety							Pinch point, sharp edges around the base plate	bodily injury/hand injury/cuts	OSH RULE _1414 - Scaffolding OSHS Rule 1080 Personal Protective Equipment and Devices	4	4	16	EXTREME RISK			EL	1. Educate worker on proper hand placement 2. Buddy buddy system 3. proper communication and coordination before lifting tubular pipes. 4. provide an awareness training regarding line of fire and hand finger safety.	1.475	1.638	2.416	LOW RISK		
S																																					
EC																																					
												PPE	Ensure hand gloves is worn in any operation																								
												EL	no modification is to made to the scaffold, specially removal of ties or structural members.																								
												S																									

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								I	L	I x L				I	L	I x L			
		prior to use the scaffold.		NR	Occupational Health & Safety	Fall from height /Fall from scaffold or working flatform	serious injury/ disability/ fatality	OSH RULE _1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	EC 1. Complete edge protection to working flatform 2. safe access and egress from the scaffold must be provided A 1. Secure supporting PTW for working at heights 2. Ensure close supervision 3. Ensure 100% tie-off of full body harness lanyard 3. ensure 3 point of contact while descending and ascending on scaffold ladder and working flatform. 4. Make sure all workers stayfully within the scaffold at all times. PPE 1. personnel to wear suitable full body harness with double lanyards and shock absorber.	0.903	0.602	0.544	LOW RISK		
12	working on/below scaffold	working on scaffold for the installation works, cable pulling and other work at heights activities.		NR	Occupational Health & Safety	Fall of materials	Bodilly injury, disability, fatality, property or equipment damage	OSH RULE _1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	EL S EC 1. All Raising and lowering of materials to be carried out in controlled manner (i.e. hand to hand, by light-line, nylon rope and fitting bags.) 2. Provide safety nets if necessary A 1. post warning signs and work within the sealed area 2. Only the material being used to be out on the scaffold until boardedd areas are erected to store. 3. materials to be stored in a safe and secure manner, to prevent them accidentally falling or being knocked off th eworking platform when at height. 4. Ensure close monitoring and supervision. PPE 1. personnel to wear suitable full body harness with double lanyards and shock absorber.	0.903	0.602	0.544	LOW RISK		
				NR	Occupational Health & Safety	Fall from height /Fall from scaffold or working flatform	serious injury/ disability/ fatality	OSH RULE _1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	EL S EC 1. Complete edge protection to working flatform 2. safe access and egress from the scaffold must be provided 3. Installed independent lifline A 1. Secure supporting PTW for working at heights 2. Ensure close supervision 3. Ensure 100% tie-off of full body harness lanyard 3. ensure 3 point of contact while descending and ascending on scaffold ladder and working flatform. 4. Make sure all workers stayfully within the scaffold at all times. PPE 1. personnel to wear suitable full body harness with double lanyards and shock absorber.	0.632	0.421	0.266	LOW RISK		

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13	Dismantle scaffold	Scaffold dismantled in accordance with plant safety, Enduser and supplier instruction	NR	Occupational Health & Safety	falling of Materials	Bodily injury, disability, fatality, property or equipment damage	OSH RULE _1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	1. All Raising and lowering of materials to be carried out in controlled manner (i.e. hand to hand, by light-line, nylon rope and fitting bags.) 2. Provide safety nets if necessary	0.903	0.602	0.544	LOW RISK				
																			A	1. post warning signs and work within the sealed area 2. Only the material being used to be out on the scaffold until boarded areas are erected to store. 3. materials to be stored in a safe and secure manner, to prevent them accidentally falling or being knocked off the working platform when at height. 4. Ensure close monitoring and supervision.
NR	Occupational Health & Safety	Structural collapse	Bodily injury/ property damage	OSH RULE _1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	1. Scaffold to be dismantled in accordance with manufacturers or supplier instruction.	1.032	0.688	0.710	LOW RISK							
																A	1. Make sure area beneath and around the scaffold is kept at all times during deconstruction. 2. Make sure the lower ties are only removed when the scaffold is dismantled down to that level to avoid collapse. 3. Make sure ropes for lowering equipment are securely tied. 4. Make sure safe distanced are maintained at alltimes during the dismantling process. 5. ensure 100% tie-off of FBH lanyard			
																		PPE	1. personnel to wear suitable full body harness with double lanyards and shock absorber.	
NR	Occupational Health & Safety	Fall from height /Fall from scaffold or working platform	serious injury/ disability/ fatality	OSH RULE _1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	5	3	15	EXTREME RISK	1. Complete edge protection to working platform 2. safe access and egress from the scaffold must be provided 3. Installed independent lifline	0.632	0.421	0.266	LOW RISK							
																A	1. Secure supporting PTW for working at heights 2. Ensure close supervision 3. Ensure 100% tie-off of full body harness lanyard 3. ensure 3 point of contact while descending and ascending on scaffold ladder and working platform. 4. Make sure all workers stayfully within the scaffold at all times.			
																		PPE	1. personnel to wear suitable full body harness with double lanyards and shock absorber.	

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			NR	Occupational Health & Safety	Ergonomally hazards	bodily injury/back pain	OSH RULE_1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	4	3	12	HIGH RISK	PPE 1. personnel to wear suitable full body harness with double lanyards and shock absorber. EL S Ensure material is carried in small quantity to minimize the weight. EC A 1. Educate worker of correct manual lifting method. 2. Advice worker to seek help if the load is to heavy/large (Buddy Buddy System) 3. avoid awkward position to prevent body pain/back pain. 4. avoid over reaching to prevent muscle strain	0.803	0.602	0.483	LOW RISK			
14	Housekeeping before, During and after (5's)	Housekeeping before, During and after (5's)	NR	Occupational Health & Safety	slips, trips and falls at the same level	Bodily Injury, fracture, disability	OSH RULE_1414 - Scaffoldings OSHS Rule 1080 Personal Protective Equipment and Devices	4	2	8	MEDIUM RISK	EL 1. Remove and segregate materials, waste materials, store tools, equipment on their designated area 2. Keep access and egress routes clear and segregate the work area from others and vehicles in access areas. 3. remove any items that may obstruct the work activity; and 4. Check for any items that may cause slips, trips and falls and remove or secure them as required. S EC A 1. Make sure the work area is left clean and tidy PPE Ensure wearing of proper/basic PPE's such as but not limited to Hardhat, Safety shoes, safety glass, hand gloves.	0.400	0.400	0.160	LOW RISK			
Prepared by / Date:				Noted by / Date:				Reviewed by / Date:				Approved by / Date:							
JAYSON G. ESCAMILLAN I&CS				SAFETY INSPECTOR				E.V. RODRIGUEZ TL RISK MANAGEMENT/SAFETY HEAD				J.D. MACATANGAY IMS REPRESENTATIVE							

INSTRUCTIONS:

Please contact Safety and Environment Department if you have questions.

	COLUMN	DESCRIPTION												
1	Processes, Activities, Equipment, Products or Services	<p>Enlist all processes, activities, equipment, materials and services that are covered Department's operation.</p> <p>You may refer to the following:</p> <ul style="list-style-type: none"> • Processes/ activities as indicated by your Departmental procedures; • Lists of equipment which are included in your operation; • Materials or products that you use in your operation; and • Services that you offer to other Department or party 												
	Risk Category	Identify if it is safety, environmental, operational, etc. related.												
2	R/NR/A/N/E	Identify if the Process, activity, equipment, product or service mentioned is												
		<table border="1"> <tr> <td>R</td> <td>Routine</td> <td>When operations or activity are performed in accordance to operation conditions</td> </tr> <tr> <td>NR</td> <td>Non-Routine</td> <td>When there is deviation from plan or operating conditions giving change in product specification or minor accident</td> </tr> <tr> <td>A</td> <td>Abnormal</td> <td>Abnormal condition of process, activities, equipment, product</td> </tr> <tr> <td>E</td> <td>Emergency</td> <td>All foreseeable emergency situations</td> </tr> </table>	R	Routine	When operations or activity are performed in accordance to operation conditions	NR	Non-Routine	When there is deviation from plan or operating conditions giving change in product specification or minor accident	A	Abnormal	Abnormal condition of process, activities, equipment, product	E	Emergency	All foreseeable emergency situations
R	Routine	When operations or activity are performed in accordance to operation conditions												
NR	Non-Routine	When there is deviation from plan or operating conditions giving change in product specification or minor accident												
A	Abnormal	Abnormal condition of process, activities, equipment, product												
E	Emergency	All foreseeable emergency situations												
3	Hazard / Aspect	Identify hazards / aspects related to the process / task.												
	Aspect	An element or characteristic of an activity, product, or service with the environment												
	Hazard	Source, situation, or act with a potential for harm in terms of ill health or a combination of these												
4	Risk / Impact	Identify risk / impact of the of the hazard / aspect to the environment / worker.												
	Impact	Any change to the environment, whether adverse or beneficial, to a facility's activities, products or services.												
	Risk	Possible effect of the hazard to the worker based on the facility's products or services.												
5	Legal Compliance	List down related Legal and Other Regulatory Requirements if applicable												
6	Residual Risk	Risk assessment after the effective implementation of controls.												
7	Controls	Identify controls following the hierarchy. Note that controls belonging in the lowest may not reduce the risk (impact x likelihood), thus, an OTP may need to be prepared stronger controls.												
	Hierarchy of	<table border="1"> <thead> <tr> <th>HOC SAFETY</th> <th>TYPE OF CONTROLS</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>E</td> <td>ELIMINATION</td> <td>modify a design to eliminate the hazard, e.g. mechanical lifting devices to eliminate the hazard</td> </tr> <tr> <td>S</td> <td>SUBSTITUTION</td> <td>substitute a less hazardous material or reduce energy (e.g. lower the force, amperage, pressure, temperature, etc.)</td> </tr> </tbody> </table>	HOC SAFETY	TYPE OF CONTROLS	DESCRIPTION	E	ELIMINATION	modify a design to eliminate the hazard, e.g. mechanical lifting devices to eliminate the hazard	S	SUBSTITUTION	substitute a less hazardous material or reduce energy (e.g. lower the force, amperage, pressure, temperature, etc.)			
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	Controls (HOC)	EC	ENGINEERING CONTROLS	install ventilation systems, machine guarding, sound enclosure, etc.
		A	ADMINISTRATIVE CONTROLS	safety signs, hazardous area marking, photo eyes, sirens/lights, alarms, safety procedures, etc. regular inspections, access controls, safe systems of work, tagging and work permits, etc.
		PPE	PERSONAL PROTECTIVE EQUIPMENT	safety glasses, hearing protection, face shields, fall harnesses and lanyards, respirators and gloves
8	Significance	Refer to Risk Assessment Matrix		
9	OTP	If the Residual Risk is High or Extreme (10 and above), an OTP may need to be submitted to implement stronger controls to reduce the risk.		

The procedure(s) for hazard identification and risk assessment shall take into account:

by your
plan or w/in the
ring rise to
t or services
e that interacts
human injury or
al, resulting from
ties activities,
t level (e.g., PPE)
ed to formalize
g. introduce
manual handling
duce the system
essure,

HOC ENVI	TYPE OF CONTROLS	DESCRIPTION
S	Source Reduction	Don't buy it! End product redesign, Hazardous chemical substitution, Hazardous chemical modification, Purchasing and inventory control, best Management practice and good housekeeping
W	Waste Reduction	Don't waste it! Benchmarking, employee training, maintenance, process control Process modification and equipment modification

ng, interlocks,
to-luminescent warning equipment of working,
elds, safety oves
nitted to design

R	Waste Recycling	Don't throw it away! Closed loop recycling, waste segregation, reuse waste, reclaim waste
T	Treatment	Turn waste into resources! Convert waste into new products, find outside users for wastes

IMPACT & LIKELIHOOD ASSESSMENT

Impact Assessment

> The level to which the risk would affect the financial results of the business and the ability of the business to deliver its strategy and objectives, e.g:

- a. Impact on achievement of strategic and corporate objectives
- b. Impact on people including customers, staff and the public
- c. Impact on reputation (e.g., due to environment/product incident)

> Impact score should consider other relevant factors in relation to risk identified based on experience/expert judgement

Impact Criteria	Impact Level				
	SCORE				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Critical 5
Health and safety Risk	No impact	Self-medication; local first aid treatment	Require treatment by a medical practitioner	Temporary disability/ Impairment, Lost time injury, Medical treatment with restricted duties	Fatality or severe irreversible/ permanent disability
Environmental	No impact	Temporary inconvenience to community	Immediate containment / control, harm to environment, clean up required	Localized impact (DENR) reportable incident (Localized contained within the site)	Offsite impact and DENR reportable incident (Offsite - affecting neighboring property/water); Major impact (immediate or long term harm); High potential for adverse publicity

CT/WORKPLACE RISK

Likelihood Assessment					
> The chances of risks occurring based on the information below and your own management experience and intuition > Likelihood and impact should be assessed BOTH on a Gross or Inherent (before the application of controls) and Net or Residual (after the application of controls) basis					
Likelihood Criteria	Likelihood				
	SCORE				
	Rare 1	Unlikely 2	Likely 3	Highly Likely 4	Almost Certain 5
	1 out of 1,000,000 chances 0.00%	1 out of 100,000 chances 0.00%	1 out of 10,000 chances -0.01%	1 out of 1,000 chances -0.10%	1 out of 100 chances -1%
Probability	The event has not occurred in any industry Possibility of event from happening is remote	The event has not occurred in the business and within the industry	The event has occurred within the industry but not yet in the business.	Has happened in the past once	Has happened in the past more than once

RISK ASSESSMENT MATRIX

		IMPACT					
		SCORE	1	2	3	4	5
LIKELIHOOD	5	5	10	15	20	25	
	4	4	8	12	16	20	
	3	3	6	9	12	15	
	2	2	4	6	8	10	
	1	1	2	3	4	5	

		MANAGE
VALUE	OVERALL RISK ASSESSMENT	Occupational Health & Safety and Environment (SMPC G-IMS-01)
1 - 4	LOW RISK (LR)	Supervisor / worker to review and discuss prior to starting work.

5 - 9	MEDIUM RISK (MR)	Supervisor / worker to review and discuss prior to starting work.
10 - 12	HIGH RISK (HR)	Safe work method developed and validated by authorized person; detailed JSEA prepared by Supervisor with work crew; Confirm that work crew understand requirements and implement controls.
13 - 25	EXTREME RISK (ER)	Stop - Analyze work method and ensure substantial safe work controls (e.g., work permit system) are determined and applied. Revised methodology to be authorized by Responsible Manager.



RECOMMENDATION RESPONSE / ACTIONS TO BE TAKEN
<p style="text-align: center;">Other Risk Types (Lifted from SMPC ERM Policy)</p>
<ul style="list-style-type: none">• Action is advisable if it is cost effective• The issue does not necessarily warrant immediate attention but should have an agreed programme for resolution within a reasonable time if it is cost effective.• Business concern is not likely to significantly impact the validity and accuracy of balance sheet and P&L accounts but would materially affect the economy and adequacy of a process.• Matters that generally include recommendations which will lead to a general improvement in the control environment over time or could improve economy and adequacy of a process.

- Action required to control the risk
- Corrective action by appropriate management is required not exceeding six months.
- Business concerns are:
 - a. Significant to affect the validity and accuracy of balance sheet and P&L accounts.
 - b. Significant to affect the validity, accuracy, economy and adequacy of the process.
 - c. An internal control weakness that could lead to potential exposure to error or fraud but which are compensated for by some controls to mitigate gaps and/or deficiencies.
 - d. Area of business risk or non-compliance with legislation or regulation considered to be of such a nature that it should receive management's attention over a reasonable period.
- Value added ideas. These matters generally include recommendation which will have significant improvement on the accuracy, economy and adequacy of a process.

- Immediate action required to control the risk
- Immediate corrective action by appropriate management is required within 1 -3 months.
- Business concerns are:
 - a. Material to affect the validity and accuracy of balance sheet and P&L accounts.
 - b. Material to affect the validity, accuracy, economy and adequacy of the process.
 - c. An internal control weakness that could lead to potential exposure to error or fraud and no compensating controls exist to mitigate gaps and/or deficiencies.
 - d. High business risk area or non-compliance with legislation or regulation which is of such a serious nature that SMPC or Subsidiary could suffer material financial loss.
 - e. Contravention of any company policy, statute or regulation
- Material value added ideas. These matters generally include recommendations which will have significant improvement on the validity, accuracy, economy and adequacy of a process.

CONTROL ASSESSMENT AND CONTROL

ESH CONTROL	BOTH IMPACT & LIKELIHOOD	IMPACT OR LIKELIHOOD	IMPACT ONLY
Elimination	90%	0%	0%
Substitution	50%	0%	0%
Engineering Control	51%	30%	0%
Administrative	36%	20%	0%
PPE	0%	0%	10%