


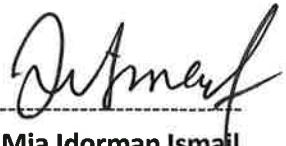



DIMENSION BID

WIRELINE INTERVENTION | PERFORATION SERVICES

ELECTRICAL SAFETY DBSB-HSE-04

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HSE-MS	ELECTRICAL SAFETY	DBSB-HSE-04-00	
		Rev.02	2014

AMENDMENT RECORDS

This sheet will record all amendment of this Procedure. All particulars of the amendment shall be stated clearly. The HSE Department of Dimension Bid (M) Sdn. Bhd. (DBSB) shall be responsible for the maintenance and update of this record sheet.

CLASSIFICATION	DATE	REVISION PART	REASON/PURPOSE OF REVISION
Original Issue	25/06/2012	Establishment of procedure	Nil
Revision 1	08/01/2014	• Cover	• Organization restructure
Revision 2	01/12/2014	• Cover & Page 5	• Organization restructure & PPE

HSE-MS	ELECTRICAL SAFETY Basic Electrical Safety	DBSB-HSE-04-01	
		Rev.02	2014

Subject	Basic electrical safety
Danger	<p>Electrical equipment's / tools / appliances must be regarded as being capable of causing injury due to electrical shock and damage to equipment.</p> <p>Energized and de energized wires look the same and voltage must be measured.</p> <p>Always assume electrical wires are energized unless proven otherwise.</p>
Live electrical equipment	<p>Electrical equipment shall normally be made DEAD, isolated and proven DEAD before work commences.</p> <p>Only where the equipment cannot be made dead, LIVE working shall be considered.</p> <p>A formal Job Safety Analysis (JSA) and Work Permit may be required before any LIVE work commences.</p>
Authorized or Competent Person	The operation of isolating, proving DEAD and where applicable earthing shall only be carried out by an Authorized or Competent Person or Electrician.
Earthing Equipment	<p>When fitted integral fitting equipment shall be used for connecting all main conductors of an isolated unit to earth, otherwise the conductors shall be earthed using approved methods.</p> <p>Earthing is also necessary to discharge ant capacitors which may be in circuit.</p>
Proving Equipment / tools is DEAD	<p>Circuit shall be shown to be DEAD and tested with a Voltmeter.</p> <p>The test equipment shall demonstrate to be in working order, both before and after carrying out the tests and intermittently, if necessary.</p>
Tag / warning sign	A tag or warning sign such as "Danger! Do not Operate / Hazard Found Here / etc need to be attached to the appropriate point of isolation.
Refusal to Work	<p>Every person and worker has the right to refuse to do task which in his opinion is not safe.</p> <p>He shall report any objection to the carrying out of the task to his / her immediate superior.</p> <p>Refer to HSE-MS-01, Personal Safety for details</p>
Isolation / lock out of electrical equipments	Refer to HSE-MS-03-02, Lock out tag out fundamental & HSE-MS-03-03, General Procedures for Lock out & tag out.
Area classification	<p>Refer to HSE-MS-12-09, Area classification for details.</p> <p>Refer to client's requirement / regulation / classification for details.</p>

HSE-MS	ELECTRICAL SAFETY Static Electricity	DBSB-HSE-04-02	
		Rev.02	2014

Subject Static Electricity

Generation of static electricity Static electricity is produced whenever two surfaces in close proximity move apart.
It is a form of electrical energy build up by joining and parting between certain materials.

Accumulation of Static electricity Static electricity is easily accumulated by clothing, especially man-made fibers.

The human body can accumulate a static charge in excess of 10,000 volts, although when discharged, it is short lived and low of temperature.

Static dissipation Static electricity accumulation is always the same polarity of charge. Since like charges repel each other, static electrical charges move to the furthest point away from the other charges.

Static will dissipate through a point if one exists. Static may dissipate in a sudden release of energy or spark. Static may also dissipate slowly over a period of time.

Transferring fluid Hydrocarbon may become charged with static electricity from pumping, filtering, splash filling or by settling out of water through them.

High velocity flow rate increase the rate static generation. When the rate of dissipation is less than the rate of accumulation, then a static build up and eventual spark discharge will occur.

Bonding containers When pouring flammable low conducting fluids from a container to a receptacle, then the container, receptacle and funnel, if used, should be bonded together and to earth.

Receiving containers and loading nozzles or hoses should be bonded to earth during transfer operation. Electrically conductive hoses designed for that purpose should be used if needed.

Electronic equipment Electronic equipment can be very sensitive to electrostatic discharge. Suitable precaution such as the use of earthed wrist strap should be use when handling electrostatic sensitive electronic equipment.

Wrist band cord which bonds the wearer to ground should be checked prior to use. The provision of clean earth may require for some specific electronic equipment.

HSE-MS	ELECTRICAL SAFETY Essential Requirement for Electrical Safety	DBSB-HSE-04-03	
		Rev.02	2014

Subject **Essential Requirement for Electrical Safety**

General Many factors have an impact on electrical safety. Taking in account the following principles may reduce potential hazards :

Select electrical power equipment s and systems suitable for the operational requirements , environment and competence of personnel;

- Clearly define authority and responsibilities of personnel;
- Establish clear procedures for all electrical work and testing;
- Provide up- to-date, readily accessible information for electrical equipment , electrical power systems, procedures and as-built drawings;
- Train personnel at all level s and regularly check their competence;
- Apply a programme for the monitoring of equipment condition;
- Establish and maintain an effective housekeeping programme;

The electrical equipment shall be:

- Suitable for the environment in which it i s to be installed (e.g. weather , dust ,
- Fumes, hazardous atmospheres, rough use.
- Manufactured and tested to recognize up-to-date standards with ready spare availability ;
- As simple as possible to understand and operate;
- Standardized as far as is reasonably practicable to promote understanding of and
- familiarity with, the installation, its operation and maintenance requirement s , and
- to make the stocking of spares viable;
- Duplicated where necessary to allow for maintenance outages ;
- Capable of being readily isolated, allowing necessary maintenance to be
- under taken safely with the minimum of inconvenience to operating regimes ;
- Adequately label led and identified so as to clearly indicate duty , source of supply
- and other possible sources of danger ;
- Designed to withstand maximum fault level.

Personnel Involvement It is the duty of all per sons who are involved with the operations in electrical power systems and work or testing on electrical equipment to make themselves thoroughly conversant and comply with the requirement that apply to any operations , work or testing they will undertake on such electrical power systems and electrical equipment . Ignorance of these rules shall not be accepted as an excuse for neglect of duty.

Every person shall report immediately to Management, any potentially electrical dangerous situations or conditions, or any instance of electrical equipment suspected of being in an unsafe condition. This i s to ensure

HSE-MS	ELECTRICAL SAFETY Essential Requirement for Electrical Safety	DBSB-HSE-04-03	
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immediate measures to eliminate such dangerous or unsafe conditions are taken.

During such failure of supplies, all electrical equipment and conductors shall be treated as live until isolated and proven dead.

It is the responsibility of Management to ensure that the ESRs and ESOPs are robust by carrying out periodic audits and reviews.

**Accidents /
Incidents
Reporting**

All electrical accident s/incident s must be reported in accordance with HSE Incident Procedure:
DBSB-HSE-13: Emergency, Preparedness & Response Procedure

**Electrical Personal
Protective
Equipment (PPE)**

PPE appropriate for the task shall be worn by persons working on or near live electrical equipment to protect them from shock and/or arc flash hazards. When work is carried out on electrical equipment constructed with arc containment technology, arc flash PPE is not required if the work being done is in accordance with the equipment design.

To ensure the involved person are properly protected when working in and around electrically energized equipment, use of the following PPE is required:

- Coverall (Fire Retardant coverall)
- Safety Glasses
- Hard Hat
- Safety Shoes
- Harness (Only if the person working at height)
- High Tension gloves (required when medaling power cables)

HSE-MS	ELECTRICAL SAFETY The Use of Portable and Transportable Equipment	DBSB-HSE-04-04	
		Rev.02	2014

Subject **The use of portable and transportable electrical equipment**

General Portable and transportable approved electrical equipment shall be regularly inspected, tested and certified for the environment in which it is to be used. The inspection and testing should be based on the electrical checklist and the equipment inspection tag should be displayed with the equipment.

Inspection and test certification results for all portable and transportable electrical equipment shall be maintained on each site. Each item of equipment should be labeled so that the next required date for the inspection and testing is readily visible.

It shall be the user's responsibility to ensure that the portable and transportable electrical equipment is in good condition each time before using it and that the inspected/tested certification requirement takes place before the expiry date.

Portable (hand-held) electrical equipment The types of portable electrical equipment to be used in both industrial and non-industrial areas shall be any of the following; bearing in mind any equipment used in hazardous areas must be suitably certified.

Air -driven equipment or equipment with built-in batteries

Electrical Welding Set Welding should take place using Direct Current (DC) , as the open voltage of a DC set is 110VDC maximum which is not dangerous to life. Note that the safe maximum voltage for AC system is only 50V, whilst the open voltage of welding sets is generally between 70V and 90V.

If it is completely impracticable to use DC welding, the welding set shall be equipped with one of the following features :

- Output automatically transfer from ac to dc when welding is interrupted, or
- Voltage reducing device is installed which limits the voltage to 50V AC maximum at no load