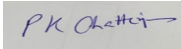

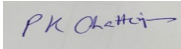
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<b>Activity:</b> Installation and Testing Commissioning of Pumps				<b>Prabir</b>	<b>Safety Officer</b>		


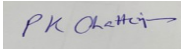
No	ACTIVITY	IDENTIFIED HAZARDS/RISKS	People Involved	Base Risk Ranking (Without Controls)				CONTROL MEASURES	Residual Risk Ranking (With Controls)				Person Responsible
				L	S	Risk Score	Risk Rating		L	S	Risk Score	Risk Rating	

1	Delivering, unloading and storing of Pump and accessories and unloading by using Mobile crane and shifting by using pallet trolley	<b>Plant and Traffic movement</b> <ul style="list-style-type: none"> <li>Run over by vehicles/plants</li> <li>Hit by reversing equipment</li> <li>Overhead obstructions</li> <li>Vehicle break down</li> <li>Property damage</li> <li>Collision with other vehicles</li> <li>Personal injury</li> <li>Falling objects</li> <li>Over turning of Mobile</li> <li>Crane/Forklift</li> </ul>	Operatives Staff/visitors	4	4	16	High	1) Delivery/ collection drivers shall be subject to McLaren induction/Training with regards to traffic management. 2) Ensure exclusion zone is set up around the preparation work area and all plant movement and checked by supervisor 3) Always use the pedestrian access provided 4) Traffic light batons shall be provided for banks man at night 5) All plant to have a fully trained banks man present all times. 6) No plant to reverse without banks man. 7) Ensure access route are sufficient and safe to use. 8) Do not take rest in or under vehicles 9) Proper barricade and safety signboard provided on open excavation 10) All vehicles must be fitted with reverse alarm / Flashing light. 12) Ensure close supervision, Effective Communication & Coordination with McLaren 13) Enforce Speed limit 14) Ensure all vehicles entering the site is properly maintained and reported if found any defect 15) Ensure materials are secured/tied in pallet	1	4	4	Low	Site Engr Supervisor Foreman
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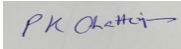
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No	ACTIVITY	IDENTIFIED HAZARDS/RISKS	People Involved	Base Risk Ranking (Without Controls)				CONTROL MEASURES	Residual Risk Ranking (With Controls)				Person Responsible
				L	S	Risk Score	Risk Rating		L	S	Risk Score	Risk Rating	
4								trolley to avoid fall from trolley. 16) Do not ride or horse play with pallet trolley. 17) Mobile Crane/Forklift must be tested and certified by 3 <sup>rd</sup> party. 18 Daily Checklist to be maintained by operator 19 Operator must check the soil condition before fixing mobile crane/forklift to avoid overturning. 20 Unloading activity will stop if high wind, rain or poor visibility. 21 Crane/ Forklift operator, rigger and banksman's must be competent and certified by Abudhabi municipality approved 3rd party. 22 Ensure that after unloading of Pump and accessories materials secured/tied in Mobile pallet trolley to avoid fall from trolley. 23 Strictly to be followed SWL during lifting o					
2	Manual Handling	musculoskeletal disorders, Hand injuries, cut, bruises Sharp edges	Operatives involved in work	4	3	12	Med ium	1) Eliminate the need for manual handling by using mechanical aid. 2) Reduce the weight of a load to limit force exertion 3) If unsure of the load weight, check with supervisor. 5) Ensure proper manual handling procedure 6) Identify and eliminate sharp edges before any manual lift 7) Ensure adherence with sufficient and	1	3	3	Low	Supervisor, Foreman, Site Eng.


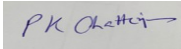
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								appropriate PPE. 8) Limit load carrying to 20kg per person 9) Supervisor must make sure while manual handling load individual task and environment to be considered to reduce the risk of manual handling.					
3	Material storing	Slips, Trips and fall Poor house keeping	Operatives Staff/storekeeper	3	4	12	Medium	1) Ensure accesses are kept clear at all times. 2) Housekeeping to be carried out regularly throughout the day when required  3) Supervisor to ensure operatives are stacking material neatly and stacks are stable and in a safe condition 4) Provide adequate lighting especially during night hours 5) Appropriate space is allowed around storage areas for employees to move around safely without the risk being trapped between stacked materials. 6) Maintain good housekeeping	1	4	4	Low	Supervisor, Foreman, Site Eng.
4	Installation of Booster Pump using Mobile crane	<ul style="list-style-type: none"> <li>Equipment failure</li> <li>Defective lifting gears</li> <li>Slips, trips and falls</li> <li>Crushed between</li> <li>Pinch point, trapped body parts</li> </ul>						1) Lifting permit issued and signed off by appointed person. 2) Crane must be certified as fit for use within the last 12 months by OSHAD approved third party. 3) All lifting accessories must be certified as fit for use within 6 months by OSHAD approved third party.					

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		<ul style="list-style-type: none"> <li>Adverse weather conditions</li> <li>Toppling of lifting equipment</li> <li>Falling materials</li> <li>Falling objects</li> <li>Failure of communication</li> <li>Uncertified operator/Riggers and lifting gears</li> <li>Overloading</li> <li>Damage to existing facilities</li> <li>Improper rigging and lifting practice</li> <li>Uneven Ground level</li> <li>Mechanical failure</li> <li>Wear and tear of lifting accessories</li> <li>Property damaged</li> <li>Environment contamination</li> <li>Serious injuries including cut, bruises, strain, sprain and fracture Fatality</li> </ul>						4) STARRT card briefing to be conducted to all workers prior to commencement of works. 5) Before starting work, check the work area for the presence of aerial hazards (if any) and other obstructions. 6) Check the ground conditions prior to any erection of crane 7) The tail swing area must be cordoned off to avoid collision/crushing. 8) Install exclusion zone around lifting activity. 9) Ensure that the area is being barricaded with adequate signage 10) Always ensure banksman to be present 11) The capacity of crane should be proportionate with the weight of the Load 12) Check the load before lifting. 13) Check the lifting point and ensure that the lifting points are in good condition as per requirements. 14) Ensure safe rigging practices are followed under competent lifting supervisor. 15) Lifting supervisor to check and verify the load chart. 16) Ensure that rigger and operator are aware about the signals 17) Adequate padding must be provided for outriggers as per rig configurations calculations 18) The crane should have its outriggers fully extended and be so positioned that the operator has a clear view of the operations and rigger. 19) Lifting operations should be suspended if adverse conditions persists and wind speed more than					
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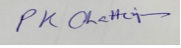
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								38kmph. 20)Crane inspection to be carried out prior to operate the crane and fill the check list. 21)Pre-lift inspection to be completed for the crane and lifting gear prior to use. 22)Rigger and operator to ensure load airway is clear 23)Ensure ground level firm, compact and free from any impediments 24)Follow equipment's load chart capacity 25)Never attempt to move a load greater than SWL 26)Check advance weather report. 27)Only trained and competent Operator and rigger to appoint for task with valid third-party certificate. 28)Conduct TBT prior to start of work, discuss hazards, risk and control measures 29)Ensure only authorized personnel within lifting area. 30)Use tag lines to maneuver the load. 31)Ensure operatives are not moving under the suspended load. 32)Spider beam shall be inspected and certified by approved third party consultancy. 33)Equipment should be well maintained and out of defect. 34)Ensure all belts unlashed prior to lift the load. 35)Do not leave the load suspended and never stand/walk under the lifting load. 36)Initial lift of 50cm to be completed to ensure canter of gravity achieved and no loose loads before hoisting. 37)Use site mandatory PPE's all the time.					
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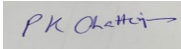
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								38)Ensure all lifting gears are inspected and colour coded. 39)All lifting gears to be properly stored. 40)Ensure warning light installed on the highest point of the crane for extended hours lifting operations. 41)Use sleeves at sharp edges to prevent damage to the lifting gears. 42)Ensure anemometer is installed and working. 44) Ensure operator cabin is not covered with handmade curtains.					
5	Installation of Water Submersible pump in sump pit	Manual Handling	Operatives involved	3	4	12	Med	1)Ensure accesses are kept clear to install the Pump inside the sump pit 2) During installation make sure operatives are safely installed the pump to avoid finger injury and foot injury 3)Ensure proper manual handling procedure 4) Identify and eliminate sharp edges before any manual lift 5) Ensure adherence with sufficient and appropriate PPE. 6) Limit load carrying to 20kg per person 7) Supervisor must make sure while manual handling load individual task and environment to be considered to reduce the risk of manual handling.	1	4	4	Low	Supervisor Foreman
6		High-pressure leak of water & Flooding	All operatives involved in work	4	4	16	High	1 Risk assessment must brief to the operatives. 2 Ensure permit obtained for pressure test. 3 All pressure tests must be conducted with due	1	4	4	Low	Site eng Supervisor Foreman


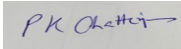
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	Pressure Testing & leak testing	Explosion Failure of test pump Electric shock with Motor Electrocution Unintended release of stored energy.						<p>regard for the safety of life and property.</p> <p>4 Area must be barricaded with caution signage. Precautions should be taken to see that people not directly engaged in the testing operations remain out of the test area during the test period.</p> <p>5 Check that all high points have a tap or vent to facilitate removal of air during filling and that these are all closed.</p> <p>6 Blank, plug or seal any open ends and close all valves at the limits of the test section of the piping.</p> <p>7 Start to fill the piping and then 'walk' the route of the piping under test, continuously visually checking for leaks and by listening for the sound of escaping air</p> <p>8 Release air from all the high points systematically through the system to completely fill it with water</p> <p>9 Check that the test gauge is functioning correctly has been calibrated and has the correct range of the test pump.</p> <p>10 Check that a suitable hose is available for draining the system</p> <p>11 Before attempting test, Supervisor will review the test specifications and procedures with the Test Inspector and any other relevant personnel to be certain that all equipment is adequate, and</p>					
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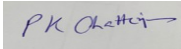
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								duties are organized and understood 12 All the electric live service must be temporary isolate to avoid electric shock and electrocution 13 All test connectors are subject to cyclic loading, both from the pressure test application and from tightening torque loadings. Fatigue is a factor that must be addressed when test connectors are being inspected and assessed for continued use. Some signs of fatigue are clearly visible and measurable (deformed threads), and some are 15 Ensure proper grounding and earthing After completion of the pressure test, release the water and disconnect all the temporary connections and close both ends 16 Exclusion zone must be removing and remove the danger signage after completion of pressure test. 17 Operatives must be wear necessary PPE.					
7		<ul style="list-style-type: none"> <li>Spillage/ soil contamination</li> <li>Burns</li> <li>Contact with skin</li> <li>Acute/Chronic</li> </ul>	Operatives using solvent	3	4	12	Medium	1 Ensure that all chemical substances have a COSHH assessment 2 Refer SDS prior to any handling of hazardous substances and ensure SDS is easily accessible at site while working with chemicals. 3 Ensure chemicals are properly stacked. 4 Ensure all chemical containers are properly	1	4	4	Low	Supervisors Foreman, Site Eng.




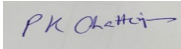
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	Use of Glue/Paint Solvent, (Hazardous Substance)	adverse health effect. • Fire						labeled. 5 Spill kits to be available at site. 6 Ensured all COSHH waste must be dispose in designated waste bin. 7 Competent person to oversee the storage, use and disposal of hazardous materials. 8 Ensure that correct welfare/first aid facilities are available in the area i.e. washing facility/eye wash. 9 Proper and adequate PPE to be used always 10 Ensure all chemical containers are properly labeled. 11 Adjust work schedules so that workers are not overexposed to a hazardous chemical. 12 Ensure proper and adequate PPE to be used always. 13 Ensure smoking is prohibited 14 Ensure appropriate Firefighting equipment's are in place and easily accessible					
8	Working in poor visibility/dust condition	Physical injuries, Slips, trips & falls, Health effects – eye damage/respiratory diseases.	All personnel in the work area	3	4	12	Medium	1. Prepare the working area for a good working condition. 2.All workers should wear high visibility vest and PPE 3. Ensure that the working area is well-ventilated. 4.Wear goggles & face mask when working in a dusty place	1	4	4	Low	Site Eng. Supervisors, Foreman


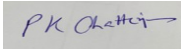
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								5. TBT conducted by supervisor. 6. First aider and first aid kit available on the site 7. Ensure that work area must have proper illumination 8. Maintain good house keeping					
9	Working on ladder	Falling from height Collapse of ladder	All involved in work	3	4	12	Medium	Ladder is not to use daily basis but in certain cases where there is very narrow place and even podium scaffolding not possible to fix in that cases Ladder can use if permission granted from McLaren with ladder permit. 1 Only light work, off short duration and work in which the operative can maintain secure hand and foot hold can be undertaken from a ladder 2 Never try to overreach with any ladders 3 Check the ladder is of suitable quality for industrial use and is in good condition 4 Check the inclination of the ladder conforms to the one-in-four rule. 5 Maintain a minimum of 3 points of contact with stepladders always (feet/thighs/hands) 6 If possible avoid the use of stepladders at a working height of 2 meters and more. 7 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. 8 Ensure that during using ladder from the top 2	1	4	4	Low	Supervisor Foreman, Site Eng.


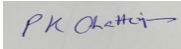
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								steps is blocked to avoid climb on that. 9 The ladder securely fixed to prevent slipping outwards or sideways or securely footed at all times. 10 Person must hold the ladder while another operative working on it 11 Materials should not be placed above the thread of ladders/step ladders 12 Ensure using podium type scaffolding to reduce the risk.					
10	Use of power tools such as, Drill machine,	Damaged cable insulation, Sockets. Electrocution Electric shock Short circuit Trip/Fall Noise Hearing loss Vibration Dust	Operatives and staff	3	4	12	Med	1) All portable electrical equipment must be PAT tested and color coded. Make sure the test dates are visible on the equipment. 2) Ensure all power tools 110 volt and maintained 3) PTW to be obtained, prior to commencing the task 4) Damaged industrial sockets and power cables must be removed. 5) Ensure the electrical cable is not damaged and has not been repaired with insulating tape or unsuitable connectors. 6) Ensure cables from power tools shall be organized so as not to present a tripping hazard 7) Only trained competent operatives to operate	1	4	4	Low	Supervisor Foreman Site Eng.


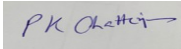
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								the power tools. 8) Ensure proper and regular maintenance of equipment that takes account of noise 9) Ensure proper hearing protection always. 10) Make sure people use the right tool for the job and are trained to use it correctly 11) Ensure defective tools that require maintenance is reported for repair or replacement. 12) Instruct workers to keep their hands warm and dry, and to not grip a vibrating tool too tightly. Workers should allow the tool or machine to do the work. 13) Ensuring proper job rotation and limiting time operatives working with power tools and hand tools. 14) use dust mask					
11	Use of Hand tools and Testing kit	Improper selection of hand tools. Damaged and Defective Hand tools Hand injuries Pinch point Ergonomics Repetitive strain injury	Operatives/Staff	3	3	9	Medium	1) Hand tools should be visually inspected for defects, prior to use. 2) Competent certified Engineer must use testing kit 3) Select right tools for right Job 4) Ensure no Homemade or makeshift tools to be used at site 5) All the test kit power connection must be in good condition and no loose connection 6) Ensure Hand tools are Stored in accordance	1	3	3	Low	Site Eng. Supervisor Foreman


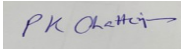
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								with the manufacturer's instructions. 7) Ensure hands are not in direct line of fire while working with hand tools. 8) Ensure all the testing kits are calibrated from authorized lab. 9) Electrical Permit need to obtain for using Testing kit if above 110V. 10) Only authorized persons are allowed during testing activity and area must be barricaded with caution signage. 11) Ensure appropriate PPE always.					
12	Working at night time	Poor visibility due to darkness / poor illumination Lone worker	Operatives/staff	3	4	12	Medium	1) Ensure proper night work permit is obtained 2) Proper lighting system should be in place 3) Ensure proper Communication / Coordination and close supervision 4) Industrial safe torches to be available for emergency situations 5) High visibility Traffic Vest for personnel's in night shift 6) Avoid lone working and close supervision 7) Employees to be trained and understand McLaren Crises plan.	1	4	4	Low	Site Eng. Supervisor Foreman
13	Adverse weather condition	Rain, Sand Storm Fog Slippery surface Risk of electrocution	All employee, visitors	4	4	16	High	1 Weather report must be monitored and informed to work force. 2 No activity shall be allowed during adverse weather condition on site 3 Protect the Power tools/DB from rain water to	1	4	4	Low	Site Eng. Supervisor Foreman


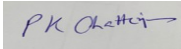
	<b>Al Karama School, Phase 2, Abu Dhabi, UAE</b>				Document Reference		
					M1492-HSE-RA-086		
					Rev. No.		Assessment Date
					00		14/07/2020
	<b>Risk Assessment Record</b>				Assessed by		Title
<b>Activity:</b> Installation and Testing Commissioning of Pumps				<b>Prabir</b>		<b>Safety Officer</b>	

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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	

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		Flying debris, Slip, Tripping and fall						avoid short circuit. 4 Ensure during adverse weather or Foggy weather no lifting operation and no vehicle movement. 5 After clear the weather make sure all power tools are safe to use. 6 No work at height during high wind and rain 7 In case of emergency, call McLaren/Emergency number					
14	Covid 19	Cough Sneezing Fever (fever as body temperature higher than 38°C Headache Nasal Discharge	All employees	4	5	20	High	1. Avoid close contact with anyone showing symptoms of respiratory illness. 2. Wash hands often with soap and water for at least 20 seconds or use an alcohol-based hand rub if your hands are not visibly dirty. 3. Use hand sanitizer if soap and water are not available. 4. Cover coughs and sneezes with tissues. 5. Maintain at least 1 meter (3 feet) distance between yourself and other people, particularly those who are coughing, sneezing and have a fever. 6. Avoid touching eyes, nose and mouth: It transfer the virus from the surface to yourself	1	5	5	Low	Every individual

	<b>Al Karama School, Phase 2, Abu Dhabi, UAE</b>		Document Reference		
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			Rev. No.	Assessment Date	
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	<b>Risk Assessment Record</b>		Assessed by	Title	Signature
<b>Activity:</b> Installation and Testing Commissioning of Pumps		<b>Prabir</b>	<b>Safety Officer</b>		

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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	

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								through hands					
								7. If you're the one feeling sick, cover your mouth and nose when you cough or sneeze, and disinfect the objects and surfaces you touch, seek medical care early					
								8. Do not travel if you develop any illness symptoms					
								9. Strictly to be followed wearing face mask					

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5 Approved By: Name   Vishnu Mohan  Position   PM  Signature   

## RISK ASSESSMENT & CONTROL GUIDELINES

### 1. Executing Steps:

#### 1.1. Planning

- Construction and HSE team must ensure that hazard identification is complete.
- 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).
- 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.

- Identify the hazards.
- Identify who might be harmed and how.
- Evaluate the risk and implement the control measures.
- Record the significant findings.
- 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				
LIK ELI HO OD		No Injury (1)	Minor Injury (2)	Moderate Injury (3)	Major Injury (4)	Catastrophic (5)
	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



