

Spectron Engineering

Health and Safety

Manual and Procedures

Health & Safety Manual and Procedures

Contents

HEALTH & SAFETY POLICY	1
1. Organisation And Lines Of Responsibility	2
2. Fire Safety	2
3. Electrical Safety	3
4. First Aid	3
5. Training	3
6. Cleanliness	3
7. Manual Handling	4
8. Control Of Substances Hazardous to Health	4
9. Protective Clothing	4
10. Visual Display Screen Equipment	5
11. Machinery	5
12. Guarding	5
13. Visitors & Contractors	5
14. Risk Assessments	6
15. Signatures	7
PERMIT TO WORK	8
Introduction	8
Procedure	8
PROCEDURE FOR THE HEALTH AND SAFETY INDUCTION	9
Introduction	9
Recording	9
Person Responsible	9
HEALTH AND SAFETY INDUCTION TRAINING FORM: IND1	10
ACCIDENT/DISEASE/DANGEROUS OCCURRENCES: FORM ACC3	11
RISK ASSESSMENT	12
The Management of Health and Safety at Work	13
Introduction	13
Statutory Requirements	13
Associated Documentation	13
Arrangements For Health & Safety	13
First Aid & Accident Reporting	13
Pregnancy	14
Company Risk Assessments	14
What is a Risk Assessment?	14
Why are they necessary?	14
Who should do them?	15
When should they be done?	15
How do you perform a risk assessment?	15
How do you assess risk levels?	15

Step One	16
Step Two	16
Step Three	16
Step Four	16
Administration	17
ADDITIONAL CHECKLISTS FOR RISK ASSESSMENT FORM	18
Potential hazards in the workplace	18
People affected by hazards	18
Other specialist areas of assessment	19
Identified Hazards	19
RISK ASSESSMENTS: SAFE SYSTEMS OF WORK	20
Burns from fire	20
Inhalation of smoke	20
Burns from electrical/gas equipment	20
Burns from electricity	20
Burns from hot water	21
Cuts from machinery or equipment	22
Cuts from broken glass	22
Contact with chemicals	23
Inhalation of chemicals	23
Ingestion of chemicals	23
Falls on slippery floors	24
Falls on obstructed floors	24
Falls down stairs/steps	25
Contact with Electricity	25
Manual Handling Injuries	26
Collision with others	27
Injuries from objects falling	27
Falls from heights	28
Burns from Electricity	28
Escape of gas	29
Airborne Harmful Substances	29
Working in Isolation	30
Handling of hazchem spills	30
Blood borne pathogens	31
Injury from VDU use	31
Water Safety and Pathogens	32
Entanglement with equipment	32
Contact with equipment	32
Failure/Collapse of Lifting Equipment	33
General use of vehicles and vehicle safety	34
Use and handling of Liquid Petroleum Gas	35
RISK ASSESSMENT PROCEDURE	36
1. Introduction	36
2. Risk Assessment	36

3.	Risk Assessment Procedure	36
	A. Hazards	36
	B. Who is at Risk?	37
	C Existing Control Measures	37
	D. Proposed Action	38
	E. Record your Findings	38
4.	Review your Assessment Annually	39
	Appendix 1 Risk Assessment Procedure FORM RA1	40
	Appendix 2: Risk Assessment Procedure Form RA2	41
PROCEDURE FOR THE INSPECTION OF PORTABLE APPLIANCES		42
1.	Visual Checks By Users	42
2.	Visual Checks In House	42
	External Testing	43
ELECTRICAL SAFETY		44
	Introduction	44
	Requirements	44
MANUAL HANDLING		46
	Introduction	46
	Definition	46
	Assessment Procedure	46
	Personal Protective Equipment	46
	Employees' Duties	46
	Information, Instruction and Training	47
	Assessment Review	47
	Assessment Manual	47
MANUAL HANDLING GUIDANCE NOTE		48
	Introduction	48
	Manual Handling Injuries	48
	Duties of Employers	48
	Duties of Employees	48
SIX STEPS TO CORRECT LIFTING		49
CHEMICAL SAFETY		50
	Introduction	50
	Assessment Procedure	50
	Assessment Review	51
WORK EQUIPMENT		52
	Introduction	52
	Definitions	52
	Assessment Procedure	52
	Assessment Review	53

WORK EQUIPMENT ASSESSMENT FORM	54
WELFARE ARRANGEMENTS	58
Introduction	58
Requirements	58
Provisions applicable to the workplace and to equipment, devices and systems therein	58
PROCEDURE FOR DISPLAY SCREEN EQUIPMENT	65
Introduction	65
Definitions	65
User Identification and Assessment Procedure	65
DISPLAY SCREEN EQUIPMENT	66
Introduction	66
Screen	66
The Desk	67
The Chair	67
Accessories	68
Document Holders	68
Footrests	68
Mouse	68
Wrist Rest	68
Telephone	68
Adjusting Your Workstation	68
Work Breaks and Job Design	69
Eyes and Eye-sight	69
Eyesight Testing	70
Glasses	70
The Work Environment	70
Lighting	70
Temperature	70
Humidity	70
Noise	70
Reflections and Glare	71
Display Screens and Health	71
Radiation	71
Cataracts and Epilepsy	71
Headaches	71
CODE OF PRACTICE FOR CONTRACTORS	72
CONTENTS	72
1.1 General Safety Requirements	73
1.2 Training	73
1.3 Risk Assessment	74
1.4 Housekeeping	75
1.5 Permits to Work	75
1.6 Working on or in the vicinity of high temperature Hot Water (HTHW) Systems.	75
1.7 Working in the vicinity of Sprinkler system.	75

1.8	Protection against Noise.	75
1.9	Protection against fire.	75
1.10	Hazardous Substances and Materials	76
1.11	Contractors General Machinery and Equipment.	78
1.12	Accident Treatment/Accident Reporting/First Aid Facilities.	78
1.13	Abrasive Wheels.	79
1.14	Excavations and Openings.	79
1.15	Confined Spaces.	79
1.16	Electrical Equipment.	79
1.17	Cranes, Hoists, Platforms etc.	79
1.18	Working at Heights.	80
1.19	Compressed Gas Cylinders.	80
1.20	Welfare Facilities.	80
1.21	Alcohol	80
1.22	Smoking.	81
1.23	Safety Harnesses.	81
1.24	Non English Speaking Personnel.	81
1.25	Testing, Commissioning and Maintenance of Temporary Equipment and Services.	81
1.26	Personal Protective Equipment.	81
1.27	Appointments by the Contractor.	82
1.28	Manual Handling.	82
1.29	Re- use of Metal Drums.	82
1.30	Emergency Procedures.	82
1.31	Provision and use of Work Equipment.	83
1.32	Hygienic Maintenance.	83
ALCOHOL AND DRUGS POLICY		84
NEW AND EXPECTANT MOTHERS AT WORK POLICY		85
	Expectant and New Mothers: Guidance Notes	90
	Steps to reduce the risk if still significant: -	90
	NIGHT WORK	90
LOCK OUT TAG OUT (LOTO)		92
	LOCK OUT TAG OUT PROCESS	92
	Electrical Safety	92
	Mechanical Safety	92
	Job Safety Analysis	93
LOCKOUT / TAGOUT PROCEDURES		94

HEALTH & SAFETY POLICY

Spectron Engineering, Inc.

It is the Policy of Spectron Engineering, Inc.

to take all possible steps to ensure the health, safety and welfare of all employees and other persons engaged in work for the organization and any third parties who come into contact with the business.

It is the duty of each employee to comply with the company safety policy and to co-operate with the management of the company to ensure that the work place remains as safe as possible.

If any person is in any doubt as to whether anything is safe or unsafe then they must assume that it is unsafe until further guidance has been given by their manager or by the safety officer.

The Board of Directors of the company is fully committed to maintaining safe systems of work and fully recognizes their overall responsibility for safety in the work place.

Any member of staff who does not comply with this safety policy or any other safety requirement will be liable to disciplinary action.

Norman E. Herz

9/23/2010

DIRECTOR

DATE

Spectron Engineering, Inc.

1. Organization And Lines Of Responsibility

Overall responsibility for the health and safety of all persons within the company rests with the Board of Directors of Spectron Engineering, Inc.

The Board of Directors delegates this responsibility to the individual operations managers for the purposes of the day to day running of the operation with the direct assistance of individual line managers and supervisors.

Spectron Engineering, Inc.

has a nominated safety officer who has overall group responsibility for reviewing and making recommendations on all matters relating to health and safety.

The safety officer who has overall responsibility for the day-to-day safety operations will be INSERT YOUR NAME.

The safety officer will ensure through the management organization that:

- All persons employed by the company receive adequate health and safety training. In addition employees will receive adequate instruction and supervision to enable them to undertake their work in a safe manner.
- All machinery and equipment are suitable for their intended purpose and that it is maintained in a safe condition at all times.
- All persons working on site, whether or not employees of the company, are adequately notified of all known hazards and protective measures.
- That the company risk assessments, along with all other safety documentation, are brought to the attention of all relevant parties.
- All employees are required to comply with their legal requirements under current National statutory provisions. All staff must co-operate with the management of the company to allow it to comply with the legal requirements for health and safety.
- Individual members of staff, who have any concern regarding their own safety, or that of a third party, are responsible for reporting the matter to their manager without delay.
- All members of staff will receive a copy of this safety policy and will be required to sign to state that they have read and understood it. New members of staff will be required to read and sign a copy of this safety policy before they start work and their manager will familiarise, explain and assist them to begin work in a safe manner.

2. Fire Safety

The company will provide the necessary fire fighting equipment in accordance with the requirements of the local Fire Authority. It is the policy of the Company to over rather than under provide such facilities. All employees are required to familiarize themselves with the fire drill before commencing work. Exercises will be arranged at regular intervals. Existing fire fighting equipment will be inspected by a supervisor appointed by the safety officer on a weekly basis and by the external contract engineers on an annual basis. Alarms will be tested weekly. Fire fighting equipment will be inspected and a certificate issued by a competent authority on an annual basis.

Fire exits must be kept clear at all times. No fire door to or from an occupied room may be locked. Smoking is only permitted in designated areas.

No doors are to be wedged or propped open in any way. All personnel will be trained by their safety supervisor in the safe use of fire fighting equipment.

You should know which extinguishers are available in your immediate place of work. In particular you should ensure that combustible materials do not accumulate around your place of work.

Flammable materials must never be exposed to hot surfaces or direct heat sources.

In the event of a gas leak switch off all equipment and evacuate the premises immediately. Contact the Emergency Services immediately.

In the event of a fire the premises should be evacuated immediately following the information provided on the fire notices.

Fire extinguishers should only be removed from their wall brackets in an emergency. The removal of fire extinguishers in other cases without good reason will be considered as misconduct.

3. Electrical Safety

Ensure that all electrical equipment you use is in good order. Do not use any electrical equipment that does not appear to be in good order but report it to your supervisor without delay.

Changes to the electrical system (including new plugs) should only be performed by competent persons who have been trained and all works required should be reported to the safety officer.

Work on 3 phase electrical systems or live equipment must never be performed by unqualified personnel and live working requires a specific risk assessment to be performed.

General Safety Requirements For Electrical Systems

- Switch off all electrical equipment after use. Do not overload sockets.
- Do not allow wires to project into the walkways where they present a tripping hazard.
- Use a residual circuit breaker when operating a portable hand tool.

4. First Aid

The company will provide first aid facility in accordance with the requirements current National standards. The nominated personnel approved to administer first aid will be published on the notice board.

If you suffer an injury, however slight, report it at once to your manager and a person approved to administer first aid. The injury must be entered in the accident book and you will be required to provide a full explanation of the events surrounding the accident.

If a serious accident occurs the person approved to administer first aid should be contacted first. He/she will arrange for an ambulance to be summoned immediately.

If chemicals come into contact with your skin or eyes or if they are swallowed or inhaled then seek immediate first aid. Your supervisor will have access to the company assessments within this manual which provide detailed advice on the measures to be taken to counteract the effects of each chemical used by the company.

5. Training

General induction training will be provided for all new members of staff. Additional training will be provided for nominated members of staff as required.

The planning of training in health safety is the responsibility of the safety officer. Documented training records will be maintained. If any member of staff feels that he/she could benefit from specific safety training in addition to that which has been assessed as relevant by the Company then they should approach their supervisor.

6. Cleanliness

Good housekeeping in all areas is an essential feature of safety and the prevention of accidents.

Staff working in all areas must have regard to the following:-

- Ensure that loose and worn flooring is reported to your supervisor.
- Ensure all entrances, corridors, walkways and exit doors are kept clear of obstructions at all times.
- Close all cabinets, cupboards and drawers after use.
- Never overload shelving or store heavy items above head height except on load bearing purpose built racking.
- Never leave a lit cigarette unattended in the designated smoking area.
- Clear away immediately any dangerous substance or spills. Dangerous substances are marked and are defined as toxic, harmful, irritant, flammable or oxidizing.
- Dust and fumes should not be inhaled. If dust or fumes are produced by any activity then cease the task immediately until protective measures have been put into place.
- Equipment must not be left where it can be a tripping hazard.

7. Manual Handling

Lifting and moving loads by hand is the biggest cause of injury in the work place. Lifting should be carried out in accordance with the following guidelines:

- If a load is awkward or beyond your capability you must get help.
- Check all packaging and articles for sharp edges and projections before lifting.
- Ensure that there are no obstructions in your path before lifting any article.
- Ensure that you can see around a load when lifting it.
- Ensure that there is adequate room to put down a load when you have moved it.
- When lifting stand close to the load with your feet slightly apart. Keep your chin in, bend your knees and keep your back straight at all times. Straighten your knees using your thigh muscles. Always lift in stages (e.g. floor to knee, knee to carrying position).
- Always use your entire body weight in a controlled manner when pushing a load.

Heavy goods are to be lifted in accordance with the Company assessments for manual handling. Do not use lifting equipment unless you have been specifically authorized.

8. Control Of Substances Hazardous to Health

The law requires the company to control the use, disposal and transportation of all hazardous materials.

A formal assessment has been carried out of all materials used by the company and this is available on site at all times for reference purposes. Employees are not permitted to purchase or to bring to work substances which are not included on the chemical safety register. If a formal assessment has not been made then that product may not be brought onto site.

Disposal of chemical products must only be carried out on the direct instruction of the safety officer.

It is a strict requirement of the company that when any person handles a chemical they never mix it with any other chemical product. The mixing of chemicals can lead to harmful chemicals being formed inadvertently.

9. Protective Clothing

Where protective clothing is provided it must be worn. It is a strict legal offence for an employee to abuse or disregard safety equipment. You are obliged to use all personal protective equipment which has been provided following a detailed assessment.

One of the major causes of injury in the work place is a cut to the hand. Personal protective clothing in the form of gloves is a significant method of protection from such injuries. Gloves should always be worn when handling sharp items and when moving loads.

Persons wishing to handle chemicals must first read the material assessment to determine the precise nature of the clothing required for any particular product.

10. Visual Display Screen Equipment

The company will carry out formal assessment of all workstations where visual display screen equipment is used. It is the policy of the company to provide eye tests for visual display screen work where an employee is required to work with this equipment.

11. Machinery

Only trained personnel may use machinery provided in the work place. If you have not received training then under no circumstances should you attempt to operate it. Prior to authorization being given to operate machinery an assessment of your competence will be carried out.

If at any stage while using any item of machinery you begin to feel unwell you must stop what you are doing, isolate the equipment concerned via the remote electrical supply switch and report to your supervisor.

Never talk to another member of staff when you are operating machinery. Do not approach or distract any other employee operating machinery.

12. Guarding

It is not only dangerous but also illegal to remove a guard from a machine unless you need to clean or repair it.

Only trained personnel may clean or repair items of equipment which require guarding to be removed. Equipment which is to be cleaned must be isolated electrically. The electrical supply should be locked out and a notice should be fixed to the switch point advising that re-connection of the supply can be hazardous.

If any part of the equipment you are using is unguarded you should stop work immediately, isolate the equipment concerned, and report the matter to the safety officer without delay.

13. Visitors & Contractors

All visitors and contractors must report to the main reception.

Any contractor carrying out work at the premises may be required to provide the following details to the safety officer in advance of the work commencing:

- ✓ Health and Safety Policy
- ✓ Risk Assessments
- ✓ Chemical Safety Assessments
- ✓ Liability Insurance Cover.

Contractors carrying out electrical, gas or hot works will be issued with a permit to work before commencing work. A permit to work will also be required for persons working at height or in confined spaces.

All contractors working for the company are required to comply with this safety policy and with all other written safety instructions.

14. Risk Assessments

The company has produced detailed written risk assessments for all members of staff.

All staff are required to read the Spectron Engineering, Inc.

risk assessments and abide by their requirements at all times.

IF AT ANY TIME YOU ARE CONCERNED BY ANY ASPECT OF SAFETY IN THE WORK PLACE THEN STOP WORK AND MAKE IMMEDIATE CONTACT WITH THE SAFETY OFFICER. IF YOU CANNOT CONTACT THE SAFETY OFFICER THEN MAKE CONTACT WITH YOUR SUPERVISOR.

15. Signatures

Spectron Engineering, Inc.

This is to confirm that the undersigned has read this safety policy and that any concerns have been raised with the either the safety officer for Spectron Engineering, Inc.
or with my immediate supervisor.

Name	
Signature	
Job Title	
Date	

Permit To Work

Spectron Engineering, Inc.

Introduction

A permit to work system is a formal safety control system designed to prevent accidents including injury to employees, contractors and third parties as well as to property. The permit sets out the work to be done and the precautions to be taken.

Procedure

1. The permit must be completed by the designated safety officer, following discussion and liaison with the person or contractor responsible for the task.
2. Where a specific permit is issued it is still necessary to issue a general permit to work.
3. Only persons competent to carry out work should be issued with a permit.
4. All persons affected either directly or indirectly by the permit must be advised in advance of the works commencing.
5. A permit is issued for a designated person only and cannot be passed from one person to another.
6. Where two permits are issued the parties responsible must liaise with one another.
7. Spectron Engineering, Inc.
8. managers and staff must not permit any contractor to undertake work without evidence of the specific permit to work. If in doubt contact the security officer.

Procedure for the Health and Safety Induction of New Employees and Agency or Other Temporary Workers

Spectron Engineering, Inc.

Introduction

In order to adhere to the Company safety policy it is the intention of Spectron Engineering, Inc.

that on their first day of employment all employees (whether short term or permanent staff) will be advised of their general terms and conditions of employment and of the basic safety standards within the business. Additional specific training will be provided as and when required depending on the duties of each individual.

Recording

Training will be recorded using the induction training form IND 1.

Employees will be required to sign to accept that the defined training has been provided.

Person Responsible

The site safety officer will appoint a deputy who will be responsible for carrying out safety induction training. This person will be the site-training officer for health and safety.

The site-training officer must review the training of permanent new employees after a period of one month to determine what additional training and what re-training may be required.

During all induction training the new employee must be given an opportunity to ask questions to clarify any point of the health and safety arrangements and employees should be encouraged to do so before signing to agree that training has been provided.

Health And Safety Induction Training Form: IND1

Spectron Engineering, Inc.

Employees Name:	Reference Number:
Job Title:	Start Date:

Training Provided	Date of Training	Employee Signature	Trainer Signature
Safety Policy – Explain			
Housekeeping Controls			
Access/Egress			
Hazard Reporting			
First Aid Facilities			
Accident Reporting			
Accident Book Location			
Fire Evacuation Procedure			
Role of Safety Committee			
Manual Handling Controls			
Use of VDU Equipment			
Risk Assessments			
Chemical Safety			

Trainer: _____

Date: _____

Accident/Disease/Dangerous Occurrences: Form ACC3

Investigation & Action Report

Spectron Engineering, Inc.

Accident Reference Number: _____

Injured Person

Name _____ Age _____ years

Occupation _____ Length of Service: _____ years

- Employee Trainee Agency Worker Contractor Visitor
- Other (please specify) _____

Incident Details

Date: _____ Time: _____

Reported To: _____ Designation _____

Location of accident: _____

Details of witnesses to accident: _____

Explanation of how incident occurred: _____

Recommendation to prevent recurrence

Action recommended

Date of action

Accident Record Details

- | | Yes | No |
|---|--------------------------|--------------------------|
| Recorded in accident book | <input type="checkbox"/> | <input type="checkbox"/> |
| Verbal notification if required to Enforcement Authority | <input type="checkbox"/> | <input type="checkbox"/> |
| Written notification if required to Enforcement Authority | <input type="checkbox"/> | <input type="checkbox"/> |
| Details of incident sent to insurance company | <input type="checkbox"/> | <input type="checkbox"/> |

Accident investigated by:

Name (print): _____ Position: _____

Signature: _____ Date: _____

RISK ASSESSMENT

THE MANAGEMENT OF HEALTH & SAFETY

Contents

Introduction
What is a Risk Assessment?
Why are they necessary?
Who should do them?
When should they be done?
How do you perform a risk assessment?
How do you assess risk levels?
Recording assessments?
Risk Assessment form?
Additional Checklists?
Risk Assessments?

Risk Assessments

The Management of Health and Safety at Work

Introduction

These risk assessments have been completed to identify the fundamental risks involved in the business operations of Spectron Engineering, Inc.

The assessments look at the hazards of the operations set against the real risks to employees, contractors, visitors and third parties who come into contact with the business.

Statutory Requirements

This assessment of the risks involved in the operation of Spectron Engineering, Inc. must have due regard for the statutory requirements for health and safety at work.

Associated Documentation

These risk assessments must be read in conjunction with documentation intended to ensure safe systems of work and safe practices in the workplace. Reference should be made to the following documents produced or held by Spectron Engineering, Inc.

:

- Company Safety Policy
- Company Assessments For Hazardous Materials
- Company Work Instructions
- Company Training Records
- Company Fire Log
- Certificates of Inspection For Pressure Vessels (e.g. Boilers)
- Public Liability and Employers Liability Insurance Certificates
- Company Accident Records.
- Fire Safety Risk Assessment

Arrangements For Health & Safety

Overall responsibility for health and safety rests with the Board of Directors of Spectron Engineering, Inc.

and in particular by the Managing Director of Spectron Engineering, Inc.

The Board of Directors delegates responsibility for day-to-day health and safety to designated managers as follows:

- Operations Managers
- Line Managers
- Unit Supervisors

In the event of an accident contact should be made with one of these Managers without delay so that a proper investigation can be carried out.

Any defect noted by any persons relating to health and safety must be reported to the safety officer, a Director or in their absence or unavailability to the Operations Manager.

First Aid & Accident Reporting

In the event of any person being involved in an accident involving any part of the operation of Spectron Engineering, Inc.

contact should be made with one or more of the nominated people approved to administer first aid who are available on site.

In certain instances the Company are required to report accidents by means of an official system to the enforcing authority for health and safety. All accidents must be recorded and reported internally so that the safety officer can determine whether local reporting is required.

Pregnancy

During pregnancy personnel may be at increased risk in certain situations. Pregnancy may affect an employee's ability to handle goods or stand for prolonged periods of time, resulting in a safety issue. Hard and fast rules for pregnancy are difficult to put in place as cases vary and some staff may take exception to being restricted at work when pregnant and staff may be pregnant without the Company being aware. When a member of staff is pregnant they should not be required to lift or carry anything other than very light weights unless they have documentary agreement from their Medical Practitioner to state that they can lift heavier items. Where a pregnant employee has to work in the standing position a facility should be provided for that member of staff to take regular breaks to sit down. The number of breaks should be determined between the employee and her supervisor.

There is no evidence to suggest that work with visual display screens is harmful to pregnant mothers and there is no known reason to restrict this work.

In the event of any pregnant employee suffering from any illness or discomfort in the workplace she should be referred immediately to her Medical Practitioner. In the event of any concerns over the work which the pregnant employee is involved with advice should be sought from the Medical Practitioner. A copy of the full risk assessment may prove of assistance to the Medical Practitioner. Personal protective equipment must be kept under review throughout the period when the pregnant worker is at work.

Company Risk Assessments

It is the policy of Spectron Engineering, Inc.

to encourage all staff and third parties to work together to create a healthy and safe working environment.

To fulfill this policy hazards have to be identified and suitable steps taken to prevent injury or ill health to Spectron Engineering, Inc.

staff, or third parties, who may include contractors or visitors.

This procedure is intended to provide guidance for those members of staff with specific responsibility for assessing and controlling risks within their area of responsibility, complementing the responsibilities detailed in the 'General Statement of Health Safety Policy'.

It is important to note this procedure relates to the long-term health of individuals as well as the management of the safety of such individuals, which focuses on the prevention of injuries. Risks to health, such as occupational stress or infectious diseases must be considered as well as the more obvious safety illnesses, such as those which relate to manual handling or fire evacuation.

What is a Risk Assessment?

A risk assessment is the systematic identification of potential hazards in the work place by personnel as a first step to controlling the possible risks involved.

A hazard is anything that has the potential to cause harm.

A risk is the likelihood of someone being exposed to that hazard and harmed as a result.

Risk assessments must be in place for all Spectron Engineering, Inc. operations.

The risk assessment should assess the risk that may be present in all work activities, and may identify particular areas for more detailed 'specific' assessments.

A duty of care is owed to the individual, and risk assessment must take this into account. Therefore a person with special needs (such as people with physical or learning difficulties, young persons and pregnant women) will require an assessment of their activities which take their special needs into account.

Why are they necessary?

Risk assessments are important for two main reasons:

1. The process is a fundamental part National law.
2. It manages potential dangers in the workplace.

It is important to remember that it may not be possible to eradicate problems completely. Always remember the phrase "reasonably practicable".

Who should do them?

The Health and Safety Adviser to Spectron Engineering, Inc. has prepared principal risk assessments.

Essentially, individual who are familiar with the working area and working practices should be involved with the risk assessment process.

Supervisors are responsible for developing a risk assessment plan for their area of responsibility, and completing assessment in accordance with this plan.

The Directors of Spectron Engineering, Inc.

have ultimate responsibility to ensure that risk assessments are done.

When should they be done?

Risk assessments should be done at least once a year provided that no changes have occurred during this time. If either the working environment or working practices are amended, however slightly, a new risk assessment must be performed.

It is also important to remember that risk assessments need to be done **before** new procedures are introduced.

How do you perform a risk assessment?

There are eight steps to performing a satisfactory risk assessment

1. Focus for assessment
2. Identify activities
3. Identify hazards
4. Who at risk
5. Evaluate risk
6. Review controls
7. Record Decisions
8. Review Regularly

How do you assess risk levels?

Risk levels are categorized in a numbered format. Each hazard is given a rating and this is multiplied by the probability that these hazards will occur, as shown in the following equation.

$$\text{Risk level} = \text{Hazard severity} \times \text{Likelihood of occurrence}$$

Step One

Give each hazard a severity marking as indicated in the table below:

Risk Level	Effect of hazard
5	Fatal injury
4	Permanent disabling injury
3	Disabling injury
2	Injury causing time off work
1	First aid only

For example:

If slipping on the stairs (hazard), could result in death or disablement, then it must be given a rating of 4 or 5.

Step Two

The next step is to consider how often each hazard is likely to occur as indicated in the table below

Risk Level	Likelihood of occurrence
5	Certain
4	Near certain
3	Very likely
2	Frequent
1	Seldom

For example:

If slipping on the stairs (hazard), was very likely to happen, then it must be given a rating of 3.

Step Three

Multiply the two scores together and you will get the risk level. This figure should be entered into the risk assessment form.

For example:

5 (hazard) multiplied by 3 (occurrence) = 15

Step Four

The following bullet points are **guidelines** to help you gauge how quickly you need to put the controls in place, so dates will vary from office to office.

- Where any hazard is given a risk ranking of 22-25 then action must be taken **immediately** to reduce that risk.
- Where any hazard is given a risk ranking of 16-22 then the line manager must be informed before the end of that working day.
- Where any hazard is given a risk ranking of between 1 and 15, then action needs to be taken at the earliest opportunity, as soon as it is reasonably practicable to do so, taking into account local circumstances.

Employers must ensure that risks are reduced to the lowest extent **reasonably practicable**.

The legal definition of “reasonably practicable” is “any measure which can be reasonably carried out having regard to technical knowledge and acceptable expense”.

Administration

The Risk Assessor should retain completed Risk Assessment Forms and a copy must be held on site. Risk Assessments must be made available to all relevant personnel and they must be kept up to date. Additional checklists of information are available at the back of this document and should be used as a guideline to help you complete some aspects of the form. If appropriate to do so, please add your own categories in order to ensure that local requirements are being met.

Additional Checklists for Risk Assessment form

Potential hazards in the workplace

- Portable and fixed electrical appliances
- Tools and equipment
- Storage of materials
- Handling of materials
- Trailing cables
- Stairs and stairways
- Congested walkways and corridors
- Access and egress
- Fire exits
- Seating and workstations
- Heating and ventilation
- Lighting levels
- Cleanliness and waste materials
- Sanitary conveniences
- Washing facilities
- Facilities for eating and drinking
- Chemicals
- Cleaning substances
- Dusts & powders
- Biological hazards (bacteria, viruses, etc.)
- Repetitive actions
- Vehicle safety
- Traveling for business
- Working alone
- Workplace violence (physical or verbal)
- Stress

People affected by hazards

- Staff
- Visitors
- Contractors
- Maintenance staff
- Emergency staff
- People with special needs (such as people with physical or learning difficulties, young persons and pregnant women)
- General public

Other specialist areas of assessment

- Display Screen Equipment (VDU Assessment)
- Manual Handling Operations
- Hazardous Substances
- Construction Work

Identified Hazards

The following hazards have been identified in the operation of Spectron Engineering, Inc.

:

Assessed Hazards

- Burns from fire
- Inhalation of smoke
- Burns from electrical/gas equipment
- Burns from hot water
- Cuts from equipment
- Cuts from broken glass
- Contact with chemicals
- Inhalation of Chemicals
- Ingestion of Chemicals
- Falls on slippery floors
- Falls on obstructed floors
- Falls down stairs
- Contact with electricity
- Manual handling injuries
- Collision with others
- Entanglement with equipment
- Contact with equipment
- Blood borne pathogens
- Water safety & pathogens
- Injury from objects falling
- Falls from heights
- Burns from electricity
- Escape of gas
- Airborne harmful substances
- Injury from VDU work
- Working in isolation
- Use of vehicles
- Handling of hazardous materials & spills
- Use of counterbalanced trucks
- Use and handling of liquid petroleum gas

RISK ASSESSMENTS: Safe Systems of Work

Hazard:	Burns from fire
	Inhalation of smoke
Control Methods:	Elimination
	Guarding
	Training
	Instruction
Persons at Risk:	Delete as appropriate
	Staff
	Third Party Contractors
	Members of the Public
	Emergency Services
Risk Rating:	5 x 3 = 15

Existing Controls:

Insert Details As Introduced

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 performed.
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/gas equipment
	Burns from electricity
Control Methods:	Elimination
	Guarding
	Training
	Instruction
Persons at Risk:	Delete as appropriate
	Staff

Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: **3 x 4 = 12**

Existing Controls:

Insert Details As Introduced

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 manufacturers recommendations.
3. Only trained personnel are permitted to work on gas and electrical systems.
4. A list of the current trained people approved to administer first aid should be provided in a prominent position.
5. Contractors 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: Delete as appropriate
Staff

Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: **3 x 5 = 15**

Existing Controls:

Insert Details As Introduced

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 equipment or machinery containing hot water must only be permitted with a valid permit to work. Work on such equipment 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 machinery or equipment

Control Methods: Guarding
Training
Maintenance Controls
Personal Protective Equipment

Persons at Risk: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: 3 x 3 = 9

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. All equipment is to be maintained in accordance with manufacturers instructions.
2. Defective equipment must be reported to the Operations Manager 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 equipment 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 equipment and prime movers.
6. All mechanical equipment is to be provided with guarding in accordance with the manufacturers design standard
7. All equipment must be electrically isolated before cleaning or adjustment commences.
6. Protective clothing in the form of gloves and eye goggles should always be provided with each such item of equipment or in close proximity to the equipment.

Hazard: Cuts from broken glass

Control Methods: Elimination
Training
Safe System
Personal Protective Equipment

Persons at Risk: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: 4 x 3 = 12

Existing Controls:

Insert Details As Introduced

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 Operations Manager 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 pair of heavy-duty gloves 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: **3 x 3 = 9**

Existing Controls:

Insert Details As Introduced

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 Operations Manager.

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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: 4 x 3 = 12

Existing Controls:

Insert Details as Introduced

Recommended Controls:

1. When floors are cleaned or when they are affected by spills then this should be clearly brought to then 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: 3 x 3 = 9

Existing Controls:

Insert Details As Introduced

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: Delete as appropriate

Staff

Third Party Contractors

Members of the Public

Emergency Services

Risk Rating: 5 x 3 = 15

Existing Controls:

Insert Details As Introduced

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: Delete as appropriate

Staff

Third Party Contractors

Members of the Public

Emergency Services

Risk Rating: 5 x 2 = 10

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. All electrical equipment is to be inspected by a competent person at least annually.
2. Employees should be required to report defective electrical equipment to the Operations Manager without delay for isolation.
3. Work on electrical systems should only be performed 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: 3 x 3 = 9

Existing Controls:

Insert Details As Introduced

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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: 3 x 3 = 9

Existing Controls:

Insert Details As Introduced

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 vests 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: 4 x 2 = 8

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. Where goods are stored above 6 feet (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 45lbs (20 kg) are not stored above 6 feet (2 meters) except on controlled racking locations.

Hazard: Falls from heights
Control Methods: Elimination
Persons at Risk: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: 5 x 2 = 10

Existing Controls:

Insert Details As Introduced

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 6 feet (2 meters) from ground level access is not permitted without the use of a secure harness.
3. Only trained personnel may work above 6 feet (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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: 4 x 3 = 12

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. Employees must not be permitted to work on live circuits under any circumstances.
2. Defective equipment 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: **3 x 3 = 9**

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. All gas fittings and gas connections must have been installed by licensed plumbers.
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 licensed plumbers 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: **5 x 2 = 10**

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. Cease work immediately in the event of asbestos being suspected and report it to a Director of Spectron Engineering, Inc.
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.

- Warning notices must be provided where asbestos or any other harmful material is identified within the site.
- 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.
- 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: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services
Risk Rating: 4 x 3 = 12

Existing Controls:

Insert Details As Introduced

Recommended Controls:

- A permit to work is required where work has to be carried out in a restricted area in isolation.
- 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.
- Work in isolation must not be permitted when the site is otherwise unoccupied.
- Lone working for high level work and electrical work must never be permitted.

Hazard: Handling of hazchem spills

Control Methods:

Training

Personal Protective Equipment
Supervision
Safe System

Existing Controls:

Insert Details As Introduced

Recommended Controls:

- In the event of a hazardous material spills the entire facility should be evacuated if there is any public health risk.
- In the event of a hazardous material spills the emergency must be dealt with by the Safety Officer or other competent person.

3. Contact must be made with the Fire Authority by the Safety Officer to advise of the spills 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.
8. Cleared spills should be double bagged and placed in a sealed bin for disposal. Such spills must not be carried at any time inside a passenger compartment of any vehicle.

Hazard: **Blood borne pathogens**

Control Methods: Personal Protective Equipment
Training

Persons at Risk: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: **3 x 3 = 9**

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. People approved to administer first aid are to be:
 2. properly trained and certificated
 3. advised to avoid blood contact
 4. required to wear waterproofing dressings over any personal cuts or abrasions.
5. Protective nitrile or non-latex gloves should be provided in all first aid kits.
6. A mouthpiece or airway system should be provided for use when administering first aid.

Hazard: **Injury from VDU use**

Control Methods: Training
Safe Systems

Persons at Risk: Staff

Risk Rating: **2 x 3 = 6**

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. All display screen equipment units are to be assessed when final locations are determined.
2. All employees are to be provided with an eye test on demand.
3. Training is to be provided for all employees on the use of software packages.
4. Staff should be provided with training specific to the safe use of VDUs and workstations and this training should be documented.

Hazard: Water Safety and Pathogens

Control Methods: Elimination

Persons at Risk: Delete as appropriate
 Staff
 Third Party Contractors
 Members of the Public
 Emergency Services

Risk Rating: 4 x 3 = 12

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. Hot water supplies held in calorifiers must be at or above 60°C.
2. Water-cooled air conditioning must be under a planned maintenance contract.
3. Main water tanks must be covered to prevent contamination.
4. Consideration should be given to the annual chlorination of water tanks and water distribution system.
5. 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 with equipment

Contact with equipment

Control Methods: Guarding
 Instruction

Persons at Risk: Delete as appropriate
 Staff
 Third Party Contractors
 Members of the Public
 Emergency Services

Risk Rating: 4 x 2 = 8

Existing Controls:

Insert Details As Introduced

Recommended Controls:

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

Hazard: Failure/Collapse of Lifting Equipment

Control Methods: Guarding
Elimination

Persons at Risk: Delete as appropriate
Staff
Third Party Contractors
Members of the Public
Emergency Services

Risk Rating: 5 x 2 = 10

Existing Controls:

Insert Details As Introduced

Recommended Controls:

1. Only approved lifting gear shall be used and a current certificate of inspection must be available before any work commences.
2. Lifting gear can only be used by trained and authorized personnel.
3. 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 equipment is capable of lifting the load and that the system is safe.
4. Only trained and certificated staff may use powered lifting machinery or equipment such as forklift trucks.
5. Constant supervision of powered lifting machine 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.
6. Where powered lifting machines operate in close proximity to pedestrians, drivers must be instructed to take additional care.
7. Medical surveillance for truck operators should be considered.
8. Where practicable hand pull pallet movers should be used rather than powered lifting machines.

- 9. 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.
- 10. 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 machines is likely.
- 11. Signs should be used at the entrance to the areas where powered lifting machines are operated stating that forklift 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: Delete as appropriate
 Staff
 Third Party Contractors
 Members of the Public
 Emergency Services

Risk Rating: 5 x 2 = 10

Existing Controls:

Insert Details As Introduced

Recommended Controls:

- 1. Only trained and authorized personnel should be permitted to drive company vehicles in accordance with the valid permits on their driving license.
- 2. Company vehicles are to be serviced in accordance with the manufacturers recommendations.
- 3. Alcohol is strictly prohibited for all drivers and any member of staff found to
- 4. have consumed alcohol during work or found to be above the legal limit for alcohol while driving may be instantly dismissed.
- 5. Smoking in the storage compartment of any vehicle is strictly prohibited.
- 6. 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.
- 7. Delivery staff should be given specialist instruction on safe lifting and handling techniques and this training should be documented.
- 8. It is strongly recommended that high visibility safety vests be 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:	Delete as appropriate Staff Third Party Contractors Members of the Public Emergency Services
Risk Rating:	5 x 3 = 15

Existing Controls:

Insert Details As Introduced

Recommended Controls:

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

RISK ASSESSMENT PROCEDURE

Spectron Engineering, Inc.

1. Introduction
2. Risk Assessment
3. Risk Assessment Procedure
4. Review your Assessment Annually

Appendices:

General Risk Assessment Form RA1

Risk Assessment Listed and Review Date Form RA2

1. Introduction

An assessment of the risk is nothing more than a careful examination of your work area with regard to what could cause harm to people. To weigh up whether the precautions in place are sufficient or if more may be required. The aim is to eliminate or reduce the risk to an acceptable level.

2. Risk Assessment

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

RISK = PROBABILITY OF EVENT AND SEVERITY OF OUTCOME

In safety management terms the evaluation of risk involved in a given process or activity centers around the following questions.

- What is the hazard (potential to cause harm)?
- What is the likelihood of exposure (in the given circumstances occurring)?
- What is the likely outcome (taking into account any existing controls)?

3. Risk Assessment Procedure

A. Hazards

Look for hazards that could result in harm in your area, activity, process or equipment that you are using

Hazards may be physical, chemical, biological or ergonomic in nature.

Physical hazards include the potential to harm posed by inadequate or excessive lighting, temperature, noise/vibration, pressure, humidity and radiation.

Chemical hazards are associated with those solids, liquids, gases etc, with the potential to cause injury or harm to those exposed.

Biological hazards are more specialized but include moulds, fungus, spores etc. (e.g. legionella, weils disease).

Ergonomic hazards are the potential to harm due to poor workplace design.

The consideration of the man/machine interface e.g. computer workstations, lifting and handling, slipping and tripping.

B. Who is at Risk?

There is no need to list individuals by name, just the group who may be affected by the activities.

For example, process staff, support staff, office staff, visitors, and contractors.

When considering who might be harmed pay particular attention to those who may be more vulnerable for example, staff with disabilities, inexperienced staff, lone workers and visitors.

C Existing Control Measures

In order to establish the level of risk for each identical hazard it is necessary to calculate the risk rating. To calculate this we look at both the risk of the event occurring and the outcome if it were to occur. Each score is awarded as follows:

Probability

1	Very Low	Very unlikely to occur
2	Low	Unlikely to occur
3	Medium	May occur
4	High	Likely to occur
5	Very High	Inevitable

Severity

1	Very Low	No injury
2	Low	Minor first aid only
3	Medium	3 day injury
4	High	Major injury
5	Very High	Fatality

To calculate the overall risk rating we multiply the potential outcome of any event by the likelihood of it occurring. For example, if an unqualified and inexperienced person was working on live electrical equipment without protection the outcome could be a fatality and so the event would score 5.

In addition the likelihood of an accident happening would be very high and again the score would be 5. The overall risk rating would therefore be 25 and would be a top priority.

If the same job was being performed by a competent qualified electrician using log out/tag out controls the event would again score 5, as a fatality could occur if things went wrong, but the

likelihood would score 1 because given proper controls it should not occur. The overall risk rating is therefore 5, a much lower priority.

A priority rating score is therefore obtained for each job or each activity as required.

Check the legal requirements are being complied with for example, guarding in place, equipment serviced & maintained, adequate signage etc.

The aim is to eliminate or reduce the risks as small as possible.

To control the remaining risks the following questions must be considered:

- Eliminate the hazard completely?
- Is there a safer alternative?
- Can we control the risks so that harm is unlikely?

The use of protective equipment should only be considered when there is nothing else you can reasonably do.

If the work tends to vary a lot or if staff have to move from one site to another then select those hazards, which you can reasonably, foresee and assess the risks from them. If other staff use your area they must be told about any risks your work could cause them.

D. Proposed Action

Preferred Options

Eliminate harm from a process.

Replace worn or slippery steps rather than providing warning signs

E. Record your Findings

The law requires that all the significant findings from your risk assessments, along with any conclusions that you may have arrived at for example:

Fumes from welding – local exhaust ventilation provided and regularly checks must be recorded.

The law states that you do not have to show how you carried out the assessment, provided that you can show that a proper check was made that:

- Identified the hazards
- Identified who is at risk
- Existing control measures and precautions
- Proposed action if required.
- Actions taken and complete

To ensure this we use the General Risk Assessment Form RA1 for all risk assessments.

Completed General Risk Assessment RA1 forms to be circulated as follows:

- Health & Safety Manager
- Line Manager
- Affected Personnel
- Copy Retained locally

Complete the Risk Assessment Listing and Review Form RA2 with all area and activity risk assessments carried out. Also, record the date the risk assessment was carried out.

Risk assessments must be reviewed annually or if the activity or area changes in any way. Record all reviews and changes and the date.

Action taken and Complete

When the proposed action has been completed the Manager completes this section on his/her copy. Copies to be held locally and sent to the Health and Safety Manager.

4. Review your Assessment Annually

Your assessment must be reviewed annually or if there is any significant change for example:

Introduction of new equipment, materials or procedures that may bring new hazards which will need to be considered.

Record all reviews and changes and the date on the Risk Assessments Listed and Review Dates Form RA2.

Appendix 1 Risk Assessment Procedure FORM RA1

Spectron Engineering, Inc.

GENERAL RISK ASSESSMENT FORM RA1

Reference No _____

Unit	Department	Room / Area
-------------	-------------------	--------------------

ACTIVITY

A. HAZARDS

B. WHO IS AT RISK?

C. EXISTING CONTROL MEASURES	RISK RATING	
	Probability Score (A)	
	Severity Score (B)	
	Risk Rating A x B	

D. PROPOSED ACTION

E. Assessed By	Line Manager	Health & Safety Manager
Date	Date	Date

F. Action taken and signed off complete.	Health & Safety Manager
Operations Manager	
Date	Date

Procedure For The Inspection of Portable Appliances

The inspection of portable electrical appliances used in Spectron Engineering, Inc. operations will be carried out at three separate levels. These will be user checks prior to each use, formal visual checks by in house competent persons and finally testing by an external body.

1. Visual Checks By Users

All persons about to use an item of electrical equipment should carry out a visual check. The check should look for:

- damage to plug
- damage to cable
- taped joints are poor wire connections
- insecure cable at entry to plug
- exposed internal insulation showing below cable sheath
- evidence of dampness or water contamination
- evidence of physical damage to equipment
- missing guarding to equipment
- evidence of appliance or plug overheating.

Any item of equipment, lead, plug or extension cable found to be faulty by the user must be immediately removed from service and should be reported to the safety officer for Spectron Engineering, Inc.

2. Visual Checks In House

Visual examination of all low risk equipment will be carried out on an annual basis by an in house competent person. This task will be assigned to a nominated authorized manager who is competent and experienced in electrical safety. Low risk equipment is defined as all appliances which are grounded and which have a fully insulated casing to protect the user. For example computer screens, computer drives, facsimile units and answer telephones would be included but kettles, free standing lights and battery charging equipment would not be. The check will include, in addition to the issues looked at in the user examination, the following:

- correctly rated fuse
- secure cable wire holding
- provision and security of earth fitting
- effective cord grip
- signs of internal plug damage
- signs of ingress of water
- signs of overheating.

The inspection will be recorded in writing and records will be held for a minimum of 5 years.

Equipment which is suitable for in house examination is:

Battery operated equipment, computers, photocopiers, fax machines, fans and lamps.

Document Reference: Spectron Engineering, Inc

Revision Number: 1, *Date:* September 23, 2010

Equipment which is not suitable for in house examination and which requires external inspection (see below) is:

Floor cleaners, electric kettles, extension leads, metal lamps, electric hand tools.

External Testing

All high-risk portable appliances will be subject to an external test on an annual basis while low risk appliances such as those detailed above may be tested only every three years at the discretion of the Spectron Engineering, Inc.

safety officer. The test should be carried out by an approved contractor. The test shall include the following:

- visual inspection
- insulation test
- flash test (if appropriate)
- earth leakage test
- load test.

All tested appliances will be labeled as follows:

1. Test - passed/failed
2. Date of test
3. Next due test date
4. Initials of tester
5. Reference number

Defective and faulty equipment will be removed from service at once and will be quarantined subject to repair or disposal.

Electrical Safety

Introduction

Employers must ensure that with regard to all fixed electrical installations and to all portable electrical equipment there is in place a safe system of work that ensures: -

- Compliance with relevant legislation
- All fixed installations are safe and tested
- All electrical appliances and cables are tested and maintained
- Only safe equipment is used.
- This system applies to all places of work
- There are no voltage restrictions
- Legislation places absolute duties on employers, employees and the self employed to comply with all matters regarding electrical safety that are within their control.

Requirements

1. Any installation, use and maintenance of equipment must reflect specific safety requirements with regard to adverse conditions i.e. weather effects, exposure to corrosive or flammable environments, operation in a dusty atmosphere.
2. Connections should always be suitable for the purpose for which they are being used and the use of electrical tape alone for connections is forbidden.
3. It must be ensured that any protection for electrical installations and equipment e.g. fuses and residual current devices (RCD's), are suitably rated, sufficient and within safe working limits. In the case of RCD's the test trip button should be operated regularly.
4. All electrical installations and equipment must have adequate means to enable them to be isolated from the electric supply in order to prevent danger.
5. All isolator switches should be easily accessible and passageways to them kept clear at all times.
6. All switches and fuseways must be clearly labeled as to indicate the circuit or function controlled and all switches and distribution covers must be kept closed at all times unless being worked on by a competent authorized person.
7. Adequate working space means access and lighting must be provided at all electrical equipment on which or near which work is being carried out which may give rise to danger.
8. There should be adequate arrangements to ensure that electrical equipment that has been made "dead", while work is being carried out on or near such equipment, cannot be electrically charged if this would then present danger.

This can be physically achieved by ensuring that a "lock-out" system is used, i.e. the isolator controlling equipment is physically locked in the "off" position. Where a "lock-out" system cannot be used then there should be a procedure for ensuring that fuses are removed and held by the authorized person carrying out the work.

Any work being performed on an electrical installation or equipment should be subject to a safe system of work and the Permit-to-Work Procedure.

9. Where work on electrical equipment is being performed by “in-house” competent persons then suitable protective equipment must be provided. Examples of such equipment may be goggles, gloves, insulating mats, insulated tools and test probes.
10. Notices giving details of emergency resuscitation procedures in the event of electric shock should be displayed at those locations where the risk of electric shock is greater e.g. sub-stations and electrical test areas.
11. Only competent authorized persons, i.e. those with sufficient experience and training, should be engaged in any work on an electrical installation or equipment.

Manual Handling

Procedure for Complying with Manual Handling Requirements

Introduction

Employers must ensure that wherever possible manual handling tasks involving a risk to the health and safety of employees are avoided, so far as reasonably practicable. Where these tasks cannot be avoided, employers shall carry out an adequate and sufficient assessment of the risks involved and will reduce those risks to the lowest level reasonably practicable.

Definition

Manual handling is defined as lifting, carrying, putting down, pushing and pulling i.e. moving a load by bodily force.

Assessment Procedure

1. Identify and make an inventory of all tasks involving manual handling. Minor lifting and lowering tasks can be ignored but the appropriate section of the Assessment Form still requires to be completed.

If in any doubt an assessment should be carried out and in all cases the task information requires to be recorded on Control Summary.

2. The assessment using the Assessment and Employee Assessment should be carried out by a competent person who should have the knowledge to be able to: -
 - (a) identify the risks associated with manual handling, including an assessment of the employees
 - (b) recognize poor posture and movement
 - (c) form a valid and justifiable conclusion as to the risk of injury
 - (d) recommend appropriate action to reduce the risk of injury.
3. Once the assessment has been completed and the actions required to reduce the risk of injury have been identified, recommendations shall be implemented by the supervisor or, if necessary, forwarded to the safety officer for action.

If following an assessment there is any doubt as to an employee's ability to carry out designated tasks a medical examination of the employee should be arranged.

Personal Protective Equipment

All employees will be provided with and must wear appropriate personal protective equipment for the tasks performed.

Employees' Duties

All employees, while at work, shall make full and proper use of any system of work or mechanical aid provided by the Company in order to reduce the risks associated with manual handling activities.

Information, Instruction and Training

All employees will be given task related training in correct handling methods, which will include: -

- (a) the reasons why the training is being given
- (b) the effects poor handling can have on the body and how injuries can occur
- (c) information on the loads to be handled
- (d) the measures to be employed to reduce the risk
- (e) the correct use of personal protective equipment
- (f) the duties of employees

All training should be recorded on the Training Record and the employees' training records. Training may be general (e.g. general lifting techniques) or specific (e.g. handling of pallets).

Any employee who sustains a manual handling injury should be assessed to determine whether refresher training is required.

Training must also be given to temporary employees.

Assessment Review

All assessments should be reviewed at least annually and immediately if it is suspected that the existing assessment may no longer be valid.

Assessment Manual

The following data should be retained in one easily accessible file.

1. Individual Assessment Forms
2. Pre-Assessment Forms
3. Control Summary
4. Training Record
5. Relevant Correspondence.

Manual Handling Guidance Note

Introduction

The manual handling of loads has long been recognized as a major source of occupational injury and ill health. National legislation provides a structured approach through which risks can be identified and corrective measures applied, with the aim of bringing about a significant reduction in the toll of injury and disablement caused by manual handling in the workplace.

Manual Handling Injuries

More than a quarter of accidents reported each year to the enforcing authorities are associated with manual handling strains and sprains which account for around 65% of injuries in this category arising from incorrect application and a prolongation of bodily forces. Poor posture and excessive repetition of movement can be important factors in their onset. Sometimes injuries are cumulative and not always the result of a single accident.

Injuries can occur to many parts of the body and not just the back. However, it is important to remember that back injuries can be very painful and are notoriously difficult to cure, and indeed diagnose.

The challenges for the safe manual handling of loads are found right across industry and are by no means restricted to the movement of heavy loads. In fact small loads in awkward places and in difficult environments may often present a greater challenge to the body's muscular and skeletal systems. The problem is further compounded by the fact that many people see small loads as too small a problem to concern themselves with.

Duties of Employers

- Minimize the need for manual handling
- Where it is required assess handling tasks
- Reduce risk of personal injury as a result of manual handling
- Provide information to the employee on how to reduce the risk of personal injury.

Duties of Employees

- Employees must make full and proper use of any equipment or system of work provided by the employer.
- Employees must inform the employer of any existing physical conditions that might affect their ability to undertake manual handling operations safely.

More detailed information relating to the legal responsibilities of employers and employees follows.

Six Steps to Correct Lifting

1. Feet apart (shoulder width) one foot ahead of the other in the direction of the intended movement
2. Knees bent (not squat) - again most effective power from thigh muscles mid position the best
3. Back straight - not necessarily vertical (15-20 degrees) from vertical is all right. Centre of gravity over the load
4. Arms close to the body - nearer the centre of gravity
5. Hands palms grasp - roots of the fingers + palm of the hand
6. Head chin out and up - otherwise round shoulders and curved spine

Chemical Safety

Procedure For Handling Substances Hazardous To Health

Introduction

Employers must ensure that the exposure of employees to substances hazardous to health is either prevented or, where this is not reasonably practicable, adequately controlled. To comply with this requirement it is necessary to keep on file up-to-date and relevant information about any substances that are used, handled or produced or stored on the employers premises, together with any substances transported or delivered.

The information required should cover the following points: -

- [a] substance identification
- [b] substance hazards
- [c] substance risk assessment
- [d] risk reduction methods

It is the policy of Spectron Engineering, Inc.

that no hazardous substance shall be used until an assessment has been performed and suitable control measures implemented. "Used" is defined as substances being poured, mixed, pumped, topped up or otherwise handled in a non-packaged form or produced.

Assessment Procedure

1. Identify and make an inventory of all hazardous substances that might be present or produced in the workplace including substances warehoused and/or transported. These can include any items that carry a warning label such as: -

*



Toxic/Very Toxic

6

Harmful

2. Having identified all the substances you should ask the following questions of each substance.
 - (a) Is the substance used for the same purpose as any other of the substance(s) on the list and if YES - can you reduce the number of substances used.
 - (b) When was the substance last used? If it is only used occasionally, is it really needed? If not eliminate. If it cannot be eliminated move to 2 (c).
 - (c) Can the substance be substituted by a non-hazardous or less hazardous product? If yes eliminate and replace with non-hazardous product. If no move to 4 below.

3. Having identified all the substances that are simply being stored you should refer to 7 below regarding the need for an accidental spills plan. For substances in use you should refer to 4 below.
4. Having now identified all substances in use e.g. poured, mixed, pumped or otherwise handled in a non-packaged form or produced, you should complete an Assessment Form for each identified substance paying particular attention to the section relating to material usage. The completed Assessment Form and the supplier's hazard data sheet, if available, should then be forwarded to the user.
5. Once control measures have been implemented it is necessary to ensure that the control measures are kept in working order and good repair. For example if the control measure is an engineering control such as local exhaust ventilation then these should be examined and tested every six months.

It is a legal responsibility to ensure that control measures are being used properly and there must be arrangements to monitor their use and effectiveness. All employees are required by law to use any control measures and safe systems of work which have been introduced to reduce the risk of exposure to hazardous substances and also to inform or report to their management any defects in the control measures.

Where the requirement for monitoring of exposure of employees to hazardous substances has been identified further information should be sought from your occupational health professional.

In certain cases health surveillance may be required if there is a reasonable likelihood that disease or ill-effect will occur due to an exposure of a hazardous substance. Advice should be sought from your occupational health professional.

6. Wherever a hazardous substance has been identified then all employees who use the substance or are likely to be affected by an accidental spills must be informed of:
 - a) the risks to health created by exposure
 - b) the precautions to be taken to prevent an exposure
 - c) emergency procedures in the event of an accidental spills

In addition where there are specific control measures in place, then employees should receive adequate training to enable them to comply with the control measures. Details of all such information and training must be recorded on individuals personnel file.

First aid personnel should always have access to the first aid information relevant to any identified substance.

Assessment Review

1. All assessments should be reviewed at least annually and immediately if it is suspected that the existing assessment may no longer be valid. Details of reviews performed to be recorded on Assessment Review Control Form.

Work Equipment

Procedure for the Provision and Use of Work Equipment

Introduction

It is vitally important to ensure that:

1. all work equipment is both suitable for the purpose for which it is to be used and where it is to be used.
2. adequate maintenance systems are in force.
3. employees receive adequate information, instruction and training for the work equipment they use. This requirement also extends to the employees immediate supervisor or manager.

Employers must ensure that work equipment used by employees meets the statutory requirements. In order to comply with this requirement it is necessary to keep on file up to date and relevant information about any equipment used in the course of the employers business.

The information required should cover the following points:

- (a) equipment identification
- (b) equipment assessment
- (c) risk reduction methods

Definitions

The definition of “use” is very wide and means any activity involving the equipment e.g. stopping, starting, transporting, maintaining and cleaning. The definition of “work equipment” is also very wide encompassing the most complicated computer operated equipment to a simple hand tool whether owned, loaned, hired or used by employees.

Assessment Procedure

1. Identify and make a list of all work equipment present in the workplace.
2. An assessment should be carried out on the equipment (other than equipment that has been assessed in accordance with other statutory requirements) using the Work Equipment Assessment form. This assessment can often be done on groups of similar equipment e.g. hand tools or if required on an individual item basis.
3. When the completion of the assessment confirms that action is required then any action points identified should be implemented.

Action points can be for example:

- (i) introduction of a safer system of work or change of equipment
- (ii) modification of equipment
- (iii) improved maintenance procedures
- (iv) the provision of information
- (v) introduction of personal protective equipment

Document Reference: Spectron Engineering, Inc

Revision Number: 1, *Date:* September 23, 2010

(NOTE: personal protective equipment should only be used as a control measure when other forms of control are considered inadequate)

Assessment Review

All assessments should be reviewed at least annually and immediately for new or modified equipment or if it is suspected that the existing assessment may no longer be valid or that the circumstances involving the use of the equipment have changed significantly.

Work Equipment Assessment Form

Equipment Description:

Assessment No.:

.....
.....
.....
.....

Assessor:

Assessment Date:

Signature:

			Is Action Required		Action to be taken
	Yes	No	Yes	No	
Suitability					
Is the equipment suitable for:					
The purpose for which it is intended					
The location in which it is being used					
Does the equipment itself pose any significant risks (fumes etc.)					
Maintenance/Use					
For maintenance purposes does the equipment require:					
A simple visual inspection					
Portable electrical appliance test					
Statutory inspection					
Routine maintenance					
Planned preventative maintenance					
Maintenance log					
Are there any specific risks that require the equipment to be:					
Used by authorized personnel only e.g. abrasive wheels					
Maintained by authorized personnel only e.g. fork lift trucks					
Information, Instruction, Training & Supervision					
Have all the users been given use instructions					
					Verbal
					Written
Is documentary evidence for the above available:					
Have all the users been given health & Safety information					
					Verbal
					Written
Is documentary evidence for the above available					
Have all the users been given suitable and sufficient training					
					Verbal
					Written
Is documentary evidence for the above available:					

Dangerous Parts			Is Action Required		Action to be taken
	Yes	No	Yes	No	
Does the equipment present any specific hazards					
If "yes" have adequate control measures been implemented					
Does the equipment have any guards fitted					
If "yes" are they inspected on a regular basis					
Does the equipment present any risks from high or low temperatures					
If "yes" have adequate control measures been taken					
Does the equipment require any Personal Protective Equipment					
If "yes" have adequate control measures been taken					
Is the documentary evidence for the above available					
Control Systems and Stop Controls					
Does the equipment have any control systems (stop/start buttons etc.)					
If "yes" are they suitably marked					
Does the equipment have an emergency stop control					
If "yes" is it suitably marked					
Can the equipment be isolated from an energy source					
If "yes" is the method of isolation accessible					
General					
Is the item of equipment stable					
Is the lighting for the equipment adequate					
Can the maintenance on the equipment be carried out without risk to health					
Does the equipment require any specific warning signs other than those previously covered under the controls section					

General (Continued)	Yes	No	Is Action Required		Action to be taken
			Yes	No	
Have all relevant Managers/Supervisors been given: Use instructions					
Verbal					
Written					
Is documentary evidence for the above available:					
Have all relevant Managers/Supervisors been given:					
Health & Safety Information					
Verbal					
Written					
Is documentary evidence for the above available:					
Have all relevant Managers/Supervisors been given:					
Suitable & Sufficient training					
Verbal					
Written					
Is documentary evidence for the above available:					
Defect Reporting					
Is there a written defect reporting system					
If "yes", are defects signed off when complete:					
Is there a system for taking defected equipment out of service if the defect poses a risk to safety					
Are equipment users aware of defect reporting system:					
Is documentary evidence for the above available					

Welfare Arrangements

Introduction

It is the policy of Spectron Engineering, Inc.

to provide good welfare facilities for our employees. To this end the following standard will be followed.

Requirements

- [1] Employers are responsible for ensuring that the workplace which they control complies with the regulations and that the facilities required are provided. Arrangements can be made to use facilities provided by another person, e.g. landlord or a neighboring business, but the employer remains responsible for ensuring compliance with the Regulations.
- [2] People other than employers also have a duty under these Regulations if they have control to any extent of a workplace. For example, owners and landlords should ensure that common parts, common facilities, common services and means of access/egress within their control comply with the Regulations. These duties are limited to common parts of buildings, e.g. staircases, shared toilets.
- [3] Where employees work at a workplace that is not under their employer's control the employer should take any steps necessary to ensure that sanitary conveniences and washing facilities will be available.

Provisions applicable to the workplace and to equipment, devices and systems therein

- [1] Maintenance: -
 - {i} To be maintained in an efficient state, order and in good repair
 - {ii} Repair and maintenance work to be carried out as appropriate.
- [2] Ventilation: -

Effective and suitable provision should be made to ensure that every enclosed workplace is ventilated by a sufficient quantity of fresh or purified air and any equipment used for this purpose shall include an effective device to give visible or audible warning of failure of equipment.
- [3] Temperature in indoor workplaces: -
 - {i} Temperature should provide reasonable comfort without the need for special clothing. Where such temperature is impractical because of hot or cold processes, all reasonable steps should be taken to achieve a temperature that is as close as possible to comfort
 - {ii} Temperature should normally be at least 16°C, unless much of the work involves severe physical effort in which case the temperature should be at least 13°C
 - {iii} Care should be taken that harmful or offensive fumes produced from the heating apparatus are not produced

- {iv} Thermometers should be available at convenient places to enable temperature to be measured.
- [4] Lighting: -
- {i} Lighting should be sufficient to enable people to work, use facilities and move from place to place safely without experiencing eye strain
 - {ii} Where appropriate, local lighting should be provided at workstations etc., or other places of particular risk
 - {iii} Wherever possible natural light should be preferred to artificial. Emergency lighting must be provided when persons at work are especially exposed to danger in the event of failure of artificial lighting
- [5] Cleanliness and waste materials: -
- {i} Every workplace and the furniture, furnishings and fittings within shall be kept clean
 - {ii} The surfaces of the floor, walls and ceilings of all workplaces inside buildings must be capable of being kept clean
 - {iii} Waste materials must not be allowed to accumulate except in suitable receptacles.
- [6] Room Dimensions and Space: -
- {i} All rooms should have enough space to allow people to get to and from workstations and to move within the room with ease
 - {ii} The total area of the room when empty divided by the number of people normally working in it should be at least 11m^3 per person. In making this calculation a room or part room which is more than 3m high should be counted as 3m high. In a typical room where a ceiling is 2.4m high a floor area of 4.6m^2 (for example 2 x 2.3m) will be needed to provide space of 11m^3 ;
 - {iii} Lecture and meeting rooms are excluded as are control cabs or similar small structures where space is necessarily limited.
- [7] Workstations and seating:-
- {i} Workstations should be arranged so that each task can be carried out safely and comfortably. The workers should be at suitable height in relation to the work surface. Work materials and frequently used equipment including controls should be within easy reach, without undue bending or stretching
 - {ii} Workstations, including seating and access to the workstations, should be suitable for any special needs of the individual employee
 - {iii} Seating must provide adequate support for the lower back and a footrest provided for any worker who cannot comfortably place his or her feet flat on the floor.
- [8] Condition of floors and traffic routes:
- {i} Floor and traffic routes must be of sound construction and have adequate strength to take into account loads placed on them and the passing of traffic over them. Floors should not be overloaded
 - {ii} Surfaces of floors and traffic routes should be free from any hole, slope or uneven or slippery surface which is likely to cause a person to slip, trip or fall, drop or lose control of anything or cause unsteerability or loss of control of vehicle and their loads
 - {iii} Slopes should not be steeper than necessary.

- {iv} Surfaces of floors and traffic routes which are likely to get wet or be subject to spills should be of a type that do not become unduly slippery and a slip resistant coating should be applied where necessary to combat this. Where processes may discharge or leak liquids, or there could be leakage or spills which are likely to become a slippery hazard, steps should be taken to fence this off or mop it up or cover up with absorbent granules. If this is a more regular occurrence then preventative measures should be taken to prevent the discharge or to retain it by means of a bund or some discharge point to a drain etc.
 - {v} Floors and traffic routes should be kept free of obstructions that may present a hazard or impede access
 - {vi} Every open sided staircase should be securely fenced.
- [9] Falls or falling objects:-
- {i} So far as reasonably practical suitable and effective measures must be taken to prevent any person falling a distance likely to cause personal injury and to prevent any person being struck by a falling object likely to cause personal injury
 - {ii} So far as reasonably practical, every tank, pit or structure where there is a risk of a person in a workplace falling into a dangerous substance therein, shall be covered or fenced. Similarly, every traffic route over, across or in an uncovered tank, pit or structure must be fenced
 - {iii} Secure fencing should be provided wherever possible at any place where a person might fall 2m or more. Where many people pass through a certain route where there is a risk of falling, fencing should be provided;
 - {iv} When an opening or edge is being used to transfer goods and materials from one level to another it should be fenced as far as possible;
 - {v} Fixed ladders should be of sound construction, properly maintained and securely fixed
 - {vi} Where regular access is needed to roofs suitable and safe access should be provided and there should be physical safe guards to prevent falls from edges
 - {vii} Fragile roofs or surfaces should be clearly identified
 - {viii} Changes of floor level which are not obvious should be marked to make it conspicuous
 - {ix} Materials and objects should be stored and stacked in such a way that they are not likely to fall and cause injury. Racking should be of an adequate strength and stability having regard to the loads placed on it and its vulnerability to damage
 - {x} The need for people to climb on the top of vehicles or their loads should be avoided as far as possible. Where it is unavoidable measures should be taken to prevent falls
 - {xiii} When fencing cannot be provided or has been removed effective measures should be taken to prevent falls.
- [10] Transparent or translucent doors, gates and walls: -
Transparent or translucent surfaces in doors, gates, walls, partitions etc. should be of a safe material or be able to be protected against breakage that might result in personal injury to the user.
- [11] Windows, skylights and ventilators:-

- {i} It must be possible to reach, operate and control openable windows, skylights and ventilators in a safe manner. Where necessary, appropriate equipment such as window poles should be provided
 - {ii} Open windows should not project into an area where persons are likely to collide with them;
 - {iii} All windows and skylights must be of a design to enable them to be cleaned safely.
- [12] Organization of traffic routes:-
- {i} Every workplace should be organized so pedestrians and vehicles can circulate in a safe manner
 - {ii} Traffic routes in the workplace should be suitable for the purpose of the persons or vehicles using them
 - {iii} Traffic routes will not be adequate unless they have taken into account suitable measures to ensure that:-
 - (a) Pedestrians or persons at work near the traffic route are not placed in any danger
 - (b) The entrance to and from doors or gates for pedestrians has sufficient separation between the two;
 - (c) Where vehicles and pedestrians use the same traffic route there is to be sufficient separation between the two
 - (d) All traffic routes are suitably indicated.
- [13] Doors and gates: -
- {i} All doors and gates shall be suitably constructed. The doors and gates shall not be considered suitably constructed unless: -
 - (a) Any sliding door or gate has a device to prevent it coming off its track during use
 - (b) Any upward opening door or gate has a device to prevent it falling back
 - (c) Any power operated door or gate has suitable and effective features to prevent it causing injury by trapping persons. Where a health and safety risk may be created by the failure of a power door or gate to be operated, manual operation of this door must be provided as an alternative if the power fails;
 - (d) Any door or gate which is capable of being opened by being pushed from either side if constructed in such a manner that when it is closed a clear view of space on the other side of the door is provided.
- [14] Escalators and moving walkways: -
- {i} Any escalator or moving walkway must function safely and be equipped with necessary safety devices including one or more emergency stop controls which are easily identifiable and readily accessible.
- [15] Sanitary conveniences: -
- {i} There must be suitable and sufficient sanitary conveniences provided at readily accessible places.
 - {ii} Sanitary conveniences shall not be suitable unless:-
 - (a) The rooms containing them are adequately ventilated and lit;
 - (b) The rooms containing them are kept clean and tidy

- (c) Separate rooms are provided for men and women, except where the door of the room is capable of being secured from the inside.

[16] Washing facilities: -

- {i} Suitable and sufficient washing facilities, including showers if required because of the type of work, shall be provided at readily accessible places
- {ii} Washing facilities must: -
 - (a) Be provided in the immediate vicinity of every sanitary convenience, whether or not provided elsewhere
 - (b) Be provided in the vicinity of any changing rooms
 - (c) Include a supply of clean, hot and cold, or warm water
 - (d) Include soap or some other suitable means of cleaning
 - (e) Include towels or other suitable means of drying
 - (f) Be in rooms that are sufficiently ventilated and lit
 - (g) Be in rooms that are kept clean and tidy
 - (h) Provide facilities for men and women, except where the door of the room is capable of being secured from the inside.
- {iii} Guidelines for sanitary and washing facilities are as follows: -
 - (a) Where men and women work, a calculation as detailed below dictates the facilities required: -

Number of people at work	Number of Water closets	Number of wash stations
1 - 5	1	1
6 - 25	2	2
26 - 50	3	3
51 - 75	4	4
76 – 100	5	5

- (b) In places where men are based the following calculations can be used: -

Number of men at work	Number of Water closets	Number of Urinals
1 - 15	1	1
16 – 30	2	1
31 – 45	2	2
46 – 60	3	2
61 – 75	3	3
76 - 90	4	3
91 - 100	4	4

- {iv} Temporary work sites require suitable sanitary and washing facilities so far as reasonably practical. Wherever possible these facilities should include sufficient sanitary conveniences and running water. Otherwise, chemical toilets would have to be used which should incorporate a suitable deodorizing agent
- {v} Legionnaire's disease is caused by bacteria which may be found where water stands for long periods at lukewarm or warm temperatures, for example in tanks or little used pipes. Generally, water hotter than 55°C will not allow any of the bacteria to develop. For further advice contact the safety officer .
- [17] Drinking water: -
- {i} An adequate supply of wholesome drinking water must be provided for all persons and this must be readily accessible at suitable places and conspicuously marked by an appropriate sign
- {ii} There must be provided a sufficient number of suitable cups or other drinking vessels unless the supply of drinking water is in a jet form which the persons can drink easily.
- [18] Accommodation for clothing:-
- {i} Suitable and sufficient accommodation must be provided for persons' own clothing which is not worn during working hours and special clothes which are worn by any person at work but not taken home;
- {ii} The accommodation must be of a standard which provides suitable security, suitably located, allows facilities for drying clothing and, where there is a risk to health or of damage to the clothing, the accommodation is separated between work clothing and the person's own clothing.
- [19] Facilities for changing clothes:-
- {i} There must be sufficient facilities allowing persons at work to change their clothes when that person has to wear special clothing for the purpose of their work and that person cannot for reasons of health or otherwise be expected to change in another room
- {ii} The changing facilities must include separate facilities for men and women.
- [20] Facilities for rest and to eat meals:-
- Document Reference: Spectron Engineering, Inc.*

- {i} There must be suitable and sufficient rest facilities provided for men and women;
- {ii} The rest facilities provided must include:-
 - (a) Facilities to eat meals where food eaten at workplace would otherwise be likely to become contaminated
 - (b) Include arrangements to protect non-smokers from discomfort caused by tobacco smoke
 - (c) Provision for any person at work who is pregnant or a nursing mother to rest
 - (d) Sufficient facilities for workers who regularly eat meals at work
 - (e) Rest rooms that are kept clean and to a good hygienic standard.

Procedure for Display Screen Equipment

Introduction

Employers must ensure that all display screen equipment users are identified and subsequently provided with relevant information and training. The workstation from which a user operates must be assessed and any risks identified eliminated or reduced to their lowest practical level.

Definitions

For the purposes of this procedure a: -

- [1] **user** is defined as an employee who uses display screen equipment as a significant part of their normal work
- [2] **workstation** is defined as the display screen equipment (together with any optional accessories such as a filter), disk drive, telephone, modem, printer, document holder, work chair, work desk, work surface or other items peripheral to the display screen equipment.

User Identification and Assessment Procedure

- 1. In order to decide whether an employee can be defined as a “user” it is necessary to identify all employees who use display screen equipment.
- 2. A “user” will be defined as an employee who uses display screen equipment for more than 1 hour each day. If the employee is not a “user” they will be advised accordingly.
- 3. If the employee is defined as a “user” then they will be given a copy of the Users Guide and the date of issue will be recorded. Following this an assessment of the workstation must be performed by the “user” using the Assessment Form.
- 5. Once the assessment has been completed and action points identified then these shall normally be implemented by the user. When major office layout changes and/or purchase of furniture are required, details to be forwarded to the Safety Officer who will monitor any such requirement.
- 6. All assessments should be reviewed annually or immediately if there has been a significant change in, for example, the workstation or office layout.

Display Screen Equipment

User Guide

Introduction

The document provides guidance to employers and employees so that the risks arising from the use of VDUs and other display screen equipment used for work can be minimized.

Minimizing risks include the assessment of your existing furniture, equipment, work environment and job design. Any risks identified have to be rectified as soon as reasonably practicable.

The primary purpose of the guide is to ensure that you have equipment, furniture and surroundings that enable you to work in comfort.

The completion of assessments cannot be effective without the input of you, the user. This guide has been provided to help you to understand the law, to meet Spectron Engineering, Inc.

's obligations and the part that you play in helping to meet them, together with providing a written training reference for your continued safe use of display screens etc.

This guide also gives some common sense advice about how you can achieve comfort at your workstation, and gives hints and tips on overcoming some of the problems that may arise.

There is no reason why you should not be able to carry out your work in complete safety, provided that a sensible approach is adopted by all concerned.

Please read this guide carefully, and always ask questions if there is anything that is unclear.

You will also be provided with information about: -

- The arrangements for eye tests if you request one
- How to report problems through the Defect Reporting Procedure
- The need for you to complete a workstation assessment
- Any risks that have been identified as a result of an assessment and the proposed action to remedy those risks.

This guide is intended to meet the necessary training requirements. It is important you read this guide and keep it in a safe place for reference.

Screen

The screen must be able to tilt and swivel easily so that you can adjust the viewing angle. Make sure that the mechanism works - report it if it needs servicing.

There should be a contrast or brightness control.

The screen should be separate from the keyboard. It should be capable of being safely placed at a height that is comfortable for you.

The images on the screen should be stable, without flicker and legible. Clean the screen regularly. Reflections or glare can usually be avoided by slightly changing the angle or position of the screen upon the desk. Use window blinds where these are available. If all else fails as a last resort, an anti-glare filter may be necessary. Special cleaning materials may be needed for screen filters. Try to position the face of the screen at 90° to any window.

Document Reference: Spectron Engineering, Inc.

Keyboard

It should be possible to raise the height at the back of the keyboard, usually by little legs.
The cable on the keyboard must be long enough to enable you to place it where you want it.
The keys should be legible and should function correctly.

The Desk

Your desk should be large enough to enable the screen and keyboard to be placed directly in front of you. The distance from front to back must allow at least 5cm between the front of the keyboard and desk edge. This is to enable you to rest your hands between keying tasks. You should be able to vary the position of the viewing distance of the screen.

Where the desk has built-in drawers, do not place your screen or keyboard above them or you will have to assume an unsuitable posture when keying. Make sure that you have enough leg room under the work surface - avoid storing materials beneath the desk. Older desks that have a drawer at the centre front are not suitable for users of display screen equipment.

Newer desks may have mobile pedestal drawer units. If you have one of these, place it in a position that does not obstruct free access to the part of the desk that houses the keyboard.

The surface of the desk should not cause disturbing reflection of overhead lights.

If you have a second work surface such as an "L" shape, arrange the layout so that the area used for writing tasks is on the right if you are right-handed and on the left if you are left-handed.

Try and organize your work so that the desk is kept clear of unnecessary clutter and obstructions. If you identify a need for additional storage, discuss this with your manager.

The Chair

You should be able to adjust your chair so as to achieve a comfortable seated posture. The seat should be adjustable in height (i.e. relative to the ground) and the seat back should be adjustable in height (also relative to the ground) and tilt. Provided the chair design meets these requirements and allows you to achieve a comfortable posture, it is not necessary for the height or tilt of the seat back to be adjustable independently of the seat. Automatic backrest adjustments are acceptable if they provide adequate back support. Check that you understand how the adjustments function and that they are in good working order.

The chair should be stable, and should enable you to vary position without undue effort.

There is no requirement for a chair to have arms; it is a matter of user preference. If your chair does have arms, make sure that they do not prevent you from drawing yourself close to the work surface.

Some older chairs with hydraulic seat-height adjustment mechanisms are unsuitable for people weighing over 16 stones. If this applies in your case, check with your manager.

It is quite possible for a person to have a fully adjustable chair and still to be uncomfortable. This may, for example, apply to people above or below average height or to those who suffer from a back problem. If you have a medical condition that may require a special chair, or you cannot achieve comfort for some other reason, make sure that this is disclosed to your manager.

Accessories

Document Holders

Where a holder would be of benefit, you should request your manager to supply one. It should enable you to position the document at the same height and angle as the screen to reduce awkward neck movements. You may find it more convenient for the holder to be between the keyboard and screen provided that this does not interfere with comfort. Try to position it at a slightly different viewing distance than the screen.

Footrests

Where you require the use of a footrest you should request your manager to supply one. The footrest should be stable and should enable you to place your feet flat upon it. For an explanation of why you might need a footrest please refer to the section entitled "Adjusting your Workstation".

Mouse

Where your job requires the use of a mouse, or some other input device, there must be adequate space for safe use. With a mouse, it is usual for a mouse mat to be used. This should be placed on your preferred side, and should be unobstructed. The mouse itself can be specified for use by either a right-handed or a left-handed user - consult the Safety Officer if yours is not suitable.

Wrist Rest

Some people may find the use of a wrist rest advantageous, particularly where the keyboard is of a very thick construction.

Telephone

Try to place the telephone on your preferred side of the desk, arranging for a longer cable if the present one does not reach. Avoid cradling the receiver between your head and shoulder during conversations- this is a common cause of neck and shoulder pains, and these may not occur until some time afterwards.

Adjusting Your Workstation

You should aim to adjust your chair so that you can sit comfortably.

First, set the seat height so that there is approximately a right angle at your elbow, and your forearms are horizontal when using the home row (the letters "QWERTY" etc.) on the keyboard.

Second, check that your knee is approximately at a right angle, so that is at roughly the same height as your hip, and that you can place your feet flat on the floor. If you cannot achieve this, you may have the need for a footrest.

You should now be able to look at the top of the screen with a slight downward angle. If the screen is placed upon the disk drive unit, it is possible that you may find it too high. If so seek guidance from the Safety Officer.

Once you have set up the workstation as described you will have minimized the risk of discomfort, however prolonged sitting in a static position can be harmful. You should vary movement as much as possible during the working day. Do not get stuck in one particular position, your muscles are made to move!

Try to adjust the viewing distance from the screen during the day; this will help to reduce eyestrain.

Work Breaks and Job Design

Try and organize your work so that the time spent on screen is regularly broken by periods of non-screen activity. Many of the aches and pains associated with VDU use arise because people sit in a fixed position for too long. There are no recommended maximum periods for working at a screen and in general, it is better to take frequent short breaks than to have less frequent longer breaks. Taking a break from screen-work does not mean that you have to stop work altogether, for you just do something else instead. A change is as good as a rest!

Not only will your arms, wrists and shoulders benefit from changes of activity but also your eyes will be helped too.

Of course, some people cannot dictate the pace of their own work. If your workload is very screen intensive then your employer may have to adapt your workload to enable you to take breaks from screen. In such cases seek help and guidance from the Safety Officer.

Fixed breaks are not usually in your best interests, but are certainly better than none at all. The best solution is to be able to arrange your work activities to suit your own needs.

Remember that the purpose of a break or change of activity is to prevent the onset of fatigue. If you wait until you ache, the recovery time will be longer.

Software

The software that you use should be understandable and should enable the best use of the keyboard. One way that this can be achieved is by using commands that enable short cuts to be taken.

The system should give an audible or visual indication that it is following out your instructions. Delays in response times should be minimized.

Eyes and Eye-sight

As a defined "user" of display screen equipment you have a statutory entitlement to eyesight testing. In certain specific circumstances you may be entitled to corrective appliances (normally glasses).

Correctly working with a display screen will not cause deterioration in your eyesight. Such work may however identify an existing defect and you may suffer visual fatigue after prolonged spells of concentration with the eyes continually focused at the same distance. Only a change in your work habits can overcome these problems - try to take "eye-breaks" regularly by looking away and relaxing the eye muscles.

You may also get sore eyes if you work in a very dry environment. This is not helped by the natural tendency to blink less while concentrating on the screen. Your employer has to maintain adequate levels of humidity to try and reduce discomfort from dry air - a problem often associated with modern buildings that have self-contained environments.

You can help yourself by taking a few simple steps:-

- Clean your screen regularly
- Adjust the position of your screen to avoid reflections and glare
- Pause every so often to relax your eyes - refocus onto a distant object, or through a window or on a picture on the wall.

Eyesight Testing

You can request your company to provide an eye test (to determine VDU sight deficiency only). However, this does not give you the right to go to an optician without first advising Spectron Engineering, Inc.

so that the appointment and optician can be approved.

You cannot be forced to undergo a test against your wishes.

As the company will pay for the test they will require you to attend an optician of their choice. This may be a local organization (to minimize time away from work).

Glasses

Where the results of an eyesight test show that you need glasses specifically to work with display screen equipment, the company will meet the cost of supplying the basic frame and lenses.

You will have to follow procedures laid down by the company - do not make your own arrangements and expect the company to pay retrospectively. If the company is to pay, then you must always obtain authorization via the Safety Officer before instructing an optician to make up your glasses.

Note that **only basic appliances** need be supplied, and this does not include so-called "VDU glasses" that are incorrectly advertised as being a protection device. If you want to have more up-market glasses or frames, or tinted lenses, then you will be responsible for the extra cost. If you need glasses for every day use then you will have to pay the cost. It is only where the need is specific to using your screen that the entitlement arises.

The Work Environment

Lighting

Lighting at the workstation can be artificial, from windows or, more usually, a combination of both. The amount of light needed to operate a display screen is a little less than for carrying out general paperwork tasks. This means that a compromise has to be reached. Ideally you will have some control over your local lighting, and should be able to achieve a happy medium.

Where the general light level is low it may help for you to have task lighting, for example, a desk lamp. If you do have a desk lamp, try to make sure that it is placed in a way that does not cause a nuisance to people nearby.

Temperature

It is rarely possible to reach agreement on what is a comfortable working temperature as different people have different preferences. Several factors have a bearing on this including work rate, clothing and individual health.

The company has a general duty to maintain a reasonable working temperature. For further guidance contact the Safety Officer.

Humidity

Very dry air can cause discomfort, not only to the eyes. Going to the other extreme, excessive humidity can be most uncomfortable. Relative humidity should be maintained at a comfortable level. For further guidance contact the Safety Officer.

Noise

Your workstation equipment should not be so loud that you are distracted, or cannot hear a normal conversation. A common cause of noise is from printers - it may be possible to move these further away or to fit acoustic hoods. Seek further guidance from the Safety Officer in such instances.

Reflections and Glare

There are some steps that you can take to reduce glare or reflection on the screen. Where you have window blinds make sure that they are in good working order and use them as required. Remember that lighting conditions will change throughout the day and vary from summer to winter.

It is best for your screen to be positioned at right angles to the window. Where the screen backs on to the window this can result in excessive contrast in your field of vision. Where you have your back to the window this can result in glare from behind you falling upon the screen.

In a well-designed workstation it will be placed in positions that avoid reflections from overhead lights. Sources of light should not be in the direct line of vision of anybody who uses display screen equipment.

Display Screens and Health

If you have any health concerns about the use of display screen equipment, it is most important that you bring these to the attention of the Safety Officer at the earliest opportunity. The issues of eye fatigue and musculoskeletal problems have already been explained on earlier pages. There are other areas that sometimes cause worry to users and these are briefly considered below.

Radiation

Since the time that VDUs were introduced, many studies have been carried out to see whether there is a risk of harmful radiation exposure from screen-work. There is no conclusive evidence to support the fear, and many scientific papers show that the risks are insignificant.

Medical guidance has been issued on the subject and this states that it is not necessary for employers to take any action. Certainly, there is no benefit from so-called protection devices such as radiation filter screens. Some devices such as lead-lined aprons for pregnant women may actually be counter-productive.

Cataracts and Epilepsy

Cataracts in the eye cannot be caused by carrying out work with a display screen.

A small percentage of epileptics suffer from a condition called photosensitive epilepsy. It is theoretically possible, but unknown, for the flicker from a screen to trigger a seizure in those who already have the condition. Nobody else is at risk.

Headaches

There are many reasons why people get headaches. These include: stress, tiredness, extended periods of concentration, poor posture and circulation, visual fatigue and the general state of health. Some people who use display screen equipment may be more likely to experience several of these factors, but it is working with the screen, and not the screen itself, that has resulted in the discomfort.

Code of Practice for Contractors

Spectron Engineering, Inc.

Health * Safety * Security * Fire * Hygiene

CONTENTS

SECTION 1 GENERAL SAFETY REQUIREMENTS

- 1.1 Health and Safety Management
- 1.2 Training
- 1.3 Risk Assessment
- 1.4 Housekeeping
- 1.5 Permits to Work
- 1.6 Working on or in the vicinity of high temperature hot water systems
- 1.7 Working in the vicinity of sprinkler systems
- 1.8 Protection against noise
- 1.9 Protection against fire
- 1.10 Hazardous substances and materials
- 1.11 Contractors general machinery and equipment
- 1.12 Accident Treatment / Accident Reporting / First Aid Facilities
- 1.13 Abrasive Wheels
- 1.14 Excavations and Openings
- 1.15 Confined Spaces
- 1.16 Electrical Equipment
- 1.17 Cranes, Hoists, Platforms etc.
- 1.18 Working at Heights
- 1.19 Compressed Gas Cylinders
- 1.20 Welfare Facilities
- 1.21 Alcohol
- 1.22 Smoking
- 1.23 Safety Harnesses
- 1.24 Non English Speaking Personnel
- 1.25 Testing, Commissioning and maintenance of temporary equipment and services
- 1.26 Personal Protective Equipment

- 1.27 Appointments by the Contractor
- 1.28 Manual Handling
- 1.29 Re-use of Metal Drums
- 1.30 Emergency Procedures
- 1.31 Provision and use of Work Equipment
- 1.32 Hygienic Maintenance

1.1 General Safety Requirements

Health and Safety Management

The contractor where appointed should note that, in accordance with conditions of contract, he is responsible for the safety of site operations.

The contractor shall comply with all the requirements described herein without detracting from his responsibilities under the contract.

The contractor shall throughout the progress of the works comply with his duties under all approved codes and all relevant health and safety legislation. Where no specific legislative requirements exist, the contractor shall comply with guidance provided by codes of practice or industry standards as a minimum standard of safety.

The contractor shall be responsible for ensuring compliance with this document throughout the project including the activities of his appointed sub contractors or temporary visitors.

The contractor shall submit with any tender, or if there is no tender required prior to any works commencing, the following:

1. Company Safety Policy Document
2. Details of any prohibition or improvement notices and prosecutions by the enforcing authorities, during the last 5 years.
3. Risk Assessments and method statements
4. Copies of employers liability and public liability insurance certificates

1.2 Training

The contractor shall ensure that all employees (including sub-contractors) are adequately trained to carry out their particular duties or tasks including driving machines and operating equipment.

1.3 Risk Assessment

Before any work commences on site the contractor shall nominate a competent person to be responsible for coordinating risk assessments of all operations where risk is foreseeable and ensuring that appropriate control measures are established and incorporated into safe systems of work. The contractor shall use these safe systems of work as the basis for the health and safety method statements. All method statements shall be developed in reasonable time to allow co-ordination of hazardous works.

The objective of risk assessment is to highlight project related hazards and to develop methods to deal with those hazards.

These assessments shall be in writing and include but not restricted to the following activities:

- Major Construction Elements
- General public and third party safety
- Location of site access/egress
- Vehicle movements on and off site
- Vehicle, Machinery and equipment hazards within the site
- Vehicle/Pedestrian segregation
- Temporary services distribution
- Location of static machinery and equipment
- Scaffolding
- Trench/Ground works
- Hazardous Chemicals
- Services Clearances
- Construction Materials
- Storage, use and disposal of substances hazardous to health
- Noise
- Working at heights
- Excavation and underground services
- Manual Handling
- Use of portable hand tools
- Emergency procedures including evacuation routes
- Fire
- Materials storage
- Site hoarding
- Contaminated ground
- Lifting new elements of structure

All risk assessments shall be reviewed and revised as necessary to accommodate any changes in methods of working, machinery, equipment, material and/or site development. The management team will be available to liaise on all matters of health and safety relevant to these risk assessments.

1.4 Housekeeping

Housekeeping is of paramount importance. Contractors shall set down and make available to the management team their system for maintaining a clean, tidy and safe site. Contractors shall ensure the site is continuously monitored to ensure standards are maintained. The use of skips and disposal arrangements shall be agreed with Spectron Engineering, Inc.

1.5 Permits to Work

The contractor shall ensure that when working within Spectron Engineering, Inc.

all "Permits to Work" or authorizations have been obtained from the Project Manager for the type of work covered in the following clauses of this document.

- Hot work permit
- Confined spaces
- Electrical equipment
- Excavations and openings
- Working at Height

Where the assessment conducted identify high risk activities which demand the strict application of an approved safe system of work, the contractor shall devise and operate appropriate control measures which may include a "permit to work" system under the direct supervision of an appointed competent person.

1.6 Working on or in the vicinity of high temperature Hot Water (HTHW) Systems.

The contractor shall conform to the requirements of engineering instruction when engaged in working on or near or where works affect the HTHW or steam installations under the control of Spectron Engineering, Inc.

. All work must be carried out by competent persons.

1.7 Working in the vicinity of Sprinkler system.

The contractor shall comply with the requirements of the contract Engineers instruction when working on or near or where works may affect any sprinkler system.

1.8 Protection against Noise.

Sources of noise should be eliminated where practicable. Contractors are responsible for providing and ensuring the use of suitable hearing protection by their employees and their sub-contractors.

1.9 Protection against fire.

General.

Contractors must conform to the requirements of Fire Safety Standards for Spectron Engineering, Inc.

The fire risk assessment and emergency procedures shall be discussed with the Project Manager and fire precautions shall be agreed prior to commencement of works.

The contractor shall ensure that operatives on site are familiar with the risk assessment and emergency procedures.

Adequate means of extinguishing fires as detailed in the hot work permit shall be provided by the contractor, to the approval of the Safety Manager.

The contractor shall ensure that all site staff are adequately briefed and instructed on fire safety arrangements for the site and may be required to present proof.

The use of petrol driven machines (excluding staff cars) or equipment shall be prohibited at all locations on the site unless written permission is granted by Spectron Engineering, Inc.

All combustible materials shall be stored in a position and in a manner approved by The Safety Officer.

Access for Emergency Services.

Areas should be set aside for the access of fire fighting equipment or other like appliances including ambulances and shall be maintained, kept clear of obstructions at all times and marked/signed accordingly.

Hot Working

Hot working includes all types of welding work involving the use of bitumen heaters and thermic lance equipment and any work involving naked flames or sparks.

Prior to any hot work being carried out by the contractor a correctly endorsed Hot Work permit shall be obtained from The Safety Officer. The permit will carry endorsements as to the type of fire fighting equipment to be provided by the contractor, and the authorizing person will enter the starting and completion times. Upon the completion of the work the permit must be returned to The Safety Officer for cancellation.

Site Welding

No welding shall be carried out in the site without prior approval from the contract engineers through The Safety Officer which shall not be given until all conditions stipulated by the Hot Work permit have been met. The contractor shall give reasonable notice of his requirements to carry out welding on the site.

The contractor shall ensure that any welding operations are screened or carried out in such a way as to prevent the flashes from the process affecting any persons immediately adjacent to the operation, including any persons who have gained unauthorized access, from the affects of "arc eye".

1.10 Hazardous Substances and Materials

General

The contractor shall ensure that risk assessments have been performed by a competent person for all products intended for use during the works or materials evolved during the work and that written procedures for the handling, application, storage and disposal of hazardous products have been prepared.

The Security Officer must be informed in writing of all substances intended for use on site which are classified as toxic, very toxic, corrosive, flammable, highly flammable or explosive

Asbestos

On discovering any asbestos the contractor shall immediately notify the Safety Officer. **NO ATTEMPT SHALL BE MADE TO REMOVE THE ASBESTOS.** It shall be left undisturbed until further instructions are given by the Managing Director of Spectron Engineering, Inc.

In addition, notices warning others of the presence of the asbestos should be posted.

Design and Planning.

Where hazardous substances have been specified the designer must evaluate to see if:

- A. They are strictly necessary for the process.
- B. They can be substituted for a safer alternative substance.
- C. An alternative method or process can be used to eliminate or reduce the hazard.

If it is not possible to adequately eliminate or control exposure to a hazardous substance then the contractor will need to ensure that suitable and sufficient personal protective equipment is provided to all affected employees and that they are adequately instructed on how, why and when it is to be used. The potential effects to other persons must also be considered by the contractor.

Hazardous Material Assessments.

- 1. A material assessment shall be carried out for every substance brought onto site, copies of assessment and material data sheets shall be readily available for the Safety Manager to examine. A suitable and sufficient risk assessment should be made.
- 2. When necessary, an operating procedure shall be produced for the safe handling, storage and use of a particular substance. A copy shall be given to the Safety Manager.
- 3. All personnel shall be informed of any potential health hazards associated with any substance they may use or handle. The contractor shall ensure that correct use is made of the appropriate safety equipment provided by him.
- 4. All personnel shall have sight of the assessment that shall be available in the event of an incident that requires first aid medical treatment or fire fighting.

Community Effects.

The contractors materials risk assessment, selection procedure and exposure control measures must adequately consider the possible effects of products such as fumes, sprays or dust etc. both on and off the site. Examples would be the use of solvent-based paints and adhesives.

Handling.

- 1. After handling hazardous substances personnel shall wash their hands prior to eating, drinking and smoking.
- 2. Personnel shall not eat, drink or smoke in the proximity of stored hazardous substances.

Explosives.

The bringing of explosives on to site is strictly forbidden.

Waste Arising.

The contractor shall be responsible for the safe disposal of waste arising from construction activities under his management and for ensuring that disposal is carried out in accordance with the legislation relevant to the waste category involved.

Waste materials likely to present a hazard to site personnel shall be disposed of as soon as practicable or on the request of Spectron Engineering, Inc.

Access to and from tips must have local authority approval and evidence available to the Safety Manager plus authorization to use the tip.

All waste arising to be segregated as appropriate.

The contractor shall be responsible for any damage or contamination caused by waste under his control and shall bear the full cost of any remedial measures that the responsible authorities or Spectron Engineering, Inc.

may direct.

The contractor shall ensure strict compliance with Waste Disposal Regulations.

1.11 Contractors General Machinery and Equipment.

The contractor shall ensure that employees are trained, competent and authorized to drive or operate any machinery or equipment that they may use, whether regularly or on an occasional basis. Training records should be maintained and may be requested by Spectron Engineering, Inc.

Such equipment shall include, but not restricted to:

- Dumpers
- Forklift Trucks
- Lorries
- Hoists
- Cranes
- Excavators
- Mobile elevating work platforms
- Hand tools

Documentary evidence of such authorization shall be provided as required.

Only training which is specific to the actual machine or equipment to be used will be considered acceptable.

All equipment provided shall be in good order and suitable for the use for which it is intended for. The contractor shall ensure that site machinery and equipment is inspected and thoroughly examined at regular intervals by person(s) who are appropriately skilled and authorized to do so and that records of such inspections/examinations are maintained in a register which may be available for examination by Spectron Engineering, Inc.

upon request. When selecting equipment the contractor shall take into account the working conditions and potential site hazards.

All construction machinery shall be maintained in such a manner that smoke is not emitted.

1.12 Accident Treatment/Accident Reporting/First Aid Facilities.

The contractor shall provide adequate first aid facilities as may be required or permitted by Spectron Engineering, Inc.

Key personnel are to be properly trained and have a current training certificate. Trained first aid personnel should be clearly identifiable. First aid stations should be clearly marked and regularly checked by the contractor. Where the treatment of an injured or sick person requires the use of a first aid room the facilities provided by and for Spectron Engineering, Inc.

may be used. The above first aid facilities are to be made available to all persons working on or visiting the site.

The contractor shall report all accidents to the Project Manager. All serious or potentially serious accidents/incidents are to be thoroughly investigated by the contractor and written reports produced indicating the proposed remedial actions. The contractor shall give a copy of all reports to Spectron Engineering, Inc.

1.13 Abrasive Wheels.

The contractor shall take all necessary precautions to avoid the risk of fire due to flying sparks.

The contractor shall also ensure that no person in the area is exposed to the risk of eye or other injury from sparks, dust or other flying debris.

1.14 Excavations and Openings.

All excavations and openings shall be maintained with adequate structural support, access and egress and provision of fences and handrails.

Lights shall be used to mark the edge of excavations and openings at night.

Services clearance must be obtained before any excavation commences.

1.15 Confined Spaces.

Contractors are responsible for the supply of all safety equipment including all portable gas detection devices, escape breathing apparatus, harnesses and other escape equipment and safety equipment must be in good order.

Contractors must be familiar with the system of clarification, the appropriate procedures that apply and follow a safe system of work in order that danger both to themselves and others is avoided. A permit to work may be required.

Contractors staff who enter a confined space must be formally trained and hold an up to date certificate of competence.

1.16 Electrical Equipment.

Supplies to portable, electrical powered tools and temporary site lighting, **must** be 110v.

The contractor shall produce an electrical safety plan and ensure that only equipment designed for operating at the supply voltage is used on site. Where supplies greater than 110v have to be used the need must be fully justified, supported by a full method statement, before permission is obtained from the Project Manager. The tool shall be protected by an RCD and regularly checked and documented by a competent person.

The contractor shall ensure that all tools and distribution equipment including cables, plugs etc. are complete and examined for signs of damage or wear prior to use.

Trailing cables across operational or public areas are not permitted. Worn or damaged equipment shall not be used. Any non-compliant equipment found on site must be immediately removed. All 110v distribution equipment and cables, including lighting festoons must be routed and adequately supported to avoid creating hazards on site or damage to the cable or equipment.

1.17 Cranes, Hoists, Platforms etc.

The contractor shall ensure that all lifting equipment is of an approved type and used in the approved manner. A current copy of the examination and insurance certificates shall be kept on site and made available to the Safety Manager upon request.

Each item of lifting equipment shall be marked with its safe working load (SWL), which shall not be exceeded, and also with its unique identification marks. All lifting equipment shall be maintained in a safe condition and when not in use stored as safe as possible.

The contractor shall ensure that lifting equipment and machinery is tested, inspected and examined at specified intervals by an insurance company inspector who is trained and authorized to do so and that records of the examination are maintained in the relevant statutory register.

Any lifting equipment showing signs of wear or damage to safety critical parts shall be taken out of service immediately.

Only authorized slingers shall give approved signals to crane or machinery operators. The contractor shall ensure that the crane or machinery operator accepts signals only from an authorized slinger. The authorized slinger shall be readily identifiable.

Lifting Tackle, ropes etc. shall be of an approved type to the relevant British Standard.

Any chain or strap etc. used for restraining load shall not be used if showing signs of wear or damage.

The contractor shall ensure that any temporary platform shall be securely attached or fixed. It shall have handrails, intermediate guardrails and toe boards to prevent persons or materials falling from the platform. If the platform is attached to hydraulic or rope operated equipment then in the event of a hydraulic power failure a "fail safe device" shall be fitted to the item of equipment.

1.18 Working at Heights.

A safe working platform with secure edge protection, intermediate guard rails and safe means of access shall be installed. In instances where this cannot be achieved alternative arrangements must be made to prevent persons or materials falling to the ground.

Crawling boards and similar safety equipment shall be used on fragile roof surfaces.

Adequate containment measures shall be included to ensure that tools or materials cannot fall, or barriers are to be erected to keep people away from areas where overhead work is being carried out.

The contractor shall ensure that fixed scaffolds and mobile scaffold towers comply fully with all statutory requirements before and during use.

1.19 Compressed Gas Cylinders.

All such cylinders must be supported at all times. Only trained and authorized personnel may use compressed gas.

Flammable gases and oxidizing gases must be kept strictly separate.

1.20 Welfare Facilities.

1. The company's drinking water facilities are available to the contractor.
2. The company's washing and toilet facilities are available to the contractor.
3. The staff canteen facilities for consuming packed lunches may be available to the contractor.
4. Contractors are expected to provide their own first aid equipment, although first aid facilities are available should they be required.
5. Work outside normal working hours and at weekends may require special arrangements.
6. Contractors are advised to inform their employees where the first aid facilities are located.

1.21 Alcohol

No alcohol shall be consumed by contractors personnel at any time. Those persons reporting for duty and believed to be under the influence of alcohol shall be refused entry. It is the contractor's responsibility to ensure all his employees are made aware of this requirement and to enforce compliance.

Failure to comply with these requirements will result in the immediate removal of the offending employee from the contract. Repeated non-compliance with these requirements may lead to termination of the contract.

1.22 Smoking.

Smoking is only permitted in authorized areas. **IF IN DOUBT - DO NOT SMOKE.**

1.23 Safety Harnesses.

The contractor shall make safety harnesses and suitable training available for all employees who work where there is a risk of falling more than 6 feet (2 meters) and a safety barrier or cover or crawling boards cannot be practicably provided.

1.24 Non English Speaking Personnel.

The contractor shall ensure that all Non English speaking or Non English employees fully understand the site safety requirements and their duties covering safety, health and welfare while on site. This shall include any emergency procedures i.e. fire drill. The language needs of non English speaking personnel must be adequately catered for during induction, other training and supervision.

1.25 Testing, Commissioning and Maintenance of Temporary Equipment and Services.

As with all other aspects of construction and installation work the contractor is required to conduct risk assessments and develop measures to eliminate or adequately control risks. The contractor shall appoint an authorized person who will be responsible when appropriate for issuing a permit to work prior to any commissioning or maintenance operations. The permit to work system will ensure that all operations follow a strict safe system of work.

Prior to any machinery, equipment or service being placed into use, the contractor shall ensure that the machinery, equipment or service is not used for purposes other than those it has been specifically designed for.

All moving machinery shall have an audible warning that operates automatically when in reverse, and a flashing yellow hazard warning beacon.

The contractor shall provide a slinger whenever machinery or equipment is being moved in the vicinity of other personnel or there is a possibility of personnel being in the vicinity or when the operator does not have a clear view around his item of machinery or equipment.

1.26 Personal Protective Equipment.

The contractor shall ensure that risk assessments are carried out to identify those aspects of the work for which personal protective (PPE) is to be prescribed. The contractor shall select PPE appropriate to the work hazards identified. Adequate arrangements are to be made for the storage, cleaning, maintenance and replacement of PPE.

Once a risk has been identified for which PPE has been prescribed and selected, the contractor must take all reasonably practicable steps to ensure that it is used correctly by the relevant persons. This will require the provision of information, instruction and training to staff.

Re assessment of all PPE provided shall be made at regular intervals as methods of working or working conditions change to ensure that the appropriate PPE is being used.

1.27 Appointments by the Contractor.

The contractor shall ensure that the following duties are fulfilled only by appointed persons who have achieved an appropriate or statutory level of competence through experience and relevant training. Records should be maintained to document the names of appointed persons and their training achievements. Where appropriate approved schemes for the certification of competence should be considered.

The following list of appointed duty holders is not exhaustive. The contractor may extend the policy as appropriate

- Risk Assessment Coordinator
- Safety Supervisor
- Material Assessments
- Noise Assessments
- Scaffold Erection and Statutory Inspection
- Lifting Appliance inspections
- Excavation Inspections
- Temporary Workers Coordinator
- Crane Driving
- Slinger / Slinging
- Hoist operation
- Use of Cartridge Appliances
- Driver/Operators of Major machinery
- Fitting of Abrasive Wheels
- Gas Detection Equipment Supervisor
- First aid personnel
- Demolition Operatives
- Woodworking Equipment Operatives

1.28 Manual Handling.

Where manual handling operations may cause an injury at work a risk assessment shall be carried out.

1.29 Re- use of Metal Drums.

Serious danger exists from cutting into empty metal drums. Metal Drums are not to be re-used without adequate purging and gas freeing procedures being strictly followed.

1.30 Emergency Procedures.

The contractor shall ensure that emergency procedures are provided for the work site and that all staff understand their actions in the event of an emergency. All procedures must be cleared with Spectron Engineering, Inc.

to ensure that they do not conflict with Company arrangements. Emergency procedures must be reviewed and updated as major project works progress.

When calling Emergency Services the contractor is to follow the requirements of Spectron Engineering, Inc.

's safety notices/instructions.

1.31 Provision and use of Work Equipment.

The contractor shall ensure that all work equipment identified for use during the project (including but not restricted to construction equipment) is designed, selected, procured, used and maintained so as to enable the task to be safely completed.

The general requirements are that each employer must ensure that:

- Equipment is selected to be suitable for the intended purpose, particularly with regard to the site conditions in which the equipment will be used.
- Appropriate maintenance is carried out and any associated logs kept up to date.
- Specific Health and Safety risks associated with the equipment are considered and where appropriate:
 - Use of the equipment is restricted to competent, nominated persons.
 - Maintenance/Serviceing is restricted to designated persons with the appropriate competence.
- Persons who will use, supervise and manage equipment receive information and instruction on training to cover
 - The conditions and circumstances in which the equipment may be safely used.
 - The methods by which the equipment is to be used including operating procedures.
 - Actions to be taken in the event of abnormal situations including emergencies.

1.32 Hygienic Maintenance.

It is most important for all contractors, especially those engaged in maintenance operations who may be required to work in areas where computing equipment is being handled, to recognise that the way they organize and conduct their work can present a threat to the product. The threat arises from several sources:

- A. Accidental contamination of the product or equipment by foreign bodies for example: flakes of paint, dust, nuts, bolts, screws, gaskets and "O" Rings etc.
- B. Accidental contamination by failure to operate according to a reasonable code of practical hygiene.
- C. Use of unsuitable materials to lubricate or otherwise treat the surfaces of equipment.

It is therefore essential that due consideration is given to the way the work is to be done before starting, so that adequate precautions are taken to prevent contamination from all foreseeable sources.

ALCOHOL AND DRUGS POLICY

Spectron Engineering, Inc.

is aware of its responsibilities to provide, as far as is reasonably practicable, a safe and healthy working environment, and recognizes that this can be put at risk by those who misuse alcohol or drugs to such an extent that it may affect their health, performance, conduct, and safety, or the safety of others while in the workplace.

All employees, regardless of status, are expected to adhere to, and observe, current and future legislation, and both **Spectron Engineering, Inc.**

and client policies and rules regarding the consumption of alcohol and/or drugs while on, or reporting for, duty or while on company or client premises.

The consumption of alcohol on **Spectron Engineering, Inc.**

premises is not allowed except at authorized company functions or with the prior consent of senior management. Any employees, regardless of status, found consuming either drugs or unauthorized alcohol on company premises, or thought unfit to carry out their normal duties through the unauthorized consumption of such, may be subject to disciplinary action.

Spectron Engineering, Inc.

expects all employees to co-operate with any justifiable request to produce breath, blood and/or urine samples, either by the company, client or any officer of the enforcing authorities. Failure to comply with such a request is a dismissible offence.

Spectron Engineering, Inc.

reserves the right to remove from site and suspend from work any employee suspected to be in breach of this policy through misuse of alcohol or drugs, pending further investigation.

Any employee found to be in breach of legislation and/or either company or client policy or rules may be subject to disciplinary action for gross misconduct that may lead to summary dismissal.

Staff working on Transport Systems will be given a copy of this Drugs and Alcohol Policy which their supervisor will explain to them, and will be required to sign the "Employee Declaration on Alcohol and Drugs", giving their consent to initial and random testing.

Anyone taking prescribed or over the counter medication should inform his or her manager on reporting for duty and before actually commencing work.

Spectron Engineering, Inc.

would prefer to help staff who might have a problem, not penalize them. Staff who seek help and declare a belief that they have a problem concerning either alcohol or drugs will be dealt with sympathetically by the Company and support will be given where possible.

NEW AND EXPECTANT MOTHERS AT WORK POLICY

Spectron Engineering, Inc.

does not equate pregnancy with ill health but regards it as part of everyday life and believes its health and safety implications can, in most cases, be adequately addressed by normal company health and safety procedures.

Where risk assessment shows there to be significant risk to the health and safety of new or expectant mothers, **Spectron Engineering, Inc.**

will take all necessary steps, so far as is reasonably practicable, to remove the hazard or prevent exposure to the risk. Where this is not feasible and normal control measures still leave a significant risk, **Spectron Engineering, Inc.**

will take appropriate steps to protect the new or expectant mother by: -

1. Temporarily adjusting her working conditions and/or hours of work. If this is not possible or would not avoid the risk
2. Offer her suitable alternative work if available. If this is not possible and there is still genuine concern for her child
3. Give her paid leave for the period of time necessary to protect her or her child's safety and/or health while she is breastfeeding.

POLICY

THE TABLE BELOW SETS OUT THE HAZARDS, RISKS AND ACTION TO BE CONSIDERED FOR NEW AND EXPECTANT MOTHERS

HAZARD	EXAMPLES	RISK		ACTION TO AVOID THE RISK
		EXPECTANT MOTHERS	NEW MOTHERS	
1. Shocks, vibration, movement	Driving/riding in off-road vehicles using a buffing machine. Heavy physical work, over stretching	Regular exposure to shocks, low frequency vibration, or excessive movement, may increase the risk of a miscarriage or premature birth	Exposure to shock, vibration or excessive movement may cause pain or discomfort to those who have recently given birth. Breastfeeding workers - no greater risk than other workers	Pregnant workers and those who have recently given birth should not be subjected to work involving whole body vibration or where the abdomen is exposed to shocks or jolts
2. Manual handling of loads where there is risk of injury	Carrying of heavy, large or awkward objects. Working at a high pace. Carry for long distances.	Pregnant workers are especially at risk from manual handling injuries - hormonal changes affect ligaments. Postnatal problems with increased size.	Those who have just given birth, especially via caesarean section are likely to have a temporary limitation in lifting and handling capacity. Breastfeeding workers - no greater risk than other workers	Reduce manual lifting and handling as far as possible, provide trolleys etc breakdown the load or task
3. Ionizing Radiation	Working/contact with X-rays. Working/contact with radiotherapy. Working in areas marked with 'radioactive' signs.	Significant exposure can be harmful to the fetus.	Working with radioactive liquids or dusts could cause exposure to the child via contamination of the mothers skin	Pregnant and new mothers should not be employed in work where the risk of such is high. Procedures should be in place to keep radiation levels well below the statutory dose limit for pregnant women.
4. Extremes of Heat	Working near furnaces. Working in hot kitchens. Working in any hot environment	When pregnant, women tolerate heat less well and may faint or suffer heat stress.	Breastfeeding may be impaired by heat dehydration	Pregnant workers should not be exposed to prolonged heat at work e.g. working over hot stoves, near furnaces. Rest facilities and access to refreshments will help

Spectron Engineering, Inc.

Health & Safety Procedures

NEW AND EXPECTANT MOTHERS AT WORK

POLICY

POLICY

HAZARD	EXAMPLES	RISK		ACTION TO AVOID THE RISK
		EXPECTANT MOTHERS	NEW MOTHERS	
5. Postural Problems	Standing for long periods. Heavy physical work. Working at heights - ladders etc. Working in confined spaces. Working at desks.	Fatigue from standing and other physical work will increase risk of miscarriage, premature birth and low birth weight. Excessive physical/mental pressure may cause stress and increased blood pressure	Those who have just given birth especially via caesarean section are likely to have some temporary limitation in normal movement	Adjusting workstations or work procedures to reduce postural problems/risk of accidents. Ensure hours and volume of work is not excessive. Longer or more frequent breaks will help reduce fatigue
6. Biological Agents - Hepatitis B, HIV Herpes, TB Syphilis, Chicken Pox, Typhoid, German Measles, Toxoplasma, ytomegalovirus, Chlamydia	Most workers are at no more risk of infection at work than from living in the community. Higher risk groups include working in laboratories, health care, looking after animals and dealing with animal products.	Many biological agents can cause abortion of the fetus or physical and neurological damage to the unborn child.	Can be transmitted to child by close contact or through breastfeeding	RISK ASSESSMENT - Nature of the agent - How is spread - How likely contact is - Control measures in place/required - vaccination <u>NOTE</u> - If there is a known high risk of exposure to a highly infectious agent they should not be exposed
7. Chemical agents labeled with risk phrases	Work in chemical pilot equipment Work in chemical production equipment Work in some laboratories Work in pharmaceutical pilot equipment Work in pharmaceutical production equipment	Chemical agents labeled with risk phrases (e.g. R40, R61, R63 etc) may cause heritable genetic damage to the unborn child	As above	As above

POLICY

HAZARD	EXAMPLES	RISK		ACTION TO AVOID THE RISK
		EXPECTANT MOTHERS	NEW MOTHERS	
8. Mercury and mercury derivatives	Work in laboratories etc where exposed to mercury	Organic mercury compounds could have adverse effects on the fetus, may poison the mother to be	New mothers - no great risk than other workers. Health effects on child from exposure of mother to mercury and derivatives uncertain	Follow Guidance Notes. EH17 - Mercury - H&S precautions MS12 - Mercury - Medical surveillance
9. Animitotic (cytotoxic) drugs	Work in chemical pilot equipment Work in pharmaceutical pilot equipment Work in pharmaceutical laboratory Work in pharmaceutical production equipment	These drugs can cause damage to genetic information in sperm and eggs. Some may cause cancer, can be inhaled or absorbed through the skin	As (6) above	Those trying to conceive, are pregnant or breastfeeding should be fully informed of the reproductive hazard, should have been done on induction, may have to move worker to another area temporarily.
10. Dangerous chemicals absorbed through the skin	Work with some pesticides, herbicides. Pharmaceutical industry some laboratories	Can be inhaled via vapor or absorbed through the skin via splashes, most are toxic and cause severe damage to living tissue - may poison	As per expectant mothers	COSHH ASSESSMENT Control exposure, prevent contact. Personal protective equipment, training.
11. Carbon Monoxide	Work in engine test cells Work in garages	Carbon monoxide readily crosses the placenta and may result in the fetus being starved on oxygen	New/Breastfeeding mothers - no greater risk than other workers	Follow Guidance Note EH43 - Carbon Monoxide Pregnant workers should be moved from the areas
12. Lead and lead derivatives	Work with lead or its derivatives in any form	May cause abortion, stillbirth and infertility	Lead can enter breast milk. Babies particularly sensitive to the toxic effects of lead	Neither expectant nor new mothers should be given work that significantly exposes them to lead

NOTE: SOME EXPECTANT MOTHERS MAY EXPRESS CONCERN ABOUT WORKING WITH DISPLAY SCREEN EQUIPMENT (VDU'S) THE NATIONAL RADIOLOGICAL PROTECTION BOARD CONSIDERS, IN LIGHT OF SUBSTANTIAL EVIDENCE, THAT THESE CONCERNS ARE UNFOUNDED.

Expectant and New Mothers: Guidance Notes

In most circumstances normal company procedures and controls which comply with current legislation will significantly reduce any risk to Expectant and New Mothers. If your Risk Assessment shows this is not the case, then you must take steps to remove her from the risk (the attached table should help you with your assessment).

Apart from the hazards listed in the table, there are other aspects of pregnancy that may affect work as follows: -

Morning sickness	Early shift work/nauseating smells
Backache	Standing/manual handling/posture
Varicose veins	Standing/sitting
Hemorrhoids	Working in hot conditions
Frequent visits to toilet	Difficulty in leaving job
Increasing size	Protective clothing/confined areas/manual handling
Tiredness	Overtime/evening work
Balance	Working on wet slippery surfaces
Comfort	Confined spaces

Handling ability, agility, co-ordination, speed of movement and ability to reach may be impaired due to increasing size, these aspects may well change during the course of the pregnancy and you will have to reassess the situation as time progresses.

Steps to reduce the risk if still significant: -

- STEP 1** Temporarily adjust her working conditions and/or hours of work
If this is not possible or would not avoid the risk you must move on to step 2
- STEP 2** Offer her suitable temporary alternative work if available on terms and conditions no less favorable than her current ones.
If this is not feasible and after discussion with an Operational Director (who may wish to seek professional advice) you must move to Step 3.
- STEP 3** Suspend her from work on full pay for as long as necessary to protect her safety and/or health or that of her child.

NIGHT WORK

The Regulations state that you must give special consideration to new and expectant mothers who work at night. If an employee who is a new or expectant mother, and works at night, produces a medical certificate stating that night work may affect her health or safety, you must take the following action: -

- STEP 1** Offer her suitable alternative daytime work if available.
If this is not possible and after discussion with an Operational Director (who may wish to seek professional advice) you must move on to Step 2.

STEP 2 Suspend her from work on full pay a long as is necessary to protect her health or safety.

Notes:

1. You are required to take these steps by law but only if the risk arises from work.
2. HSE experts are not at present aware of any risks to pregnant or breast feeding workers or their children from working at night

LOCK OUT TAG OUT (LOTO)

LOCK OUT TAG OUT PROCESS

Definition

The process of securing a hazard to eliminate risk and to provide temporary guarding of a machine or process.

LOTO provides for a system of protection against electrical and mechanical hazards.

Examples

- Power circuits
- Reciprocating machinery
- Pressure vessels
- Welding equipment

Electrical Safety

- Every year about 4000 work accidents involving electric shock or electrical burns are reported. About 100 of these are fatal.
- Apart from road accidents electrical safety was the biggest Global cause of fatalities in last decade in the commercial sector.
- Controlled by Regulations.
- Applies to all electrical systems.
- Principal concern is high voltages defined as those above 110 volts.
- LOTO process involves locking out the main power switch.
- LOTO process involves clear marking of the main power switch to ensure that any third party is aware of the hazard.
- LOTO process involves ensuring that all energy is dissipated before contact (e.g. capacitors).

Mechanical Safety

- Controlled by Regulations.
- Requirement for all work equipment to be guarded.
- Requirement for training prior to any work being performed.
- Requirement for maintenance & records to be kept.

Mechanical Hazards

- Prime movers
- In running nip
- Reciprocating movement
- Drive belts

- Rotating parts
- Pneumatic & hydraulic operations

Mechanical Safety

- LOTO process involves locking out the main power or control switch.
- LOTO process involves clear marking of the main power or control switch to ensure that any third party is aware of the hazard.
- LOTO process involves ensuring that no further movement can occur.

Job Safety Analysis

Risk assessment

- Identify hazards
- Calculate risk rating
- Document controls

LOCKOUT / TAGOUT PROCEDURES

Spectron Engineering, Inc.

AUTHORISED EMPLOYEES ONLY

<i>Insert Equipment Type</i>	
Notify Employees	Affected employees will be notified of lockout activities verbally by authorized employee(s) prior to and during implementation of lockout/tagout procedures. Authorized employees include: <i>Insert Names</i>
Shut Down Equipment	Review the Operator/Service manual(s) for any special shut down or maintenance instructions. Perform normal shut down procedure at control panel and turn power selection to the “off” position.
Operate Energy Isolating Device	Operate the main power breaker. Operate any pneumatic valve when servicing these items.
Apply LOTO Device	Authorized employees apply Lockout/Tagout measures to the power isolating devices mentioned above.
Dissipate/restrain Stored Energy	Perform energy dissipation procedures for any internal capacitors. Bleed down any remaining pressure at disconnect points for lines.
Verify Disconnect	After ensuring that no personnel are exposed to potential injury, and having disconnected all energy sources (LOTO), operate the power activation controls to verify that the equipment will not operate.
Perform Maintenance	Return the operating control to “neutral” or “off” after the verification test. Perform necessary maintenance tasks on the equipment.
Check Area	After the servicing is complete and the equipment or machine is ready for normal operations, check the area around the equipment to ensure that no one is exposed to danger and all tools have been removed prior to re-energizing.
Remove LOTO Devices - Startup	Perform housekeeping check, reinstall guards, and ensure that all personnel are clear of the equipment. Remove LOTO devices. Restore energy to the

	equipment and verify safe operation.
--	--------------------------------------