

VERTIV Asia

General Safety Awareness Handbook



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1.0 VERTIV Commitment to Safety

VERTIV COMMITMENT TO SAFETY

Safety is how we do business.

Vertiv is committed to providing a safe and environmentally sound workplace.

Excellence in safety is vital to the well-being of our customers, our employees, and their families.

It is essential to all aspects of our business.



Safety is a Vertiv Core Value. This means we do all things with safety in mind – every job, every day, no exceptions. We strive to achieve an injury free workplace by relentlessly reducing workplace risks in an effort to reach zero accidents. Vertiv is committed to providing the tools, training and equipment to enable our employees to work safely.

Safety is good for business. Excellence in safety promotes excellence in all areas. We standardize safety best practices across the company wherever possible. We encourage and empower employees to take an active role in seeking out, reporting, and acting on safety improvements.

Lead by example. We promote safety in our actions and communications every day. We report safety hazards and incidents so they can be corrected right away. At Vertiv, we speak up when we see someone at risk and we always work together to keep each other safe.

Your dedication in this is essential to Vertiv's vision of a safe and inspiring workplace.

Anand Sanghi
President, Asia Market

2.0 Safety Training

VERTIV Asia Training Academy is involved in updating and providing safety awareness training programs for the employees.

Managers, Supervisors and Safety Managers are responsible for ensuring that the training is carried out in accordance with our new hire orientation program. In any event, all customer engineers and project engineers must receive the safety training before working on any equipment.

There are 2 types of training programs provided to Service Engineers: -

Safety Awareness Training – All Service Engineers and project Engineers MUST attend the Basic Safety Training and either the Low Voltage and/or HVAC safety training depending on their job duties. PPE will be covered in Safety Awareness training.

Technical Training – focus on the technical know-how and safety operations. With technical training, service engineers will be equipped with adequate knowledge and skills to perform their duties safely.

Please contact your Supervisor to arrange Safety Training applicable to your position.

List of VERTIV (C2) – Online Safety Training modules

Back Safety	Annual Refresher
Blood Bourne Pathogens	Annual Refresher
Classes of Fire & Extinguishers	Annual Refresher
Confined Space Awareness	Annual Refresher
Drive safe – Defensive Driving	Annual Refresher
Arc Flash Safety & Electrical Safety	Annual Refresher
Fall Protection	Annual Refresher
Fire Prevention & Hot Work Safety	Annual Refresher
Hazard Communication	Annual Refresher
Lockout Tagout	Annual Refresher
Personal Protective Equipment	Annual Refresher

3.0 Employer and Employee Responsibilities

This section outlines VERTIV Asia's Employer and Employee responsibilities in relation to Health and Safety in the work place. Failure to comply with the company's safety policies and procedures may result in disciplinary action up to and including termination. Depending on the seriousness of the violation - such as committing an unsafe act or ignoring the company's rules and regulations governing safe work practices - steps in the normal disciplinary process may be skipped, which means the company could go directly to a written warning, final written warning or termination.

Managers, Supervisors and Safety Managers are responsible for ensuring that the training is carried out in accordance with our new hire orientation program. In any event, all employees and project engineers must receive safety training before working on any equipment.

General Responsibilities

Employer's Responsibilities

The Company is responsible for providing all employees with a safe and healthy work environment. These responsibilities include, but are not limited to, the following: -

- (a) **Training.** The employer shall provide necessary training so the employee can safely perform his/her duties. This training can be in the classroom, or on the job or both.
- (b) **Tools.** The employer shall provide the tools and equipment necessary to perform the work. This includes supplying the necessary personal protective equipment.
- (c) **Procedures.** The employer must provide the employees with the company safety procedures, rules and policies.
- (d) **Verification.** The employer must verify that safety procedures, rules and policies are being observed and implemented.

Employee Responsibilities

All Employees are responsible for following all Safety rules, reporting hazards promptly, and in the event of an accident comply with accident reporting procedures. Employees are also required to report unsafe acts or unsafe conditions.

As part of an employee's general responsibility to ensure their own Safety, every employee has a right to refuse to do any work that they reasonably believe is likely to cause them serious harm.

Safety Manager will ensure that the Health and Safety Program implementation is sustained by complying with the following activities: -

- (a) Ensure the Health and Safety Program is implemented, and all relevant employees receive the safety training and have read and acknowledged the receipt of the safety handbook.
- (b) Ensure all Health and Safety Program policies and procedures are implemented, communicated and employees understand their individual responsibilities.

- (c) Participate in safety and health review meetings and follow-up on corrective actions. Monitor state and local safety and health standards, regulations and legislation, and report any changes to the relevant Services Management.
- (d) Review outside contractor's safety and health procedures.
- (e) Review worker's compensation costs periodically with accounting and financial personnel to ensure the proper accruals are made.

Country Service Managers / Supervisors shall ensure that a sufficient resource of trained personnel and suitable equipment is available to perform the assigned work safely and without risk of injury or illness. The Country Service Manager / Supervisor shall also: -

- (a) Ensure the Health and Safety Program is implemented as directed by the Service Director, and communicate to employees ensuring they understand their individual responsibilities.
- (b) The Country Service Manager/Supervisor is responsible for ensuring that all accidents/incidents, including near misses, unsafe acts and unsafe conditions are properly investigated and reported on Supervisor Report and Accident Investigation Form; also responsible for ensuring immediate actions are taken to control the circumstances which led to the accidents/incidents.
- (c) Identify and procure the necessary equipment to carry out an effective Health and Safety Program.
- (d) Promote Health and Safety Program by discussing Safety and Health related issues at staff meetings. Participate in Health and Safety Program meetings and follow up on corrective actions.
- (e) Conduct annual safety and health program reviews.
- (f) Set up and administer the Hazard Identification and Risk Assessment program. This to include providing adequate information on hazards, as well as training and supervision to employees.

Customer Engineers are expected to fully participate in the safety program by active involvement in and adhering to the following: -

- (a) Acceptance of established operating procedures. Discussion concerning any changes or variances required prior to any alteration to established operating procedures that may affect the safety program.
- (b) Cooperate with fellow employees.
- (c) Observe all warning signs and regulations, both internal and those required by the customers.
- (d) Maintain and properly use required personal protective equipment (PPE).
- (e) Report all accident, incident, injury, unsafe acts, unsafe conditions including near misses to your Service/Operations Manager or Direct Supervisor.
- (f) When in doubt about a procedure or situation, ask your Service/Operations Manager/Supervisor or Human Resource Manager for clarification.

4.0 Basic Safety

When you encounter a hazard or other safety situation that is not contained in this handbook, you need to assess the risk and contact your Manager / Supervisor.

Electrical Work

- Only qualified persons may do electrical work of any kind
- Never remove lock out tags such as DANGER tags
- Do not operate the circuit breaker so marked
- Do not use any electrical equipment in poor or unsafe conditions
- Ensure that electrical leads are undamaged before use
- On site, try to keep all electrical leads above the floor, clear of water and off wet ground
- Always use residual current devices (RCD) or earth leakage circuit breaker (ELCB) when using portable electrical tool or appliance
- Test residual current devices (RCD) every time before use.

Handle machines & equipment

- Only trained persons are permitted to use or operate any machinery or equipment
- Only licensed persons or permit holders may operate restricted plant, machinery or equipment e.g. forklift, scissor lifts
- Do not use any power equipment without the guards in place
- Equipment is to be kept in safe working order
- Guard all moving parts of drives, belts and machinery
- Welding & grinding operations shall be guarded and screened
- Use safety equipment Personal Protective Equipment – PPE at all times
- Ensure compressed air tools and hoses are well-maintained and are in good condition. All couplings must be tied
- Always tuck ties inside shirts when moving around machinery
- Do not interfere or tamper with safety equipment
- Operate only with a work permit in specified areas
- Do not exceed safety working load for a sling, crane, hoist or vehicle.

Behavior

- Fully comply with and follow all the safety regulations
- Report all accidents, safety related incidents (including near miss) and safety hazards promptly to your supervisor or fill out an Incident Report
- Ensure you take care of personal hygiene
- No horseplay, silly antics or practical jokes
- No children and no pets are allowed in the factory or on site
- Do not tamper with equipment, computer and safety equipment
- Wash hands after handling solder and keep body and clothing clean
- Do not ride or stand on fork-lift tines
- Approved cages only may be used for elevating personnel
- Keep storage and work facilities clean and tidy.

Environment

- Watch where you are walking, particularly in the factory and on site
- Obey all safety signs at all times
- Use designated walkways where possible (stay within yellow lines particularly in the Factory and on site)
- Keep well clear of forklifts, plant and materials being moved
- Look out for openings, pits and obstacles
- Do not lift anything that is too heavy for you and keep right posture. Use safe manual handling methods
- Stack materials so that they are stable and safely located away from traffic
- Don't use old food containers or bottles for storage of chemicals
- Beware of natural dangers, such as snakes, spiders in bush land.

On customer's site

- Opening in floors should be guarded or taped off
- Don't work in the dark – arrange sufficient lighting
- Ensure electrical leads have valid test tag affixed
- Only qualified Crane Operators and Doggers may participate in crane operations
- Do not tamper with adjustable props or scaffolding
- Observe site conditioning and follow the regulations posted by site managers.

Emergencies

When an emergency occurs, the alarm must be raised by:

- a) Calling the Emergency Service
- b) Reporting the emergency to a supervisor, manager or switchboard
- c) Pushing an emergency alarm button.

Evacuation

- Make sure you know where your nearest exit is
- If in immediate danger or if advised by authorized personnel:
 - i. Evacuate the building via the nearest safe exit
 - ii. Do not re-enter building until advised to do so by authorized personnel
- Staff and subcontractors must follow any instructions given by people in authority
- Personnel must not leave the marshalling area unless advised by authorized personnel
- No vehicles may be moved from the site unless authorized with the Officer in Charge of the Emergency Service.

Injury

In the event of an injury:

- a) Call for assistance immediately
- b) Do not move an injured person unless their life is in danger
- c) Turn off any electrical equipment in the area
- d) Do not move or remove anything so that an accident investigator can see what happened
- e) The employee's manager / supervisor must complete an injury report.
- f) Notify Relevant Authorities (if required)

Fire & Fire Protection

- Know where the fire extinguishers and nearest fire exit are
- Keep all walkways clear at all times – do not obstruct fire doors or fire extinguishers
- Clear rubbish away promptly
- Fire hydrants, hoses and extinguishers are exclusively for the fighting of fires. Report any empty or faulty extinguishers.
- Get to know all the fire fighting appliances and their locations
- Do not use water extinguishers when there is electrical equipment near the fire. If possible turn off electrical power first.
- Once a fire is extinguished, it is important to report it, however small, to your area manager so that it can be investigated
- Fire extinguishers should be checked regularly according to local regulations.

Type of Extinguisher	Water	Foam	Carbon Dioxide	Dry Powder	Dry Powder	Wet chemical
Colored red with band coloured	-	blue	black	white	white	white
Type of fire	A	AB	BE	BE	ABE	AF
A Paper, wood, textile and fabric	YES	YES	NO	NO	YES	YES
B Flammable liquids	NO	YES	YES	YES	YES	NO
C Flammable gases	NO	NO	NO	YES	YES	NO
D Combustible metal	SPECIAL HAZARD - SPECIAL POWDER FOR 'D' CLASS FIRES					
E Electrical hazards	NO	NO	YES	YES	YES	NO
F Cooking oil / fat	NO	NO	NO	YES	NO	YES

Earthquake

- Do not run from the building
- Keep away from windows, mirrors, light fittings, bookcases and other furniture that may fall or slide
- Take cover under a desk from falling debris or move to corner of room if possible
- Sit down and protect your face and head.

5.0 5S and Housekeeping

The 5S's means

Sort	Throw away anything not directly used in the process
Scrub	Keep floors swept and mopped, machines and furniture clean, and all areas neat and tidy
Straighten	Organize your work environment which makes it easier for anyone to find and use tools, etc.
Stabilize	Maintain and improve the first 3S's; ALL team members accept responsibility
Sustain	Make the first 4S's become a way of life

Housekeeping

Entrances to and exits from work areas need to be kept safe and clear of obstructions. Equipment and tools should be properly stored and returned to their original status and position after use. Cleanliness and tidiness prevent trips, slips and falls. There should be clear access to fire fighting equipment at all times.

6.0 Personal Protective Equipments (PPE)

Most service activities, other than office work, require the use of personal protective equipment (PPE). PPE can be defined as any clothing, equipment and substance designed to be used and worn by a person; and protects that person from risks of injury or illness. Examples of PPE: Hearing protection devices, Respirators, Protective eyewear, Rubber gloves, Safety shoes, and etc.

PPE is for your safety and benefit – it is each employee's responsibility to use them when specified. These are minimum guidelines for typical equipment. Different and additional PPE may be required for different tasks, therefore, request additional PPE where necessary.

Ensuring Adequate Protection

To ensure that the items of PPE provide the appropriate level of protection that it is designed for, the company Service/Operations Manager / Supervisor will make sure

- (a) the appropriate item is selected;
- (b) employees (and others at the workplace) are instructed how to use it;
- (c) employees (and others at the workplace) wear and/or use it in accordance with instructions received;
- (d) it fits correctly; and
- (e) it is properly maintained and stored.

Selection of Personal Protective Equipment

There are some general principles and guidelines to follow when assessing the suitability of PPE:

- (a) Consider the hazard carefully and choose the correct PPE to match. Be aware of other standards that set acceptable levels of exposure.
- (b) Make sure the protection does not create additional health and safety hazards.
- (c) Suppliers should be able to provide advice on the suitability of different PPE for different tasks.
- (d) Involve workers in the selection and evaluation process. Consider any existing medical conditions of the person wearing the PPE.
- (e) Ensure PPE fits comfortably and can be adjusted. Where several items of PPE are worn together, make sure they are compatible.
- (f) PPE should be always in conformance with national/local standards. Items that are not adequately marked should not be used as they could increase the risk of injury or harm to health of the user. If PPE is exposed to hazards greater than those they were designed for, they will not provide adequate protection.

Procedure for Obtaining PPE

To ensure service employees are equipped with the proper PPE, they must complete the PPE Safety Equipment Acknowledgement Form (see Appendix 1, P.15). This form should be approved and signed by the Service/Operations Manager.

Training

Any employee required to wear PPE will receive training in the proper use and care of PPE before being allowed to perform work requiring the use of PPE. Refresher training will be offered to PPE users as needed. The training will include, but not necessarily be limited to, the following subjects:

- When PPE is necessary to be worn
- What PPE is necessary
- How to properly put on, adjust, and wear PPE
- The limitations of the PPE
- The proper care, maintenance, useful life, and disposal of the PPE

Personal Protective Equipment (PPE) General Application

General Apparel

No employee should function around electrical equipment with wet hands or while wearing wet clothing. When performing work on exposed electrical equipment, do not wear any clothing with exposed zippers, buttons, metal fasteners, or loose or flapping material. Take no chances; dress appropriately. Obviously flammable articles such as celluloid cap visors shall not be worn.

Personnel should remove rings, wristwatches, bracelets, and other similar metal items before performing work on or within four feet of electrical equipment with exposed current-carrying parts.

Conditions where a specified PPE become an essential part of the risk controls (i.e. mandatory):

PPE	When required
<i>Safety Footwear</i>	At all times while performing work on any equipment, electrical works or hot works. Customer Engineers are also required to wear safety footwear according to customer's site requirement.
<i>Safety Glasses</i>	<p>At all times while on the job site.</p> <p>General safety requirements state, "The employer shall ensure that each affected employee uses appropriate eye (e.g. with Side Shields) and face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acid or caustic liquids, chemical vapors, or potentially injurious light radiation."</p> <p>As a Customer Engineer working on energized circuits inside a UPS, on batteries, or on activities associated with HVAC equipment, all of these hazards exist. A failed capacitor or transistor can explode without warning. An accidental short of a battery can easily melt lead posts or cause a rupture of the case, releasing gases and acid. For this reason, you are required to wear Safety Glasses at all times when in the vicinity of electrical equipment.</p>
<i>Prescription Safety Glasses</i>	<p>At all times while on the job site.</p> <p>Prescription Safety Glasses will be provided at Company expense to all employees and can be replaced every two years, if needed. To get prescription glasses, an employee must furnish a copy of their prescription at their own expense. The Prescription Safety Glasses approval form then needs to be completed by their supervisor. Finally the glasses will be purchased through a vendor recognized by the Company.</p> <p>During the time period between the starting date and the time the new hire secures prescription industrial safety glasses, the employee must wear mono-goggles over their non-industrial strength prescription lenses (street glasses).</p>
<i>Face Shield</i>	To be used most times while working on batteries. For example, battery acid might get splashed onto your face while filling up a battery. And, you must always wear safety glasses under a face shield.
<i>Insulated Tools</i>	To be used any time you are working on energized components. There are two layers of insulation. The inner insulation layer is yellow and the outer insulation layer is orange. If the outer layer (orange) is cut and the inner layer (yellow) exposed, the tool can no longer be used.

<p>Arc-Flash PPE</p>	<p>Electrical burns can be received from an electrical arc due to a short circuit or a ground fault within electrical equipment. Heat generated by electrical arc can reach temperatures from 8000 °C to 20000 °C. Potential for severe skin burn injury and fatal injury from electric arc-flash is such that appropriate PPE is required.</p> <p>When ever access is required to “electrically live” or “potentially electrically live” equipment (e.g. UPS, Battery Banks, Switch-Boards, Distribution-Boards and other) by opening doors or removing covers, permitting exposure to internal live parts and conductors, arc/flash PPE must be worn.</p> <p>Arc-Flash PPE includes;</p> <ul style="list-style-type: none"> • Arc/Flash rated overall or coat • Arc/Flash rated hard hat and visor • Insulation gloves • Leather protecting gloves (outer protection for insulation gloves) <p>When wearing ARC/ Flash PPE you must wear your standard company uniform underneath (Non-flammable long workpants, Non-flammable long-sleeved shirt, safety footwear and safety glasses).</p> <p>Wearing of arc/flash PPE is only required when there is exposure to live or potentially live components, parts or conductors within equipment. This will involve “putting-on” and “taking-off” the required arc/flash PPE at some point during a work procedure.</p> <p>The specific act of “putting-on” and “taking-off” arc/flash PPE must be written into Work Method Statements for all works where arc/flash PPE is used.</p>
<p>Hard Hat</p>	<p>At all customer sites that have safety rules and requirements while on their sites and/or when the Customer Engineer deems it is necessary to wear it.</p> <p>Hard hats are necessary protective devices, especially when working in a location with other workers overhead. Regular protective helmets (hard hats) are required to have a degree of insulation resistance. This way personnel (other than electrical workers) may be protected from accidental head contact with electrical circuits and equipment at comparatively low voltages (less than 2200). Electrical workers who require head protection incidental to their duties or to the working environment, particularly those engaged in transmission or distribution line installation and repair, shall wear electrical worker insulating safety helmets, or all-purpose protective helmets for which the proof-test voltage is not less than 20,000 volts.</p> <p>Hard Hat Care and Inspection</p> <p>Inspect hard hats and suspension prior to each use. Check for cracks, cuts, worn suspension parts, or any other signs of deterioration. If any of the listed defects are detected for the hat or suspension, replace the hat or suspension.</p> <p>Clean your hard hat with warm soapy water. Do not use any type of gasoline or solvents as they may cause damage to the hat or reduce the impact resistance of the hat. Do not drill any holes or modify the hat as this could also reduce the impact resistance as well as destroy the dielectric properties of the hat.</p>

Appendix 2 PPE Prescription Safety Glasses

VERTIV Asia Service Prescription Safety Glasses Request And Authorization Form

Employee Name: _____

Department: _____

Employee's Signature

*Service Manager's Approval
Signature & Date*

By his/her signature, the employee acknowledges that the wearing of safety glasses is a requirement for certain aspects of his/her job and the appropriate use of the safety glasses is expected.

INSTRUCTIONS

1. Complete Authorization form
2. Get Service Managers approval signature
3. Obtain a current eyeglass prescription from an eye care provider of your choice. (Eye examination is at employee's expense.)
4. Take prescription and Authorization form to current selected optical vendor for frame selection and fitting. Please call ahead for appointment.
5. Vendor will notify you when glasses are ready.

7.0 Confined Space Entry

The purpose of this procedure is to establish a system and its attendant discipline for assuring and controlling safe entry into confined space. The vehicle for this control is the permit entry for all confined space. Atmospheric testing shall consist of oxygen deficiency and flammability testing as the minimum requirement for all confined space entries. Toxicity testing may be required as dictated by the commodity last contained in the confined space – special information may be found on the MSDS sheets if applicable. Entry into any tank or underground utility vault may be considered entry into a confined space.

Definition

Confined space is defined as a space large enough for a person to get into and work but not designed for continuous occupancy. It is not easy to get into or out of and it has little or limited ventilation.

Typical examples are storage tanks, boilers, tank cars, pipelines, sewers and crawl space, process tanks, and utility vaults. Confined space has one or more of the following characteristics: -

- contains or has a known potential to contain a hazardous atmosphere e.g. oxygen deficiency (less than 19.5 by volume, or more than 22% by volume) accumulation of Flammable vapors or gasses
- contains a material with the potential for engulfment of an entrant
- has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a small cross-section
- contains any other recognized serious safety or health hazard, or
- egress restrained to such a degree that a person would have difficulty in escaping in an emergency

Procedures - General Precautions

Before permitting anyone to enter an identified permit required confined space, the following precautionary measures shall be reviewed, and all of those which are applicable shall be employed. Check for:

- Flammability (combustible atmosphere)
- Toxic Contaminants
- Oxygen deficiency/excess
- Carbon Monoxide

Take appropriate action to remove all substances that are flammable, toxic or harmful gasses, or other contaminants by appropriate means. Retest and take additional action, as needed, to achieve an atmosphere safe for entry. Appropriate test shall be made as necessary to ascertain that the safe atmosphere is maintained.

Blank off or line break all connections which would permit the entrance of flammable or harmful substances including steam or hot water. Valves shall not be depended upon for this purpose. Cold water lines may be valved off if valves are tagged and locked.

Eliminate the hazards presented by internal agitators or other mechanical devices driven by electric or pneumatic power by:

- (a) locking and tagging the disconnect switch in the "off" position,
- (b) by having fuses removed or motor leads disconnected,

- (c) mechanically disconnecting the agitator drive coupling, or
- (d) disconnecting and tagging pneumatic lines to the agitator device.

Ventilate by natural or mechanical means (e.g. fans) to achieve a safe atmosphere, and to maintain it while work is in progress. Manheads on tanks should be removed as needed to provide for ventilation and rescue.

Ensure that hazards will not be introduced by the materials to be used in carrying out the work. All materials to be used in a confined space shall be checked at the job site by the member of supervision in charge.

Provide training and identify duties of authorized entrants to permit required confined spaces.

Open Flame Work

When welding, burning, or other open flame work is to be performed in a confined space, it is mandatory to determine in advance that the atmosphere is free of flammable vapors. In addition, tests with a flammable vapor indicator shall be made periodically during the course of the work, if there is danger of creating a flammable atmosphere through the release of vapors due to elevated temperatures or other conditions.

Respiratory Protective Equipment

When it is necessary to perform work in a confined space which may contain toxic or injurious vapors or a marginal oxygen atmosphere, those who enter the space shall be equipped with appropriate self-contained breathing apparatus (SCBA), and an approved safety belt with a "retrieval line" attached and the other end of the retrieval line should be secured outside the entry opening to the confined space.

At least one employee (attendant) shall stand by on the outside of the confined space while employees are inside with additional SCBA exclusive for rescue purpose. When ventilation in a confined space is adequate to maintain a safe atmosphere, the use of SCBA by those who enter is not required.

Other Personal Protective Equipment

The hazards to personnel which may be encountered in a confined space shall be carefully considered in advance. Employees engaged in the operation shall be advised of hazards they may encounter. When required, protective clothing (including eye protective devices) shall be used, and workers shall be instructed in the proper use of such equipment.

Provisions for Rescue

An attendant shall be in constant attendance outside the confined space within sight and sound of the space. The attendant shall communicate by word of mouth with those inside the confined space at intervals not to exceed one minute.

The attendant shall be specially instructed in the procedure to be employed in summoning assistance.

If the confined space is such that withdrawing an unconscious person would be difficult, consideration shall be given to the need for having one or more additional employees, who may have other duties, within call of observer or provide other means of rescue.

Permit to Enter Confined Space

No one shall enter a confined space without having first obtained a written approval on a confined space entry permit.

8.0 Blood-borne Pathogens

This guideline helps limit occupational exposure to blood and other potentially infectious materials since any exposure could result in transmission of blood-borne pathogens that could lead to disease or death.

This covers all employees who could be "reasonably anticipated" as the result of performing their job duties to face contact with blood and other potentially infectious materials. This handbook has not attempted to list all occupations where exposures could occur. "Good Samaritan" acts such as assisting a co-worker with a nosebleed would not be considered occupational exposure.

Infectious materials include but not limited to any body fluid visibly contaminated with blood and all body fluids in situations where it is difficult or impossible to differentiate between body fluids. They also include any unfixed tissue or organ other than intact skin from a human (living or dead), human immunodeficiency virus (HIV)- containing cell or tissue cultures, organ cultures and HIV or hepatitis B (HBV)-containing culture medium or other solutions as well as blood, organs or other tissues from experimental animals infected with HIV or HBV.

General procedure

- Once employees are blood exposed, seek immediate medical attention.
- Do not dispose of or handle contaminated laundry to minimize exposures.

Post-Exposure Evaluation and Follow-up

Once employees have a blood-exposure incident, per suggestion of medical professional, laboratory test may need to be conducted at no cost to the employee. Follow-up must include a confidential medical evaluation documenting the circumstances of exposure, identifying and testing the source individual if feasible, testing the exposed employee's blood if he/she consents, post-exposure prophylaxis, counseling and evaluation of reported illnesses. Healthcare professionals must be provided specified information to facilitate the evaluation and their written opinion on the need for hepatitis B vaccination following the exposure. Information such as the employee's ability to receive the hepatitis B vaccine must be supplied to the employer. All diagnoses must remain confidential. Any confidential health information provided by the medical profession must have the written consent of the employee.

9.0 Lock-out / Tag-out Procedures

Customer Engineers conducting installation, maintenance or repair operations on electrical equipment and machinery are exposed to possible injury from the unexpected start-up of the equipment, or the release of stored energy in the equipment.

These procedures are designed to: -

- a) Prevent inadvertent operation of the equipment/process in order to protect personnel.
- b) Establish methods for achieving zero energy state.
- c) Comply with applicable standards
- d) Apply to activities such as, but not limited to;
 - Erecting, installing, constructing, repairing, adjusting, inspecting, cleaning, operating or maintaining the Company's equipment/processes
- e) Apply to energy sources such as, but not limited to
 - Electrical, mechanical, hydraulic, pneumatic, chemical, radiation, thermal, compressed air, energy stored in springs and potential energy from suspended parts (gravity)

These procedures also provide specific work instructions for the safe and effective de-energization, locking, tagging and re-energization of UPS, Battery, and Power systems.

Definitions

Energy isolating device – a physical apparatus which prevents the transmission or release of energy such as, but not limited to the following:

- Restraint blocks, manually operated electrical circuits breakers, disconnect switches, slide gates, and slip blinds or line valves.

Where possible, they shall provide visible indication of the position of the device. Push button, selector switches and other portions of the control circuit shall not be considered as energy isolating devices.

Lockout/Tagout – The placement of a lock/tag on an energy isolating device in accordance with an established procedure, indicating that the energy isolating device shall not be operated or removed until the lock/tag has been cleared.

Lockout device – Examples include locks, chains, blank flanges and bolted slip blinds. Lock-out devices are used to hold an energy-isolating device in a safe position and to prevent the start-up of machinery or equipment. Whenever possible a lockout device must be used along with a tagout device. An example of this is when you lockout an electrical disconnect, you must attach the warning tag to the lock shackle and then attach both the lock and tag to the disconnect. Never remove a lockout that does not belong to you.

Tagout device — A tag and a nylon tie that is securely fastened to an energy-isolating device to indicate that the machine cannot be operated until the tagout device is removed. A tag alone will only serve as a warning device - people can easily remove tags, putting you at risk. Never remove a tagout that does not belong to you.

Employee Tag — A warning appliance used for the purpose of personnel protection. Its legend forbids the operation or removal of any energy isolating device and identifies the applier.

Zero Energy State — A state in which every equipment/process energy source has been controlled either by lockout/tagout or other protective techniques to prevent the unexpected release or transmission of energy.

Qualified Individual — An individual who understands how to effectively control the equipment/process through application of energy isolating devices.

Authorized Individual — A knowledgeable individual processing the responsibility and authority to perform a specific assignment.

Affected Individual - An affected individual is not qualified to lock/tag out a piece of equipment, but uses/operates a machine or piece of equipment which lead to maintenance or servicing needs.

General Procedure Instructions

Principles

- a) All employees and contractors are to comply with the provisions of the lockout/tagout procedure.
- b) The locks/tags should be the only authorized method used for the lockout/tagout of energy sources
- c) Individual locks/tags shall be applied and removed by each person exposed to the unexpected release of energy. An “authorized management person” should be the only one allowed to remove a lock or tag when the employee who applied the lock is not available (e.g. different shifts). But in all situations it is preferred that individuals remove personal tags prior to shift or task handover.
- d) Where equipment is lockable, all employees should make use of a lock if work is to be conducted on the equipment.
- e) Where equipment is not lockable, employees should identify appropriate tagout application or special lockout/tagout procedures with Safe Work Method Statements.
- f) When locks are used in the lockout/tagout application, they should always be accompanied by tags signed by the employee.
 - Locks used for personnel protection shall be accompanied by employee tags.
 - Locks used to protect against hazards shall be accompanied by caution tags.

- g) Energy isolating devices should be clearly labeled or identified to indicate their function unless the purpose is evident. Such identification is necessary to reduce possible errors in applying the lockout/tagout.
- h) The lockout/tagout of electrical energy sources should occur at the circuit disconnect switch. (Note: Facilities shall identify any situation where the circuit cannot be positively interrupted and develop procedures providing equipment protection.
- i) The use of electrical control circuitry to accomplish lockout/tagout is prohibited since it does not offer positive personnel protection (e.g. on/off switches). Examples of circuitry failure are:
 - Electrical shorts (water in lines and some types of dust can supply a path to close the control circuit)
 - Vibration or switch component failure
 - Remote or interlocked switches not affected by control circuitry

Protection Appliances

Locks should be purchased specifically for lockout applications. They shall be of such design and durability that removal by other than normal means would require excessive force or unusual techniques. In addition, they shall possess individual keying/combination capacity.

Tags are used to provide warning or information.

- a) Employee tags must be used only for personnel protection
- b) Caution tags must provide a warning of hazard. It does not indicate that the applier is currently exposed to the unexpected release or transmission of energy. The use of a Caution Tag is provided to preserve the integrity of the Employee and Caution Tags.

Lockout fixtures are appliances which accommodate one or more locks to secure an energy isolating device.

Additional Protective Appliances – Some exposures may require additional protective techniques or mechanical safeguards, as follows:

<u>Exposure</u>	<u>Protection</u>
Flywheels/Press Rams Chemicals, steam, etc.	Blocks, pins, etc Slip blinds, chained valves etc
Mixers, crushers, etc	
Hydraulic/Pneumatic Systems	Fuse, heater removal, shaft disconnect, etc. Automatic bleeding devices, blanking, etc.

Job Safety Environment Analysis

- a) Job Safety Environment Analysis is to be used to determine if the equipment/process can be safely isolated.
- b) Job Safety Environment Analysis should determine if energy isolating devices are available, adequate and practically located for positive protection.
- c) Job Safety Environment Analysis should be reviewed and updated annually or when a significant change has occurred to the equipment/process.

Responsibilities

- a) Country Service Managers / Supervisors are responsible for the development, implementation and administration of an effective lockout/tagout system.
- b) All employees are responsible for complying with the lockout/tagout procedures
- c) Only Qualified Individuals should determine the methods required to accomplish the lockout/tagout systems.
- d) Only Authorized Individuals should operate energy isolating devices.

10.0 Reporting and Investigating Accidents

Health and Safety of all personnel in all our activities shall be a key priority. This is a mandatory requirement to report, investigate and effectively close out accidents/incidents involving staff, contractors and visitors.

It is a mandatory requirement of every employee to be familiar with this procedure and to act accordingly in the event of an accident/incident.

All accidents/incidents involving staff members, visitors and contractors must be recorded in the accident register. This includes near miss incidents.

It is required to report and investigate the facts and circumstances of an event that did or could result in physical harm to people. The investigation is not aiming at fault-finding but to eliminate the chances of re-occurrence. The form is referenced on page 27 of this handbook and can be obtained from Human Resources.

Definitions

Recordables (Recordable Injury) (Incident)	<ul style="list-style-type: none"> ▪ Any injury requiring medical intervention and/or treatment other than basic first aid. (i.e. only a Band-Aid is not a recordable) – Local policies may require all first aid even band-aids to be registered in the first aid log. ▪ Given prescription medicine for pain or given stitches, using tweezers to remove eye irritant, going to outside doctor, is a recordable
Near Miss (Near Hit)	<ul style="list-style-type: none"> ▪ An unplanned event, which could have, but does not result in injury or illness.
Accident	<ul style="list-style-type: none"> ▪ An Accident is an unplanned event that results in personal injury or in property damage.
Serious Harm	<ul style="list-style-type: none"> ▪ Means death, or harm of a kind as set out below: ▪ Any conditions that amounts to or results in permanent loss of body function, or temporary severe loss of bodily function such as respiratory disease, noise including hearing loss, etc. ▪ Amputation of body part ▪ Burns requiring referral to a specialist medical practitioner or special outpatients clinic ▪ Loss of consciousness from lack of oxygen ▪ Loss of consciousness, or acute illness requiring treatment by a registered medical practitioner, from absorption, inhalation, or ingestion of any substance
Lost Time Accident	<ul style="list-style-type: none"> ▪ An injury that results in the employee being absent from the workplace for at least one shift
Unsafe Act	<p>Either deliberately or inadvertently not following the basic safety rules, policies and procedures outlined in the safety handbook, which creates a situation where the employee or others are EXPOSED to harm or bodily injury. An injury in the workplace could also be the result of an unsafe act.</p>
Unsafe Condition	<ul style="list-style-type: none"> ▪ The observance or existence of safety hazards OR situations that have the POTENTIAL to cause bodily harm or injury.

Reporting / Measuring

Incident Rate	$\frac{\text{\# of Recordables} \times 200,000}{\text{\# Man hours worked}}$
Lost time rate	$\frac{\text{Lost time accidents} \times 200,000}{\text{\# Man hours worked}}$
Severity Rate	$\frac{\text{Total lost working days} \times 200,000}{\text{\# Man hours worked}}$

Responsibility

- **Service Directors**

The Service Directors are responsible for ensuring that all requirements of this procedure are carried out and that preventative action has been taken.

- **Country Service Managers / Supervisors**

The Country Service Manager / Supervisor is responsible for ensuring that all accidents / incidents, including near misses, unsafe acts and unsafe conditions are properly investigated and reported on the Accident Investigation Form; also responsible for ensuring immediate actions are taken to control the circumstances which led to the accidents / incidents.

- **Employees, Contractors and Visitors**

Every employee, contractor or visitor is responsible for ensuring all accidents/incidents are reported, including near misses and unsafe acts and unsafe conditions, which have potential to place persons at risk.

Distribution - Report(s) should be completed within twenty-four (24) hours as follows:

All cases	Safety Manager, Local HR Manager, Service Manager, Service Director
Lost time accidents ONLY	Safety Manager, Managing Director, Vice President Service, Vice President Human Resource, Service Director

Reporting and Investigation Meeting

Within 24 hours of the accident/incident, Safety Manager (or HR Manager) and the Service Manager will schedule an investigation meeting to: -

- Review accident facts and reports submitted
- Determine corrective action to be taken
- Make provision to have action carried out
- Provide for follow-up (minimum – 30 days)
- Minutes taken and kept on file
- Notify local authority if required under legislation within country.



Injury/Incident Report

Section A: Initial Report

To be completed by employee & supervisor within 24 Hrs via Online/Electronic Transfer. If not available revert to manual use of form

Type of Incident				
<input type="checkbox"/> Injury <input type="checkbox"/> Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Near Miss				
Employee Name		Employee Address		Phone Number
Employee #	Job Title	Time in Job	Date Hired	Sex
Location of Incident		Department/Shift	Date of Incident	Time
Date of Injury/ Incident Report				Time
Witnesses to Incident	Name and Telephone Number			
<input type="checkbox"/> Yes <input type="checkbox"/> No	1. 2. 3. 4.			
Was First Aid provided by Emerson Employees?	Name of First Aid Attendants			
<input type="checkbox"/> Yes <input type="checkbox"/> No	1. 2.			
Sent for Medical Treatment	Name and Address of Treatment Facility	Name and Address of Attending Physician		
<input type="checkbox"/> Yes <input type="checkbox"/> No				
Was Employee hospitalized?	Name and Address of Hospital Facility	Name and Address of Attending Physician		
<input type="checkbox"/> Yes <input type="checkbox"/> No				
Lost Time Through Injury?				
<input type="checkbox"/> TBA Lost Time Through Injury (not known at time of report)				
_____Hours	<input type="checkbox"/> Progressive Lost Time through Injury (lost time at the time of report)			
_____Hours	<input type="checkbox"/> Final Lost Time through Injury (total lost time post report submittal)			



Injury/Incident Report

Description of Injury / Incident continued				
Type of Task	Has employee been trained in this particular task?	JSA Available and Reviewed	Is JSA form up to date and accurate?	Date of last training session
<input type="checkbox"/> Routine <input type="checkbox"/> Non-routine	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were specific instructions given?	Were instructions followed?	Has similar incident occurred in the past?		
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Was Personal Protective Equipment required for this task?	Was required equipment used?	Was protective equipment used properly?		
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Name	Signature			Date
Supervisor				
Employee				

Please forward to facility Safety Coordinator for completion of Pareto analysis and Corrective Action Summary



Injury/Incident Report

Section B: Injury Pareto Analysis Codes

To be completed by Safety Coordinator (Please check appropriate box(s) in each section).

Severity (Select One)	Employee Type (Select One)	Part of Body (Check All That Apply)	Unsafe Act (Check all that apply)
<input type="checkbox"/> Fatality	<input type="checkbox"/> Contractor	<input type="checkbox"/> Abdomen	<input type="checkbox"/> Failure to check
<input type="checkbox"/> Lost Time	<input type="checkbox"/> Hourly	<input type="checkbox"/> Ankle	<input type="checkbox"/> Improper attire
<input type="checkbox"/> Medical Treatment	<input type="checkbox"/> Management	<input type="checkbox"/> Back	<input type="checkbox"/> Improper ladder use
<input type="checkbox"/> Restricted Activity	<input type="checkbox"/> Salary	<input type="checkbox"/> Buttocks	<input type="checkbox"/> Improper lockout/tagout
<input type="checkbox"/> First Aid or other	<input type="checkbox"/> Temporary	<input type="checkbox"/> Chest	<input type="checkbox"/> Improper material handling
		<input type="checkbox"/> Ear	<input type="checkbox"/> Instructions not followed
		<input type="checkbox"/> Elbow	<input type="checkbox"/> Moving object too heavy
Accident Type (Select One)	Nature of Injury (Check All That Apply)		
<input type="checkbox"/> Illness	<input type="checkbox"/> Abrasion	<input type="checkbox"/> Eye	<input type="checkbox"/> Operating without authority
<input type="checkbox"/> Injury	<input type="checkbox"/> Allergic Reactions	<input type="checkbox"/> Face	<input type="checkbox"/> Other
	<input type="checkbox"/> Amputation	<input type="checkbox"/> Finger	<input type="checkbox"/> Overloading equipment
	<input type="checkbox"/> Burn/Scald	<input type="checkbox"/> Foot	<input type="checkbox"/> Overriding safety device
Walking/Working Surface (Select One)			
<input type="checkbox"/> Slip/trip/fall	<input type="checkbox"/> Concussion	<input type="checkbox"/> Fore Arm	<input type="checkbox"/> Personal conduct
<input type="checkbox"/> Fall from elevation	<input type="checkbox"/> Contusion	<input type="checkbox"/> Groin	<input type="checkbox"/> Placement of body/hands
<input type="checkbox"/> Fall same level	<input type="checkbox"/> Crush	<input type="checkbox"/> Hand	<input type="checkbox"/> PPE improper or not used
	<input type="checkbox"/> Dermatitis	<input type="checkbox"/> Head	<input type="checkbox"/> Removing guard
	<input type="checkbox"/> Dislocation	<input type="checkbox"/> Hip	<input type="checkbox"/> Safety device not used
Material Handling (Check All That Apply)			
<input type="checkbox"/> Bending	<input type="checkbox"/> Electric Shock	<input type="checkbox"/> Knee	<input type="checkbox"/> Set up improper
<input type="checkbox"/> Carrying	<input type="checkbox"/> Foreign body (eye)	<input type="checkbox"/> Leg	<input type="checkbox"/> Shutdown improper
<input type="checkbox"/> Holding	<input type="checkbox"/> Fracture	<input type="checkbox"/> Multiple	<input type="checkbox"/> Speed
<input type="checkbox"/> Lifting	<input type="checkbox"/> Heat Stress	<input type="checkbox"/> Neck	<input type="checkbox"/> Tool defective
<input type="checkbox"/> Pushing/pulling	<input type="checkbox"/> Hernia	<input type="checkbox"/> Shoulder	<input type="checkbox"/> Tool used unsafely
<input type="checkbox"/> Reaching	<input type="checkbox"/> Infection	<input type="checkbox"/> Toe	<input type="checkbox"/> Unsafe driving
<input type="checkbox"/> Struck by material dropped	<input type="checkbox"/> Laceration	<input type="checkbox"/> Trunk	<input type="checkbox"/> Unsafe machine operation
	<input type="checkbox"/> Loss of hearing	<input type="checkbox"/> Upper Arm	<input type="checkbox"/> Unstable arranging of material
	<input type="checkbox"/> Loss of vision	<input type="checkbox"/> Wrist	<input type="checkbox"/> Walking and not observing
Struck Against (Select One)	Occupational Illness	Agent (Select One)	Unsafe Condition (Select One)
<input type="checkbox"/> Machine	<input type="checkbox"/> Other	<input type="checkbox"/> Acid/caustic	<input type="checkbox"/> Damaged tool
<input type="checkbox"/> Moving object	<input type="checkbox"/> Puncture/sliver	<input type="checkbox"/> Air pressure	<input type="checkbox"/> Design/process unsafe
<input type="checkbox"/> Object being handled	<input type="checkbox"/> Repetitive motion	<input type="checkbox"/> Animal/insect	<input type="checkbox"/> Electrical equipment
<input type="checkbox"/> Stationary object	<input type="checkbox"/> Sprain	<input type="checkbox"/> Body motion	<input type="checkbox"/> Faulty equipment
	<input type="checkbox"/> Strain	<input type="checkbox"/> Box/barrel/drum	<input type="checkbox"/> Hazardous arrangement
		<input type="checkbox"/> Building structure	<input type="checkbox"/> Hot surface
Struck By (Select One)	Activity of Injured (Select One)		
<input type="checkbox"/> Falling/flying object	<input type="checkbox"/> Assembly	<input type="checkbox"/> Silver/Splinter	<input type="checkbox"/> Housekeeping poor
<input type="checkbox"/> Machine	<input type="checkbox"/> Clerical work	<input type="checkbox"/> Conveyor	<input type="checkbox"/> Improper tool provided
<input type="checkbox"/> Object being handled	<input type="checkbox"/> Driving	<input type="checkbox"/> Dust	<input type="checkbox"/> Inadequate guarding
<input type="checkbox"/> Object handled by other	<input type="checkbox"/> Electrical Work	<input type="checkbox"/> Electrical equip.	<input type="checkbox"/> Inadequate instruction
	<input type="checkbox"/> Finishing	<input type="checkbox"/> Floor surface	<input type="checkbox"/> Machine
	<input type="checkbox"/> Material handling	<input type="checkbox"/> Hand tool - manual	<input type="checkbox"/> Material storage
	<input type="checkbox"/> Operating machine	<input type="checkbox"/> Hand tool - air	<input type="checkbox"/> Noise
	<input type="checkbox"/> Performing maintenance	<input type="checkbox"/> Hand tool - electric	<input type="checkbox"/> Poor lighting
<input type="checkbox"/> (Powered Industrial Vehicle)	<input type="checkbox"/> Sheet metal handling	<input type="checkbox"/> Heat	<input type="checkbox"/> Safety device not functioning
	<input type="checkbox"/> Walking	<input type="checkbox"/> Hoist	<input type="checkbox"/> Sharp material
	<input type="checkbox"/> Welding	<input type="checkbox"/> Knife	<input type="checkbox"/> Slippery surface
		<input type="checkbox"/> Ladder (choose type)	<input type="checkbox"/> Tripping hazard
Caught in/between/under (Select One)			
<input type="checkbox"/> Machine	<input type="checkbox"/> Wire wrapping	<input type="checkbox"/> Extension	<input type="checkbox"/> Unlabeled material
<input type="checkbox"/> Material		<input type="checkbox"/> Step or A-Frame	<input type="checkbox"/> Vehicle unsafe
		<input type="checkbox"/> Step Stool	<input type="checkbox"/> Ventilation poor
		<input type="checkbox"/> Machine	<input type="checkbox"/> Fall protection not used
		<input type="checkbox"/> Material/Product	<input type="checkbox"/> Unguarded floor openings
		<input type="checkbox"/> Noise	
		<input type="checkbox"/> Person	
		<input type="checkbox"/> Stairs	
		<input type="checkbox"/> Vehicle	
		<input type="checkbox"/> Welding (choose below)	
		<input type="checkbox"/> Arc	
		<input type="checkbox"/> Braze	
		<input type="checkbox"/> Soldering	
		<input type="checkbox"/> Gas/fume/vapor	
Miscellaneous (Select One)			
<input type="checkbox"/> Animal/insect			
<input type="checkbox"/> Chemical			
<input type="checkbox"/> Cold stress			
<input type="checkbox"/> Electrical			
<input type="checkbox"/> Fire/explosion			
<input type="checkbox"/> Friction			
<input type="checkbox"/> Heat stress			
<input type="checkbox"/> Noise			
<input type="checkbox"/> Overexertion			
<input type="checkbox"/> Physical assault			



Section C: Root Causes and Corrective Actions

To be completed by Safety Co-ordinator.

Equipment				
Root Cause	Corrective Action	Responsibility	Target Date	Completion Date
Environment				
Root Cause	Corrective Action	Responsibility	Target Date	Completion Date
People				
Root Cause	Corrective Action	Responsibility	Target Date	Completion Date
Management				
Root Cause		Responsibility	Target Date	Completion Date
	Name	Signature		
Department Manager				
Safety Coordinator				
Facility Manager				



Injury/Incident Report

Section D: Injury/Incident Witness Statement

To be completed by Witness.

Last Name		First Name	Initials
Employee #	Job Function		Department
Location of Incident		Date of Incident	Time
Type of Incident			
<input type="checkbox"/> Injury or Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Other Incident			
Description of Incident / Occurrence			
Other Witnesses		Name	
<input type="checkbox"/> Yes <input type="checkbox"/> No		1. 2. 3. 4.	

Employee's Signature

Date

11.0 Hazard Management

This is a critical responsibility for anyone who is in control of the workplace or site to identify the potential hazards of the proposed work, assess the risks involved and develop controls to eliminate, or minimize the risk.

Definitions

Hazard	Means an activity, arrangement, circumstance, event, occurrence, phenomenon, process, situation or substance (whether arising or caused within or outside a place of work) that is an actual or potential cause of source of harm, and "hazardous" has a corresponding meaning.
Significant Hazard	Means a hazard that is an actual or potential cause or source of: (a) Serious harm; or (b) Harm (being harm that is more than trivial) the severity of whose effects on any person depends (entirely or among other things) on the extent or frequency of the persons exposure to the hazard; or (c) Harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard
Risk	Is the probability of potential harm becoming actual.
Risk Assessment	Is the process of determining whether there is an acceptable risk associated with each of the hazards identified, that is, whether there is any likelihood of injury or illness.
JSEA	Job Safety Environment Analysis. The formal hazard identification and risk assessment process to be followed by all the company Service Customer Engineers.
Work Method Statements	Identifying the task required and list the safe process in carrying out the task.

Hazard Identification Requirement

To ensure all potential hazards are identified, the job will be broken down into individual activities that follow the sequence of events associated with performing the task.

Step 1

Conduct a Risk Assessment / Job Safety Environment Analysis (JSEA)

This process requires the employee to identify the hazards and assess the risk associated with carrying out the task. As part of this process you will be required to think about the level of risk associated with carrying out the task – (Class of Risk banding 1-6. Risk 1-2= Risk Considered Acceptable, Risk 3-4= Establish Work Specific Risk Controls, Risk 5-6= Do not commence work).

Step 2

Control the Risk

Once this risk has been assessed, you will be required to fill in the Risk Management Worksheet showing how the risk is controlled.

Step 3

Monitor and Review the risk

It is necessary to monitor and review the risk to ensure the actions have been implemented and this has removed the risk.

Work Method Statements (WMS) should be done for all tasks carried out by CE's.

The **Job Safety Environment Analysis (JSEA)** form is used to identify any work-related hazards. By completing the JSEA, each work activities and associated job steps are being evaluated and hence all potential hazards should be identified.

Controls will then be developed to eliminate, or minimize each identified hazard.

Note: JSEA shall be constantly reviewed for suitability and where changes to the work scope or changes to the work environment are detected then the process is reinitiated to address and document such change.

JSEA will be completed and signed by an appropriate qualified person/s that is competent in the work activity to be undertaken.

Customer Engineers/Contractors who will be performing the work will review the JSEA and sign that they understand and are willing to implement the controls required to carry out the work safely.

Work not to proceed until the above criteria is achieved.

New Hazard Notification Process

Customer Engineers will from time to time experience new hazards in their work environment. It is important that these Hazards are notified to the relevant Country Service Manager. The Hazard Notification Form (see 11.2) is to be used to perform this process.

Responsibilities

All regional Service Directors / Country Service Managers are responsible for ensuring JSEA are developed for their areas of responsibility.

Recording

Completed JSEA/WMS will be maintained in a location readily accessible to relevant Employees.

Review and Revision

Country Service Managers, in consultation with Customer Engineers will review each JSEA every 12 months.

The JSEA is only effective if it is reviewed periodically or when an incident occurs. Revising the JSEA can find safety hazards that were missed during earlier analysis. The JSEA should be revised immediately after an incident to determine if any new job procedures or protective measures are needed.

JSEA's should be a component of your return to work program (if applicable), to ensure the returning injured employee does not suffer re-injury.

11.1 Job Safety Environmental Analysis HAZARD ASSESSMENT TABLE (Front Page of Risk Assessment Booklet)

CONSEQUENCES		FREQUENCY				
Environment	People	Has commonly/ repeatedly occurred (> 1:1 yr)	Known to have occurred (1:10 yrs)	Could have occurred (1: 50 yrs)	Low likelihood of occurring (1:100 yrs)	Unlikely to occur (> 1:100 yrs)
Catastrophic Environmental Event As below plus: -Fine/ prosecution -May seriously affect future operation of site -Public, media [National] outcry with company public image damaged	Multiple Fatalities	6	6	6	5	5
Major Environmental Event As below plus any 2 of the above	Fatality	6	6	5	5	4
Serious Pollution As below plus possible: -Fine -Community -Media concern	Serious Injury (Requiring hospitalisation)	6	5	5	4	4
Significant Pollution As below plus any 2 of the above	Significant Injury (Requiring medical treatment)	5	5	4	4	3
Minor Pollution -No impact on the environment -Easily addressed or rectified -Prosecution or fine unlikely -May involve public concern restricted to local complaint	Minor Injuries (Requiring first aid treatment)	4	4	3	2	1

6 = High Risk, 5 = Significant Risk, 4 = Moderate Risk, 3 = Low Risk, 2 = Minor Risk, 1 = Insignificant Risk

Matrix Rating	Action
6 or 5	Do not commence work until additional controls, which will lower the risk to 3 or lower are put in place. Contact your Supervisor if necessary. Proceed to Step 4 then return to Step 3
4 or 3	Establish the work specific risk controls, work tasks and sequence of work including associated responsibilities. Proceed to Step 4.
2 or 1	Risk considered acceptable. Proceed to Step 4.

List of Generic Hazards

(To be used as a prompt list only)

<p>Electrical Hazards</p> <ul style="list-style-type: none"> Live conductors Clearances from live equipment Is a safety observer required? High current in vicinity Additional lighting required Access permit required Attractive supplies present Capacitors require discharging Inadequate control/operation possible Danger tags required Insulating mats required Induced Voltages 	<p>Mechanical Hazards</p> <ul style="list-style-type: none"> Rotating equipment Crushed Injury possible Cutting/tearing possible Bumps possible Can someone strike you? Can objects fall on you?
<p>Site Hazards</p> <ul style="list-style-type: none"> Exit route to be cleared Confined space Retrace location Safe working barrier required Noise levels high Danger from vehicle movement Clear access ways required 	<p>Climate Hazards</p> <ul style="list-style-type: none"> Wet weather a consideration Insect bites a possibility Heat precautions required (eg sunburn) Cold precautions required
<p>Personal Protective Equipment/Tools</p> <p>Personal require</p> <ul style="list-style-type: none"> Special clothing Eye protection Work gloves Hard Hats Insulating Gloves Safety Footwear <p>s condition unacceptable</p> <p>s not suitable for task</p>	<p>Ladders</p> <ul style="list-style-type: none"> Suitable for task Fixed ladders have hand/rail/cage
<p>Environmental Hazards</p> <ul style="list-style-type: none"> Use of chemicals Material safety data available Flora, Fauna Aboriginal heritage 	<p>Public Hazard</p> <ul style="list-style-type: none"> Traffic control required Barricades required Adequate clearance between workers and traffic Trenches require protected i.e. signage
<p>People Hazard</p> <ul style="list-style-type: none"> Staff appropriately qualified Staff appropriately licensed i.e. <ul style="list-style-type: none"> Rigging Elevated Work Platform Additional staff required Visitors/contractors need to be site inducted 	<p>Other Hazards</p> <ul style="list-style-type: none"> Sharp objects (eg syringe) Confined Spaces Manual handling Repetition (eg Mic (voice), etc) Other hazards Risks not yet considered

BE ALERT

What abnormal situations, mistakes or changes in conditions can you foresee?

RISK CONTROL MEASURES

Risk must be eliminated to the lowest level reasonably practical [(A) being the lowest level of control of risk], as follows:

- (A) **ELIMINATE** the hazard from the workplace.
- (B) **SUBSTITUTE** the hazard to a less harmful hazard.
- (C) **ISOLATE** the worker from the hazard.
- (D) **MODIFY** the risk by engineering means.
- (E) **MINIMIZE** the risk by administrative means (Operating instructions etc).
- (F) **PPE** - Personal Protective Equipment.

EXAMPLES OF RISK CONTROL MEASURES:

HAZARD	Risk Elimination	CONTROL OF RISK
Electrical	(A) Eliminate (C) Isolate (F) PPE (E) Minimize (D) Modify (B) Substitute	- Make service dead - Insulated barriers on live equipment / Use insulated tools - Full body clothing to work on/near energized conductors - Operating Procedure Electrical Procedures
Manual Handling	(A) Eliminate (D) Modify	- Use mechanical aids / Team lifting - Replace heavy load by smaller ones - Detour the traffic
Traffic	(A) Eliminate (D) Modify	- Traffic controller / Use cones / Warning signs - Detour traffic
Access to work site	(A) Eliminate (D) Modify (F) PPE	- Use EWP in lieu ladder - Harness
Falls/Heights	(D) Modify (F) PPE	- Support arrangement - Relocate equipment location
Crush Injury	(A) Eliminate (C) Isolate (E) Minimize	- Remove the contamination - the contaminant
To/in the Environment	(A) Eliminate (C) Isolate (E) Minimize	- Steel capped boots / Goggles / Hearing protection - Barricades
Mechanical	(C) Isolate (E) Minimize	- Operating Procedure Confined Spaces
To/ from the public	(C) Isolate (E) Minimize	
Confined Spaces	(E) Minimize	

Monitoring and review of existing and any new hazards should be identified through out the life of the job/task or before a new job/task is commenced

Changes to the HAZARD IDENTIFICATION and RISK ASSESSMENT CHECK SHEET form should be made if new hazards arise that have not been addressed by the original assessment.



SAFE WORK ENVIRONMENTAL METHOD STATEMENT (SWEMS)

Page 1 of 13

SWEMS Category:	SWEMS number and Revision:	VERTIV (Australia) Pty Ltd	Head Office: 11 Victoria Road, Macquarie Park, NSW 2113 Unit 11, 280 Bridge Street, Pitt Riversville, VIC 3087 Level 2, 100 Orchard St, Melbourne VIC 3000 Unit 4, 74 State Street, Melbourne VIC 3000 14, 200 New Street, Melbourne VIC 3000 Unit 10, 200 New Street, Melbourne VIC 3000 24 Howe Street, Melbourne VIC 3000
SWEMS Title:	Valid until:	ASN 13100 AIN 034 ASN 9350000	24-hour support: 1300 307 888
Task Description: <small>(Copy and paste a description of the job to be done)</small>			
Customer Name:	Job Number:	Date:	
Customer Phone:	Customer Engineer (CE) name responsible for implementing this SWEMS		
Site Name:	CE signature:		
Street:	CE Phone number:		
Suburb:	Approved by (Supervisor name):		
State:	Approved by signature:		
Postcode:	Supervisor Phone number:		

Emergency Procedures and Rescue Plan		Rings Callers & Customers First Aid and CPR (your Training must be current - 3 years for First Aid and 1 year for CPR and LV Rescue)	
In the case of an accident immediately notify the First Aid Officer and/or 000 Ambulance in Australia and 111 in New Zealand	Isolate all Electrical Supplies		
Notify a person to call an Ambulance	Fight Fires if possible but only if trained. Raise alarm first.		
Notify a person to notify Customer	Approved by: Tony Merenda Assistant Manager Technical Support		Date
Document Revision Created by: Adrian Smith Safety Manager ANZ	Date		

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SAFE WORK ENVIRONMENTAL METHOD STATEMENT (SWEMS)

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MINIMUM PPE	ADDITIONAL PPE							
Safety Glasses, Safety Shoes, Long Sleeve Cotton Shirt, Long Sleeve Cotton Pants	Hard Hat	Arc Flash Face Shield	Gloves	Fall Arrest Equipment	Hearing protection	Warning signs	Barricades	LOTO equipment
	Arc Flash overall	Breath protection	Insulated gloves	Goggles	Respiratory Protection	Welding Screen	Fire Extinguisher	Additional lighting
Notes								
<ul style="list-style-type: none"> This SWEMS shall be reviewed in conjunction with relevant VERTIV (Australia) Policies and Procedures If a risk is determined to be moderate or high the Customer Engineer / Supervisor is required to consult with the customer to reduce the risk to low If the task or job changes, work should cease and a review of this SWEMS should be made. All workers involved in the SWEMS should be consulted and they must sign to confirm they have been briefed on the change, understand and will comply Where others are working adjacent to our works, their safety and welfare needs to be considered and references on how we will coordinate and communicate this work activity will be noted under the heading "Additional Hazards Found Onsite" page in this SWEMS 								

Energy	Work Environment		Substances	Environmental
Electrical	Confined Spaces	Scaffolding	Refrigerant Gases	Waste / Litter
Heat	Working at Heights	BWP	ACIS	Odour
Hydraulic	Working over water	Hot Work	Fumes and Vapours	Noise
Pressurised Fluid	Water / Waste Water	UV Radiation	Flammable material	Use of pesticides
Refrigerant Gas	Moving Plant / Traffic	Manual handling	Other Gases	Use of Pesticides
Fire	Slip / Trip / Falls	Cranes	Oil	Environmental discharge
Pneumatic	Lone work	Noise	Biological	Public nuisance

PLANT and EQUIPMENT					
Insulated screwdrivers	Anti-Arrest	Laptop	Load Bank		Climbing Tool
Insulated Spanners	Current Clamp	Roller Jack	Battery Lifter (if batteries are above 55kg)	X	Safety Barriers / Cones
Insulated hand tools (pliers etc)	Power Analyser	Trolley	Battery Impedance Tester		

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Likelihood & Consequence Rating					
Likelihood		Consequence	Safety	Environment	
5	Almost certain	The event is almost certain to occur every time this item is performed.	1 Insignificant	No medical treatment other than first aid required. No lost time injury	No lasting detrimental effect on the environment
4	Likely	The event is likely to occur every time this item is performed.	2 Minor	Medical treatment injuries	Short term, local detrimental effect on the environment or social impact
3	Possible	It is possible that this event may occur but not often.	3 Moderate	Lost time injury without hospitalisation	Serious, discharge of pollutant or source of community annoyance within neighbourhood that requires remedial action. Moderate impact of erosion law. No long-term impact on environment
2	Unlikely	The event is likely to occur	4 Major	Lost time injury resulting in hospitalisation with ability to return to work after treatment	Serious, discharge of pollutant or source of community annoyance within neighbourhood that requires remedial action. Potential long-term detrimental environmental or social impact
1	Rare	The event is almost impossible to occur and then only in exceptional circumstances	5 Extreme	Fatality or multiple serious injuries to staff, contractors or public. Lost time injury resulting in hospitalisation and permanent disability	Extensive detrimental long-term impacts on the environment and community

RISK MATRIX CALCULATOR					
Likelihood (L)	CONSEQUENCE (C)				
	1 Insignificant	2 Minor	3 Mod.	4 Major	5 Extreme
5 Almost Certain	Medium (5)	High (10)	High (15)	Extreme (20)	Extreme (25)
4 Likely	Medium (4)	Medium (8)	High (12)	Extreme (16)	Extreme (20)
3 Possible	Low (3)	Medium (6)	Medium (9)	High (12)	High (15)
2 Unlikely	Low (2)	Medium (4)	Medium (6)	Medium (8)	High (10)
1 Rare	Low (1)	Low (2)	Low (3)	Medium (4)	Medium (5)

HIERARCHY OF CONTROL EFFORT	
1. Eliminate	Complete elimination of the hazard
2. Substitute	Replace the hazard or Process with a less hazardous one
3. Engineering	Redesign the equipment or Process to reduce the risk of serious exposure (Lock out tag out systems etc.)
4. Administrative	Provide controls through Training, procedures etc.
5. PPE	Use personal control and appropriate PPE



Level of risk for SWEMS approval (R)			
1-3 Low Risk Minimal approval only	4-8 Medium Risk Authorisation required by management	10-15 High Risk Approval of senior manager	16-25 Extreme Risk Approval of senior manager and safety committee

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Work Method Steps List the steps required to perform the activity in the sequence they are required.	Hazardous Identification List and describe any and all hazards (physical, chemical, biological, environmental, etc.)	Risk Identify what could go wrong and describe the potential if the hazard is not controlled or if it is not controlled properly.	Risk Score (Maximum score is 25) See the Risk Matrix on page 2.			Control Measures Describe what control measures are required to eliminate, substitute, substitute, isolate, administrative, engineering, personal, protective, administrative, PPE.	Residual Risk Score for each sub-step			N/C	Notes of Particular concerns or other relevant info
			L	C	R		L	C	R		

Additional Hazards found onsite										
Work Element Scope of the job to be undertaken in the hazardous task	Hazard Identified (i.e. consequence of the hazardous task)	Risk Control (i.e. control of the hazard)	Task Scope			Control Measure (i.e. control of the hazard)	Residual Risk			Control Measure (i.e. control of the hazard)
			I	C	R		I	C	R	

Compliance with ACT's Regulations and Standards					
	Australian Capital Territory	New South Wales	Northern Territory	Queensland	South Australia
ACTS	WHS ACT 2011	WHS ACT 2011	WHS (National Uniform Legislation) Act 2015 Electricity Reform ACT 2016	WHS ACT 2011 Electrical Safety Act 2002	WHS ACT 2012
Regulations	WHS Regulations 2011	WHS Regulations 2017	WHS (National Uniform Legislation) Regulations 2017 Electricity Reform (Safety & Technical) Regulations 2016	WHS Regulations 2011 Electrical Safety Regulations 2010	WHS Regulations 2012
Codes of Practice	Refrigerant Handling COP 2007	Refrigerant Handling COP 2007	How to Manage Work Health and Safety Risks Refrigerant Handling COP 2007	Electrical Safety Code of Practice 2013 Refrigerant Handling COP 2007	Refrigerant Handling COP 2007
Standards	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines
	Tasmania	Victoria	Western Australia	New Zealand	
ACTS	WHS ACT 2012	OH&S ACT 2004	Occupational Health & Safety Act 1984	Health & Safety at Work Act 2015 Electricity ACT 1982	
Regulations	WHS Regulations 2012	OH&S Regulations 2017	Electricity (Licensing) Regulations 1991 Electricity Regulations 1947 OH&S Regulations 1999	Health and Safety at Work Regulations 2018 Electrical Safety Regulations 2010	
Codes of Practice	Managing Electrical Risks in the Workplace 2015 Refrigerant Handling COP 2007	Refrigerant Handling COP 2007	COP for persons working on or near energised electrical equipment Refrigerant Handling COP 2007	Refrigerant Handling COP 2007	
Standards	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations Wiring Rules AS/NZS Electrical Installations – Verification Guidelines	AS/NZS 3000:2018 Electrical Installations	

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Qualifications, Training & Standards	
Qualifications and Experience Required to Complete the Job	Training Required to Complete Work
Minimum of trades assistant or apprentice working under a qualified licensed Refrigeration & Air Conditioning Mechanic (for Air Conditioning work) if applicable	General induction / construction Industry White card
Electrical Disconnect / Recorred License for UPS testing and commissioning	Any site specific customer safety induction training
Licensed Refrigeration & Air Conditioning Mechanic (for Air Condition work)	Up to date completion of VERTIV Online Safety Training modules
Refrigerant Handling License (for Air Conditioning work)	All PPE used to meet and be maintained to Australian Standards

Potential Requirements			
Project Type	Mark if applicable	Personal Documentation / Licences - where is it kept?	Approved by Customer / name
Hot Work			
Confined Space (qualified personnel only)			
Electrical Access			
Working Live			
Lone Worker			
Working at Heights			

This SWEMS has been developed through consultation with our employees who have received instructions and training in regards to the SWEMS purpose and use. Signatures below are in recognition that the nominated employee has read, understood and will work according to the safety requirements as set out in this SWEMS.

Document #: SW-OPS-SWEMS-PA-1811 Rev 1 Issue Date: 11/9/2018 Review Date: 11/9/2021

SAFE WORK ENVIRONMENTAL METHOD STATEMENT (SWEMS)

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By signing below, I acknowledge I have been provided the opportunity to contribute to the identification of Safety hazards, formulation of work methods and I have received instructions on these methods, understand and agree to conform to the best of my ability.

VERTIV (Australian Employees) – Sign on Sheet		
Print Name	Signature	Date

Subcontractor Employees (if any) – Sign on Sheet			
Company Name	Print Name	Signature	Date

Document #: SW-OPS-SWEMS-PA-1811 Rev 1 Issue Date: 11/9/2018 Review Date: 11/9/2021

11.2 Hazard Notification Form

Hazard / Incident / Suggestion Notification Form (FOR SITE INSPECTIONS)

Is this issue a	Hazard ()	Incident ()
	Suggestion ()	(Can the OH&S Management System be improved?)
* Tick one box only		
Date/time issued identified	Date / /	Time Hrs
Exact location of the identified issue:		
Details of the issue (e.g. working at height without adequate fall protection)		
How was the issue identified?		
Is immediate action required to minimize the risk? Yes / No		
What action have you taken to minimize the risk?		
What action do you suggest is needed?		
Your Name:		
Your Location/VERTIV Office:		
Your office/mobile number:		
Signature:		Date:
<i>Supervisor's Report</i>		
Corrective Action not completed/completed		
Action Referred to:		
Supervisor's Signature:	_____	
Date:	_____	

12.0 Work Hours

Introduction

The number of hours worked before an associate becomes fatigued varies from individual to individual. However, the company has determined, due to safety concerns, that a Customer Engineer should not work consecutive hours (inclusive of labor, travel and multiple assignments) in excess of individual Country specific legislation or what is deemed to be reasonable length of time to expect an employee to work.

However it is also recognized that the company is in the critical support industry and those employees will be required in certain situations to work extended hours. During these situations Managers / Supervisor will monitor non-standard schedules when it is determined that the schedule is critical to successfully completing the work task.

Responsibilities – when working excessive hours

Human Resources Manager / Manager / Supervisor Responsibilities:

The Human Resources Manager / Manager / Supervisor is responsible for the following:

- Determine the maximum consecutive work hours and clearly communicate that to the customer engineer.

The Manager / Supervisor is responsible for the following:

- Determining course of action for each associate with consecutive work hours (replace, discontinue, continue, etc.).
- If necessary, providing alternatives (hotel, cab).
- If necessary, notifying customer of course of action.

Customer Engineer Responsibilities:

The Associate is responsible for one or more of the following:

- Notifying their Manager if work is extending beyond maximum consecutive hours (inclusive of labor, travel and multiple assignments).
- Staying in contact with Manager after long consecutive work hours (inclusive of labor, travel and multiple assignments) to provide status of work and/or ability to safely continue to work.
- The Company is committed to the safety and well being of its' Customer Engineers, as a result, the Company is very concerned and feels it is extremely important to be kept fully informed of when an Associate exceeds maximum consecutive hours worked (inclusive of labor, travel, and multiple assignments). Therefore, failure to report excessive consecutive work hours to their Manager may result in disciplinary action.

13.0 Working Alone

It is recognized that the Company Customer Engineers frequently are required to work alone, this guideline is intended to provide practical steps that will ensure their safety is maintained during these times.

Lone workers should not be at more risk than other employees. Employees should therefore identify situations where people working alone are at more risk and should consider following safe work practices and taking specific precautions. Any precautions should take account of normal work and foreseeable emergencies e.g., fire, equipment failure, illness and incidents. Working alone can lead to serious injury, or death.

Definitions

Lone Worker A person is alone at work when they are on their own; when they cannot be seen or heard by another person; and when they cannot expect a visit from another worker or member of the public for some time.

Remote Worker A worker located in a place that is a long way from the infrastructure required in an emergency.

Employer Responsibilities

Employers are required to communicate to Customer Engineers the situations when they are **NOT TO WORK ALONE**, and provide clear instruction as to how the work is to be undertaken.

Employers should set the limits to what can and cannot be done while working alone e.g., when to stop work and seek advice from a supervisor.

Consider both routine work and foreseeable emergencies that may impose additional physical and mental burdens on the individual.

Employers should ensure any objects that require manual handling can be safely handled by one person, if not; the employee needs to be provided with mechanical handling equipment.

Schedule higher risk tasks to be done during normal business hours, or when another worker capable of helping in an emergency is present.

Ensure regular contact is made where employees are working alone by either telephone or radio telephones (RTs).

Employers should undertake periodic site visits combined with discussions in which health and safety issues are raised.

Ensure checks are made that employees working alone have returned to their base or home on completion of the task e.g., overdue employee procedure.

Check that lone workers have no medical conditions which make them unsuitable for working alone.

Employee Duties

On all cases, employees should exercise common sense and good judgment when working alone or with someone else on site.

Employees should sign out before the job; provide information on their traveling plan and an estimated time of return.

Employees working alone on new sites should familiarize themselves with all relevant emergency procedures for the specific site e.g., evacuation procedures.

Employees should carry the required first aid supplies, and any necessary personal protective equipment.

Employees should report all situations, incidents or 'near misses' where being alone increased the severity of the situation.

Working Alone Safe Work Practices

Plant and Equipment

Ensure that employees are trained in the correct use and safe work practices of all equipment used onsite and at customer site(s).

Ensure all substances and goods involved in the work procedures can be safely handled by one person.

Ensure that all objects which require manual handling, can be safely lifted by one person. If not, the employee should be provided with mechanical handling equipment.

Where practicable, avoid operating mobile equipment alone in isolated areas. Use the following methods to handle the situation:

- Work mobile equipment in pairs wherever possible
- If operating mobile equipment alone in isolated areas on non-hazardous work, it should be equipped with a radio, mobile telephone or other aids to summon assistance in the event of an emergency

Employ an observer to avoid working alone on hazardous work, these situations to be identified by completing a Job Safety Environment Analysis.

Training

Training in safe work practices are particularly important where there is limited supervision to control, guide and help in situations of uncertainty.

Lone workers should be competent and understand the risks and precautions fully, they should also have sufficient experience to deal with circumstances which are new, unusual or beyond the scope of training, e.g. when to stop work and seek advice from a supervisor.

Customer Engineers new to a job, undergoing training, doing a job which presents special risks, or dealing with new situations may need to be accompanied at first.

The level of supervision required is a management decision which should be based on the findings of risk assessment. The higher the risk the greater the level of supervision required. It should not be left to individuals to determine whether they require assistance.

Emergency Situations

Lone workers should be capable of responding correctly to emergencies.

There is a means of communication available which will enable the employee to call for help in the event of an emergency.

Emergency procedures should be established and employees trained in them.

Information about emergency procedures and danger areas should be given to lone workers.

Lone workers should carry a first-aid kit suitable for treating minor injuries.

Risk assessment should identify foreseeable events.

Lone Worker Check-in Procedure

It is important that a check-in procedure be in place. Decide if a verbal check-in is adequate, or if the employee must be accounted for by a visual check. Make sure your plan is appropriate for both regular business hours as well as after main office hours.

For most lone workers, the telephone will be the main source of contact. If you work at a desk or station, have a telephone close by. If you are away from a main office or work station, the use of a cellular phone is very helpful.

If a cellular phone is unreliable in your area, be sure to have alternative methods of communication available (such as use of public telephones, site visits, etc.).

When Customer Engineers are required to travel out of the office, the main contact person should know the following details:

- Destination,
- Estimated time of arrival,
- Return time or date,
- Contact information if staying overnight,
- Mode of travel (public transit, car, plane, etc.) and,
- Alternate plans in the event of bad weather, traffic problems, etc.

An example of a check-in procedure is:

- Prepare a daily work plan so it is known where the lone employee will be and when.
- Identify one main person to be the contact at the office, plus a back up.
- Define under what circumstances the lone employee will check in and how often.
- Stick to the visual check or call-in schedule. You may wish to have a written log of contact.
- Have the contact person call or visit the lone employee periodically to make sure they are okay.
- Develop a plan to be followed if the lone employee does not check-in when he or she is supposed to.

14.0 Vehicle Safety

At all times while operating a vehicle, employees are expected to drive safely. The Manager / Supervisor has the responsibility to ensure his / her staff possess appropriate driving license for the operation while it is the employee's (driver's) responsibility to obey the local road laws during operation and make sure the vehicle is not being overloaded.

At all times when the employee is loading and unloading, make sure adequate lifting equipment and safe locations exist.

If you are involved in an accident involving a company car or found to be driving a company car under the influence of alcohol, unlawful drug taking, negligence or recklessness, you will be held responsible, and will be required to pay any excess on the insurance and any other amount not covered by insurance. In addition this may also result in disciplinary action and/or termination of employment.

All infringement penalties incurred are to be paid by you prior to the date stated on the fine. You are responsible for the vehicle incurring that penalty so any late penalty fees are your responsibility.

You must also abide by the following: -

- Company cars are intended primarily for company purpose only. A reasonable amount of private use has been allowed on a day-to-day basis; however, employees are not permitted to take the company car beyond their normal territory of responsibility, or to use the Company car during holidays without prior written permission from the Manager / Supervisor.
- Company cars must be kept clean, presentable and in safe roadworthy condition at all times.
- Company cars must be securely locked when left unattended and properly garaged at night.
- Company cars cannot be driven when employees are fatigued, intoxicated through alcohol consumption, drug taking or medical impairment.

15.0 Basic Environmental Practices

Health, Safety and Environment

The Company is committed to compliance with all federal, state and local laws and regulations that apply to its operations, including those concerning health, safety and environment anywhere in the world.

Employers will make every reasonable effort to ensure that the Company's products and places of business are safe for the public and its employees. A healthy and safe work place and environment is not just the responsibility of the Company or management, it also demands the attention of every employee.

Employees shall follow Company policies and directives relating to matters of health and safety and maintenance of environmental standards. Employees are expected to use common sense and good judgment in dealing with such matters.

The policy of the Company is to not only comply with all applicable laws and regulations but also reduce and, where possible, eliminate hazardous waste through source reduction and recycling. All wastes will be handled and disposed of through safe and responsible methods.

The Company will minimize the environmental, health and safety risks to its employees and the communities in which it operates through safe technologies, facilities and operating procedures and by being prepared for emergencies. The Company will encourage all of its employees to be alert to such risks and to report them promptly to management so that appropriate remedial measures may be taken.

15.1 Reclaim of Refrigerant

Other than the direct personal safety, we should also consider the environmental effects of our operations.

- Never discharge refrigerant into the environment.
- Recover refrigerant from a system into a container.
- Follow proper procedure and use appropriate equipment to contain and recycle the refrigerant in carrying out maintenance.

15.2 Battery Disposal

The requirements for disposal of batteries need to comply with environmental guidelines of local government. In general, under these guidelines, spent battery cells are considered hazardous waste and hazardous material depending on the types of battery. The owner of the battery is responsible for the battery "from cradle to grave", including the beneficial recycling of the battery. Observe the local regulation and appoint licensed waste disposal companies authorized to handle collection, transportation and disposal of batteries.

15.3 Chemical Disposal

All chemicals and fiber-based substances introduced to a site must not be used unless accompanied by a Materials Safety Data Sheet (MSDS) or equivalent. Most products should be accompanied with MSDS and stored in safe quantities.

The responsible Supervisor will ensure that the use of these products will not be harmful to those workers handling such materials, the correct procedures for use are observed and the appropriate type of protective equipment is provided & used.

Use barrier creams or gloves when working with chemicals such as epoxies.

Chemical wastes

The disposal of chemical wastes must comply with environmental guidelines of local government. In general, under these guidelines, there are specific regulations and specific registration and licensing of company (individual) in producing chemical waste, and the control of the possession, storage, collection, transport and disposal of chemical waste.

The owner of the chemical and chemical waste is responsible for the chemical "from cradle to grave", including the beneficial recycling if applicable. Observe the local regulations and appoint licensed waste disposal companies authorized to handle storage, collection, transportation and disposal of chemicals.

Packaging, labeling and storage of chemical wastes

- Chemical waste should be packed and stored in suitable containers in accordance with specified standards and be adequately labeled.
- Mixing of different types of chemical wastes in a container is not allowed.
- Strict licensing approval is required when large containers are to be used.

Labelling of Chemical (Sample)

Mineral Spirits, Type I

Clear, colorless liquid with a kerosine odor. Irritating to the eyes/skin.

Also causes: headache, dizziness, drowsiness.

Chronic: dermatitis; possible liver and kidney damage based on animal studies. Flammable. Can form explosive mixtures in the air.



CAS No. 8052-41-3



15.4 Asbestos

Asbestos was widely used as a reinforcing agent and as a fire suppressing filler in a wide range of building materials that are commonly found in buildings and has been identified as a Cancer and Lung Disease hazard. While use of Asbestos in building materials started to be phased out in the 1980's, a comprehensive ban on the use / importation of ACM only came into force in Dec 2003.

Asbestos Containing Material (ACM) which may be encountered in buildings include but are not limited to:

- Asbestos Cement (AC) Sheet, Pipe and moulded pits;
- Vinyl Tiles, fibre backing on Vinyl Sheet and floor levelling mastics / adhesives under vinyl flooring;
- Black Zelemite backing in Meter Boxes and Switchboards;
- Fire door cores and Fire Stopping materials around floor / wall penetrations;
- Plaster / Asbestos / Cloth lagging around EPP exhaust pipes, hot water piping, etc.;
- Mastics used for brick expansion joints, window sealants; etc.
- (see below sample pictures)

Due to uncertainty regarding underlying materials and difficulty obtaining representative test results, Vertiv Considers all Vinyl Tiles to be Presumed ACM and requires any work which drills, cuts or may otherwise disturb Vinyl Tiles as Asbestos Disturbance Work.

All Vertiv employees are reminded to view Building Asbestos Registers and under no circumstances disturb any material suspected of containing ACM.



15.5 Electromagnetic Hazard & Heart Pacemakers

Caution to all Vertiv employees who have implanted cardiac devices. Uninterruptable Power Supplies (UPS) and other Power equipment may cause harmful interference with an implantable Cardioverter-Defibrillator or pacemaker and there are special concerns for exposure of people with a device installed. These devices may be made to operate improperly or fail upon exposure to strong magnetic fields or strongly emitting radio transmitters.

An Implantable Cardioverter-Defibrillator (ICD) is a device that is implanted under the skin of patients that are at risk of sudden death due to ventricular fibrillation. The purpose of these devices is to provide defibrillation if the heart enters a potentially lethal rhythm.

A pacemaker is a medical device designed to regulate the beating of the heart. The purpose of an artificial pacemaker is to stimulate the heart when either the heart's native pacemaker is not fast enough or if there are blocks in the heart's electrical conduction system preventing the propagation of electrical impulses from the native pacemaker to the lower chambers of the heart.

It is prescribed that any person wearing a Heart Pacemaker implant **MUST NOT** be within 2ft / 60cm from a live UPS.





Safety Handbook Acknowledgement Form

I have carefully read the handbook. I understand and agree to comply with its purposes and provisions.

Signature of Employee

Employee Number

Typed or printed name of employee

Date

Name and address of unit

I confirm that I have completed the Safety Awareness Training for Technical & Service engineers. I understand and agree to comply with its purposes and provisions.

Signature of Employee

Employee Number

Please complete and return this acknowledgement form to the Human Resource Unit to be included in employee's personnel file

