



ANNEXURE 3 – RISK ASSESSMENT / JOB SAFETY ANALYSIS

RISK ASSESSMENTS: Safe Systems of Work

Hazard: Burns from fire
Inhalation of smoke

Control Methods: Elimination
 Guarding
 Training
 Instruction

Persons at Risk: Staff
 Third Party Contractors
 Members of the Public
 Maintenance and Emergency Services staff

Risk Rating: 5 x 3 = 15

Recommended Controls:

1. Smoke detection should be provided throughout the site.
2. Building must be constructed with minimum fire separation of half-hour to all areas.
3. Localized fire fighting facilities are to be provided in all areas.
4. Fire evacuation drill is to be carried out every 6 months.
5. Weekly checks of fire alarm system are to be carried out.
6. Annual servicing of all fire precautions to be carried out.
7. Site to have dedicated fire team
8. Fire safety risk assessment to be undertaken.
9. Flammable substances should be held on site in accordance with the information detailed in the individual assessments only to reduce the risk of fire.
10. Remove chemicals from site which do not appear on chemical safety assessments.
11. At least one member of staff on site at any one time should be trained as a fire warden.

Hazard: Burns from electrical / electricity

Control Methods: Elimination
 Guarding
 Training
 Instruction

Persons at Risk: Staff
 Third Party Contractors
 Members of the Public
 Maintenance and Emergency Services staff

Risk Rating: 3 x 4 = 12

Recommended Controls:

1. Only gas and electrical appliances conforming to relevant current National Standards are to be installed in the facility.
2. Equipment must be maintained in accordance with manufacturer’s recommendations.
3. Only trained personnel are permitted to work on gas and electrical systems.
4. A list of the current trained first aiders should be provided in a prominent position.
5. Contractor’s staff must only work on gas and electrical systems when they have been issued with a valid permit to work.
6. Contractors should only be permitted to work on isolated electrical supplies. Work on live systems should be strictly prohibited.



Hazard: Burns from hot water
Control Methods: Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: 3 x 5 = 15

Recommended Controls:

1. The maximum water temperature at any tap should not exceed 46°C.
2. Routine checks should be made of hot water temperatures at each tap to ensure the maximum temperature is being maintained. This should include weekly checks of random taps to ensure the maximum temperature is being adhered to.
3. Any work on plant containing hot water must only be permitted with a valid permit to work. Work on such plant must only be carried out when the water system has had ample opportunity to cool to a temperature where the water is not warmer than 35°C.

Hazard: Cuts from plant
Control Methods: Guarding
Training
Maintenance Controls
Personal Protective Equipment
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: 3 x 3 = 9

Recommended Controls:

1. All equipment is to be maintained in accordance with manufacturer's instructions.
2. Defective equipment must be reported to the immediate superior / supervisor so that it can be immediately isolated and removed from site if it cannot be made safe.
3. Defective equipment must be isolated or removed if required for protection.
4. Only trained personnel over the age of 18 years may be allowed to operate sharp items of plant and prime movers.
5. Only trained personnel over the age of 18 should be allowed to carry out the task of cleaning maintaining and adjusting such sharp items of plant and prime movers.
6. All mechanical plant is to be provided with guarding in accordance with the manufacturers design standard.
7. All plant must be electrically isolated before cleaning or adjustment commences.
8. Protective clothing in the form of gloves and eye goggles should always be provided with each such item of plant or in close proximity to the plant.

Hazard: Cuts from broken glass
Control Methods: Elimination
Training
Safe System
Personal Protective Equipment
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: 4 x 3 = 12

**Recommended Controls:**

1. All glass waste must be placed in covered bins and glass is not allowed to be thrown into general waste containers unprotected.
2. Waste bins must be carried to the external waste area so that broken glass does not have to be removed until it is decanted into the external skips.
3. Broken glass damage must be reported to the immediate superior / supervisor and controlled clearance must only be by trained staff wearing adequate personal protective clothing.
4. The minimum protective clothing for the clearance of broken glass is a heavy-duty glove and eye goggles.
5. Any bins used for glass waste should be lined with heavy-duty plastic sacks to prevent glass fragments being released when the waste is decanted into the waste skip.
6. Glass equipment must only be located in areas where there is no risk of personal contact. For example glass bulbs must only be fixed above head height where people have to pass as there would otherwise be a risk of head injuries.

Hazard:	Contact with chemicals Inhalation of chemicals Ingestion of chemicals
Control Methods:	Elimination Instruction Personal Protective Clothing
Persons at Risk:	Staff Third Party Contractors Members of the Public Maintenance and Emergency Services staff
Risk Rating:	3 x 3 = 9

Recommended Controls:

1. All chemicals are to be assessed before initial use.
2. All persons handling any chemical are required to refer to the material assessment before the product is used for the first time.
3. Personal protective clothing detailed by the material assessment is provided and must be worn by all staff at all times when they are handling a hazardous material.
4. Products which are not on the approved list of chemicals must not be purchased or brought into the business without the prior approval of the immediate superior / supervisor.
5. Chemicals must never be mixed under any circumstances.
6. Waste must be controlled through being held in sealed bins in the work area and all bins are to be marked to identify their contents.
7. Specific training should be given to all staff involved in the handling of hazardous materials. This training should establish the definition of a hazardous material.
8. Hazardous materials must always be kept in their original containers and they must always be kept sealed when they are not being used.
9. Flammable materials must be held in a locked cabinet when not in use.

Hazard:	Falls on slippery floors
Control Methods:	Safe Systems Instruction
Persons at Risk:	Staff Third Party Contractors Members of the Public Maintenance and Emergency Services staff
Risk Rating:	4 x 3 = 12

Recommended Controls:



1. When floors are cleaned or when they are affected by spillage then this should be clearly brought to the attention of all persons by warning notice boards.
2. Guidance notices should be placed out before cleaning of floors commences.
3. Staff involved in cleaning floors should be instructed to avoid using excessively wet systems and should be told to dry excess water from the floor immediately after cleaning has taken place. Dry cleaning is always preferable to wet cleaning.

Hazard: Falls on obstructed floors
Control Methods: Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: 3 x 3 = 9

Recommended Controls:

1. Waste should be held in sealed bags and must not be left in walkways or routes of escape.
2. All access floors should be kept clear of stored goods.
3. A clear 1-meter access corridor should be maintained to all areas.
4. A nominated person should carry out routine internal audits of obstructions in working areas on the floor.
5. Where maintenance work is carried out which may cause an obstruction to the floor a permit to work must be issued. This permit must take into account the need to keep fire exit routes clear and the need to draw the attention of all persons to the hazard as a result of the necessary obstruction.

Hazard: Falls down stairs / steps
Control Methods: Elimination
Instruction
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: 5 x 3 = 15

Recommended Controls:

1. Handrails are to be provided by all stairs required for access.
2. If maintenance work is required on a raised platform then this should only be permitted from a properly secured fixed platform. A permit to work should be issued in the event of such work being required.

Hazard: Contact with Electricity
Control Methods: Elimination
Instruction
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: 5 x 2 = 10

Recommended Controls:

1. All electrical equipment is to be inspected by a competent person.
2. Employees should be required to report defective electrical equipment to the immediate superior / supervisor without delay for isolation.



3. Work on electrical systems should only be undertaken by qualified electricians who are members of a relevant inspection/installation accredited body.
4. Ideally all circuits should be fitted with residual circuit breaker devices where appropriate.
5. Work should only be permitted on isolated supplies.
6. Only trained personnel should carry out electrical work.
7. A permit to work should be issued before work on live electrical systems commences.
8. All isolated supplies must be locked off and tagged to ensure that they cannot be reconnected accidentally during work.
9. Electrical systems should be inspected by an electrician at least every 5 years. Any new systems or new parts of the original system should be certificated at the end of the installation by an electrician.

Hazard: **Manual Handling Injuries**
Control Methods: Safe System of Work
Instruction
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: **3 x 3 = 9**

Recommended Controls:

1. Staff must be required to obtain assistance where required to lift heavy items.
2. Heavy goods must be marked with their weight to assist staff in deciding how best to move them where they are particularly heavy.
3. Guidance on safe lifting and handling must be provided.
4. Limits for lifting and handling by pregnant workers should be obtained from individual Medical Practitioners.
5. Mechanical assistance must be considered for heavy loads.
6. Detailed training for staff in safe lifting and handling techniques is required.
7. Individual personal assessments may be carried out for all staff involved in manual handling and lifting to ensure that they have no medical or other reasons why lifting could cause injury.

Hazard: **Collision with others**
Control Methods: Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: **3 x 3 = 9**

Recommended Controls:

1. All units must be designed with a logical workflow to prevent collision.
2. Running must not be permitted within the site.
3. Consideration should be given to the use of high visibility jackets in external areas during periods of darkness or during high-risk activities such as unloading of vehicles.

Hazard: **Injuries from objects falling**
Control Methods: Elimination
Personal Protective Equipment
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: **4 x 2 = 8**



Recommended Controls:

1. Where goods are stored above 2 meters this must only be on a secure platform. Goods are not allowed to overhang the secure platform.
2. Heavy items defined as those that weigh more than 20 kg are not stored above 2 meters except on controlled racking locations.

Hazard: Falls from heights
Control Methods: Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: $5 \times 2 = 10$

Recommended Controls:

1. Where access is required to a level which cannot be reached from the floor then a secure purpose made access platform must be used (e.g. friction stool, step ladder, fixed ladder).
2. Where an employee needs to ascend more than 2 meters from ground level access is not permitted without the use of a secure harness.
3. Only trained personnel may work above 2 meters.
4. Access to high levels on lifting platforms must ensure the employee or any other person involved is wearing a safety harness.
5. Consideration should be given to providing clear notices in areas where harnesses are known to be required for safe access.
6. Where access is required for high level work a permit to work must be issued.

Hazard: Burns from Electricity
Control Methods: Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: $4 \times 3 = 12$

Recommended Controls:

1. Employees must not be permitted to work on live circuits under any circumstances.
2. Defective plant and circuits must be isolated at the main switch immediately after they have been reported.

Hazard: Escape of gas
Control Methods: Elimination
Safe System
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: $3 \times 3 = 9$

Recommended Controls:

1. All gas fittings and gas connections must have been installed by trained engineers.
2. All gas shut off valves must be painted yellow and should be properly marked.
3. The direction of flow of gas must be clearly indicated with an arrow on gas supply pipes.
4. All main gas shut off valves have must be clearly labeled with a sign which is located external to the room where the valve is situated.
5. Any work with the gas supply system should be carried out by a registered engineer only.



6. A permit to work should be issued for all works on the gas supply.

Hazard: **Airborne Harmful Substances**
Control Methods: Elimination
Personal Protective Equipment
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: **5 x 2 = 10**

Recommended Controls:

1. Cease work immediately in the event of asbestos being suspected and report it to an immediate superior / supervisor so that further investigation, research or analysis can be carried out.
2. If materials need to be sampled then this must be done by expert outside consultants and will not be carried out by untrained internal staff.
3. Warning notices must be provided where asbestos or any other harmful material is identified within the site.
4. Detailed assessments are required for hazardous materials which give advice on the safe handling and use of these materials with particular regard to the provision of removal, sealing and ventilation.
5. Asbestos must only be dealt with by a professional specialist. Always take professional advice when dealing with suspected asbestos.

Hazard: **Working in Isolation**
Control Methods: Elimination
Safe System of Work
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: **4 x 3 = 12**

Recommended Controls:

1. A permit to work is required where work has to be carried out in a restricted area in isolation.
2. If an employee is required to work alone then contact must be made with the supervisor advising of the location of the work and the expected time of completion.
3. Work in isolation must not be permitted when the site is otherwise unoccupied.
4. Lone working for high level work and electrical work must never be permitted.

Hazard: **Handling of hazardous chemical spillage**
Control Methods: Training
Personal Protective Equipment
Supervision
Safe System
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff

Recommended Controls:

1. In the event of a hazardous material spillage the entire facility should be evacuated if there is any public health risk.



2. In the event of a hazardous material spillage the emergency must be dealt with by the Safety officer and / or QHSE Representative / Inspector or other competent person.
3. Contact must be made with the Fire Authority by the Safety officer and / or QHSE Representative / Inspector to advise of the spillage of any hazardous substance if it is major.
4. The room where the substance has been spilt must be ventilated for at least 60 minutes prior to any clean up procedure being instigated.
5. Clearance should only be initiated by staff wearing full personal protective equipment as determined by the relevant material assessment for the product concerned.
6. Clearance should only commence when independent advice has been taken by contacting the supplier of the product concerned.
7. Clearance must be supervised at all times by the Safety officer and / or QHSE Representative / Inspector.
8. Cleared spillage should be double bagged and placed in a sealed bin for disposal. Such spillage must not be carried at any time inside a passenger compartment of any vehicle.

Hazard: **Bloodborne pathogens**
Control Methods: Personal Protective Equipment
Training
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services staff
Risk Rating: **3 x 3 = 9**

Recommended Controls:

- a. First aiders are to be trained and certificated.
- b. First aiders are to be advised to avoid blood contact.
- c. First aiders are to be required to wear waterproofing dressings over any personal cuts or abrasions.
- d. Protective nitrile or non-latex gloves should be provided in all first aid kits.
- e. A mouthpiece or airway system should be provided for first aiders to use.

Hazard: **Injury from VDU use**
Control Methods: Training
Safe Systems
Persons at Risk: Staff
Risk Rating: **2 x 3 = 6**

Recommended Controls:

- a. All display screen equipment units are to be assessed when final locations are determined.
- b. All employees are to be provided with an eye test on demand.
- c. Training is to be provided for all employees on the use of software packages.
- d. Staff should be provided with training specific to the safe use of VDUs and work stations and this training should be documented.

Hazard: **Water Safety and Pathogens**
Control Methods: Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services Staff
Risk Rating: **4 x 3 = 12**

Recommended Controls:

- a. Hot water supplies held in calorifiers must be at or above 60°C.
- b. Water cooled air conditioning must be under a planned maintenance contract.



- c. Main water tanks must be covered to prevent contamination.
- d. Consideration should be given to the annual chlorination of water tanks and water distribution system.
- e. Controls should be in place to ensure that the hot water supply does not stand at any temperature below 60°C prior to distribution.

Hazard: Entanglement / Contact with Equipment
Control Methods: Guarding
Instruction
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services Staff
Risk Rating: 4 x 2 = 8

Recommended Controls:

- a. All plant must be provided with appropriate guarding which may not be removed.
- b. Only trained personnel may use plant provided.
- c. Protective clothing without loose elements must be worn at all times by staff working with plant.
- d. Only trained staff should be permitted to carry out work on the equipment with prime movers.
- e. All fixed plant should be provided with a mushroom style emergency shut off button.
- f. Work on plant must only be permitted under a permit to work system when the plant in question has been isolated and locked out.

Hazard: Failure / Collapse of Lifting Equipment
Control Methods: Guarding
Elimination
Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services Staff
Risk Rating: 5 x 2 = 10

Recommended Controls:

- a. Only approved lifting gear shall be used and a current certificate of inspection must be available before any work commences.
- b. Lifting gear can only be used by trained and authorized personnel.
- c. Where lifting gear is required for the movement of unusual items (e.g. hoist or fork lift truck) the authorized user of the equipment must determine that the load is secure, that the plant is capable of lifting the load and that the system is safe.
- d. Only trained and certificated staff may use powered lifting plant such as fork lift trucks.
- e. Constant supervision of powered lifting plant drivers must be in place and strict disciplinary action must be taken against any driver who does not adhere to a safe system of work. This will include suspension of the driver until re-training has been carried out.
- f. Where powered lifting plant operates in close proximity to pedestrians, drivers must be instructed to take additional care.
- g. Medical surveillance for truck operators should be considered.
- h. Where practicable hand pull pallet movers should be used rather than powered lifting plant.
- i. When moving drivers must be given clear instructions to always move forwards with a load, always lower the forks prior to movement and always sound the horn and drive dead slow where visibility is unclear or where pedestrians have moved into the operation area.
- j. Personal protective equipment in the form of protected shoes or boots should be provided for all staff working in areas where contact with powered lifting plant is likely.
- k. Signs should be used at the entrance to the areas where powered lifting plant is operated stating that fork lift trucks are working in this area and that protective footwear is mandatory.



Hazard: General use of vehicles and vehicle safety

Control Methods: Instruction
Training
Elimination
Safe Systems

Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services Staff

Risk Rating: 5 x 2 = 10

Recommended Controls:

- a. Only trained and authorized personnel should be permitted to drive company vehicles in accordance with the valid permits on their driving license.
- b. Company vehicles are to be serviced in accordance with the manufacturers' recommendations.
- c. Alcohol is strictly prohibited for all drivers and any member of staff found to have consumed alcohol during work or found to be above the legal limit for alcohol whilst driving may be instantly dismissed.
- d. Smoking in the storage compartment of any vehicle is strictly prohibited.
- f. All hazardous products are held in the rear compartment of vehicles and this must be in a completely separate area from the cab where the driver sits.
- g. Delivery staff should be given specialist instruction on safe lifting and handling techniques and this training should be documented.
- h. It is strongly recommended that high visibility jackets are worn by pedestrians working in the yard during the delivery of goods by large vehicles.

Hazard: Use and handling of Liquid Petroleum Gas

Control Methods: Elimination
Safe systems
Training

Persons at Risk: Staff
Third Party Contractors
Members of the Public
Maintenance and Emergency Services Staff

Risk Rating: 5 x 3 = 15

Recommended Controls:

- a. LPG must be stored externally in a well ventilated and clearly marked storage area.
- b. LPG may only be used by trained personnel.
- c. In the event of a defective LPG cylinder the immediate area must be evacuated and the emergency services must be summoned.
- d. LPG cylinders are stored strictly separate from all other combustible and oxidizing products.
- e. The complete elimination of LPG is recommended from the site where possible.



JOB SAFETY ANALYSIS: Health and Safety Information

Work Process: Handling of Materials							
Prepared By: ADM Core Team			Prepared on: 14/05/2006				
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Loading and unloading	- Possibility of back ache due to manual lifting	HS=3	LO=3	- Use proper equipment and PPEs - Use of Trolley - Use fork-lift - Use of more man power - Check with the supplier for other means of transport	HS=3	LO=1
			9			3	
		- Possibility of falling down due to manual loading / unloading	HS=4	LO=2		HS=4	LO=1
			8			4	
		- Chances of major accident while unloading	HS=4	LO=1		HS=2	LO=1
	4		2				
		- Chances of damaging the materials	HS=4	LO=2		HS=2	LO=1
			8			2	
2	Working in storage area	- Difficulty in breathing	HS=1	LO=3	- Proper ventilation / AC - Provide more emergency light	HS=1	LO=1
			3			1	
		- Chances of damaging the materials due to heat	HS=3	LO=3		HS=3	LO=1
	9		3				
		- Chances of falling down if there is a power failure	HS=2	LO=3		HS=2	LO=1
			6			2	
3	Walking on the main stores staircases	- Chances of slipping	HS=3	LO=3	- To have a rougher staircase surface - More slope required	HS=3	LO=1
			9			3	
		- Chances of falling down	HS=3	LO=3		HS=3	LO=1
			9			3	

IMPORTANT NOTICE: Strictly follow the procedures / additional controls written in 6300 - HSE Protection Handbook and 6301 - Health and Safety Instructions Manual.



Work Process: Cable Installation

Prepared By: ITD Core Team		Prepared on: 14/05/2006					
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Testing of fiber optic	- Harmful to the eyes due to Lasers	HS=1	LO=2	- Proper training to prevent risk - Use of Ultraviolet protection glass	HS=1	LO=1
			2			1	
2	Use of scaffoldings / ladders	- Falling down	HS=2	LO=3	- Use stable material - Always work in team - Use of safety belt / harness	HS=2	LO=1
			6			2	
3	Cutting cable	- Harmful due to sharp blade	HS=3	LO=1	- Use of gloves	HS=2	LO=1
			3			2	
4	Storage of rolls of cable	- Falling down on people	HS=1	LO=2	- Do proper storage with shelves or door with lock	HS=1	LO=1
			2			1	
5	Crane (other party)	- Falling down on people	HS=1	LO=5	- Training - Proper Restrictions and signs - Use of helmet	HS=1	LO=1
			5			1	
6	Pulling of cable manhole	- Suffocate or hurt due to restriction of light and oxygen	HS=1	LO=5	- Use of oxygen cylinder - Team work - Use of lamp / flash lights - Proper Restrictions and signs - Use of safety belt / harness	HS=1	LO=1
		5		1			
		- Fall down inside manhole due to depth	HS=2	LO=3		HS=2	LO=1
		6				2	

IMPORTANT NOTICE: Strictly follow the procedures / additional controls written in 6300 - HSE Protection Handbook and 6301 - Health and Safety Instructions Manual.



Work Process: Uninterruptible Power Supply (UPS) Commissioning

Prepared By: ITD Core Team		Prepared on: 14/05/2006					
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Loading / Unloading of UPS	- Possibility of back ache due to manual lifting	HS=4	LO=4	- Use of appropriate equipment and PPEs - Use of Trolley - Use fork-lift - Use of more man power	HS=4	LO=1
			16			4	
		- Possibility of falling down due to manual loading / unloading	HS=2	LO=1		HS=1	LO=1
			2			1	
		- Chances of major accident while unloading	HS=3	LO=3		HS=3	LO=1
	9		3				
	- Chances of damaging the materials	HS=1	LO=1		HS=1	LO=1	
		1		1			
2	Equipment Handling	- Injure the skin (scrape or cut)	HS=1	LO=1	- Proper training on the use of tools - Use of protective clothing such as gloves, goggles, apron and insulated tools	HS=1	LO=1
			1			1	
		- Possible to have a foreign object to eye	HS=1	LO=1		HS=1	LO=1
		1		1			
	- Possible electrocution in handling screw drivers	HS=1	LO=1		HS=1	LO=1	
		1		1			
3	Battery Installation	- Possibility of exposure to potentially lethal voltage	HS=2	LO=1	- Special care and Awareness when working with batteries - Eye protection should be worn - Use of protective clothing such as gloves, goggles, apron	HS=1	LO=1
			2			1	
		- Injury to eye due to accidental electrical arcs	HS=1	LO=1		HS=1	LO=1
		1		1			
	- Possible electrolyte contact to skin or eyes due to battery leaks or spill	HS=1	LO=1		HS=1	LO=1	
		1		1			
4	Power Cable Connections	- Possibility of exposure to potentially lethal voltage	HS=2	LO=1	- Proper training for Employees who work with and around electrical connections in the proper use of electrical safety practices and awareness	HS=1	LO=1
			2			1	
5	Pre-power Checks of UPS	- Possibility of exposure to potentially lethal voltage	HS=1	LO=1	- The UPS must be commissioned by a suitably qualified, and manufacturer approved engineer	HS=1	LO=1
			1			1	
6	Starting Up and Shutting Down the UPS	- Possibility of contact with live voltages, especially when working around the battery or dc bus bar	HS=1	LO=1	- Develop written procedure to ensure safety during operations - Proper training for Employees - UPS must be commissioned by a suitably qualified engineer	HS=1	LO=1
			1			1	

IMPORTANT NOTICE: Strictly follow the procedures / additional controls written in 6300 - HSE Protection Handbook and 6301 - Health and Safety Instructions Manual.



Work Process: Panel Board Assembly

Prepared By: SGD Core Team		Prepared on: 14/05/2006					
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Handling enclosures	- Accidental fall	HS=3	LO=4	- Wear safety gloves - Use trolley and / or fork lift with experienced operator	HS=3	LO=1
		12				3	
1	Handling enclosures	- Back / arm strain	HS=3	LO=3		HS=3	LO=1
		9				3	
2	Lifting and fixing of materials	- Back / arm strain	HS=2	LO=3	- Wear safety shoes and do it by group of people if it's required	HS=2	LO=1
		6				2	
2	Lifting and fixing of materials	- Slip	HS=4	LO=4		HS=4	LO=1
		16				4	
3	Testing the panel using live electricity	- Electrical shock	HS=5	LO=4	- Follow testing procedure strictly - Use warning boards and chain links around the panel	HS=5	LO=1
		20				5	
4	Packing and Loading for delivery	- Back /arm strain	HS=3	LO=3	- Proper use of ladders for big panels - Use trolley and / or fork lift with experienced operator	HS=3	LO=1
		9				3	
4	Packing and Loading for delivery	- Accidental fall	HS=3	LO=4		HS=3	LO=1
		12				3	

IMPORTANT NOTICE: Strictly follow the procedures / additional controls written in 6300 - HSE Protection Handbook and 6301 - Health and Safety Instructions Manual.



Work Process: Grinding							
Prepared By: SGD Core Team				Prepared on: 14/05/2006			
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Take the material to grind	- Back / arm strain while lifting	HS=2	LO=2	- Wear safety gloves - Carry with two persons if required	HS=2	LO=1
			4			2	
	- Injury due to handling of materials	HS=2	LO=3	HS=2		LO=1	
		6		2			
2	Check the status of the machine and vibrations	- Hand slip	HS=1	LO=2	- Wear safety gloves and goggles	HS=1	LO=1
			2			1	
	- Injury due to vibrations	HS=3	LO=2	HS=3		LO=1	
		6		3			
3	Start grinding by using support	- Hand slip	HS=2	LO=5	- Wear safety gloves and goggles	HS=2	LO=1
			10			2	
	- Injury due to grinding and spark	HS=2	LO=5	HS=2		LO=1	
		10		2			
4	Applying pressure while grinding	- Hand slip due to grinding	HS=3	LO=3	- Wear safety gloves and goggles - Apply pressure uniformly	HS=3	LO=1
			9			3	
5	Dip the job in coolant for a while	- Burns due to heat	HS=1	LO=1	- Wear safety gloves	HS=1	LO=1
			1			1	

IMPORTANT NOTICE: Strictly follow the procedures / additional controls written in 6300 - HSE Protection Handbook and 6301 - Health and Safety Instructions Manual.



Work Process: Sheet Metal Cutting with Jig Saw

Prepared By: SGD Core Team		Prepared on: 14/05/2006					
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Take a sheet metal and make a measurement	- Back strain due to handling of materials	HS=2	LO=5	- Wear safety gloves - Carry with two persons if required	HS=2	LO=1
			10			2	
2	Check the machine status	- Burns due to heat	HS=1	LO=3	- Check thoroughly machine before using - Wear hand gloves	HS=1	LO=1
			3			1	
3	Start cutting	- Wounds on the arms	HS=3	LO=3	- Wear safety gloves and goggles	HS=3	LO=1
						9	
		- Back / arm strain	HS=2	LO=2		HS=2	LO=1
			4			2	

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Work Process: Cutting with Saw Cutter

Prepared By: SGD Core Team

Prepared on: 14/05/2006

Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
			HS=	LO=		HS=	LO=
1	Take the material and mark it for cutting	- Back strain due to handling of materials	HS=2	LO=2	- Wear safety gloves - Carry with two persons if required	HS=2	LO=1
			4			2	
2	Fix the material on vice, adjust and tight it	- Hand Slip and injury	HS=2	LO=3	- Wear safety gloves	HS=2	LO=1
			6			2	
3	Lubricate the blade	- Burn due to heat	HS=2	LO=3	- Wear safety gloves - Lubricate as often	HS=2	LO=1
			6			2	
4	Start cutting	- Injuries on Hand, Eye, etc.	HS=3	LO=4	- Put on the protective cover / clothing - Wear safety gloves and goggles	HS=3	LO=1
			12			3	

IMPORTANT NOTICE: Strictly follow the procedures / additional controls written in 6300 - HSE Protection Handbook and 6301 - Health and Safety Instructions Manual.



Work Process: Drilling							
Prepared By: SGD Core Team				Prepared on: 14/05/2006			
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Punch the location	- Arm strain and slip due to punching	HS=2	LO=3	- Wear safety gloves	HS=2	LO=1
			6			2	
2	Fix the material on a vice and tight it	- Arm strain and slip due to Fixing	HS=2	LO=3	- Wear safety gloves	HS=2	LO=1
			6			2	
3	Adjust the machine speed	- Accidents due to speed	HS=3	LO=2	- Adjust speed as per requirement	HS=3	LO=1
			6			3	
4	Fix the drill bits	- Injuries due to loose drill bits	HS=4	LO=4	- Fix properly with chuck key	HS=4	LO=1
			16			4	
5	Start drilling	- Injuries due to metal chips	HS=3	LO=4	- Wear safety gloves and goggles	HS=3	LO=1
			12			3	

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Work Process: Electromechanical Construction							
Prepared By: CD Core Team				Prepared on: 14/05/2006			
Sl. No.	Tasks / Activities	Hazards	Risk Rating		Controls	Residual Risk Rating	
1	Welding	- Burns	HS=2	LO=5	- Use safety mask, overalls, safety shoes, goggles and other relevant PPEs	HS=2	LO=1
			10			2	
		- Fumes and Gases	HS=2	LO=5		HS=2	LO=1
			10			2	
		- Light UV Radiation	HS=3	LO=3		HS=3	LO=1
		9		3			
- Fire	HS=5	LO=3	HS=5	LO=1			
15		5					
- Electric Shock	HS=5	LO=3	HS=5	LO=1			
15		5					
2	Cutting, chasing	- Flying debris	HS=2	LO=3	- Use safety mask, overalls, safety shoes, goggles and other relevant PPEs	HS=2	LO=1
			6			2	
		- Dust	HS=1	LO=2		HS=1	LO=1
		2		1			
		- Burn	HS=2	LO=5		HS=2	LO=1
		10		2			
		- Electric Shock	HS=5	LO=3		HS=5	LO=1
15		5					
- Cuts	HS=1	LO=2	HS=1	LO=2			
2		2					
- Noise	HS=1	LO=2	HS=1	LO=1			
2		1					
3	Grinding	- Flying debris	HS=2	LO=3	- Use safety mask, overalls, safety shoes, goggles and other relevant PPEs	HS=2	LO=1
			6			2	
		- Dust	HS=1	LO=2		HS=1	LO=1
		2		1			
- Noise	HS=1	LO=2	HS=1	LO=1			
2		1					
- Electric Shock	HS=5	LO=3	HS=5	LO=1			
15		5					
4	Drilling	- Flying debris	HS=2	LO=3	- Use safety mask, overalls, safety shoes, goggles and other relevant PPEs	HS=2	LO=1
			6			1	
		- Dust	HS=1	LO=2		HS=1	LO=1
		2		1			
		- Noise	HS=1	LO=2		HS=1	LO=1
2		1					
- Electric Shock	HS=5	LO=3	HS=5	LO=1			
15		5					



5	Loading and unloading	- Lifting/moving of heavy material	HS=2	LO=3	- Use of appropriate equipment and PPEs - Use of Trolley - Use fork-lift - Use of more man power	HS=2	LO=1
			6			2	
		- Strains and sprains from improperly lifting loads, or from carrying loads that are either too large or too heavy.	HS=2	LO=4		HS=2	LO=1
			8			2	
		- Fractures and bruises caused by being struck by materials, or by being caught in pinch points	HS=3	LO=3		HS=3	LO=1
	9		3				
	- Cuts and bruises caused by falling materials that have been improperly stored, or by incorrectly cutting ties or other securing devices	HS=1	LO=3	HS=1	LO=1		
	3		1				
6	Working on scaffolding / ladder	- Falling down	HS=5	LO=4	- Proper fixing of scaffold / ladder - Keep guard - Use safety belt / harness	HS=5	LO=1
			20			5	
7	Working on steel bars, slab	- Falling down	HS=5	LO=4	- Use appropriate PPEs - Personal control and concentration	HS=5	LO=1
			20			5	
8	Working in trenches / manholes	- Falling down	HS=5	LO=4	- Use appropriate PPEs - Keep guard - Use warning signs - Remove loose material near by, proper excavation and protection, team work - Provide barriers for sliding of loose sand, mud, rocks	HS=5	LO=1
			20			5	
		- Sliding of loose material, sand, mud, tools, rocks, etc.	HS=2	LO=3		HS=2	LO=1
	6		2				
9	Using hand tools	- Slip on the hand which can cause injuries	HS=2	LO=3	- Use appropriate PPEs - Operational instruction to be followed up strictly	HS=2	LO=1
			6			2	
10	Testing and commissioning	- Electric shock	HS=5	LO=3	- Use safety mask, overalls, safety shoes, goggles and other relevant PPEs	HS=5	LO=1
			15			5	
		- Fire	HS=5	LO=3		HS=5	LO=1
	15		5				
11	Cable pulling in trenches	- Lifting / moving of heavy material	HS=2	LO=5	- Use appropriate PPEs - Keep guard - Use warning signs - Use cable rollers / pullers for easy pulling	HS=2	LO=1
			10			2	
		- Sliding of loose material, sand, mud, tools, rocks, etc.	HS=2	LO=3		HS=2	LO=1
	6		2				
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