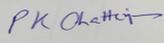
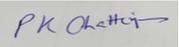


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			Rev. No.	Rev. Date	
			00	4/05/2019	
	<b>Risk Assessment Record</b>		Assessed by	Title	Signature
Activity: <b>Testing and Commissioning of Electrical System</b>		<b>Prabir</b>	<b>Safety Officer</b>		

No	ACTIVITY	IDENTIFIED HAZARDS/RISKS	People Involved	Base Risk Ranking (Without Controls)				CONTROL MEASURES	Residual Risk Ranking (With Controls)				Person Responsible
				L	S	Risk Score	Risk Rating		L	S	Risk Score	Risk Rating	

1	Working on mobile scaffolding	<p><b>Work at height</b></p> <ul style="list-style-type: none"> <li>• Fall from height</li> <li>• Falling objects</li> <li>• Over loading</li> <li>• Protruding objects</li> <li>• Access &amp; egress</li> </ul>	Operatives/Staff/ Visitors Others	3	4	12	Med ium	<ol style="list-style-type: none"> <li>1. STARRT card briefing must before start the activity</li> <li>2. Ensure the PTW in place and comply the procedure.</li> <li>3. Ensure proper working platform with complete fall protection</li> <li>4. Ensure Full body harness and 100% Tie off</li> <li>5. Ensure the scaffold platform is properly erected with "Safe to use" tag.</li> <li>6. Ensure castor wheels are locked</li> <li>7. Hand tools must be secured/tethered</li> <li>8. Work materials strictly not allowed to be stored on platform except for working tools</li> <li>9. Ensure avoid over reaching and climb on handrail.</li> <li>10. Ensure unauthorised person not allowed to modify the scaffolding and if needed to any changes then must be modified by trained and certified scaffolder.</li> <li>11. Ensure safe access to the working platform</li> <li>12. Scaffold access must be free from obstruction</li> <li>13. Ensure sufficient illumination in work area</li> </ol>	1	4	4	Low	Supervisors Foreman, Site Eng.
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2	Use of Ladder	<ul style="list-style-type: none"> <li>Falling from height</li> <li>Working on Uneven ground</li> <li>Falling objects</li> </ul>	Operatives/ Staff/	3	4	12	Medium	<ol style="list-style-type: none"> <li>Ladder is not to use daily basis but in certain cases where there is very narrow place and even podium ladder not possible to place in that cases Ladder can be use if permission granted from McLaren Safety</li> <li>Never try to overreach with any ladders</li> <li>Check the ladder is adequately maintained and free from damages/good condition</li> <li>Maintain a minimum of 3 points of contact with stepladders at all times (feet/thighs/hands)</li> <li>If possible avoid the use of stepladders at a working height of 2 meters and more.</li> <li>Check the ladder legs (and stays) are fully deployed or locked (depending on type) to maintain maximum base dimensions and the step ladder is orientated to provide maximum stability.</li> <li>Stepladders/ladders has to be used on leveled ground/firm base</li> <li>Ensure that during using ladder from the top 2 step is blocked to avoid climb on that.</li> <li>The ladder securely fixed to prevent slipping outwards or sideways or securely footed at all times.</li> <li>Person must hold the ladder while another operative working on it</li> </ol>	1	4	4	Low	Supervisor Site Eng. Foreman,
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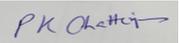
**Prabir**

**Safety Officer**

No	ACTIVITY	IDENTIFIED HAZARDS/RISKS	People Involved	Base Risk Ranking (Without Controls)				CONTROL MEASURES	Residual Risk Ranking (With Controls)				Person Responsible
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								11. Materials should not be placed above the thread of ladders/step ladders 12. Do not carry any materials in one hand while climbing or getting down from ladder 13. Ensure the area under the ladder is barricaded especially if it is being used in a public area. 14. Ensure the ladder is electrical insulated podium type if working in live services					
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3	Testing and Commissioning of SMDB & DB - Insulation tester and RCD tester	<ul style="list-style-type: none"> <li>• Electric Shock/ Electrocutation</li> <li>• Exposed Energized Terminals</li> <li>• Fire</li> <li>• Burn</li> <li>• Failure of testing kits</li> <li>• Explosion</li> <li>• Fatality</li> </ul>	Operatives involved	4	5	20	High	<ol style="list-style-type: none"> <li>1. Before starting the activity ensured that STARRT card briefing done and Permit procedure in place with necessary precaution.</li> <li>2. Ensure that proper PPE is used. These include safety shoes, safety helmet, safety gloves (Rubber-High Voltage), Rubber mat, Insulated ladders.</li> <li>3. Fire extinguishers, Fire Blankets shall be in place.</li> <li>4. Tag all breakers and switches. Use padlocks wherever possible. Disconnected terminals shall be covered &amp; provided with adequate separations to avoid any live contacts.</li> <li>5. Unauthorized personnel must be kept away from the test area. Barricade the area with warning signage.</li> <li>6. Ensure no metal body is in touch with any test terminals and adequate fall protection for the de-assembled metal bodies.</li> <li>7. Physical inspection around SMDB area is to be carried out with the general arrangement safety measure.</li> <li>8. Lock - out / Tag - out Procedure to be followed as per COP 24 for energy isolation activity.</li> </ol>	1	5	5	Low	Site engineer Supervisor Foreman
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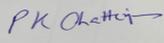
**Prabir**

**Safety Officer**

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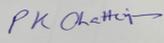
								9. Operatives involved for testing activity, must aware the Lock-out/Tag-out system procedures. 10. Ensured dedicated Residual current devices (RCDs) are used to provide supplementary protection for the test equipment. 11. .Physical separation should be provided to test leads/connection terminals to avoid any contact with any live circuits. 12. Ensured operatives adequately trained and knowledgeable, or have sufficient experience to carry out the work without risk to themselves and others. 13. Ensure the far end of the testing circuits are properly isolated, separated and barricaded. 14. Deploy stand by personals to unauthorized entries					
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4	Use of temporary Power supply	<ul style="list-style-type: none"> <li>Damaged Sockets &amp; cable insulation.</li> <li>Electrocution</li> <li>Electric shock</li> <li>Short circuit &amp; Burns</li> <li>Trip/Fall</li> </ul>	Operatives and staff	3	4	12	Medium	<ol style="list-style-type: none"> <li>All portable electrical equipment must be PAT tested and color coded. Make sure the test dates are visible on the equipment.</li> <li>Ensure all test equipment are in good condition and periodically calibrated.</li> <li>PTW to be obtained for above 110 volt electrical permit prior to commencing the task.</li> <li>Damaged industrial sockets and power cables must be removed from service.</li> <li>Ensure the electrical cable is not damaged and has not been repaired with insulating tape or unsuitable connectors.</li> <li>Ensure cables from test equipment shall be organized so as not to present a tripping hazard</li> <li>Only trained competent operatives to operate the test equipment.</li> <li>Ensure proper earth leakage protection is provided.</li> </ol>	1	4	4	Low	Supervisor Foreman Site Eng.
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5	Use of Hand tools	<ul style="list-style-type: none"> <li>Improper selection of hand tools.</li> <li>Damaged and Defective Hand tools.</li> <li>Hand injuries</li> <li>Pinch point</li> <li>Ergonomics</li> <li>Repetitive strain injury</li> </ul>	Operatives/Staff	3	3	9	Med ium	<ol style="list-style-type: none"> <li>Hand tools should be visually inspected for defects, prior to use.</li> <li>Never use damaged, blunt or broken tools to avoid injury.</li> <li>Select right tools for right Job</li> <li>Ensure no Homemade or makeshift tools to be used at site</li> <li>Remove from service any tool that shows signs of damage or defect</li> <li>Ensure Hand tools are Stored in accordance with the manufacturer's instructions.</li> <li>Ensure hands are not in direct line of fire while working with hand tools</li> <li>Ensure appropriate PPE at all times.</li> </ol>	1	3	3	Low	Site engg Supervisor Foreman
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Approved By: Name \_\_\_\_\_ Position \_\_\_\_\_ Signature \_\_\_\_\_

## RISK ASSESSMENT & CONTROL GUIDELINES

### 1. Executing Steps:

#### 1.1. Planning

- a) Construction and HSE team must ensure that hazard identification is complete.
- b) Construction and HSE team must prioritize the hazard issues, which are of significant in nature. (It means that risks have well established legal requirements, potentially high risks).
- c) Construction and HSE team to prepare the risk assessment plan for the priorities identified hazards for these potential high risks.

#### 1.2. Risk Assessment

Risk is the probability of an event occurring in a given set of circumstances. The 'event' is an exposure to hazard. The hazard is the potential to cause harm. The risk assessment is the technique of evaluating not just the likelihood of an event occurring, but also the outcome will be in terms of injury, loss, damage or harm.

#### 1.3. Risk Assessment Process

The process of carrying out a risk assessment should be as follows.

1. Identify the hazards.
2. Identify who might be harmed and how.
3. Evaluate the risk and implement the control measures.
4. Record the significant findings.
5. Review the assessment and update if necessary.

#### 1.4. Examination of the Hazards and Risk Associated

- Competent staff must be used in examining the risk associated with the identified hazard.
- Competent staff should examine following aspect to determine the risk involved:
  - Examine the existing control measures in place.
  - Identify employees at risk.
  - Likelihood of risk.
  - Severity
  - Risk level and their tolerability.

#### 1.5. Evaluating the risk:

Once the necessary information has been obtained on the hazards encountered by work activities, next stage is to access the risks.

##### 1.5.1. Risk Rating Score

Risk rating score is a combination of two factors.

- The severity of the risk that could injure persons or cause damage to plant.
- The likelihood of the risk that it could happen (Probability).

**RISK RATING = LIKELIHOOD X SEVERITY**

**NOTE: Each activity has to be assessed for the risk value for determining the level of Severity and likelihood are mentioned in the table below.**

		SEVERITY					
		No Injury (1)	Minor Injury (2)	Moderate Injury (3)	Major Injury (4)	Catastrophic (5)	
LIKELIHOOD	Rarely (1)	1	2	3	4	5	
	Unlikely (2)	2	4	6	8	10	
	Possible (3)	3	6	9	12	15	
	Likely (4)	4	8	12	16	20	
	Almost Certain (5)	5	10	15	20	25	
RISK LEVEL:		Low			Medium		High