M&S ENGINEERING
CIVIL | ELECTRICAL | STRUCTURAL | MEP

Safety Manual

6477 FM 311
Spring Branch, TX 78070

Reviewed/Revised

08/24/2018

Ken Means CUSP, CSM
Safety Manager

M&S Engineering, LLC
Safety Plan

Table of Contents

Appendix H - Electrical Safety

Procedures Appendix I - Emergency

Action Plan Appendix J – Fall

Protection

Appendix K - Fire Prevention

Appendix L – First Aid and Appendix M

- Fleet Safety Program Appendix N -

Forklift Operations Appendix O – Good

Housekeeping

Appendix P- Hand Tools and Power
Tools

Appendix Q – Hazard Communication Program

- GHS Appendix R - Hearing Conservation

Program Appendix S - Heat Stress

Appendix T – Independent Contractors Safety Policy 2015

Appendix U - Ladder Safety

Appendix V – Control of Hazardous Energy Lockout/Tagout Procedures

Appendix W - Machine Safety

Appendix X - Medical Response/BBP

Appendix Y – Office Safety

Appendix Z – Personal Protective
Equipment

Management

Commitment

And

Responsibilities

Safety Policy Statement

The management of M&S Engineering, LLC is committed to providing a work environment that is as safe and healthful as possible for our employees and others that may work in, or visit, our job sites.

It is the policy of M&S Engineering, LLC to manage and conduct operations in a manner that offers maximum protection to each and every employee and any other person that may be affected by our operations. The company will make every effort to provide a working environment that is free from any recognized or potential hazards,

M&S Engineering, LLC recognizes that the success of our Safety and Health Program is dependent upon the support and involvement of all employees of the company. The management of this company is committed to providing the resources needed to promote and effectively implement our Safety and Health Plan.

M&S Engineering, LLC will solicit comments, information, and assistance from employees regarding safety and health concerns and will take appropriate and timely action upon the information received.

M&S Engineering, LLC will make every effort to comply with all safety and health regulations established by federal, state, and local agencies.

This policy applies to all employees at all levels and will be required of subcontractors performing work at the M&S Engineering, LLC facilities.

_____

Managing Partner, M&S Engineering, LLC

Authority and Accountability

The management of M&S Engineering, LLC accepts the responsibility for providing the resources and guidance for the implementation of the Safety and Health Program.

Manager

The Managers are responsible for the general oversight of the safety program. Other responsibilities include:

1. Maintain an open-door policy so employees can convey their ideas and suggestions and create safety awareness among employees.

2. Set a safety example for all employees and subcontractors.

3. Insure that adequate funding is made available to maintain a safe working environment for employees.

4. With the Safety Administrator and Responsible Safety Officers, review the existing safety program and accident injury records at least annually, and take corrective measures to see that these do not recur.

5. Review and sign the OSHA 300A - Annual Summary of Injuries and Illnesses (Form G).

Safety Officer

The Safety Officer will assist the Managers to administer the safety program in the company's work operations. Other responsibilities include:

1. Maintain an open-door policy so employees can convey their ideas and suggestions and create safety awareness among employees.

2. Set a safety example for all employees and subcontractors.

3. With the Partners and Onsite Supervisors, review the safety program and accident, injury/illness records at least annually. Take corrective measures to see that these do not recur.

4. Identify any new hazards in the workplace, and develop procedures to eliminate or minimize employee exposure to those hazards.

4. Oversee the new employee orientation program for employees and insure that new employees are properly trained to perform their duties safely.

5. Insure that safety meetings are conducted at least quarterly for the employees. The meetings should be documented.

6. Investigate all employee and vehicle accidents, determine the cause and submit recommendations to the Partners to insure such accidents do not recure.

7. Insure a safety inspection and safety audit is conducted at least quarterly. Any deficiencies found as a result of this inspection and audit should be corrected immediately.
8. Implement and provide safety training for employees.

9. Post all required posters and documentation.

10. Insure that all safety-related files and documentation are properly maintained.

Onsite Supervisor

The Onsite Supervisor will assist the Managers and Responsible Safety Officer in implementing the loss control program for the company, and coordinate the safety activities in the work area. Responsibilities include, but are not limited to:

1. Maintain an open-door policy so employees can convey their ideas and suggestions and create safety awareness among employees. Set a safety example for all employees and subcontractors.

2. With the Managers and Safety Officer, review the safety program and accident, injury/illness records at least annually. Take corrective measures to see that these do not recur.

3. Identify any new hazards in the workplace, and develop procedures to eliminate or minimize employee exposure to those hazards.

4. Implement and provide safety training for all employees in safe work operations.

5. Oversee the new employee orientation program and train new employees in the work area operations. See that they are taught to perform their duties safely.

6. Assist in hiring the best person for the job to be performed.

7. With the Safety Officer, conduct a safety inspection and safety audit periodically. Any deficiencies found as a result of this inspection and audit should be corrected immediately.

8. Coordinate and see that the following operations are conducted in the work area:

a. Orientation of new employees
b. Hazard Communication
c. Lockout/Tagout of equipment
d. Substance abuse
e. Bloodborne pathogens
f. Safety meetings
g. Assist the Responsible Safety Officer with the evacuation and emergency response.

Employees

1. Are responsible for learning and complying with all policies, procedures, and rules applicable to their work.

2. Will support the company's efforts to provide a safe work environment and to protect themselves and co-workers from injuries and occupational illnesses.

3. Will report any unsafe actions or conditions to the Onsite Supervisor or Safety Officer.

Contractor Safety Policy

Worker safety is a prime consideration in all operations conducted by M&S Engineering, LLC. Independent subcontractors to M&S Engineering, LLC are expected to place a similar emphasis on worker safety and are required to comply with federal, state, and local safety rules and regulations.

Subcontractors are solely responsible for the safety of their employees while under contract to M&S Engineering, LLC, and for providing their employees with all necessary personal protective equipment and other safety equipment that may be required to fulfill any assigned duties or tasks, including documented training on all such equipment.

M&S Engineering, LLC reserves the right to conduct job site safety and health audits at any time and without restriction. Authorized M&S Engineering, LLC representatives conducting such audits will make every reasonable effort not to interfere with work activities, however, no work delays or other expenses incurred by the subcontractor pursuant to an audit may be charged back to M&S Engineering, LLC. Subcontractors are expected to make a reasonable effort to accommodate safety and health audits.

Subcontractors are responsible for implementing written safety procedures, adequately training their employees, and properly maintaining equipment to ensure safe operations on a M&S Engineering, LLC job site, as required by the Federal Standard, 29 CFR 1910: General Industry Standards. Copies of subcontractor safety plans, programs, policies, procedures, employee experience and training documentation, and equipment inspection records and certifications must be made available to representatives of M&S Engineering, LLC for review prior to contract signing and immediately upon request during the effective period of the contract.

If an authorized representative of M&S Engineering, LLC determines that a subcontractor is substantially not in compliance with federal standards, the subcontractor must correct the deficiency at the subcontractor's own expense and within the time period specified by the M&S Engineering, LLC representative, otherwise the subcontractor will be considered to be in breech of contract. In addition, the authorized M&S Engineering, LLC representative may direct the subcontractor to immediately stop work until the deficiency is corrected in the representative's judgment, there is reason to believe that serious worker injury or property damage is imminent.

A copy of this policy will be provided to each independent subcontractor to M&S Engineering, LLC Company.

_____

Managing Partner, M&S Engineering, LLC

Disciplinary Policy

M&S Engineering, LLC has developed a disciplinary policy that applies to the Safety and Health Program of this company. Its purpose is to help control the work environment so that workers are protected and accidents are prevented. This policy helps ensure workplace safety and health by letting the company's employees know what is expected of them. The employees' supervisor and all members of management are responsible for the enforcement of this disciplinary program.

Employee Information

M&S Engineering, LLC has drawn up a list of what it considers major violations of company policy and less serious violations. This list specifies the disciplinary actions that will be taken for first, second, or repeated offenses.

Disciplinary violations that are grounds for immediate suspension and penalties up to and including termination of employment specifically include:

- Fighting, provoking, engaging in an act of violence against another on company property;
- Failure to follow written/verbal safe work procedures;
- Willful damage to property;
- Failure to wear PPE (eye protection, hearing protection, safety helmets, etc.);
- Not using safety harnesses and lanyards when fall protection is required;
- Removing or disabling safety guards on tools and equipment;
- Tampering with machine safeguards or removing machine tags or locks;
- Removing barriers and/or guardrails and not replacing them;
- Failure to follow recognized industry practices;
- Failure to follow rules regarding the use of company equipment or materials;
- Major traffic violations while using a company vehicle;
- Engaging in dangerous horseplay;
- Failure to notify the company of a hazardous situation;
- Theft;
- Violation of company policies regarding alcohol, non-prescription and illegal drugs; and
- Other major violations of company rules or policies.

Company supervisors, managers and personnel who have specific responsibilities for implementation and management of safety are expected to know, understand, support, implement and enforce the company's policies, procedures, posted instructions and work practices relating to safety.

Consistent Enforcement

1. Workers must realize that safe work practices are a requirement of employment and that unsafe practices will not be tolerated. It is necessary, therefore, that the employer has a disciplinary system that is implemented fairly and consistently.

2. If the company's disciplinary system is to work well and be accepted by the company's workforce, the system applies equally to everyone. This includes subjecting managers and supervisors to similar rules and similar or even more stringent disciplinary procedures.

3. For minor violations, supervisors shall meet with the employee to discuss the infraction and inform the employee of the rule or procedure that was violated ***AND*** describe the corrective action needed to remedy the situation.

Documentation

1. One key to ensuring fairness and consistency in a disciplinary system is keeping good records. It is in the best interest of both the company and the employee to have written rules and disciplinary procedures.

2. It is just as important to document instances of good or poor safety and health behavior, including discussions with the employee, and to place relevant information in the employee's personnel file.

3. The Safety Hazard Citation format below shall be used to document infractions.

4. Documentation serves a variety of purposes. It helps the company to track the development of a problem, corrective actions, and the impact of measures taken. It provides information so the company can keep employees informed of problems that need correction.

5. When the company is evaluating the managerial and supervisory skills of a supervisor, it provides a useful record of how they handled problems.

6. If warnings, retraining, and other corrective actions fail to achieve the desired effect, and if the company decides to discharge an employee, then documentation becomes even more critical. The company will conduct an annual clearing of the personnel files of employees whose good overall safety records are marred by minor warnings.

7. Both minor and major safety violations will be documented and a copy of the form will become part of the employee's personnel record. Three citations can be grounds for termination.

It is company policy that all employees be trained in proper safety procedures and employees are expected to follow and adhere to all aspects of the company Safety and Health Program. The close observance of all Federal, local and client rules and regulations will be monitored at all times. If there is a violation of these rules and regulations the following disciplinary action will be taken:

Minor Infraction

Definition: Any infraction of government, corporate or client rules that does not have the immediate potential of causing serious damage or injury.

1st offense – verbal warning from supervisor or management
2nd offense – written notice with notice placed on file
3rd offense – written notice + time off without pay
4th offense – written notice + time off without pay and additional discipline up to and including termination of employment

Major Infraction

Definition: Any infraction of government, corporate or client rules that does have the potential to cause immediate serious damage or injury.

1st offense – time off without pay; or termination
2nd offense – termination of employment

Minor/Major Infractions

The discretion of the Management of M&S Engineering, LLC.

Hazard Identification: Safety Audits and Inspection Procedures

Safety Audits and Inspection Procedures

M&S Engineering, LLC has implemented a program to identify, correct, and control hazards on an ongoing basis. This program utilizes multiple resources to ensure effectiveness.

Comprehensive Surveys

M&S Engineering, LLC. Will conduct in house safety audits, and all audits will be reviewed by management for corrective action.

Periodic Self-Inspections

The Safety Manager and Onsite Supervisor have the responsibility of conducting a safetyinspection and safety audit of their facilities at least quarterly. Any deficiencies found as a result of this inspection and audit should be corrected immediately. A safety inspection will be performed and documented by an outside safety person at least annually.

Imminent Danger

All unsafe practices or conditions will be immediately corrected or brought to the attention of the onsite supervisory personnel. If an unsafe practice or hazardous condition is identified that, in the judgment of the supervisor, poses an imminent risk of serious worker injury, then that operation will be stopped, and the supervisor will take whatever reasonable actions are necessary to protect workers from injury until the problem is satisfactorily resolved.

Documentation

Comprehensive Audits and Self-inspections will be documented as specified in the recordkeeping section of this manual.

Work stoppages due to unsafe conditions will be thoroughly documented by supervisors, including completion of Form A, Reporting of Hazards and Unsafe Conditions.

Reporting of Hazards and Unsafe Conditions

Date Hazard Reported: Name of Person Reporting Hazard

Hazardous Condition:

Findings:

Corrective actions or measures:

Date corrections were made:

Verified by (signature):

Follow-up recommendations:

M&S Engineering, LLC, Form A

Hazard

Analysis

and

Correction

Hazard Analysis and Correction

M&S Engineering, LLC is committed to correcting or controlling all hazards identified through any of the avenues of recognition that have been established. All identified hazards will receive a timely response.

Hazard Correction

Hazards identified at job sites will receive immediate attention and corrective action by company management and employees.

Whenever possible and feasible, hazards identified will be corrected by eliminating the cause of the hazard at the source. This should include but not be limited to the following:

- Using alternate methods, materials, or practices in place of those causing or creating hazardous conditions.
- Discontinuing, removal, or substitution of hazardous chemicals, materials, or substances in the work place.
- Discontinuing or removal from use of hazardous equipment until replaced or repaired.
- Correcting by service, training, or restriction of any unsafe conditions or work practices in existence.

Hazard Control

Identified hazards must be corrected by engineering means as a first option. When engineering remedies are not feasible then administrative procedures, work practices, or personal protective equipment may be used in that order.

Engineering controls will include but not be limited to the following:

- Isolation of employee exposure to the hazard.
- Guarding or displacement of the exposure/hazard.
- Preventative maintenance and repair of machinery and equipment.

Administrative procedures will include but not be limited to the following:

- Analysis of work procedures and practices to determine safety related options.
- Written programs to establish administrative guidelines for safe work practices.
- Established and implemented work rules and procedures

Work practices will include but not be limited to the following:

- Careful planning and performance of each assigned job, duty, or task.
- Reduction in duration of exposure to hazards, such as through worker rotation.
- Adherence to safety and health rules and procedures.

Personal protective equipment: Personal protective equipment will always be the control of last resort when all other means of eliminating the hazards have not provided adequate protection to employees. When personal protective equipment is issued, the employees will be informed on the requirements, use, and limitations of the equipment.

Interim Protective Measures

When hazards are identified but cannot be immediately corrected, there may be a need for interim protective measures. Interim protective measures temporarily reduce employee exposure to hazardous conditions until they can be permanently corrected or controlled.

Some *interim protective measures* include:

- Isolation or restriction from use of hazardous machinery or equipment.
- Temporary discontinuation of a hazardous work process.
- Work practice procedures or restrictions.
- Personal protective equipment used (until engineering controls are implemented).

Documentation

Hazard correction, hazard control, and interim protective measures will be documented using by completing Form A - Reporting of Hazards and Unsafe Conditions.

Accident

Reporting

Investigation

Accident Reporting and Investigation

M&S Engineering, LLC will investigate all work-related accidents and near-miss incidents involving employees or company property, in order to develop preventative measures and implement corrective actions.

Accident and Incident Reporting

All employees of M&S Engineering, LLC are required to report any of the following circumstances to their immediate Supervisor:

- Accidents or incidents resulting in injury or illness of any magnitude.
- Accidents or incidents resulting in property or equipment damage of any magnitude.
- Any near-miss incidents that could potentially have resulted in an injury or illness to an employee or property damage.

Accident Investigation

The Safety Officer and Onsite Supervisor are responsible for conducting investigations of accidents that occur in their areas or that affect employees under their supervision. Immediately upon notification of an accident or near-miss accident, the Responsible Safety Officer will begin investigative proceedings to determine the following:

- How the accident or incident occurred.
- Special circumstances involved.
- Underlying, indirect, or associated causes (including deficiencies in elements of the safety program).
- Corrective actions or preventative measures and controls.

Statements will be taken from the employee(s) involved and any witnesses, or anyone else that might have information concerning the incident, as soon as possible after report of the incident.

The focus of any accident investigation will be to determine the causes of the accident and corrective measures or actions that should be taken to prevent recurrence. An accident investigation should never focus on blame for the incident.

Digital photographs of the area or equipment involved in an accident should be taken prior to disturbing the area where the mishap occurred.

Any equipment, machinery, worksites, or hazardous conditions that contributed to or that is damaged or affected by the accident or incident must be repaired, replaced, or otherwise inspected and checked to ensure proper, safe working conditions prior to continued use or operation.

Documentation

All activities and findings of investigators will be documented as specified in the recordkeeping section of this manual.

Accident Report Investigating and First Aid Requirements

Reporting Procedures for Work Related Accidents and Injuries

Procedure for Accidents

a) Call 911 if necessary.

b) Give First-Aid if needed.

c) Call and report the accident to the Responsible Safety Officer or if on a Host Site the facility owner immediately.

d) Designated safety person on site, or supervisory employee, must accompany injured employee to the emergency room or doctor's office.

e) Talk with the doctor in attendance. Find out if the employee:
   (i) Can return to work?
   (ii) If yes, Restricted Duty? Job Transfer?
   (iii) Number of days?
   (iv) Get a doctor's release with restrictions and follow-up visits.

f) Needs a prescription?
   (i) Suggest samples or over-the-counter if possible.
   (ii) Be sure to emphasize our "Return to Work Program". We will abide by all restrictions.

g) All accidents that involve injuries require drug and alcohol testing on the day of incident or within 24 hours.

h) Written Reports Required:
   (i) Accident investigation report
   (ii) If accident is "Recordable", complete OSHA 301-Accident and Illness Incident Report. (Form B1 & B2)
   (iii) Follow-up with written corrective action taken.
   (iv) If injury is a "First-Aid" only and employee declines medical treatment, complete incident/near miss investigation report.

i) Investigation by the Responsible Safety Officer:
   (i) Interview individual and supervisor.
   (ii) Determine cause.
   (iii) Determine corrective action

Accident Investigation

Date of Occurrence:	Location of Occurrence:
Name of Person(s) involved	Job title/area assigned:

Nature and severity of the injury or illness:

Name of investigating supervisor:

Job assignment or duties being performed at the time of the incident:

Details of how the accident occurred:

Equipment affected or damaged:

Special factors contributing to the incident:

M&S Engineering, LLC Form B-1

Employee signature _____

Accident Investigation

Direct cause of the accident:

Indirect cause of the accident (including inadequate safety program elements):

Corrective action(s):

Follow-up on corrective action(s):

Company review and approval by (signature and title)

Date of review: _____

M&S Engineering, LLC Form B-2.

Accident Investigation
Witness Statement Worksheet

Date of occurrence: Time of the occurrence: am pm	Location of occurrence:
Name of person taking the statement: Name of person(s) involved:	Job title of the person taking the statement: Job title/area assigned:

Name and statement of witness:
The statement I have provided above is accurate to the best of my knowledge.

Printed name of witness:	Signature of witness:	Date:

M&S Engineering, LLC Form C

Recordkeeping

and

Documentation

Recordkeeping and Documentation

M&S Engineering, LLC is committed to implementing and maintaining an active and current recordkeeping program. Documentation will be consistent with the forms provided in this manual. Handwritten information should be attached to a properly completed form as soon as practical for uniform recordkeeping.

Injury and Illness Data

M&S Engineering, LLC maintains records of all work-related injuries and illnesses of all company employees.

Applicable forms or records:

- OSHA 300 Log of Work-related Injuries and Illnesses or (Form D)
- OSHA 301 Injury and Illness Incident report (Form B1 & B2)
- Log of first aid instances or other non-recordable incidents

The OSHA 300 Log of Recordable Injuries and Illnesses will be maintained by the Responsible Safety Officer and kept current within 7 calendar days, as required by 29 CFR 1904.

The OSHA 301 (or equivalent) will be completed for each employee injury, or illness, with a case number correlating with a case identifier on the OSHA 300 Log, and containing all pertinent and required information. The General Superintendent will insure that state and workers' compensation insurance carrier deadline and information requirements are met.

The OSHA 300A Summary of Work-related Injuries and Illnesses (Form G) will be posted in a conspicuous location for employee review from February 1st through April 30th for the previous calendar year. The OSHA 300A will be signed by an officer of the corporation.

All data pertaining to injuries or illnesses that did not require medical treatment, or are otherwise not recordable on the above mentioned documents, will be maintained in written record form. This includes first aid treatment of any kind. These records will be maintained for at least 1 year and will be used in the annual review.

All injury and illness documentation and records will be reviewed on a regular basis by management, safety coordinator, or consultants to analyze occurrences, identify developing trends, and plan courses of corrective action.

Comprehensive Audits, Periodic Self-Inspections

M&S Engineering, LLC maintains, tracks, and reviews records of all safety audits, self-inspections, and employee reports that identify hazards at company job sites.

Applicable forms and records:

- Form A, Reporting of Hazards and Unsafe Conditions.
- Comprehensive job site audit reports and records of action taken.

Reports generated as a result of job site audits conducted by outside professionals, such as consultants and insurance loss control representatives, will receive immediate attention and

consideration. All hazards identified and any other recommendations will be acted upon in timely manner.

- All methods of addressing the issues contained in the reports will be documented in writing and a copy maintained with the audit report.
- This documentation will also show the date corrections were made or interim actions were taken.
- These reports and all associated documentation will be maintained for periodic review, to ensure hazard corrections and implemented recommendations are maintained.

Employees conducting self-inspections, or who have reason to believe that an unsafe condition exists, will immediately inform their supervisor. In addition, the unsafe condition will be documented on Form A and a copy will be forwarded to the Responsible Safety Officer for tracking and review.

The Responsible Safety Officers will establish and maintain a files of all Form A (Report of Hazards or Unsafe Conditions) submissions, to include pertinent information such as date of submission, person responsible for action/actions taken, date of resolution, etc.

The Responsible Safety Officers and the Safety Administrator will review all findings, whether from audits or self-inspections, and verify that the appropriate corrections are made in a timely manner and that any program deficiencies that allowed the hazards to occur are addressed and modified to ensure corrections and recommendations are maintained.

Documentation of Meetings

Job Briefings

A tailgate/job briefing and (JSA) Job Safety Analysis will be conducted before the start of any job. The person in charge shall assemble the crew and explain the work to be performed and outline the steps to be followed: including hazards associated with the job, work procedures involved, special precautions, energy source controls, (if applicable) PPE, etc. All affected employees will acknowledge and sign the document.

The JSA will be turned into the Safety Officer in a timely fashion for filing.General Safety

Meetings

General safety meetings will be held at least quarterly. General safety meetings may be a part of a meeting addressing other issues of importance to the majority of company employees.

These meetings should accomplish at least the following:

- Demonstrate management's commitment to the safety and health program and reinforce the importance of employee compliance and positive involvement.
- Solicit information regarding hazards and ideas for correction and control.
- Review accident data and corrective action recommendations.
- Establish or modify policies, procedures, and work rules as necessary.
- Identify unsafe conditions and follow-up on corrective actions.
- Encourage employee communication.
- Review results of comprehensive and periodic safety surveys.

Documentation

A record of all meetings will be kept on a Form F, Safety Training Attendance Roster

Formal Training Sessions, Safety Awareness Talks

M&S Engineering, LLC will document and maintain records of all safety and health related training provided to employees of the company. This documentation will be maintained as proof of attendance and reviewed to determine the need for additional or repeated training for employees.

Applicable form or record:

- Form F, Safety Training Attendance Roster.

Training Sessions

The company trainer, or outside vendor conducting formal training sessions, is responsible for completion of Form F, and any additional documentation required meeting regulatory compliance mandates. The training record will become part of the employees permanent file maintained by M&S Engineering, LLC for initial Safety Manual training, Form F will be used.

The person or outside vendor conducting safety awareness training sessions is responsible for completion of Form F. Records of these training sessions are important proof of the company's continuing training efforts and may also provide evidence of required refresher training mandated by federal standards, e.g., Hazard Communications, Respiratory Protection, etc.

Documentation

Attendance and subject matter presented at safety awareness talks will be documented on Form F, Safety Training Attendance Roster; or Form E, Record of Safety Manual Training Acknowledgment.

Safety Awareness Talks

In an effort to maintain the highest level of job safety awareness, the company will provide periodic safety presentations. These presentations will last approximately 30 minutes. These presentations can be made by either company personnel, or an outside instructor.

Documentation

Attendance and subject matter presented at safety awareness talks will be documented on Form F, Safety Training Attendance Roster.

Accident Reporting and Investigation

M&S Engineering, LLC will ensure that proper records and documentation of all accident and incident investigation activities are maintained and reviewed.

Applicable forms and records:

- Form B-1 and B-2, Accident Investigation (and photographs if applicable).
- Form C, Accident Investigation, Witness Statement Worksheet.
- Records of corrective action or preventative measures implemented.

All, or potential, accidents and near-miss incidents resulting in injury or illness to an employee, property damage of any magnitude will be investigated and documented.

- All items of the designated accident investigation form will be addressed in detail as soon as possible following a qualifying incident.

- The information acquired will be reviewed by management, supervisors, affected employees, and the Safety Committee to establish all contributing factors and causes.

From the investigation, a plan of corrective action will be established and implemented to prevent recurrence of the mishap. The plan of corrective action and implementation will be documented and reviewed by management to ensure action has been taken and/or is completed.

The Safety Officer and Onsite Supervisor are responsible for conducting the investigation and completing the documentation. If applicable, photographs should be taken of the scene and made part of the permanent record.

Documentation of corrective action should be devised as a joint effort of management and the immediate Supervisor. Accident investigation records will be reviewed periodically to assist in determining if trends or recurrences are developing, and to ensure that corrective action is maintained.

Safety and Health Program Analysis and Review

M&S Engineering, LLC will ensure that the entire safety and health program is reviewed, at least annually by the Safety Administrator and Responsible Safety Officers. This review will be documented on M&S Engineering, LLC Form D, Annual Safety Plan Analysis & Review.

Disciplinary Actions

M&S Engineering, LLC will document all disciplinary policy actions, except verbal warnings, and maintain these documents in the appropriate employee folder. The Safety Administrator will insure that access to disciplinary documentation is restricted to the legitimate needs of supervisors and managers and generally protected as confidential information.

Termination documentation will clearly state the reason for termination and will be accompanied by any prior documentation of disciplinary action.

For information regarding the application of the Disciplinary Policy, see the section of this manual under the same name.

Equipment Inspection and Maintenance

M&S Engineering, LLC will maintain records and data pertaining to any equipment inspections and maintenance programs.

Applicable forms and records:

- Routine inspection and maintenance records.
- Documentation of services performed by contract agreement.
- Documentation of repair and replacement of parts or equipment.

Accurate records will be maintained of all routine inspections and maintenance procedures. This documentation will be reviewed periodically by those responsible for maintaining equipment and by the Responsible Safety Officers. The documentation demonstrates an effective, ongoing equipment maintenance program and ensures compliance with regulations that require inspections on certain equipment.

Reporting of Hazards and Unsafe Conditions

Date Hazard Reported: Name of Person Reporting Hazard

Hazardous Condition:

Findings:

Corrective actions or measures:

Date corrections were made:

Verified by (signature):

Follow-up recommendations:

M&S Engineering, LLC Form A

Accident Investigation

Date of Occurrence:	Location of Occurrence:
Name of Person(s) involved	Job title/area assigned:

Nature and severity of the injury or illness:

Name of investigating supervisor:

Job assignment or duties being performed at the time of the incident:

Details of how the accident occurred:

Equipment affected or damaged:

Special factors contributing to the incident:

M&S Engineering, LLC Form B-1

Accident Investigation

Direct cause of the accident:

Indirect cause of the accident (including inadequate safety program elements):

Corrective action(s):

Follow-up on corrective action(s):

Company review and approval by (signature and title):

Date of review:_____

M&S Engineering, LLC Form B-2

Accident Investigation
Witness Statement Worksheet

Date of occurrence: Time of the occurrence: am pm	Location of occurrence:
Name of person taking the statement: Name of person(s) involved:	Job title of the person taking the statement: Job title/area assigned:

Name and statement of witness:

The statement I have provided above is accurate to the best of my knowledge.

Printed name of witness:	Signature of witness:	Date:

M&S Engineering, LLC Form C

Annual Safety Plan Analysis and Review

Safety Manual - Initial Approval

Initial Review and Approval: _____ _____
Approving Authority Date Approved

Periodic Review of Manual

_____
Date

Reviewed By: _____ _____
Name Signature

Updates Needed: YES NO

If YES, Updates Needed: _____

_____

Person Responsible for Updates: _____

Date Updates Accomplished and Distributed: _____

Periodic Review of the Safety and Health Program

Do any program elements need revision? YES NO

If YES, Revisions Needed: _____

_____

_____

_____

Person(s) Responsible for Revisions: _____

_____

_____

Date Revisions Accomplished: _____

M&S Engineering, LLC Form D

Safety Training Attendance Roster

Safety Training Attendance Roster

Date of meeting:_____

Person conducting meeting: _____

Topics discussed: _____

_____

Attendees:

I acknowledge that I attended the above training, and understand the information presented.	
Printed Name	**Signature**

M&S Engineering, LLC Form F

Record of Safety Manual Training

Training Acknowledgment

Part I Trainer Affirmation

This is to certify that _____ has received training on the contents of the M&S Engineering, LLC Safety Manual on the date indicated below and has been given the opportunity to ask questions.

Trainer: _____

Title: _____

Organization: _____

_____ _____
Signature of Trainer Date of Training

Part II Trainee Affirmation

I have received instruction on the contents of the M&S Engineering, LLC Safety Manual and I have been provided the opportunity to ask questions during this training. I understand the material in this manual and I understand that a requirement of employment with M&S Engineering, LLC is to comply with the policies and procedures in this Safety Manual.

By my signature below I attest that the above statement is accurate and truthful.

_____ _____
Signature of Trainee Date of Signature

Training

Training

M&S Engineering, LLC recognizes that properly trained employees will greatly reduce unsafe actions and conditions that lead to accidents. Proper training standardizes the skills and actions of all employees. This leads to more effective operations.

All training will be documented with a roster and copy of the information covered.

General SafetyMeetings

General safety meetings will be held quarterly. General safety meetings may be a part of a meeting addressing other issues of importance to the majority of company employees.

These meetings should accomplish at least the following:

- Demonstrate management's commitment to the safety and health program and reinforce the importance of employee compliance and positive involvement.
- Solicit information regarding hazards and ideas for correction and control.
- Review accident data and corrective action recommendations.
- Establish or modify policies, procedures, and work rules as necessary.
- Identify unsafe conditions and follow-up on corrective actions.
- Encourage employee communication.
- Review results of comprehensive and periodic safety surveys.

Documentation: A record of all meetings will be kept on a Form F, Safety Training Attendance Roster.

Formal Training Sessions, Safety Awareness Talks

M&S Engineering, LLC will document and maintain records of all safety and health related training provided to employees of the company. The information will be documented on Form F. The documentation will be maintained as proof of attendance and reviewed to determine the need for additional or repeated training for employees.

Formal Training Sessions

The company trainer, or outside vendor conducting formal training sessions, is responsible for completion of Form F, and any additional documentation required meeting regulatory compliance mandates. The training record will become part of the employees permanent file maintained by M&S Engineering, LLC for initial Safety Manual training, Form F will be used.

Documentation: Attendance and subject matter presented at safety awareness talks will be documented on the appropriate form: Form F, Training Session Roster.

Safety Awareness Talks

In an effort to maintain the highest level of job safety awareness, the company will provide monthly safety awareness talks. Form F will be filled out.

New Employee Initial Safety Briefing

Every new employee will be briefed on the company's safety plan. If requested by the employee, a complete copy will be provided to the employee. The company will insure that employees understand their safety responsibilities.

Documentation: Upon completion of the briefing, each new employee will sign a Record of Safety Manual Training – Form E

Daily Safety Tailgate Briefings

Short, 5-10 minute, safety tailgate briefings will be conducted at the beginning of the workday. The briefings will be conducted by the Onsite Supervisor. Any incidents that have occurred will be discussed. The briefings will be documented and maintained by the Safety Dept.

Safety Training Attendance Roster

Safety Training Attendance Roster

Date of meeting: _____

Person conducting meeting: _____

Topics discussed: _____

_____

Attendees:

Printed Name	Signature

M&S Engineering, LLC Form F

Record of Training
Safety Manual

Training Acknowledgment

Part I Trainer Affirmation

This is to certify that _____ has received training on the contents of the M&S Engineering, LLC Safety Manual on the date indicated below and has been given the opportunity to ask questions.

Trainer: _____

Title: _____

Organization: _____

_____ _____
Signature of Trainer Date of Training

Part II Trainee Affirmation

I have received instruction on the contents of the M&S Engineering, LLC Safety Manual and I have been provided the opportunity to ask questions during this training. I understand the material in this manual and I understand that a requirement of employment with M&S Engineering, LLC is to comply with the policies and procedures in this Safety Manual.

By my signature below I attest that the above statement is accurate and truthful.

_____ _____
Signature of Trainee Date of Signature

Annual Accident Prevention Plan Analysis and Review

Annual Accident Prevention Plan Analysis and Review

The Safety Manager will conduct a review of the CompanySafety Plan. This will include:

- Searching for changes to applicable regulations that affect the safety and health program,
- Verifying that any changes to company procedures have been incorporated into the program,
- A review of any company-related mishaps resulting in injuries, illnesses, or damage to equipment,
- Analysis for any unsafe trends, and
- A review of any changes to equipment.

The analysis and review will attempt to identify any deficiencies, or failures, of any company safety and health program elements. This process will result in corrective measures or adjustments to program elements that have deficiencies or failures attributed to them.

The analysis and review process will be conducted at least annually.

In some cases, it may be necessary to review a particular element or process more frequently. Increases or fluctuation in work related injury and illness rates will also justify more frequent review or revision of certain program elements.

Form G - "Annual Accident Prevention Plan Analysis and Review" will be completed for the review process.

Annual Accident Prevention Plan Analysis and Review

Safety Manual - Initial Approval

Initial Review and Approval: _____ _____
Approving Authority Date Approved

Periodic Review of Manual

_____
Date

Reviewed By: _____ _____
Name Signature

Updates Needed: YES NO

If YES, Updates Needed: _____

_____

Person Responsible for Updates: _____

Date Updates Accomplished and Distributed: _____

Periodic Review of the Safety and Health Program

Do any program elements need revision? YES NO

If YES, Revisions Needed: _____

_____

_____

_____

Person(s) Responsible for Revisions: _____

_____

_____

Date Revisions Accomplished: _____

M&S Engineering, LLC Form G

Appendix A

Aerial Lifts

&

Scissor Lifts

Aerial and Scissor Lift Safety

Policy for M&S Engineering, LLC

Aerial lifts and scissor lifts are sometimes used in operations. All equipment will be inspected before use. If any defects are noticed, that piece of equipment will be taken out of service until the problem has been fixed.

Maintenance and Inspections

Operators will conduct a daily pre-inspection of the lift before the beginning of the work day or work shift. The manufacturer's instructions and /or checklist will be used in conducting the inspection. Generally, manufacturers also require a more detailed inspection every 3 months, or after 150 hours of use, whichever comes first. The owner of the lift must do a detailed yearly inspection as required by the manufacturer.

Any safety defects in the equipment will be reported to the supervisor, and the equipment will be taken out of service until repaired. Equipment belonging to M&S Engineering, LLC will be serviced by a qualified mechanic. The equipment will be de-energized and lockout/tagout will be employed before any maintenance or repairs are begun. If the equipment is leased, the owner of the equipment will be notified so that a qualified mechanic can work on the equipment.

Training

All aerial lift and scissor lift operators must be trained and/or demonstrate competency before being authorized to operate any equipment.

The training includes:
1. The hazards involved in operating this equipment.
2. Any electrical, fall and falling object hazards.
3. Procedures for dealing with hazards.
4. How to operate the lift correctly (including maximum intended load and load capacity). The user must show he/she knows how to use the lift.
5. Manufacturer requirements.

If the hazards change, the type of aerial lift changes, or a worker is not operating a lift properly, workers must be retrained.

Before Operating an Aerial Lift or Scissor Lift

Check operating and emergency controls, safety devices (such as outriggers and guardrails), personal fall protection gear, wheels and tires and other items specified by the manufacturer. Look for hazards such as holes, drop-offs, bumps, debris, overhead power lines and other obstructions. Outriggers, brakes, and wheel chocks will be set even if working on a level slope.

Using an Aerial Lift or Scissor Lift

1. Always close lift platform chains or doors.
2. Stand on the floor of the bucket or lift platform. Do not climb on or lean over guardrails.

3. Do not exceed manufacturer's load capacity limits (including the weight of such things as bucket liners and tools).
4. If working near traffic, set up work-zone warnings, like cones and signs.

To Prevent Electrocutions

Aerial lifts and scissor lifts are not insulated. Therefore, workers must stay at least ten feet away from overhead power lines.

To Prevent Falls

Aerial Lifts: To help keep workers inside guardrails or in buckets, a full-body harness will be used and will be anchored.

Scissor Lifts: The guardrail and toe board provide adequate protection. However, if workers will have to stand higher than the floor of the equipment, a personal fall arrest system must be used.

Before Renting an Aerial Lift or Scissor Lift

1. Insure the lift is properly inspected and serviced before rental.
2. Obtain operator and maintenance manuals and maintenance history.
3. Make sure the operator controls are easy to reach and properly marked.

Appendix AA

Rough Terrain Vehicles (RTV)

Rough Terrain Vehicle Program

Policy for M&S Engineering, LLC

1. This plan establishes requirements designed to ensure that Rough Terrain Vehicle (RTV) safety training, operation, and maintenance practices are communicated to and understood by the affected employees.

2. These requirements are also designed to ensure that procedures are in place to safeguard the health and safety of all employees.

Selected Requirements

1. No modifications, or additions which affect the capacity or safe operation of the equipment, will be made without the manufacturer's written approval.

   a. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly.

   b. In no case will the original safety factor of the equipment be reduced.

2. Unauthorized personnel will not be permitted to ride on or operate RTV's.

Safety Related Work Practices

Vehicle Operation

1. RTV's will not be driven up to anyone standing in front of a bench or other fixed object.

2. No person will be allowed to stand or pass under the elevated portion of any RTV, whether loaded or empty.

3. Persons other than the driver will not ride on a RTV except in a designated safe place designed for rider occupancy.

4. Arms and legs will not be placed between the uprights of the mast or outside the running lines of the vehicle.

5. When a RTV is left unattended, load engaging means will be fully lowered, controls will be neutralized, power will be shut off, and brakes set.

6. Wheels will be blocked if the vehicle is parked on an incline.

7. A minimum of 3 feet of distance will be maintained from the edge of ramps/platforms while on an elevated dock.

8. Brakes will be set and wheel blocks or truck docks lock in place to prevent movement of trucks or trailers while loading or unloading.

9. The operator will drive the RTV at a safe speed for local conditions but at no time faster than a brisk walk and will keep the vehicle under their control at all times.

10. If the load being carried obstructs forward view, the operator will be required to travel with the load trailing.

11. The load and load engaging means will be tilted back if applicable, and raised only as far as necessary to clear the travel surface.

12. Stunt driving and horseplay will not be permitted.

Loading

1. Only stable or safely arranged loads will be handled.

2. All drums and compressed gas cylinders will be loaded and transported in an upright position and secured to prevent tipping or falling.

3. Only loads within the rated capacity of the vehicle will be handled.

4. A load engaging means will be placed under the load as far as possible; the mast will be carefully tilted backward to stabilize the load.

5. Extreme care will be taken when tilting a load forward or backward, particularly when high tiering.

6. Tilting forward with load engaging means elevated will be prohibited except to pick up a load or when the load is in a deposit position over a rack or stack.

Training Program

Initial Training

1. The Safety Manager will identify all new employees that must receive RTV initial training and a performance evaluation.

2. Each potential operator must be physically and mentally capable of performing the duties necessary to be a competent and safe driver.

3. The operator must be able to:

a. See and hear within reasonably acceptable limits, (this includes the ability to see at a distance and peripherally, and in certain instances, it is also necessary for the driver to discern different colors, primarily red, yellow, and green);

b. Endure the physical demands of the job;

c. Endure the environmental extremes of the job, such as the ability of the person to work in areas of excessive cold or heat; and

d. Be able to climb onto and off of a truck, to sit in the vehicle for extended periods of time, and to turn his/her body to look in the direction of travel when driving in reverse.

4. The content of the training will include:

Truck-related topics:

a. Operating instructions, warnings, and precautions for the type of RTV the operator will be authorized to operate;

b. Differences between a RTV and an automobile;

c. RTV controls and instrumentation: where they are located, what they do, and how they work;

d. Engine or motor operation;

e. Steering and maneuvering;

f. Visibility (including restrictions due to loading);

g. Front end loader and attachment adaptation, operation, and use limitations;

h. Vehicle capacity;

i. Vehicle stability;

j. Any vehicle inspection and maintenance that the operator will be required to perform;

k. Refueling and/or charging and recharging of batteries;

l. Operating limitations;

m. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

n. The requirements of the OSHA section on Powered Industrial Truck Operations (1910.178).

Workplace-related topics:

a. Surface conditions where the vehicle will be operated;

b. Composition of loads to be carried and load stability;

c. Load manipulation, stacking, and un-stacking;

d. Pedestrian traffic in areas where the vehicle will be operated;

e. Narrow aisles and other restricted places where the vehicle will be operated;

f. Hazardous (classified) locations where the vehicle will be operated;

g. Ramps and other sloped surfaces that could affect the vehicle's stability;

h. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;

i. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Evaluation

1. Upon completion of the initial classroom instruction, new operators must successfully demonstrate their ability to safely operate RTV's that are used by M&S Engineering, LLC.

2. The operator will receive a hands-on evaluation on each different type of RTV that will be operated.

3. The evaluation will be conducted by a Responsible Safety Officer.

Refresher Training

1. Refresher training, including an evaluation of the effectiveness of that training, will be conducted to ensure that the operator has the knowledge and skills needed to operate the RTV safely.

2. Refresher training in relevant topics will be provided to the operator when:

a. The operator has been observed to operate the vehicle in an unsafe manner;

b. The operator has been involved in an accident or near-miss incident;

c. The operator has received an evaluation that reveals that the operator is not operating the forklift safely;

d. The operator is assigned to drive a different type of RTV; or

e. A condition in the workplace changes in a manner that could affect safe operation of the vehicle.

f. An evaluation of every company RTV operator's performance will be conducted periodically.

Operators with Previous Experience

1. If an operator has previously received training as a forklift operator, and the training is appropriate to the vehicle and working conditions encountered, additional training in that topic may not be required.

2. The operator must still be familiar with work-site related issues, and complete a hands-on evaluation to demonstrate the ability to operate the equipment safely.

Documentation

1. M&S Engineering, LLC will certify in writing that each operator has been trained and properly evaluated.

2. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

3. The documentation will be maintained as specified in the recordkeeping section of this manual.

Appendix B

Arc

Flash

Safety

Procedures

Arc Flash Safety Procedures

Introduction

Electricity is a serious workplace hazard, capable of causing both employee injury and property damage. It is the policy of M&S Engineering, LLC to protect all supervisors and employees who may work on or near energized electrical systems from potential electrical hazards. This will be accomplished through compliance with the work practices described in this policy along with effective application of engineering controls, administrative controls, and the use of personal protective equipment.

This Arc Flash Safety Program is founded on the principle of avoiding energized work unless it is absolutely necessary. Live parts will be de-energized before an employee works on or near them unless one of the conditions applies:

- De-energizing would disable critical systems (i.e. Emergency Communications, Navigation, Traffic Control, Security or Fire Alarms, Hazardous Materials Handling or Monitoring, Medical or Life Support.

- De-energizing is not possible due to equipment design or operational limitations. Examples of this situation would include testing and troubleshooting of electrical circuits and equipment that can only be performed energized. Work on circuits that form an integral part of a continuous process that would otherwise need to be completely shut down.

- Live parts are operating at less than 50 volts to ground and there is no increased exposure to electrical burns or to explosion due to electrical arcs.

Purpose

This program has been established for supervisors and employees who may work on or near energized electrical systems in order to:

- Ensure the safety of employees who may work on or near electrical systems.

- Ensure that employees understand and comply with safety standards related to electrical safety.

- Ensure that employees follow uniform practices during the completion of electrical work.

Responsibilities

Supervisors will:

1. Determine the applicability of the Electrical & Arc Flash Safety Programs to activities conducted within their respective areas.

2. Be responsible for the implementation of the Arc Flash Safety Program within their areas.

3. Ensure employees comply with all provisions of the Electrical & Arc Flash Safety Program.

4. Ensure employees receive training appropriate to their assigned electrical tasks and maintain documentation of such training.

5. Develop and maintain a listing of all qualified employees in their areas.

6. Ensure employees are provided with and use appropriate protective equipment.

Employees will:

1. Follow the work practices described in this document, including the use of appropriate protective equipment and tools.

2. Attend all training required relative to this program.

3. Immediately report any concerns related to electrical safety to supervision.

DEFINITIONS

The following terms are defined in order to allow a better understanding of this program.

Arc rating: The maximum incident energy resistance demonstrated by a material (or a layered system of materials) prior to "breaking open" or at the onset of a second-degree skin burn. This rating is assigned to electrical protective clothing and is normally expressed in calories per square centimeter (cal/cm2).

Electrically safe work condition: A state in which the conductor or circuit part to be worked on or near has been disconnected from energized parts, locked/tagged in accordance with the Lockout/Tagout policy, tested to ensure the absence of voltage, and grounded if determined necessary.

Energized: Electrically connected to or having a source of voltage.

Exposed (as applied to live parts): Capable of being inadvertently touched or suitably guarded, isolated, or insulated.

Flash hazard analysis: A study to investigate a worker's potential exposure to arc-flash energy, conducted for the purpose of injury prevention and the determination of safe work practices along with appropriate levels of PPE.

Flash protection boundary: An approach limit at a distance from exposed live parts within which a person could receive a second-degree burn if an electrical arc flash were to occur.

Flash suit: A complete FR clothing and equipment system that covers the entire body, except for the hands and feet. (Such a suit typically includes pants, jacket, and a "bee-keeper" style hood fitted with a face shield).

FR apparel: Flame-resistant apparel; describes a broad category of clothing designed to protect employees from electrical arc events during completion of energized tasks.

Incident energy: The amount of energy impressed on a surface, a certain distance from the source, generated during an electrical arc event. One of the units used to measure incident energy is calories per square centimeter (cal/cm2).

Limited approach boundary: An approach limit at a distance from an exposed live part within which a shock hazard exists.

Live parts: Energized conductive components.

Prohibited approach boundary: An approach limit at a distance from an exposed live part within which work is considered the same as making contact with the live part.

PPE: An acronym for "Personal Protective Equipment".

Qualified person: One who has skills and knowledge related to the construction and operation of the electrical equipment and installation and has received training on the hazards involved.

Restricted approach boundary: An approach limit at a distance from an exposed live part within which there is an increased risk of shock (due to electrical arc-over combined with inadvertent movement) for personnel working in close proximity to the live part.

Unqualified person: Any person who does not meet the definition of a qualified person.

Working near (live parts): Any activity within a Limited Approach Boundary.

Working on (live parts): Coming in contact with live parts via tools, probes, test equipment, hands, feet, or other body parts regardless of the level of PPE worn.

Training

Employees who are exposed to an electrical hazard that is not reduced to a safe level by the installation must be trained.

1. The level of electrical safety training provided is dependent on whether the employee is classified as a "qualified person" or "unqualified person".

2. A "qualified person" shall be trained and knowledgeable in all of the following topics:

   a. Construction and operation of equipment on which work is assigned.

   b. Skills and techniques necessary to distinguish exposed energized parts from other parts of electrical equipment.

   c. Skills and techniques necessary to determine the nominal voltage of exposed live parts.

   d. The approach distances specified in this document and the corresponding voltages to which the qualified employee will be exposed.

   e. The process necessary to determine the degree and extent of electrical hazards along with the PPE and job planning necessary to perform the task safely.

3. A person can be considered qualified with respect to certain equipment and methods but unqualified for others.

4. An “unqualified person” shall be trained in the inherent hazards of electricity and any related work practices that are necessary for their safety.

5. Training must be provided before the employee is assigned duties that involve work near or on electrical systems.

6. Each supervisor and the designated Responsible Safety Officer shall maintain a record of all electrical training provided to their employees along with a listing of all employees classified as qualified persons.

Working on or Near Live Parts

Energized electrical work **under 600 volts does not require a work permit** if the employee performing the work follows the guidelines in this program (e.g. wears Indura work uniform and cotton undershirt, uses appropriate PPE, etc.). *Reference National Fire Protection Association’s standard NFPA 70E.*

Energized ***work over 600 volts*** - Energized Electrical Work Permit

1. If live parts are not placed in an electrically safe condition, work to be performed shall be considered energized electrical work and will be performed by written permit only.

2. A copy of the Energized Electrical Work Permit can be found in Appendix A of this document. The intent of this permit is to ensure that all appropriate safety precautions are taken prior to starting energized electrical work.

3. Work related to testing, troubleshooting, and voltage measuring may be completed without a permit provided appropriate safe work practices and PPE are used.

4. The permit is to be originated by the individual requesting that the energized work be completed. (This will normally be the supervisor of the employee who will be completing the work).

5. All Energized Electrical Work Permits will be reviewed and approved by the designated Responsible Safety Officer and the department supervisor.

6. The permit must be posted in the area where the energized work is taking place for the duration of the task.

7. Energized electrical work permits must be kept on file by the supervisor upon completion of the task.

Approach Boundaries to Live Parts

1. Observing a safe approach distance from exposed energized parts is an effective means of maintaining electrical safety. As the distance between an individual and live parts increases, the potential for an electrical injury decreases.

2. Safe approach distances will be determined for all tasks in which approaching personnel are exposed to live parts.

3. Safe approach distances to fixed live parts can be determined by referring to Appendix B, "Approach Boundaries to Live Parts for Shock Protection". This appendix can be used to identify the Limited, Restricted, and Prohibited Approach Boundaries associated with various system voltages.

4. Unqualified persons may only cross the Limited Approach Boundary when they are under the direct supervision of a qualified person.

5. Qualified persons may not cross or take any conductive object closer than the Restricted Approach Boundary unless one of the following conditions apply:

a. The qualified person is insulated or guarded from the live parts and no un-insulated part of the qualified person's body crosses the Prohibited Approach Boundary.

b. The live parts are insulated from the qualified person and from any other conductive object at a different potential.

6. Crossing the Prohibited Approach Boundary is considered the same as making contact with energized parts. Qualified persons may only cross this boundary when all of the following precautions have been taken:

a. The qualified person has specific training to work on energized parts.

b. The qualified person uses PPE appropriate for working on energized parts, which are rated for the voltage and energy level involved.

<u>Other Precautions for Personnel Activities</u>

1. Employees shall not reach blindly into areas that might contain exposed live parts.

2. Employees shall not enter spaces containing live parts unless illumination is provided that allows the work to be performed safely.

3. Conductive articles of jewelry and clothing (such as watchbands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, metal headgear, or metal frame glasses) shall not be worn where they present an electrical contact hazard with exposed live parts.

4. Conductive materials, tools, and equipment that are in contact with any part of an employee's body shall be handled in a manner that prevents accidental contact with live parts. Such materials and equipment include, but are not limited to, long conductive objects such as ducts, pipes, tubes, conductive hose and rope, metal-lined rules and scales, steel tapes, pulling lines, metal scaffold parts, structural members, and chains.

5. When an employee works in a confined space or enclosed space (such as a manhole or vault) that contains exposed live parts, the employee shall obtain a Confined Space Work Permit and use protective shields, barriers, or insulating materials as necessary to avoid contact with these parts. Doors, hinged panels, and the like shall be secured to prevent them from

swinging into employees. If any electrical hazards are eliminated before entering the space, then it can be entered without an entry permit, as long as there are no other hazards present within the space.

Personal Protective Equipment

General Requirements

1. Employees working in areas where electrical hazards are present shall be provided with, and shall use, protective equipment (Arc Flash Gear) that is designed and constructed for the specific body part to be protected and for the work to be performed.

2. M&S Engineering, LLC will provide electrical protective equipment (Arc Flash Gear) required by this program at no cost to employees. Such equipment shall include an Arc Flash rated apparel, eye protection, head protection, hand protection, insulated footwear, and face shields where necessary.

3. All protective equipment shall be maintained in a safe and reliable condition by the employee to whom it is issued.

4. Employees shall wear nonconductive head protection whenever there is a danger of a head injury from electric shock or burns due to contact with live parts or from flying objects resulting from an electrical explosion.

5. Employees shall wear nonconductive protection for the face, neck, and chin whenever there is danger of injury from exposure to electric arcs or flashes or from flying objects resulting from an electrical explosion.

6. Employees shall wear protective equipment for the eyes and face when at risk of injury from electric arcs, flashes, or from flying objects resulting from an electrical explosion.

7. Employees shall wear rubber-insulating gloves where there is a danger of hand and arm injury due to contact with live parts or possible exposure to arc flash burn.

8. If an employee is wearing shoes other than hard-soled type (tennis shoes are not considered hard soled), he/she must wear dielectric overshoes, which will be provided by the company.

9. Face shields without an arc rating will not be used for electrical work. Safety glasses or goggles must always be worn underneath face shields.

10. Additional illumination may be needed when using tinted face shields as protection during electrical work.

Flash Protection Boundary

1. Personal protective equipment shall be provided to and used by all employees working within the “Flash Protection Boundary”.

2. For systems that are 600 volts or less the Flash Protection Boundary shall be a minimum of four feet. The formula in Appendix C can be used to determine the exact Flash Protection Boundary for systems over 600 volts.

3. For systems that are above 600 volts, the Flash Protection Boundary shall be determined through engineering analysis.

4. The specific protective equipment to be worn within the Flash Protection Boundary can be determined by either of the following two methods:

a. Complete a flash hazard analysis that determines the incident exposure energy of each employee. Appropriate protective clothing can then be selected based on the calculated exposure level.

b. Determine the hazard level of the task by referring to NFPA 70E Table 130.7 (C) (9) (a), "Hazard/Risk Category Classifications" (Appendix D of this document). This table also indicates whether voltage-rated gloves and/or tools need to be used. Once the hazard level of the task has been determined, the required PPE can then be ascertained from NFPA 70E Table 130.7 (C) (10), "Protective Clothing and PPE Matrix". (Appendix E of this document).

Note: The Company shall develop and maintain a listing of the specific PPE requirements for each energized electrical task conducted by their employees using the form found in Appendix F of this document.

Flame-Resistant (FR) Apparel & Under Layers

1. FR apparel shall be visually inspected before each use. FR apparel that is contaminated or damaged shall not be used. Protective items that become contaminated with grease, oil, flammable liquids, or combustible liquids shall not be used.

2. The garment manufacturer's instructions for care and maintenance of FR apparel shall be followed.

3. When FR apparel is worn to protect an employee, it shall cover all ignitable clothing and allow for movement and visibility.

4. FR apparel must cover potentially exposed areas as completely as possible. FR shirtsleeves must be fastened and FR shirts/jackets must be closed at the neck.

5. Non-melting, flammable garments (i.e. cotton, wool, rayon, silk, or blends of these materials) may be used as under layers beneath FR apparel.

6. Meltable fibers such as acetate, nylon, polyester, polypropylene, and spandex shall not be permitted in fabric under layers next to the skin. (An incidental amount of elastic used on non-melting fabric underwear or sock shall be permitted).

7. FR garments worn as outer layers over FR apparel (i.e. jackets or rainwear) must also be made from FR material.

8. Flash suits must permit easy and rapid removal by the user.

Rubber Insulating Equipment

1. Rubber insulating equipment includes protective devices such as gloves, sleeves, blankets, and matting.

2. Insulating equipment must be inspected for damage before each day's use and immediately following any incident that could have caused damage.

3. An air test must be performed on rubber insulating gloves before each use.

4. Insulating equipment found to have defects that might affect its insulating properties must be removed from service until testing indicates that it is acceptable for continued use.

5. Where the insulating capability of protective equipment is subject to damage during the use, the insulating material shall be protected by an outer covering of leather or other appropriate material.

6. Rubber insulating equipment must be tested according to the schedule contained in ANNEX G of this section.

7. Rubber insulating equipment must be stored in an area protected from light, temperature extremes, excessive humidity, ozone, and other substances and conditions that may cause damage.

Insulated Tools and Materials

1. Only insulated tools and equipment shall be used within the Limited Approach Boundary of exposed energized parts.

2. Insulated tools shall be rated for the voltages on which they are used.

3. Insulated tools shall be designed and constructed for the environment to which they are exposed and the manner in which they are used.

4. Insulated tools shall be protected from damage and degradation of the integrity of the insulation.

5. Fuse or fuse holder handling equipment, insulated for the circuit voltage, shall be used to remove or install a fuse if the fuse terminals are energized.

6. Ropes and hand lines used near exposed energized parts shall be nonconductive.

7. Portable ladders used for electrical work shall have nonconductive side rails.

ALERTING TECHNIQUES

1. Barricades shall be used in conjunction with safety signs to prevent or limit access to work areas containing live parts. Conductive barricades shall not be used where they might cause an electrical hazard. Barricades shall be placed no closer than the Limited Approach Boundary.

2. Barricades, such as plastic fencing, must be in place if workers have to leave energized parts exposed over 600 volts.

3. If signs and barricades do not provide sufficient protection, and attendant will be assigned to warn and protect pedestrians. The primary duty of the attendant shall be to keep unqualified persons out of the work area where an electrical hazard exists. The attendant shall remain in the area as long as there is a potential exposure to electrical hazards.

Contract Employees

1. Safety programs used by contractors on M&S Engineering, LLC jobsites must meet or exceed all applicable guidelines of this Safety Program.

2. Contractors will be required to comply with applicable Safety and Health regulations such as OSHA, NFPA, EPA, etc.

3. Contractors may be required to submit copies of their Safety Program to the Company upon request.

Electric Arc Flash Protection

Standard Operating Procedure

It is the goal of the Company to control the arc flash hazard, which occurs during the maintenance and construction of electrical building components. Standard operating procedures will eliminate or control arc flash events to reduce the hazard to employees.

To reduce the potential for arc flash occurrences, the following standard operating procedures will be applied:

1. De-energize all circuits before performing any maintenance on them.

2. Ensure that all possible sources of supply are found and open disconnecting devices for each source.

3. Apply Lockout/Tagout devices in accordance with the Physical Plant Lockout/Tagout procedures.

4. Test voltage on each conductor to verify that it is de-energized.

5. Apply grounding devices where stored energy or induced voltage could exist or where de-energized conductors could contact live parts.

If it is necessary to work on energized equipment; the following procedures will be applied:

1. Establish boundaries keeping those not involved with the work ten feet away.

2. Use insulated tools.

3. Consider using insulated floor mats.

4. Wear safety glasses.

5. Wear voltage rated gloves.

6. Wear hard-soled, leather work shoes or dielectric overshoes.

7. Wear appropriate arc flash protection.

   a. Voltages 50-120- standard cotton work shirt and cotton pants.

   b. Voltages 120-600 category 2 arc flash coat over standard uniform, low voltage gloves, hardhat with arc flash shield and earplugs.

   c. Voltage above 600-category 4 arc flash coat, pants high voltage gloves, switching hood and earplugs.

Annex A: Energized Electrical Work Permit

(Required for work over 600 volts only) **Part 1: To be completed by the requestor or supervisor of the job**	
Description of Circuit & Equipment:	Job Location:
Description of Work to be Done:	
Justification of why the circuit cannot be de-energized or the work delayed until the next scheduled outage:	
Part 2: To be completed by the qualified person(s) completing the work	
(1) Detailed description of procedure to be used in performing the above work:	
(2) Description of safe work practice to be employed:	
(3) Voltage exposure (shock hazard analysis):	
(4) Determination of shock protection boundaries:	
(5) Results of flash hazard analysis:	
(6) Determination of flash protection boundaries:	
(7) PPE required to safely perform the task:	
(8) Method used to restrict access to the work area:	
(9) Do you agree the above work can be done safely? YES (proceed to Part 3) NO (return to requestor) Qualified Person:_____ Date:_____ Qualified Person:_____ Date:_____ Qualified Person: Date:	
Part 3: To be completed by Supervisor	
Approvals: Name Job Title Date _____ _____	
Note: A supervisor and a designated Responsible Safety Officer must approve all energized work before starting.	

Annex B:

Approach Boundaries to Live Parts for Shock Protection

(All dimensions are distance from live part to employee)

Nominal System Voltage (phase to phase)	Limited Approach Boundary (fixed circuit parts)	Restricted Approach Boundary (includes inadvertent movement adder)	Prohibited Approach Boundary
Less than 50V	Not specified	Not specified	Not specified
50V to 300V	3 feet, 6 inches	Avoid contact	Avoid Contact
301V to 750V	3 feet, 6 inches	1 foot	1 inch
751V to 15 kV	5 feet	2 feet, 2 inches	7 inches
Over 15 kV or movable conductor		See NFPA 70 E Table 130.2 (C)	

Limited Approach Boundary: Distance from an exposed live part within which a shock hazard exists. An unqualified person may not cross this boundary unless they are continuously escorted by a qualified person.

Restricted Approach Boundary: Distance from an exposed live part within which there is an increased risk of shock (due to electrical arc-over combined with inadvertent movement) for personnel working in close proximity to the live part. This boundary may only be crossed by a qualified person who is safely insulated or guarded from the live parts.

Prohibited Approach Boundary: Distance from an exposed live part within which work is considered the same as making contact with the live part. This boundary may only be crossed by a qualified person who has specific training to work on energized parts; has obtained an approved Energized Electrical Work Permit; and uses PPE appropriate for working on energized parts which are rated for the voltage and energy level involved. (Note: A permit is not required for work related to testing, troubleshooting, and voltage measuring).

Flash Protection Boundary (not listed in table): Distance from exposed live parts within which a person could receive a second-degree burn if an electrical arc flash were to occur. This boundary may only be crossed by a qualified person wearing the appropriate PPE. For systems that are 600 volts or less, the Flash Protection Boundary shall be a minimum of four feet. An analysis must be performed to determine the Flash Protection Boundary for systems that are above 600 volts.

Annex C: Formula for Calculation of Flash Protection Boundary

$D_c = [2.65 \times MVA_{bf} \times t]^{½}$

OR

$Dc = [53 \times MVA \times t]^{½}$

Where:

D_c = Distance in feet from an arc source for a second-degree burn

MVA_{bf} = Bolted fault capacity available at point involved (in mega volt-amps)

MVA = Capacity rating of transformer (mega volt-amps). For transformers with MVA ratings below 0.75 MVA, multiply the transformer MVA rating by 1.25

t = Time of arc exposure (in seconds)

Examples:

1. Transformer 1000kVA = 1.0 mVA, and breaker trip setting instantaneous of 0.1 seconds

$Dc = [53 \times 1 \times 0.1]^{½}$
$Dc = (5.3)^{½}$
Dc = 2.3 feet

2. Transformer 1000kVA = 1.0mVA, and breaker trip setting at short time delay of 0.5 seconds
$Dc = [53 \times 1 \times 0.5]^{½}$
$Dc = (26.5)^{½}$
Dc = 5.1 feet
Flash Protection Boundary increases with breaker trip settings.

Annex D: Hazard/Risk Category Classifications

Task (Assumes equipment is energized, and work is done within the Flash Protection Boundary)	Hazard/Risk Category	V-rated Gloves	V-rated Tools
Panelboards Rated 240 V and Below			
Circuit breaker (CB) or fused switch operation with covers on	0	N	N
CB or fused switch operation with covers off	0	N	N
Work on energized parts, including voltage testing	1	Y	Y
Remove/install CBs or fused switches	1	Y	Y
Removal of bolted covers (to expose bare, energized parts)	1	N	N
Opening hinged covers (to expose bare, energized parts)	0	N	N
Panelboards or Switchboards Rated > 240 V and up to 600 V (with molded case or insulated case circuit breakers)			
CB or fused switch operation with covers on	0	N	N
CB or fused switch operation with covers off	1	N	N
Work on energized parts, including voltage testing	2 (*)	Y	Y

PPE Requirements can be found in Appendix E

Additional Information:

- V-rated Gloves are gloves rated and tested for the maximum line-to-line voltage upon which work will be done.
- V-rated Tools are tools that are rated and tested for the maximum line-to-line voltage upon which work will be done.
- 2(*) means that a double-layer switching hood and hearing protection are required for this task in addition to the other Hazard/Risk Category requirements of Appendix E.
- Y = Yes (required)
- N = No (not required)

Notes:

- 25kA short circuit current available, 0.03 second (2 cycle) fault clearing time.
- For <10kZ short circuit current available, the hazard/risk category required may be reduced by one number.

Annex E: Personal Protective Equipment Matrix

Protective Clothing and Equipment	Protective Systems for Hazard/Risk Category					
Hazard/Risk Category Number	**-1[3]**	**0**	**1**	**2**	**3**	**4**
Non-melting (according to ASTM F 1506-00) or Untreated Natural Fiber						
a. T-shirt (short-sleeve)	X			X	X	X
b. Shirt (long-sleeve)		X				
c. Pants (long)	X	X	X[4]	X[6]	X	X
FR Clothing[1]						
a. Long-sleeve shirt			X	X	X[9]	X
b. Pants			X[4]	X[6]	X[9]	X
c. Coverall			[5]	[7]	X[9]	[5]
d. Jacket, parka, or rainwear			AN	AN	AN	AN
FR Protective Equipment						
a. Flash suit jacket (multilayer)						X
b. Flash suit pants (multilayer)						X
c. Head protection						
1. Hard hat			X	X	X	X
2. FR hard hat liner					AR	AR
d. Eye protection						
1. Safety glasses	X	X	X	AL	AL	AL
2. Safety goggles				AL	AL	AL
e. Face and head area protection						
1. Arc-rated face shield or hood				X[8]		
2. Flash suit hood					X	X
3. Hearing protection (ear canal inserts)				X[8]	X	X
f. Hand protection - Leather gloves			AN	X	X	X
g. Foot protection - Leather work shoes			AN	X	X	X
PPE Arc Flash Gear Required	**N/R**	**N/R**	**4cal**	**8cal**	**25cal**	**40cal**

Hazard categories up to 2 will require 11 calorie protection.
Hazard categories over 2 will require 40 calorie protection.
AN = As needed **AR** = As required **AL** = Select one in group **X** = Minimum required

Notes:

(1) See Table 130.7 (C) (11). Arc rating for a garment is expressed in cal/cm2.
(2) If voltage-rated gloves are required, the leather protectors worn external to the rubber gloves satisfy this requirement.
(3) Hazard/Risk Category Number "-1" is only defined if determined by Notes 3 or 6.
(4) Regular weight (minimum 12oz/yd2 fabric weight), untreated, denim cotton blue jeans are acceptable in lieu of FR pants. The FR pants used for Hazard/Risk Category 1 shall have a minimum arc rating of 11 cal.
(5) Alternate is to use FR coveralls (minimum arc rating of 11 cal) instead of FR shirt and FR pants.
(6) If the FR pants have a minimum arc rating of 11 cal, long pants of non-melting or untreated fiber are not required beneath the FR pants.
(7) Alternate is to use FR coveralls (minimum arc rating of 11 cal) over non-melting or untreated natural fiber pants and T-shirt.
(8) A face shield with a minimum arc rating of 11 cal, with wrap around guarding to protect no only the face, but also the forehead, ears and neck is required.
(9) Alternate is to use two sets of FR coveralls (the inner with a minimum arc rating of 4 cal and outer coverall with a minimum arc rating of 5) over non-melting or untreated natural fiber clothing, instead of FR coveralls over the FR shirt and FR pants over non-melting or untreated natural fiber clothing.

Annex F: PPE Requirements for Energized Tasks

Description of Task	Equipment	Voltage	Hazard/Risk Category	Specific PPE To Be Worn

Annex G:
Inspection Schedule for Rubber Insulating Equipment

Type of Equipment	When to Test
Rubber insulating line hose	Upon indication that insulating value is suspect
Rubber insulating covers	Upon indication that insulating value is suspect
Rubber insulating blankets	Before first issue and every 12 months thereafter (*)
Rubber insulating sleeves	Before first issue and every 12 months thereafter (*)
Rubber insulating gloves	Before first issue and every 6 months thereafter (*)

(*) – If the insulating equipment has been electrically tested but not issued for service, it may not be placed into service unless it has been electrically tested within the previous 12 months.

Appendix BB

Substance

Abuse

Control

Program

Substance Abuse Control Program

1. Alcohol and substance abuse can lead to unsafe actions and accidents.

2. OSHA can cite unsafe actions or conditions from alcohol or substance abuse under the General Duty Clause.

3. Therefore, M&S Engineering, LLC has established the following policies and procedures.

Company Policy

1. Alcohol and substance abuse is prohibited on any M&S Engineering, LLC property at any time.

2. Prescribed or over-the-counter medications will not be used above the recommended dosage on company property during working hours.

3. The use of illegal drugs is prohibited by M&S Engineering, LLC employees.

4. The object of our drug abuse policy is to provide a safe and healthy workplace for all employees, prevent accidents and comply with Section 7.10 of the Texas Workers" Compensation Act.

Consequences of Violating the Substance Abuse Control Program

1. Violation of this substance-abuse control program will result in one or more of the following forms of correction action:

a. Immediate Discharge
b. Suspension
c. Probation
d. Oral or Written Warning

2. In arriving at the decision for proper action, the seriousness of the infraction, the past record of the employee and the circumstances surrounding the matter will all be taken into consideration.

Treatment Programs

1. While the Company does not sponsor or endorse any specific drug treatment programs, such programs are available through public and private health care facilities in the area.

2. Affected employees are encouraged to seek assistance for themselves and their dependents.

Education and Training Programs

1. The Company does not offer, nor require participation in, substance abuse education and training programs. However, various public and private facilities in the area offer such programs and affected employees are encouraged to seek assistance.

Implementation of this Policy

1. In order to implement this policy, M&S Engineering, LLC may require persons desiring to work for the Company to submit to a test to detect the presence of alcohol or other prohibited substances in their system prior to beginning their duties.

2. If such a person refuses to submit to a test, or if a test is taken and it reflects the use of alcohol or other prohibited substances, the person will automatically be eliminated from consideration for employment.

3. Persons who are actively employed may also be tested after employment begins on a random basis or under the following conditions:

a. They undergo a routine medical examination
b. An accident occurs
c. Required by any law or contract
d. The Company in its discretion determines that a test is warranted.

4. All employees will be required to cooperate fully with the testing process and anyone refusing to take a test when requested will be immediately terminated.

5. The M&S Engineering, LLC may also conduct searches of employees in the manner set forth below:

a. For items that are prohibited under this policy whenever the Company believes that circumstances warrant such a search.

b. Any employee who is found to be in possession of any prohibited substance or any illegal dangerous weapon while on Company property or while in a Company vehicle will be reported to the proper criminal authorities for prosecution.

Searches

1. To assist in carrying out this Policy, M&S Engineering, LLC may conduct searches of employees whenever it reasonably believes that it must do so to effectively implement this policy.

2. Searches of employees may include:

a. Their person
b. Their clothing
c. Their personal belongings such as tool chests, handbags, purses, briefcases
d. Their cars if on Company property
e. Any desk, locker or storage area provided by the Company for their use.

3. If a search is required, it will be conducted in a manner which the Company believes is proper under the circumstances, but all searches will be carried out by a responsible representative of the Company in the presence of two witnesses.

4. In the case of a physical search of the person or clothing of an employee, the representative and the witnesses will be of the same gender as the person being searched.

5. As with testing, all employees will be required to cooperate fully with any searches which are undertaken by the Company and any employee who refuses to submit to a search when requested will be immediately terminated.

Violations of this Policy

1. The Company intends to enforce this policy vigorously and will consider any violation of its terms to be very serious.

2. Some events, such as the refusal to submit to a test or search, will result in the immediate termination of the employee.

3. The disciplinary action that will be taken in connection with other violations of this policy will rest with the sole judgment of the Company taking into consideration all relevant circumstances.

4. If a person who is employed by a subcontractor or supplier of the Company is found to have violated this policy while on company property, the individual in question may be permanently barred from performing services for the Company or from any jobsite at which the Company is working.

Consent

Each person who is now or hereafter employed by the Company will be expected to sign a copy of this policy to evidence their understanding and agreement with its terms.

The copy will be maintained in their personnel file.

Their signature will also authorize the Company to use or disclose the results of any tests or searches conducted hereunder as the Company may deem necessary to carry out this policy or as may be required by law or contract.

The signature of an employee on this policy will also constitute his or her irrevocable consent to be tested for alcohol or other prohibited substances if the employee receives medical attention as a result of a work-related accident and is not then otherwise able to give their consent.

This replaces any other previous policies regarding the same subject matter.

Definitions that Apply to the Policy

To better understand this policy, employees should be aware of the meaning of the words that are used. If there is any question about the exact meaning of any of these words, or the rules of the M&S Engineering, LLC Power Services, the Safety Administrator or a designated Responsible Safety Officer can explain the policy further.

Alcohol means any beverage with an alcohol concentration exceeding three percent (3%). This includes beer, wine and liquor.

Company property means any property, buildings, parking lots or other facilities that are owned or used by the Company, including, but not limited to all jobsites at which the Company is working.

Company vehicle means any car, truck, equipment, or other vehicle that is owned or leased by the Company, whether or not at the time in question it is actually being used to benefit the Company.

Employee means any employee of the Company, including all temporary and part-time employees. For purposes of this policy, the word also includes any person working for subcontractors or suppliers to the Company.

Drugs whenever it appears in this policy statement for the purpose of this policy, include alcoholic beverages, inhalants, illegal and unauthorized drugs (including marijuana), narcotics, drug paraphernalia, "look-alike" (simulated) drugs and prescription drugs not prescribed to the employee.

Possession means actual or constructive custody or control over any alcohol or prohibited substance.

Prohibited substance means any marijuana, cocaine, opiate, or other mind or mood altering substance or inhalants that individuals are now or hereafter prohibited from using or possessing by any federal, state or local law. The words "**prohibited substance"** also mean any drug or other substance that has been legally obtained, such as prescription or over-the-counter medicine, but is not being used for its intended medical purpose.

Test means any procedure, including screening, which is intended to detect the presence of any alcohol or other prohibited substances in a person's system. A test may be conducted by the Company or a third party.

Under the influence means a state in which there is any detectable evidence of any prohibited substance in a person's system or a level of alcohol which would prevent the person from legally operating a motor vehicle on Texas public roads.

M&S Engineering, LLC
Substance Abuse Policy

I acknowledge that I have received a copy of the Substance Abuse Policy.

I further acknowledge that as an employee of M&S Engineering, LLC, I will abide by the requirements of this policy, or face disciplinary action.

_____
Signature

_____
Title

_____
Date

Appendix C

Back

Safety

Back Safety Plan

Policy

M&S Engineering, LLC have developed these procedures to provide a safe working environment, and to eliminate, or minimize, back injuries. This section applies to those M&S Engineering employees who have job duties that require lifting or material handling. These employees will be oriented on the M&S Engineering, LLC Power Services Back Safety Plan by the Safety Department.

Safe Lifting Techniques

1. Size the load before starting a lift.

   a. Test by lifting one of the corners or pushing.

   b. If it is heavy or feels too clumsy, get a mechanical aid or help from another worker.

   c. When in doubt, do not lift alone!

2. Bend the knees and not the back.

3. When performing the lift:

   a. Place your feet close to the object and center yourself over the load.

   b. Get a good hand hold. Do NOT use only the fingers to try to life a load.

   c. Lift straight up, smoothly and let the legs do the work, not your back!

   d. Avoid overreaching or stretching to pick up or set down a load.

4. Do not twist or turn your body once you have made the lift.

5. Make sure beforehand you have a clear path to carry the load.

6. Set the load down properly.

7. When possible, always push, not pull, the object when possible.

8. Change the lifting situation if possible to minimize a lifting hazard:

9. If it is a long load, get some help.

10. Split the load into several smaller ones, when you can, to achieve manageable lifting weight.

11. Avoiding lifts from below the knees or above the shoulders by using mechanical aids, positioning so that the object to move is within an acceptable lifting range (between the shoulders and knees), and/or get help from co-workers.

Alternative Materials-Handling Techniques

1. Alternative materials-handling techniques for carrying or moving loads are to be used whenever possible to minimize lifting and bending requirements.

2. These alternative materials-handling techniques include use of:
   a. Dollies,
   b. Carts, and
   c. Other mechanical devices.

Other Issues Involved in Back Safety

Work issues other than lifting are related to back pain or injury.

1. **Extended Sitting/Standing** - Certain jobs require long hours of standing or sitting, and these conditions can create back troubles.

   a. Get up and stretch frequently if required to sit for long periods.

   b. If standing, ease the strain on the lower back by changing foot positions often, placing one foot on a rail or ledge.

   c. However, keep body weight evenly balanced when standing. Don't lean to one side.

2. **Other Materials Handling Tasks** - Tasks such as lowering, pushing, pulling, and carrying can create hazards to the back as well. If the task feels uncomfortable or unnatural, utilize the alternative materials-handling techniques listed in this Back Safety Plan.

3. **Housekeeping** - Poor housekeeping: slippery floors, crowded work conditions, tools or other hazards on the floor can create slip, trip or fall hazards that can result in back injury.

4. **Poor Posture at Work** - Be aware of proper posture when sitting, standing, or reclining. When sitting, knees should be slightly higher than hips and shoulders and upper back should be straight. When lying down or sleeping, keep knees slightly bent. Sleeping face down can lead to morning backache.

5. **Poor Lighting** - Poor lighting in the work area can lead to poor work practices that result in injuries of many types. Make sure lighting is adequate for the task at hand, replace burnt out bulbs and point out hazardous areas to the Responsible Safety Officer.

Other Back Safety Issues

Factors unrelated to work that can affect back safety, including such things as physical condition and posture, athletic or home-improvement activity, and tension and stress.

<u>Posture</u>

1. Whether standing, sitting, or reclining, posture affects the amount of strain put on the back.

2. When standing correctly, the spine has a natural "S" curve. The shoulders are back and the "S" curve is directly over the pelvis.

3. Good sitting posture should put the knees slightly higher than the hips. The hips should be to the rear of the chair with he lower back not overly arched.

Poor Physical Condition

1. A person's physical condition can lead to back pain.

2. A person that is overweight, especially if they carry their weight primarily in the front, will put extra strain on the spine.

3. An estimate is that every extra pound up front puts 10 pounds of strain on the back.

Stress

1. Stress may lead to back pain.

2. Stress created from work or play can cause muscle spasms that affect the spinal nerve network.

Repetitive Trauma

Many back injuries, do not come from a single lift, but occur from relatively minor strains over time.

Back injuries are cumulative trauma, and will arise from repeated injuries that are repetitive.

Appendix CC

Welding

and

Cutting

Welding and Cutting

General Safety Requirements

1. M&S Engineering, LLC will either instruct employees in the safe use of welding equipment, or will verify that new employees are properly trained before allowing them to work on any job that requires welding and cutting. Verifying competency will include:

a. Examination of documentation of training from a previous employer or school.

b. Require the employee to demonstrate an understanding of the hazards involved in welding, proper safety procedures, and successfully perform welding.

2. Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch) for fire prevention shall be taken in areas where welding or other "hot work" is being done.

3. No welding, cutting, or heating shall be done where the application of flammable paint or the presence of other flammable or combustible materials creates a fire hazard.

4. Always ensure that all workers and other persons that might be in the area are protected from harmful light rays, sparks, hot material, and any other hazards associated with the welding or cuffing process.

5. Use all protective shielding provided for the protection of other employees exposed to the light created by the arc.

6. Eye protection is mandatory, regardless of the circumstances or duration.

7. Protective gloves and proper clothing must be worn.

8. Welding and cutting must not be performed near flammable or combustible materials or fire hazards without adequate protective measures in place.

9. Fire extinguishers and a First Aid Kit must be present.

10. Welding machines, cutting torches, and any attachments or apparatus will be visually inspected by the operator prior to each use. Any defects will be reported immediately to the welder's immediate supervisor.

11. Defective or unsafe equipment is never to be used until repaired or replaced.

12. Insure that welding cables and hoses do not become tripping hazards.

<u>Arc Welding</u>

1. Arc welding and cutting operations will be shielded by noncombustible or flameproof screens to protect other workers and individuals in the vicinity from direct arc rays.

2. When electrode holders are to be left unattended, the electrodes shall be removed and the holder shall be placed or protected so that they cannot make electrical contact with employees or conducting objects.

3. All arc welding and cutting cables shall be completely insulated and be capable of handling the maximum current requirements of the job.

4. There will be no repairs or splices within 10 feet of the electrode holder, except where spices are insulated equal to the insulation of the cable.

5. Defective cable shall be repaired or replaced.

Fuel gas and Oxygen Welding

1. Fuel gas and oxygen hose shall be easily distinguishable and shall not be interchangeable.

2. Hoses will be inspected at the beginning of each shift and shall be repaired or replaced if defective.

3. General mechanical ventilation, local exhaust ventilation, air line respirators, and other protection shall be provided, as required, when welding, cutting, or heating the following:

a. Zinc, lead, cadmium, chromium, mercury, or materials bearing, based, or coated with beryllium in enclosed spaces.

b. Stainless steel with inert-gas equipment.

c. In confined spaces

4. Proper eye protective equipment to prevent exposure of personnel will be provided and used.

Appendix D

Chemical

Spill

Procedures

Chemical Spill Procedures

Purpose

This procedure outlines the requirements for the management of chemical spills in the workplace to minimize effects to health and safety from exposure to chemical spills and reduce the impact on the environment. This procedure applies to all M&S Engineering, LLC employees and subcontractors.

Remote Site Operations

1. When an M&S Engineering, LLC employee is working at a remote site, he will insure that he is aware of the on-site emergency procedures.

2. If an emergency occurs that requires evacuation, the affected employee will immediately leave the area of the emergency and go to the designated assembly point. If no assembly point has been designated, then the employee will move to a safe area away from the emergency and contact the number provided for the Remote Site location and/or the Safety Dept for instructions.

Procedures at M&S Engineering, LLC

Small Chemical Spill

1. A small spill is defined as a spill of approximately 10 gallons or less.

2. This size spill is not considered to be an emergency.

3. The employee will identify the product and notify the Managing Partner or the Secretary.

4. The employee will then contain the spill and will use the materials available to contain and clean up the material.

5. The spilled material will be placed in a container and the Safety Department will determine if the material will have to be disposed of as hazardous waste.

Appendix E

Compressed Air

and

Air Compressors

Compressed Air and Air Compressors

Safety Procedures for M&S Engineering, LLC

Purpose

This program is established for M&S Engineering employees who work with or near compressed air systems.

1. Before starting the compressor, be sure the manual and all warning signs have been completely read.

2. Pipes should be properly labeled to carry compressed air and the direction of airflow correctly labeled with an arrow. Shutoff valves should be properly labeled and identified so air can be shut off quickly in an emergency situation.

3. Hoses, fittings, regulators, and valves should be inspected periodically for leaks, damage, and other defects.

4. Flexible air hoses should be kept as short as possible to minimize tripping hazards and to reduce whipping action in the event a hose would fail.

5. High-pressure jacketed lines should be anchored at several points to prevent them from whipping.

6. Quick-disconnect fittings should be installed on flexible air hoses in high fire- hazard areas; the hoses can be disconnected quickly, preventing whipping actions that might not only cause injury and damage but also stoke a fire.

7. Use a vacuum system rather than compressed air for cleaning whenever possible. Vacuuming stirs up less dust and other particles than an air compressor does.

8. DO NOT use compressed air to:

   a. Transfer flammable liquids. Static electricity build-up can discharge and ignite the liquid.

   b. Empty containers. The container could rupture due to excessive internal pressure.

   c. Clean clothes, hair or skin.

9. When using compressed air, direct air away from eyes and skin.

10. To reduce noise exposure and prevent exhaust from the equipment or tool, direct the pressure relief valve away from work areas.

Appendix F

Compressed Gas Cylinders

Compressed Gas Cylinders

Policy for M&S Engineering, LLC

Purpose

This program is established for M&S Engineering employees who are required to work with or near compressed gas cylinders.

General Requirements

The accident and injuries which can occur may be severe, causing both facility damage and personal injury. Extreme care shall be taken when dealing with compressed gases or systems.

Handling Cylinders

1. Workers assigned to the handling of cylinders under pressure will be properly trained.

2. Handle cylinders of compressed gases as high-energy sources and therefore as potential explosives.

3. The following rules will be followed in the handling of compressed gas cylinders:

   a. Accept only cylinders approved for use in interstate commerce for transportation of compressed gases.

   b. Always wear applicable proper Personal Protective Equipment (PPE).

   c. Cylinders must always be transported on wheeled cylinder carts with retaining straps or chains and valve covers on.

   d. Cylinders will be secured in a boot or by a chain/rope to a fixed support to prevent them from being dropped or from falling over.

   e. Cylinders should not be banged, dropped or permitted to strike each other or against other hard surfaces.

   f. Never use compressed gas to dust off clothing.

   g. Do not use the valve cover to lift cylinders.

Storage

1. Store cylinders upright and secure them with a chain, strap, or cable to a stationary building support (i.e. Structural Beam) or to a cylinder cart to prevent cylinders from tipping or falling.

2. Liquefied flammable gas cylinders will be stored in an upright position, or such that the pressure relief valve is allowed to remain in the gas phase.

3. Stored oxygen cylinders must be kept at a minimum of 25 feet away from fuel-gas cylinders, such as acetylene and combustible materials, or separated by a non-combustible barrier (such as a wall) at least 5 feet high with a fire-resistance rating of at least one-half hour.

4. Flammable gas cylinders will not be stored with oxygen, or nitrous oxide cylinders, or adjacent to oxygen charging facilities.

5. Store cylinders in a dry, well-ventilated area away from flames, sparks, or any source of heat or ignition.

6. Mark the cylinder storage areas with proper precautionary signs, such as "Storage of flammable, oxidizer, or toxic materials."

7. Place cylinders in a location where they will not be subject to mechanical or physical damage, heat, or electrical circuits to prevent possible explosion or fire.

8. Segregate empty cylinders from full cylinders.

9. Caps used for valve protection must be kept on the cylinders at all times, except when the cylinder is actually being used or charged. Cylinder valves will remain closed.

10. Never plug, remove, or tamper with any pressure relief device.

11. Cylinders will not be exposed to an open flame or to any temperature above 125^0 Fahrenheit.

12. Cylinders should not be exposed to continuous dampness, stored near salt or other corrosive chemicals or fumes. Corrosion may damage cylinders and cause their valve protection caps to stick.

13. When empty cylinders are to be returned to the vendor, mark them "Empty" or "MT."

Personal Protective Equipment (PPE) - Avoid Skin Contact

1. When handling gases that are harmful to the skin, protective gloves and/or aprons must be worn to prevent skin absorption.

2. Choose clothing made of materials that resist penetration or damage by the compressed gas.

3. Refer to the compressed gas cylinder's Safety Data Sheet for recommendations pertaining to PPE. If the information is not provided on the SDS, contact the supplier for specific information.

4. Protection of Eyes and Face. Workers will wear safety goggles/glasses when using compressed gases. In some cases, a face shield will also be required.

Appendix G

Confined

Space

Operations

Confined Space Operations

Policy

The purpose of this Confined Space Program is to ensure M&S Engineering employees who are required to work in or near confined and enclosed spaces are aware of the procedures for safe entry if required by a Host Organization to perform routine tasks. As recommended by OSHA Interpretation, this procedure is based on the OSHA Proposed 29 CFR 1910.146 Standard for Confined Space Operations.

Definitions

Attendant is an employee stationed outside one or more Permit Required Confined Spaces (PRCSs) who performs specified duties and approved by the Host Organization.

Authorized entrant is an employee who the employer authorizes to enter a PRCS and performs the duties specified for Authorized entrant duties approved by the Host Organization.

Confined space is a space that has all of the following characteristics:
(1) Is large enough and so arranged that an employee can bodily enter it.
(2) Has limited or restricted means for entry and exit.
(3) Is not designed for continuous employee occupancy.

Controlled-Atmosphere Confined Space (CACS) is a confined space that has all of the following characteristics:
(1) Contains no physical hazards or only isolated physical hazards.
(2) Uses ventilation alone to control atmospheric hazards at safe levels.

Entry occurs when any part of an employee's body breaks the plane of an opening into a confined space. *Entry* (or *entry operations*) also refers to the period during which an employee occupies a confined space.

Entry permit means the document (checklist) provided and used by the Host Organization to control entry into a PRCS

Entry supervisor means a qualified individual who the Host Organization approves to control entry into PRCS

Hazardous atmosphere means an existing or potential atmosphere consisting of at least one of the following:
(1) A flammable gas, vapor, or mist in excess of 10% of its lower flammable limit.
(2) An airborne combustible dust at a concentration that meets or exceeds its lower explosive limit.
(3) An atmospheric oxygen concentration below 19.5% (''oxygen deficient'') or above 23.5% (''oxygen enriched'').
(4) An airborne concentration of a substance that exceeds the dose or exposure limit specified by an OSHA requirement.
(5) An atmosphere that presents an immediate danger to life or health.

Host employer owns or manages the property where construction is taking place. **Note:** If a host employer has overall responsibility for construction at the worksite, then it is both a host employer and controlling contractor

Isolated-Hazard Confined Space (IHCS) is a confined space in which the employer has isolated all physical and atmospheric hazards.

Non-entry rescue occurs when a rescue service, usually the attendant, retrieves employees in a PRCS without entering the PRCS.

Permit-Required Confined Space (PRCS) is a confined space that has any one of the following characteristics:
(1) A hazardous atmosphere.
(2) Inwardly converging, sloping, or tapering surfaces that could trap or asphyxiate an employee. For example, a space between walls that narrows towards the base (including, but not limited to, funnels and hoppers).
(3) An engulfment hazard or other physical hazard.

Responsibilities

Employer

M&S Engineering, LLC employees who are affected by Confined/Enclosed Space Program will follow the Host Organization Policy if it meets or exceeds the following plan.

In administering this Confined Space Program, M&S Engineering, LLC Safety Dept will:

1. Monitor the effectiveness of the program

2. Provide atmospheric testing and equipment as needed.

3. Provide personal protective equipment as needed.

4. Provide training to affected employees and supervisors.

5. Provide technical assistance as needed.

6. Preview and update the program on at least an annual basis or as needed.

Program Management

M&S Engineering, LLC Responsible Safety Officers are responsible for managing the Confined Space Program and will:

1. Ensure that a list of confined spaces at all Company work sites is maintained.

2. Ensure that canceled permits are reviewed for lessons learned at least annually.

3. Ensure training of personnel is conducted and documented.

4. Coordinate with outside responders when necessary.

5. Ensure that equipment is in compliance with standards.

Host Site Supervisor in Charge of Confined Space Work

The Host Site Supervisor in charge of confined space entry will designate the Entry Supervisor(s) and will be qualified and authorized to approve confined space entry permits. The Entry Supervisor(s) will be responsible to:

1. Ensure requirements for entry have been completed before entry is authorized.

2. Ensure a rescue team is available and instructed in their rescue duties (i.e., an onsite team or a prearranged outside rescue service).

3. Ensure the rescue team members have current certification in first aid and cardiopulmonary resuscitation (CPR).

4. Ensure confined space monitoring is performed by personnel qualified and trained in confined space entry procedures. This can be provided by the Company or a separate contractor.

> **Note:** If M&S Engineering, LLC qualified employees conducts the monitoring, then a list of monitoring equipment and personnel qualified to operate the equipment will be maintained at the main company office.

5. Know the hazards that may be faced during entry, including the mode (how the contaminant gets into the body), signs or symptoms and consequences of exposure.

6. Be properly trained and serve as the Attendant when required.

7. Fill out a permit.

8. Determine the entry requirements.

9. Notify all involved employees of the permit requirements.

10. Post the permit in a conspicuous location near the job.

11. Renew the permit or have it reissued as needed (a new permit is required every shift).

12. Determine the number of Authorized Attendants needed to perform the work.

13. Ensure all Attendant(s) know how to communicate with the entrants and how to obtain assistance.

14. Post any required barriers and signs.

15. Remain alert to changing conditions that might affect the conditions of the permits (i.e., require additional atmospheric monitoring or changes in personal protective equipment).

16. Change and reissue the permit or issue a new permit as necessary.

17. Ensure periodic atmospheric monitoring is done according to permit requirements.

18. Ensure that personnel doing the work and all support personnel adhere to permit requirements.

19. Ensure the permit is canceled when the work is done.

20. Ensure the confined space is safely closed and all workers are cleared from the area.

Attendants

The Host Site Supervisor in charge of confined space entry will designate confined space Attendant(s) and shall be stationed outside the confined workspace. The Attendant(s) will:

1. Be knowledgeable of, and able to recognize, potential confined space hazards.

2. Maintain a sign-in/sign-out with a count of all persons in the confined space and ensure all entrants sign in and out.

3. Monitor surrounding activities to ensure the safety of personnel.

4. Maintain effective and continuous communication with personnel during confined space entry, work and exit.

5. Order personnel to evacuate the confined space if he/she:

a. observes a condition that is not allowed on the entry permit;

b. notices the entrants acting strangely, possible as a result of exposure to hazardous substances;

c. notices a situation outside the confined space which could endanger personnel;

d. notices a hazard within the confined space that has not been previously recognized or taken into consideration;

e. must leave his/her work station; or

f. must focus attention on the rescue of personnel in some other confined space that he/she is monitoring.

6. Immediately summon the Rescue Team if crew rescue becomes necessary.

7. Keep unauthorized persons out of the confined space, order them out or notify authorized personnel of an unauthorized entry.

Entrants/Affected Employees

Employees who are granted permission to enter a confined space will:

1. Read and observe the entry permit requirements.

2. Remain alert to the hazards that could be encountered while in the confined space.

3. Properly use the personal protective equipment that is required by the permit.

4. Immediately exit the confined space when:

   a. ordered to do so by an authorized person;

   b. notice or recognize signs or symptoms of exposure;

   c. a prohibited condition exists; or

   d. the automatic alarm system sounds.

5. Alert Attendant(s) when a prohibited condition exists and/or when warning signs or symptoms of exposure exist.

Identification of Hazards and Evaluation of Confined Spaces

Initial Survey

1. When work begins at a new site, a survey will be made to determine if there are any confined spaces, and if any of those spaces will need to be designated as a PRCS.

2. This survey can be partially completed from initial and continuing site characteristics, as well as other available data (i.e., blueprints and job safety analyses).

3. This information shall be communicated to personnel and appropriate confined space procedures shall be followed prior to entry.

4. When a confined space has been identified, air monitoring will be conducted to determine the air quality in the confined spaces.

5. If there is a potential that any of the following hazards exist, approval to continue will be made by the Company owner or his designated representative.

   a. Flammable or explosive potential;

   b. Oxygen deficiency; and

   c. Presence of toxic and corrosive material.

Hazard Reevaluation

The Host Site Organization Supervisor will conduct a reevaluation of potential hazards if any of the following occur.

1. A change in the configuration or use of, or the type of work conducted or materials used in, the confined space.

2. New information regarding a hazard in or near a confined space.

3. An employee or authorized representative provides a reasonable basis for believing that a hazard determination is inadequate.

Pre-Entry Reevaluation

1. A hazard assessment will be completed by the Owner or On-site Supervisor prior to any entry into a confined space. The hazard assessment should identify:

a. the sequence of work to be performed in the confined space;

b. the specific hazards known or anticipated; and

c. the control measures to be implemented to eliminate or reduce each of the hazards to an acceptable level.

2. No entry will be permitted until the hazard assessment has been reviewed and discussed by all persons engaged in the activity.

3. Personnel who are to enter confined spaces shall be informed of known or potential hazards associated with said confined spaces.

Hazard Controls

Hazard controls will be instituted to address changes in the work processes and/or working environment. Hazard controls must be able to eliminate or reduce the risk from physical and/or health hazards. The following order of precedence will be followed in reducing confined space risks:

1. Engineering Controls

a. Engineering controls are those controls that eliminate or reduce the hazard through use of sound engineering practices. This includes the use of proper ventilation of a confined space.

b. Employees shall not enter the space until the forced air ventilation has eliminated ay hazardous atmosphere.

c. Forced air ventilation shall be directed so as to ventilate the immediate areas where an employee is or will be present within the space.

d. Continuous ventilation shall be maintained until all employees have left the space.

2. Work Practice (Administrative) Controls

Work practice (administrative) controls are those controls which eliminate or reduce the hazard through changes in the work practices (i.e., rotating workers, reducing the amount of worker exposure and housekeeping).

3. Personal Protective Equipment (PPE)

a. If the hazard cannot be eliminated or reduced to a safe level through engineering and/or work practice controls, then PPE should be used.

b. The Company will determine the appropriate PPE needed by all personnel entering the confined space.

c. PPE that meets the specifications of applicable standards shall be selected in accordance with the requirements of the job to be performed.

Entry Permit (Checklist)

The Confined Space Permit (Checklist) must be used for entry into confined spaces with known hazards or with unknown or potentially hazardous atmospheres. The entry permit process guides the supervisor and workers through a systematic evaluation of the space to be entered. The permit should be used to establish appropriate conditions.

An entry permit will be completed by the Host Site Organization or Qualified On-site Supervisor before each entry into a potentially hazardous confined space. The information will be communicated to all employees involved in the operation. The Permit Form will be posted conspicuously near the work location. A standard entry permit shall be used for all entries.

Key Elements of Entry Permits

1. Space to be entered.

2. Purpose of entry.

3. Date and authorized duration of the entry permit.

4. Name of authorized entrants within the permit space.

5. Means of identifying authorized entrants inside the permit space (i.e., rosters or tracking systems).

6. Name(s) of personnel serving as Attendant(s) for the permit duration.

7. Name of individual serving as Entry Supervisor with a space for the signature or initials of the Entry Supervisor who originally authorized the entry.

8. Hazards of the permit space to be entered.

9. Measures used to isolate the permit space and to eliminate or control permit space hazards before entry (i.e., lockout/tagout of equipment and procedures for purging, ventilating and flushing permit spaces).

10. Acceptable entry conditions

11. Results of initial and periodic tests performed, accompanied by the names or initials of the testers and the date(s) when the tests were performed.

12. Rescue and emergency services that can be summoned and the means of contacting those services (i.e., equipment to use, phone numbers to call).

13. Communication procedures used by authorized entrants and Attendant(s) to maintain contact during the entry.

14. Equipment to be provided for compliance with this Confined Space Program (i.e., PPE, testing, communications, alarm systems and rescue).

15. Other information necessary for the circumstances of the particular confined space that will help ensure employee safety.

16. Additional permits, such as for hot work that have been issued to authorize work on the permit space.

Permit Scope and Duration

A permit is only valid for one shift. For a permit to be renewed, the following conditions must be met before each reentry into the confined space:

1. Atmospheric testing shall be conducted and the results should be within acceptable limits. If atmospheric test results are not within acceptable limits, precautions to pretest entrants against the hazards should be addressed on the permit and should be in place.

2. The On-site Supervisor will verify that all precautions and other measures called for on the permit are still in effect.

3. Only operations or work originally approved on the permit shall be conducted in the confined space.

A new permit shall be issued or the original permit will be reissued, if possible, whenever changing work conditions or work activities introduce new hazards into the confined space.

Each canceled entry permit will be kept at the main company office for at least one (1) year as part of the annual review of the Confined Space Entry Program. Any problems encountered during an entry operation shall be noted on the respective permit(s) so that appropriate revisions to the confined space permit program can be made.

Note: When M&S Engineering, LLC employees are performing confined space entry program tasks as required by a Host Site Organization the records will be maintained by the Host Site.

Entry Procedures

When entry into a confined space is necessary, either the Host Site Supervisor/Entry Supervisor or a designated qualified employee will initiate the necessary entry procedures. This may include require completion of a confined space entry permit. Entry into a confined space will follow the following standard entry procedures.

Prior to Entry

1. A hazard assessment will be completed. This will include checks for atmospheric hazards. If all hazards have been eliminated or controlled, then the space can be designated an isolated-hazard confined space.

2. If all hazards cannot be eliminated or controlled, then an entry permit will be completed before a standard entry. Entry shall be allowed only when all requirements of the permit are met and it is reviewed and signed by an Entry Supervisor.

Opening a Confined Space

1. Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.

2. When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover or other temporary barrier that will prevent anyone from falling through the opening.

3. The barrier or cover shall protect each employee working in the space from foreign objects entering the space.

4. If it is in a traffic area, adequate barriers shall be erected.

Atmospheric Testing

1. Before entry into a confined space, a designated and trained employee will conduct testing for hazardous atmospheres.

2. The internal atmosphere will be tested with a calibrated direct-reading instrument for oxygen, flammable gases and vapors and potential toxic air contaminants, in that order.

3. Atmospheric testing is required for two distinct purposes:

   a. Evaluation of the hazards of the permit space.

   b. Verification that acceptable conditions exist for entry into that space.

4. Entry will not take place until the atmosphere has been properly evaluated and the space is determined to be safe for entry,

Isolation and Lockout/Tagout Safeguards

1. All physical energy sources that are potentially hazardous to confined space entrants will be secured, relieved, disconnected and/or restrained before personnel are permitted to enter the confined space.

2. Equipment systems or processes will be locked out and/or tagged out as required by the Company Lockout/Tagout Program.

3. Where there is a need to test, position or activate equipment by temporarily removing the lock or tag or both, a procedure will be developed and implemented to control employee exposure to the hazards.

4. Any removal of locks, tags or other protective measures shall be done in accordance with the Lockout/Tagout Program.

Ingress/Egress Safeguards

1. Means for safe entry and exit shall be provided for confined spaces.

2. Each entry and exit points shall be evaluated by the Host Site Supervisor to determine the most effective methods and equipment that will enable employees to safely enter and exit the confined space.

3. Appropriate retrieval equipment or methods will be used whenever a person enters a confined space.

4. Use of retrieval equipment may be waived by the Host Site Supervisor(s) if use of the equipment increases the overall risks of entry or does not contribute to the rescue.

5. A mechanical device will be available to retrieve personnel from vertical confined spaces greater than five (5) feet in depth.

W arning Signs and Symbols

1. All confined spaces that could be inadvertently entered will have signs identifying them as confined spaces.

2. Signs will be maintained in a legible condition.

3. The signs will contain a warning that a permit is required before entry. Access to all confined spaces will be prominently marked.

Emergency Response

1. Emergency Response

   a. M&S Engineering, LLC Responsible Safety Officers will ensure the Host Site Organization's written plan of action has provisions for conducting a timely rescue of individuals within a confined space, should an emergency arise.

   b. The written plan will be kept onsite where the confined space work is being conducted.

   c. All qualified affected personnel will be trained on the Emergency Response Plan.

2. Retrieved Systems and Methods of Non-Entry Rescue

   a. Retrieval systems will be available and ready when an authorized qualified person enters a permit space, unless such equipment increases the overall risk of entry or the equipment would not contribute to the rescue of the entrant.

b. Retrieval systems will have a chest or full-body harness and a retrieval line attached to the center of the back near shoulder level or above the head.

c. If harnesses are not feasible or would create a greater hazard, wristlets may be used in lieu of the harness.

d. The retrieval line will be firmly fastened outside the space so that rescue can begin as soon as anyone is aware that retrieval is necessary.

e. A mechanical device will be available to retrieve personnel from vertical confined spaces more than five (5) feet deep.

Training

All M&S Engineering, LLC employees, whose work is regulated by this Confined Space Program, will be trained in the established company procedures contained in this plan.

Training Frequency

The Responsible Safety Officer shall provide training to each affected employee:

1. before the employee is first assigned duties within a confined space;

2. before there is a change in assigned duties;

3. when there is a change in permit space operations that presents a hazard for which an employee has not been trained;

4. when M&S Engineering, LLC has reason to believe that there are deviations from the confined space entry procedures required in this program or that there are inadequacies in the employee's knowledge or use of these procedures.

5. The training will establish employee proficiency in the duties required in this program and shall introduce new or revised procedures, as necessary, for compliance with this program.

General Training

1. All employees who will enter confined spaces will be trained in entry procedures.

2. Personnel responsible for supervising, planning, entering or participating in confined space entry and rescue shall be adequately trained in their functional duties prior to any confined space entry. Training will include:

a. Explanation of the general hazards associated with confined spaces.

b. Discussion of specific confined space hazards associated with the facility, location or operation.

c. Reason for, proper use and limitations of personal protective equipment and other safety equipment required for entry into confined spaces.

d. Explanation of permits and other procedural requirements for conducting a confined space entry.

e. A clear understanding of what conditions would prohibit entry.

f. Procedures for responding to emergencies.

g. Duties and responsibilities of the confined space entry team.

h. Description of how to recognize symptoms of overexposure to probable air contaminants in themselves and co-workers and method(s) for alerting the Attendants(s).

3. Refresher training will be conducted as needed to maintain employee competence in entry procedures and precautions.

Specific Training

1. Training for atmospheric monitoring personnel will include proper use of monitoring instruments, including instructions o the following:

a. proper use of the equipment;

b. calibration of equipment;

c. sampling strategies and techniques; and

d. exposure limits (PELs, TLVs, LELs, UELS, etc.)

2. Training for Attendants will include the following:

a. procedures for summoning rescue or other emergency services; and

b. proper utilization of equipment used for communicating with entry and emergency/rescue personnel.

3. Training for Emergency Response Personnel will include:

a. rescue plan and procedures developed for each type of confined space that is anticipated to be encountered;

b. use of emergency rescue equipment;

c. first aid and CPR techniques; and

d. work location and confined space configuration to minimize response time.

Annual Review

The Safety Manager, will review the Confined Space procedures and assess the effectiveness of employee training at least annually. The review will include:

1. Accuracy of the information

2. A review of any mishaps

3. A review of the permits to determine if any problems occurred.

Appendix H

Electrical

Safety

Procedures

Electrical Safety Procedures

Policy of M&S Engineering, LLC

1. The danger of injury through electrical shock is possible whenever electrical power is present.

2. When a person's body completes a circuit and thus connects a power source with the ground, an electrical burn or injury is imminent.

3. Most fatal injuries result from high-voltage exposure; however, people can sustain severe injuries from low voltage power if it has a high current flow.

4. Electrical safety is important in every work environment.

5. The following procedures will be followed by M&S Engineering, LLC employees and contractors.

Electrical Installations

General Requirements

1. Electrical installations made in accordance with the National Electrical Code are considered to be in compliance with OSHA's electrical standards for General Industry.

2. All facility electrical installations will be grounded.

3. Cord and plug equipment will either have a 3-prong ground plug, or will be double insulated.

4. Lamps for general illumination must be protected from breakage, and metal shell sockets must be grounded.

5. Portable lighting used in wet or conductive locations, such as tanks or boilers, must be operated at no more than 12 volts or must be protected by GFCIs.

6. Extension cords must be of the three-wire type.

7. Flexible cords must be connected to devices and fittings so that strain relief is provided which will prevent pull from being directly transmitted to joints or terminal screws.

8. Worn or frayed electrical cords or cables must not be used.

9. Extension cords must not be fastened with staples, hung from nails, or suspended by wire.

10. Listed, labeled, or certified equipment shall be installed and used in accordance with instructions included in the listing, labeling or certification.

Safety Related Work Practices

1. Only personnel that are qualified and authorized will perform installation, service or maintenance on electrical circuits or equipment. These activities are limited and/or restricted to authorized personnel.

2. Hazardous or potentially hazardous situations involving electricity and electrical contact in the work place will be identified.

3. Identified electrical hazards and potential electrical hazards will be addressed in writing in the form of instructions and safe work practices.

4. Employees, that may encounter any magnitude of exposure to electricity in any form, will be trained in the safe work practice procedures.

5. Breakers and electrical circuits will be labeled to identify where the power from that circuit is supplied.

6. All holes in electrical breaker panels and boxes will be closed.

7. All electrical power installation and conductors of greater than 600 volts will be legibly labeled as high voltage.

8. Live parts and wiring of electrically energized equipment operating at more than 50 volts will be effectively guarded against accidental contact by means of cabinets, covers or other enclosures.

9. All electrical disconnects, switches and circuit breakers will be readily accessible at all times.

10. A sufficient work space around or near electrical installations will be provided.

11. Electrical wiring and equipment or circuits installed or used in or near wet or damp locations will have ground fault circuit interrupter (GFCI) protection or other effective protection.

12. All electrical wiring and equipment will be adequately insulated.

13. Unused openings in electrical equipment and installations will be effectively closed.

14. Machinery and equipment that would automatically restart in the event of power being restored after a power failure must be equipped with an electromagnetic switch that will prevent automatic restarting.

15. Electrical equipment used or available for use in the work place will be approved or rated for industrial use.

16. Electrical equipment will be used only for the intended purpose.

17. Electrical equipment, installations and wiring in hazardous areas, such as flammable atmospheres created by the use or storage of flammable liquids or airborne dust will be non-spark producing and explosion proof or approved for the class and division of the hazard.

18. Flexible electrical cords are intended as temporary power sources and may not be used as a substitute for permanent or fixed wiring.

19. Flexible electrical cords will never be run through a hole in a ceiling, wall or floor.

20. Flexible electrical cords will never be attached to a building surface or structure.

21. Flexible electrical cords will not be used where they are run through a doorway, window or similar opening.

22. Flexible electrical cords will be used in continuous length without splices, repairs or taps.

23. Cords that are damaged or that have insulation missing will be replaced or shortened to a point that will discard the damaged section.

24. Flexible electrical cords in the work place will be of the industrial type and approved for such use.

25. Household extension cords will not be used in the work place.

26. Adapters that allow for bypass of the ground prong will not be used.

27. Metal outlet boxes intended for installation in a wall or other surface will not be used at the end of an extension cord.

28. If these exist in the work place, they will be replaced with fixtures designed for this purpose.

29. Electrical cords and cables will be kept out of paths and walkways and, never impede access to an emergency exit or means of egress from a building.

30. Electrical cords will always be protected from accidental damage if used in areas where they are exposed to abrasion from machinery or vehicular traffic.

31. All electrical cords will be inspected prior to use and then routinely inspected to ensure they are properly insulated, ground prongs are in place and they are in safe working condition.

32. Never attempt to perform service or maintenance on electrical installations, circuits, machinery or equipment unless specifically authorized and instructed to do so.

33. All electrical service or maintenance procedures will be in accordance with the procedures for the control of hazardous energy and lockout/tagout program.

34. All permanent wiring of the facility will be installed in rigid conduit.

35. Flexible wiring such as extension cords will be used only for temporary energy supply.

Appendix I

Emergency Action Plan

Emergency Action Plan

Policy

1. Employees at M&S Engineering, LLC may have to evacuate the facility for one or more of the following situations:

   a. Fire from within the facility or a neighboring area.

   b. Chemical Release due to an accident and chemical release on nearby roadways.

   c. Bomb threat for the facility or a nearby area.

2. Employees at M&S Engineering, LLC may have to take cover within the facility for severe weather.

3. The designated Responsible Safety Officer will manage the Emergency Action Plan and will maintain all training records pertaining to this plan.

4. A Responsible Safety Officer, or a designated employee, will coordinate with local public resources, such as fire department and emergency medical personnel, to ensure that they are prepared to respond as detailed in this plan.

Evacuation Procedures

Fire

1. In case of fire, all employees will evacuate the facility.

2. The Fire Department must be notified by calling 911.

3. After notifying the Fire Department, immediately contact one of the following in order of priority:

Laurie Krzywosinski	210.452.3472
Melody Horton	830.854.0228

Evacuation

1. If the facility must be evacuated then all employees will be notified by the PA System.

2. The person giving the alert will announce, "**Attention! Attention! This is an emergency. This is not a drill. I repeat, this is not a drill. Immediately evacuate the building and go to the nearest assembly point.**" This will be repeated twice.

3. Employees will use the nearest emergency exits.

4. Upon exiting the building, employees will assemble at the East Fence by the storage building or West of the entrance from FM 311(Refer to Annex A – Location of Assembly Points)

5. The Responsible Safety Officers or a designated employee will insure that all employees have evacuated from the facility and will verify to one another by phone.

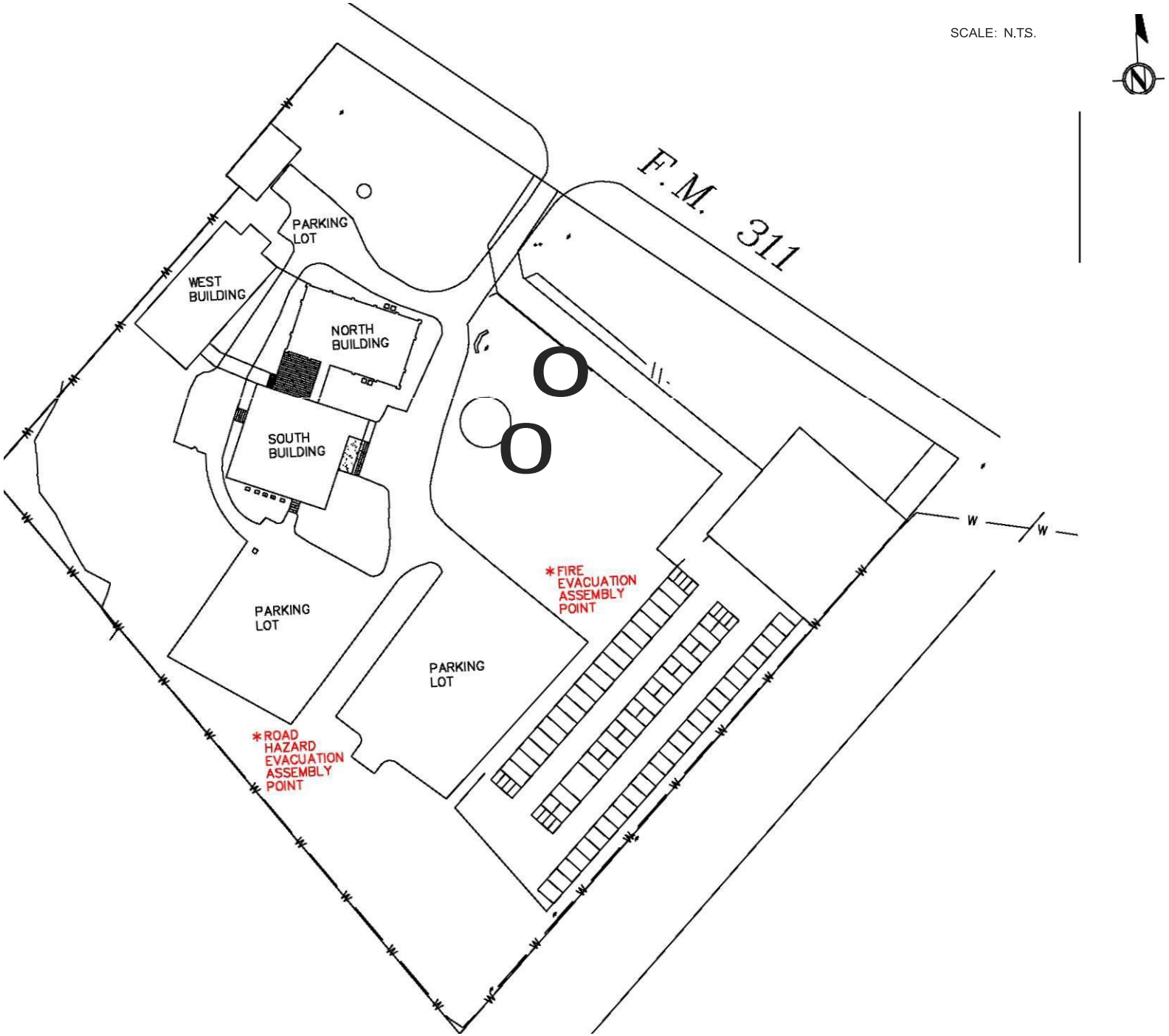
7. No one will go back into the facility until the designated Responsible Safety Officer gives the all clear.

Severe Weather Procedures

1. If a warning comes of a tornado on the ground, all employees will assemble inside the facility near an interior wall.

2. Employees will stay in these areas until the all clear is given.

EVACUATION ASSEMBLY POINTS



Appendix J

Fall

Protection

Fall Protection Program

Policy

The policy of M&S Engineering, LLC is to protect employees from injuries by implementing and enforcing safe work practices and appointing a competent person(s) to manage the Company's Fall Protection Program.

The Fall Protection Program will comply with the OSHA requirements.

A copy of the OSHA Fall Protection Standard will be made available to all employees and may be obtained from the main office.

Assignment of Responsibility

Employer

M&S Engineering, LLC is responsible to provide fall protection to M&S Engineering, LLC employees who are required to utilize it when performing duties related to their work assignments and to understand and adhere to the procedures of this plan and follow the instructions of the Owner. Host Site Organization Policy for Fall Protection will be adhered to by affected M&S Engineering, LLC employees provided it meets or exceeds the Fall Protection Program implemented by M&S Engineering, LLC.

A Responsible Safety Officer

The Responsible Safety Officer is responsible for the overall management of the Fall Protection Program for all sites. This will include the following:

1. Perform routine safety checks of work operations;

2. Enforce the safety policy and procedures;

3. Correct any unsafe practices or conditions immediately;

4. Train employees and supervisors to recognize fall hazards and the use of fall protection systems;

5. Maintain records of employee training, equipment issue and fall protection systems used at Company jobsites; and

6. Investigate and document all incidents that result in employee injury.

Supervisor

The Supervisor, as the Competent Person, or the designated Competent Person for M&S Engineering, LLC is responsible for implementing the Fall Protection Program at the location that he is responsible for. This will include the following:

1. Perform routine safety checks of work operations;

2. Enforce the safety policy and procedures;

3. Correct any unsafe practices or conditions immediately;

4. Insure that all employees are properly trained to recognize fall hazards and the use of fall protection systems; and

5. Insure that subcontractors are following procedures that are at least as protective as this program.

Employees

All employees have the responsibility to:

1. Understand and follow the procedures outlined in this Fall Protection Program.

2. Follow the instructions of the company.

3. Bring to management's attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees and

4. Report any incident that causes injury to an employee, regardless of the nature of the injury.

Training

1. All employees, that may be exposed to fall hazards, are required to receive training on how to recognize such hazards and how to minimize their exposure to them.

2. Employees shall receive training as soon after employment as possible and before they are required to work in areas where fall hazards exist.

3. A record of employees who have received training and training dates shall be maintained in the main office by the Responsible Safety Officer.

4. Training will include:

a. Nature of the fall hazards employees may be exposed to.

b. Correct procedures for erecting, maintaining, disassembling and inspecting fall protection systems.

c. Use and operation of controlled access zones, guardrails, personal fall arrest systems, safety nets, warning lines and safety monitoring systems.

d. The role of each employee in the Safety Monitoring System (if one is used).

e. The limitations of the use of mechanical equipment during roofing work on low-slope roofs (if applicable).

f. Correct procedures for equipment and materials handling and storage and erection of overhead protection.

g. The role of each employee in alternative Fall Protection Plans (if used).

h. The requirements of the OSHA Fall Protection Standard, 29 CFR 1926, Subpart M.

i. The Company requirements for reporting incidents that causes injury to an employee.

5. Additional training shall be provided on an annual basis or as needed when changes are made to: this Fall Protection Program, an alternative Fall Protection Plan, or the OSHA Fall Protection Standard.

Controlled Access Zones

M&S Engineering, LLC has determined that employees will not work in areas where the only fall protection is a Controlled Access Zone.

Fall Protection Systems

Covers

1. All covers shall be secured to prevent accidental displacement.

2. Covers shall be color-coded or bear markings "HOLE" or "COVER."

3. Covers located in roadways shall be able to support twice the axle load of the largest vehicle that might cross them.

4. Covers shall be able to support twice the weight of employees, equipment and materials that might cross them.

Guardrail Systems

1. Guardrail systems shall be erected at unprotected edges, raps, runways or holes where it is determined that erecting such systems will not cause an increased hazard to employees.

2. Top rails shall be:

a. At least 1/4 inch in diameter (steel or plastic banding is unacceptable);

b. Flagged every six (6) feet or less with a high visibility material if wire rope is used;

c. Inspected by our competent person as frequently as necessary to ensure strength and stability;

d. Forty-two (42) inches (plus or minus three (3) inches) above the walking/working level; and

c. Adjusted to accommodate the height of stilts, if they are in use.

3. Mid-rails, screens, mesh, intermediate vertical members and solid panels shall be erected in accordance with the OSHA Fall Protection Standard.

4. Gates or removable guardrail sections shall be placed across openings of hoisting areas or holes when they are not in use to prevent access.

Personal Fall Arrest Systems

1. Personal fall arrest systems shall be issued to and used by employees as determined by the On-site Supervisor, and may consist of anchorage, connectors, body harness, deceleration device, lifeline or suitable combinations.

2. Personal fall arrest systems will:

a. Limit the maximum arresting force to 1800 pounds;

b. Be rigged so an employee cannot free fall more than six (6) feet or contact any lower level;

c. Bring an employee to a complete stop and limit the maximum deceleration distance traveled to three and a half (3 ½ feet);

d. Be strong enough to withstand twice the potential impact energy of an employee free falling six (6) feet (or the free fall distance permitted by the system, whichever is less);

e. Be inspected prior to each use for damage and deterioration; and

f. Be removed from service if any damaged components are detected.

3. All components of a fall arrest system shall meet the specifications of the OSHA Fall Protection Standard and shall be used in accordance with the manufacturer's instructions.

a. The use of non-locking snap-hooks is prohibited.

b. Dee-rings and locking snap-hooks shall:

(1) Have a minimum tensile strength of 5000 pounds; and

(2) Be proof-tested to a minimum tensile load of 3600 pounds without cracking, breaking or suffering permanent deformation.

c. Lifelines will be:

(1) Designed, installed and used under the supervision of the On-site Supervisor;

(2) Protected against cuts and abrasions; and

(3) Equipped with horizontal lifeline connection devices capable of locking in both directions on the lifeline when used on suspended scaffolds or similar work platforms that have horizontal lifelines that may become vertical lifelines.

d. Self-retracting lifelines and lanyards must have ropes and straps (webbing) made of synthetic fibers and shall:

(1) Sustain a minimum tensile load of 3600 pounds if they automatically limit free fall distance of two (2) feet; or

(2) Sustain a minimum tensile load of 5000 pounds (includes rip stitch, tearing and deforming lanyards).

e. Anchorages must support at least 5000 pounds per person attached and shall be:

(1) Designed installed and used under supervision of the On-site Supervisor.

(2) Capable of supporting twice the weight expected to be imposed ion it; and

(3) Independent of any anchorage used to support or suspend platforms.

Positioning Device Systems

Body harness systems will be set up so that an employee can free fall no farther than two (2) feet and shall be secured to an anchorage capable of supporting twice the potential impact load or 3000 pounds, whichever is greater. Requirements for snap hooks, Dee-rings and other connectors are the same as detailed in this Program under Personal Fall Arrest Systems.

Safety Monitoring Systems

1. In situations when no other fall protection has been implemented, the Competent Person will monitor the safety of employees in these work areas.

2. The Competent Person will be:

a. Competent in the recognition of fall hazards;

b. Capable of warning workers of fall hazard dangers

c. Operating on the same walking/working surfaces as the employees and able to see them;

d. Close enough to work operations to communicate orally with employees; and

e. Be free of other job duties that might distract them from the monitoring function.

3. No employee other than those engaged in the work being performed under the Safety Monitoring System shall be allowed in the area.

4. All employees under a Safety Monitoring System are required to promptly comply with the fall hazard warnings of the Competent Person or a designated employee.

Safety Net Systems

1. Safety net systems are not used in M&S Engineering, LLC operations.

2. If the company has employees working on a site where safety nets are used, the Owner will be advised; and the On-site Supervisor will obtain a copy of the General Contractor's plan for use of safety nets.

3. Before work begins, all employees will be briefed on the hazards and procedures.

Warning Line Systems

Warning line systems consisting of supporting stanchions and ropes, wires or chains shall be erected around all sides of roof work areas.

1. Lines shall be flagged at no more than six (6) foot intervals with high-visibility materials.

2. The lowest point of the line (including sag) shall be between 34 and 39 inches from the walking/working surface.

3. Stanchions of warning line systems shall be capable of resisting at least 16 pounds of force.

4. Ropes, wires or chains must have a minimum tensile strength of 500 pounds.

5. Warning line systems shall be erected at least six (6) feet from the edge, except in areas where mechanical equipment is in use.

6. When mechanical equipment is in use, warning line systems shall be erected at least six (6) feet from the parallel edge and at least ten (10) feet from the perpendicular edge

Protection from Falling Objects

1. When guardrail systems are in use, the openings shall be small enough to prevent potential passage of falling objects.

2. The following procedures will be followed by all employees to prevent hazards from falling objects:

a. No materials (except masonry and mortar) shall be stored within four (4) feet of working edges;

b. Excess debris shall be removed regularly to keep work areas clear;

c. During roofing work, materials and equipment shall be stored no less than six (6) feet from the roof edge unless guardrails are erected at the edge;

d. Stacked materials must be stable and self-supporting;

e. Canopies shall be strong enough to prevent penetration by falling objects;

f. Toeboards erected along the edges of overhead walking/working surfaces shall be:

(1) Capable of withstanding a force of at least 50 pounds; and

(2) Solid with a minimum of three and a half (3 2) inches tall and no more than one quarter (1/4) inch clearance above the walking/working surface.

g. Equipment shall not be piled higher than the toeboard unless sufficient paneling or screening has been erected above the toeboard.

Accident Investigations

All incidents that result in injury to workers, as well as near misses, regardless of their nature, shall be reported and investigated.

Investigations shall be conducted by the Responsible Safety Officer according to the procedures contained in this Safety Plan.

Changes to the Plan

Any changes to the Fall Protection Program (and alternative Fall Protection Plans, if in place) shall be approved by the Company Owner(s) and/or Responsible Safety Officer.

Affected employees shall be notified of all procedure changes and trained if necessary.

Appendix K

Fire Prevention and Protection

Fire Prevention and Fire Safety

Policy

1. If a fire occurs, all M&S Engineering, LLC employees will immediately evacuate the facility.

2. Only qualified employees with current education and training on the use of fire extinguisher may use a fire extinguisher for incipient fires.

Precautions

1. In order to prevent fires, smoking is only permitted in areas designated safe for smoking.

2. Sources of static electricity can start fires. Therefore, equipment and containers, that contain flammable liquids, must be grounded or bonded before transferring any liquid.

3. Fire extinguishers are located and maintained in compliance with OSHA 29 CFR 1910.157, and NFPA 10.

Points of Contact

The responsibility for the handling and storage of any potential flammable materials falls to the Responsible Safety Officer.

Types of Fire

1. Class A Fires: Class A fires occur in materials such as wood, paper, excelsior, rags, and rubbish. Water or water solutions are used to extinguish Class A fires.

2. Class B Fires: Class B fires occur in the vapor-air mixture over the surface of flammable liquids such as gasoline, oil, grease, paints, and thinners. Class B fires are extinguished by limiting air (oxygen) or by providing combustion inhibiting agents.

3. Class C Fires: Class C fires occur in or near electrical equipment. Non-conducting extinguishing agents must be used. DO NOT use water to extinguish a Class C fire.

4. Class D Fires: Class D fires occur in combustible metals such as magnesium, titanium, zirconium, lithium, and sodium. Specialized techniques, extinguishing agents and equipment are use to control a Class D Fire.

5. M&S Engineering, LLC have no Class D fire hazards.

Fire Extinguishers

1. ABC Fire Extinguishers are located throughout the shop.

2. These extinguishers are present due to city code requirements.

3. They are to be used by qualified M&S Engineering, LLC Company employees.

Appendix L

First Aid

And

CPR

First Aid and CPR Training

In order to meet the requirements of 29 CFR 1926.50 - Medical Services and First Aid, M&S Engineering, LLC has implemented the following procedures.

1. Before arriving on a job site, the Safety Manager or Job Site Supervisor will verify if emergency medical facilities are within 5-10 minutes of the work site. Emergency procedures shall be established when conducting the "Tailgate Meeting" prior to starting work. If on a host site, the host site emergency procedures will be followed.

2. If an infirmary, clinic, hospital, or physician is NOT reasonably accessible in terms of time and distance to the worksite, then one person on each worksite will be trained and current in the MEDIC First Aid, Adult CPR and AED or equivalent training that can be verified by documentary evidence. If on a host site, communicate with site authority to utilize emergency services that will be available.

3. First aid supplies shall be easily accessible when required.

4. The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item.

5. The first aid kit will be inspected by the Job Site Supervisor periodically to ensure that expended items are replaced. The inspection will be documented.

6. Arrangements will be made for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service, shall be provided.

7. In areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted. If on a host site, communicate with site authority and follow established procedures.

8. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work site area for immediate emergency use.

Appendix M

Fleet

Safety

Program

Fleet Safety Program

Policy

1. The administration of the Company's Fleet Safety Program is an integral part of M&S Engineering, LLC overall safety and loss control program.

2. The responsibility of administering the Fleet Safety Program is the responsibility of the designated Responsible Safety Officer.

3. Employees who are found to have violated this procedure may be subject to disciplinary action up to and including termination from employment.

4. All vehicle accidents involving a Company vehicle or an employee's vehicle on Company business will be reported to their supervisor and/or the Safety Manager.

General Requirements

1. Driving records and capability is considered with other job requirements in the selection of Company personnel that will be operating our vehicles on Company business.

2. Motor driver records will be obtained and reviewed on all new employees. These records will be reviewed at least, but not limited to, annually.

3. Driver safety meetings will be conducted at least, but not limited to, semi-annually. Attendance of these meetings should be mandatory for all employees that operate vehicles on Company business. The subject matter of these meetings should be relevant to hazards the drivers are encountering and past accident experience.

4. The following safety equipment should be in each vehicle: fire extinguisher, tire jack, spare tire and a first aid kit.

5. Cellular telephones, or other similar devices, will not be used while driving a company vehicle unless a hands free device is used. Otherwise, the driving employee will pull over to a safe location and use the device.

6. Employees will wear safety belts, follow all posted signs and speed limits, not eat while driving, and take sufficient breaks when driving for extended periods of time.

7. If an employee must use his or her personal vehicle because a company vehicle is not available it should be in good working order and carry the required insurance.

Daily Inspections and Maintenance

1. Each operator of a Company vehicle will inspect the vehicle prior to operation.

2. The inspection should be directed toward safety and should include all safety-related equipment on the vehicle.

3. Any deficiencies found during the daily vehicle inspection will be corrected immediately.

4. All Company vehicles will be properly maintained according to the manufacturer's specifications and recommendations. Maintenance records should be maintained on each vehicle.

Accidents

1. A *Vehicle Accident Reporting Kit* will be installed in the clipboard of each Company vehicle.

2. Each employee that operates a Company vehicle will be trained in how to complete the accident form in the kit.

3. After a vehicle accident occurs, the driver, if not injured, will complete the driver's accident report.

4. The driver will follow the following procedures if applicable:

a. If two or more vehicles are involved, call the police and report the accident.

c. Stay on the telephone until the police and paramedics have all the necessary information.

b. Perform minor first aid to accident victims to the level of the driver's training.

d. Do not remove victims from the vehicle unless absolutely necessary. This would include threat of fire, explosion, or drowning.

e. Obtain the name and address of the investigating police officer; his/her badge number and the jurisdiction (city, county, highway patrol, etc.). This will enable the insurance company to obtain the police report in the most efficient manner without long delays.

f. Obtain facts about any other vehicles involved such as make of vehicle, model, license number and damages sustained by the other vehicles.

g. Obtain facts about the injured person(s) such as name, age, driver's license number and if possible the address and telephone number. Indicate if the injured person(s) was the driver or a passenger in the vehicle. Describe, as well as possible, the extent of each injured person(s). If the person(s) are transported to a hospital, obtain the name of the hospital.

h. Obtain facts about any property damage.

i. If available, take pictures of the accident scene with a camera or the cell phone.

j. If possible, get the name of any witnesses to the accident.

k. The driver or any of the passengers should not discuss the accident except with the police, a representative from the company insurance company or management.

l. Never sign a statement admitting responsibility.

5. The Safety Manager and a supervisor will investigate all vehicle accidents involving Company vehicles.

Disabled Vehicle

1. If a Company vehicle is disabled on the freeway, road, street or highway, report the situation including the location and number of passengers either by radio or telephone.

2. The following steps should be initiated:

a. Activate the four-way emergency flashers.

b. If the vehicle is disabled by a flat tire, attempt to drive off the freeway to change the tire.

c. Do not stay on the freeway, if it is possible drive the vehicle to an off-ramp.

d. Passenger safety is of prime concern. Best judgment should be used as to whether to allow the passengers to exit while the driver seeks or performs emergency service.

Safe Driving Procedures

Pre-Operation Safety Check

1. Before driving any Company vehicle, the operator is responsible for making sure it is in safe operating condition.

2. The checklist includes the following:

a. Tire should be properly inflated and in road-worthy condition.

b. Brakes, light, horn, wipers, directional signals, and rear view mirrors must be operating properly.

c. Safety equipment (seat belts, fire extinguisher, etc.) should be present in vehicle.

Defensive Driving

1. Company drivers will use defensive driving techniques.

2. These include:

a. Drive at speeds that will allow you sufficient stopping time.

b. Signal well in advance of turning, changing lanes or stopping. Plan traffic maneuvers in advance in order to avoid hasty actions.

c. Do not pass any vehicle at intersections, railroad crossings, or where vision is limited or obstructed. Pass only with sufficient clear road and without crowding the vehicle being passed.

d. Do not compete for right-of-way. Regard the green light as a “proceed with caution” signal. Prepare to avoid collision with any vehicle approaching from any side of the road.

e. Obey all stop signs and signals with full, complete stops.

f. Load every vehicle properly and secure load before moving. Let nothing protrude over the side of the vehicle.

g. Set emergency brake in any unattended vehicle. On severe grades turn front wheels into curb in downhill direction; use chock when necessary.

h. Back vehicle only after checking for clear space behind. When possible, use passengers for backing direction, or a backup person. Whenever possible try to park the vehicle without having to back up.

Drivers must have:

a. ***KNOWLEDGE*** of the traffic laws, behind the wheel procedures, hazards and how to avoid them.

b. ***ALERTNESS*** to the conditions around you and your vehicle that may affect your driving job.

c. ***FORESIGHT*** in anticipating immediate and long-range developments and preparing for them.

d. ***JUDGEMENT*** in knowing what choices you have and making the right decision.

e. ***SKILL*** at handling your vehicle effectively in normal and emergency conditions.

3. Accidents will be reviewed to answer these questions:

a. Did the driver do anything that caused the accidents?

b. Was there anything the driver could have done to prevent the accident?

c. If the answer to either question is “yes,” the accident is considered preventable and may be charged against the driver's safety record.

4. Bad road conditions, curves, hills, narrow roads, missing signs, nonworking signals, carelessness, recklessness or ignorance of others, does not relieve the driver of the responsibility for doing his or her best to **avoid or prevent** an accident.

Appendix N

Forklift

Operations

Forklift Operations Program

Policy for M&S Engineering, LLC

1. This plan establishes requirements designed to ensure that powered industrial truck safety training, operation, and maintenance practices are communicated to and understood by the affected employees.

2. These requirements are also designed to ensure that procedures are in place to safeguard the health and safety of all employees.

3. M&S Engineering, LLC will comply with the requirements of 29 CFR 1910.178 for Powered Industrial Trucks operations.

Selected Requirements

1. No modifications, or additions which affect the capacity or safe operation of the equipment, will be made without the manufacturer's written approval.

   a. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly.

   b. In no case will the original safety factor of the equipment be reduced.

2. If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck will not exceed its capacity.

3. Unauthorized personnel will not be permitted to ride on powered industrial trucks.

Safety Related Work Practices

Vehicle Operation

1. Powered industrial vehicles will not be driven up to anyone standing in front of a bench or other fixed object.

2. No person will be allowed to stand or pass under the elevated portion of any vehicle, whether loaded or empty.

3. Persons other than the driver will not ride on a powered industrial vehicle except in a designated safe place designed for rider occupancy.

4. Arms and legs will not be placed between the uprights of the mast or outside the running lines of the vehicle.

5. When a powered industrial vehicle is left unattended, load engaging means will be fully lowered, controls will be neutralized, power will be shut off, and brakes set.

6. Wheels will be blocked if the vehicle is parked on an incline.

7. A minimum of 3 feet of distance will be maintained from the edge of ramps/platforms while on an elevated dock.

8. Brakes will be set and wheel blocks or truck docks lock in place to prevent movement of trucks or trailers while loading or unloading.

9. The operator will drive the vehicle at a safe speed for local conditions but at no time faster than a brisk walk and will keep the vehicle under their control at all times.

10. If the load being carried obstructs forward view, the operator will be required to travel with the load trailing.

11. The load and load engaging means will be tilted back if applicable, and raised only as far as necessary to clear the travel surface.

12. Stunt driving and horseplay will not be permitted.

Loading

1. Only stable or safely arranged loads will be handled.

2. All drums and compressed gas cylinders will be loaded and transported in an upright position and secured to prevent tipping or falling.

3. Only loads within the rated capacity of the vehicle will be handled.

4. A load engaging means will be placed under the load as far as possible; the mast will be carefully tilted backward to stabilize the load.

5. Extreme care will be taken when tilting a load forward or backward, particularly when high tiering.

6. Tilting forward with load engaging means elevated will be prohibited except to pick up a load or when the load is in a deposit position over a rack or stack.

Training Program

Initial Training

1. The Safety Manager will identify all new employees that must receive forklift initial training and a performance evaluation.

2. Each potential operator must be physically and mentally capable of performing the duties necessary to be a competent and safe driver.

3. The operator must be able to:

a. See and hear within reasonably acceptable limits, (this includes the ability to see at a distance and peripherally, and in certain instances, it is also necessary for the driver to discern different colors, primarily red, yellow, and green);

b. Endure the physical demands of the job;

c. Endure the environmental extremes of the job, such as the ability of the person to work in areas of excessive cold or heat; and

d. Be able to climb onto and off of a truck, to sit in the vehicle for extended periods of time, and to turn his/her body to look in the direction of travel when driving in reverse.

4. The content of the training will include:

Truck-related topics:

a. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;

b. Differences between the truck and the automobile;

c. Truck controls and instrumentation: where they are located, what they do, and how they work;

d. Engine or motor operation;

e. Steering and maneuvering;

f. Visibility (including restrictions due to loading);

g. Fork and attachment adaptation, operation, and use limitations;

h. Vehicle capacity;

i. Vehicle stability;

j. Any vehicle inspection and maintenance that the operator will be required to perform;

k. Refueling and/or charging and recharging of batteries;

l. Operating limitations;

m. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

n. The requirements of the OSHA section on Powered Industrial Operations

Workplace-related topics:

a. Surface conditions where the vehicle will be operated;

b. Composition of loads to be carried and load stability;

c. Load manipulation, stacking, and unstacking;

d. Pedestrian traffic in areas where the vehicle will be operated;

e. Narrow aisles and other restricted places where the vehicle will be operated;

f. Hazardous (classified) locations where the vehicle will be operated;

g. Ramps and other sloped surfaces that could affect the vehicle's stability;

h. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;

i. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Evaluation

1. Upon completion of the initial classroom instruction, new operators must successfully demonstrate their ability to safely operate forklifts, or other powered industrial trucks, that are used by M&S Engineering, LLC.

2. The operator will receive a hands-on evaluation on each different type of industrial truck that will be operated.

3. The evaluation will be conducted by a company designated forklift instructor.

Refresher Training

1. Refresher training, including an evaluation of the effectiveness of that training, will be conducted to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.

2. Refresher training in relevant topics will be provided to the operator when:

a. The operator has been observed to operate the vehicle in an unsafe manner;

b. The operator has been involved in an accident or near-miss incident;

c. The operator has received an evaluation that reveals that the operator is not operating the truck safely;

d. The operator is assigned to drive a different type of truck; or

e. A condition in the workplace changes in a manner that could affect safe operation of the truck.

f. An evaluation of every company powered industrial truck operator's performance will be conducted at least once every three years.

Operators with Previous Experience

1. If an operator has previously received training as a powered industrial truck operator, and the training is appropriate to the truck and working conditions encountered, additional training in that topic may not be required.

2. The operator must still be familiar with work-site related issues, and complete a hands-on evaluation to demonstrate the ability to operate the equipment safely.

Documentation

1. M&S Engineering, LLC will certify in writing that each operator has been trained and properly evaluated.

2. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

3. The documentation will be maintained as specified in the recordkeeping section of this manual.

Appendix O

Good Housekeeping Plan

Good Housekeeping Plan

Policy for M&S Engineering, LLC

1. Good housekeeping in the workplace helps prevent slip, trip and fall-type accident injuries.

2. Good housekeeping helps to prevent fires.

3. The following procedures will be followed.

Procedures

1. Employees must ensure that their work area is kept clean, neat and orderly at all times. Employees identifying trash or other debris are responsible to pick up or clean up whatever condition exists, regardless of who caused or created it.

2. Floors will be maintained in a dry condition. Spilled liquids will be cleaned up immediately.

3. Restrooms, sinks, and drinking fountains will be maintained in a clean, sanitary condition at all times.

4. There will be adequate illumination in each work area.

5. Aisles, passageways and walkways will be maintained free from obstruction.

6. All stored items will be stacked or stored in a neat and orderly manner that is not conducive to the material shifting or falling.

7. Hoses, cords and other obstacles should be kept out of walkways when not in use. Furniture and equipment should be arranged to minimize the need to run cords and hoses across paths and walkways.

8. Hazardous materials should be identified and stored in a manner that minimizes the exposure to any associated or potential hazards.

9. Elevated storage areas or work platforms will be load rated and have the load limits posted in a conspicuous location. The exposed areas should be guarded with a four-inch toe board and approved guard rails.

10. Permanent aisles and walkways will be marked to indicate areas where equipment or materials should not be placed or stored.

11. Areas that remain wet or damp following clean-up procedures should be marked or indicated by some type of warning device (signs, hazards cones, etc.).

Appendix P

Hand Tools

and

Power Tools

Hand Tools and Power Tools

Purpose

The purpose of this program is to establish procedures that will ensure employees who are required to work with hand a power tools, work in a safe manner.

1. Hand tools, hand power tools, and bench power tools are often misused or are not maintained.

2. Because the unsafe acts and conditions cause many accidents, the following procedures have been implemented.

Hand Tools

General Safety Procedures

1. Only the proper tool will be used for a job.

2. Tools will be inspected before use.

3. Any tool that is damaged or defective should be replaced as soon as possible. Do not use a damaged or defective tool.

4. Wrenches, except those specifically designed for the purpose, should not be hammered upon, nor should they be used as hammers.

5. “Cheaters” should not be used with small wrenches. Use a larger wrench instead.

Portable Power Tools

General Safety Procedures

Portable power tools may be pneumatic or electrically powered devices. Typical injuries from power tools are burns, cuts, and strains; injuries may also include electric shock, particles in the eyes, fires, falls, explosion of gases, and falling tools.

1. A tool should never be left overhead.

2. All lines should be kept out of the way of foot traffic.

3. Lines should be kept away from oil, hot surfaces, moving equipment, and chemicals.

Air Tools

1. Air hoses should **not** be disconnected from a tool and used to clean equipment or blow dust from clothing.

2. Air drills, grinders, and scaling tools have built-in safeguards for protection of the operator and the work. Never remove or disable these safeguards.

3. Most air-powered tools operate on about 90 pounds per square inch of pressure, and will never be used at that pressure for cleaning.

Electric Tools

1. All electrical tools will either be grounded or double insulated.

2. Do not stand in water when using an electric power tool, even if it is grounded.

3. Electric flexible cords (including extension cords) will be inspected before each use and kept in good condition.

4. Never pull on the cord, pull on the plug. Plugs and cords should be protected from sharp objects, heat and oil.

5. Eye/face protection should be worn when operating drills, grinding wheels, buffers, and brushes.

Portable Grinders

1. Guarding - All guards provided for use on portable units must be used.

2. Grinding Wheels and Disk - All replacement wheels/disks should be closely inspected and tested as necessary to make sure they have not been damaged.

3. Operating Speeds - The safe operating speed of each new wheel/disk should be checked against the maximum listed on the equipment before it is mounted.

4. Electrical Service - All portable electric operated-units should have their cord and plug inspected before every use. Defective equipment must be withdrawn immediately from service and tagged “out of service.”

Bench Grinders and Wire Brushes

General Procedures

1. Guarding - complete guards will cover spindle end, nut, and flange projection, and provide suitable protection to the operator.

2. The machine will never be operated without all guards in place.

3. Tool Rest - a maximum space of 1/8 inch (or less) will be maintained between the tool rest and the wheel surface at all times.

4. Tool rests and wheels will be adjusted and dressed as often as necessary to maintain the 1/8 inch maximum across the working surface.

5. Top Tongue Guard - tongues at the top of the wheel guards will be adjusted and kept within 1/4 inch of the wheel at all times.

6. Eye Shields - all machines equipped with such guards will have the lenses regularly cleaned. Broken lenses shall be replaced immediately. The shields shall be adjusted to provide maximum protection for the operator.

7. Even with the eye shields, employees will still wear safety glasses and a face shield if there is a potential danger of facial injuries.

8. Wheel Replacement - Immediately before mounting, all wheels will be closely inspected and sounded (ring tested) by the user to make sure they have not been damaged in transit, storage, or otherwise. (W heels should be tapped gently with a non-metallic implement such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels). If they sound cracked (dead) they shall not be used. This is known as the “Ring Test.”

9. Safe Operating Speed - Before mounting, the spindle speed of the machine must be checked to verify that it does not exceed the maximum operating speed marked on the wheel. The size of the mounting holes must match the size of the spindle.

10. Defective equipment will be immediately de-energized, tagged “out of service”, and not used until repaired.

Required Personal Protective Equipment

1. Bench/Pedestal Grinding: full face shields and safety glasses.

2. Portable Grinding/End Facing Machines: full face shield and safety glasses.

3. Bench/Pedestal Wire Brushing: full face shield and safety glasses.

4. Portable Brushing: full face shield and safety glasses.

5. Employees assisting operators will also wear safety glasses and full face shield protectors.

Appendix Q

Hazard Communication Program - GHS

Hazard Communication Program

Policy

1. In order to comply with OSHA Regulations on Hazard Communication (29 CFR 1910.1200, which are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Revision 3), the following written Hazard Communication Program (HCP) is implemented for personnel of M&S Engineering, LLC.

2. The original of the HCP will be maintained at the company offices.

3. A copy of this program will be made available to every new employee upon hiring, and a copy will be supplied to any employee upon request.

4. All M&S Engineering, LLC employees will comply with this HCP and sign an Acknowledgment of Receipt of Hazard Communication Training upon completion of an orientation of the program.

Responsibilities

1. The Safety Manager will be responsible for managing the program, and for the purposes of this plan, is designated as the Hazard Communication Program Coordinator (HCP Coordinator).

2. The HCP Coordinator will be contacted when a copy of the program is needed.

3. The program will be updated when new chemicals or hazards are introduced into the working environment, and reviewed annually by the HCP Coordinator.

4. The HCP Coordinator will check all chemical purchase orders (PO) to be sure a statement requesting a Safety Data Sheet (SDS) appears on the PO before being processed.

Container Labeling

1. Appropriate hazard labels must be on all chemical containers regardless of size.

2. The HCP Coordinator is responsible for all primary containers of hazardous chemicals entering the workplace, and job site and will assure that the chemical containers are properly labeled with the information required under either the older Hazard Communication standard or the information required under the new GHS standard.

3. If the chemical is to be transferred to a secondary container, the Production Supervisor will ensure that the new container is an approved type for the chemical and is properly labeled with either an extra copy of the original manufacturer's label or with generic labels which have a block for identity and block for the hazard warning.

4. Employees must report all incorrect, damaged, or missing labels to their supervisor. The supervisor is responsible for replacing the labels.

Safety Data Sheets (SDS)

1. The HCP Coordinator is responsible for obtaining and maintaining a current SDS on each chemical used by M&S Engineering, LLC.

2. He/she will also review incoming data sheets for new and significant health/safety information and will ensure that the new information is given to the affected employees. New chemicals shall not be used until a SDS has been obtained.

3. The HCP Coordinator will ensure that:

a. A current master inventory list of all SDSs indexed to each individual SDS is maintained at the company offices.

b. The identity used on the SDS shall be the same as used on the container label.

c. All necessary SDSs used at the company facilities are located in the front office, and are readily accessible for all employees.

d. An annual review is made of all SDS for accuracy and completeness.

Employee Training and Information

<u>New Employee Training</u>

1. Before any affected employee can start work, they must receive training on the company Hazard Communication Program by the HCP Coordinator or designated person.

2. As a minimum, the training orientation for new employees will include:

a. An overview of the requirements contained in the Hazard Communication standard, 29 CFR 1910.1200;

b. Chemicals present in their workplace operations and storage areas for those chemicals;

c. Location and availability of the written HCP;

d. Physical and health effects of the hazardous chemicals listed on the inventory of this program;

e. Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area;

f. How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment;

g. Steps taken to lessen or prevent exposure to the chemicals listed on the inventory list;

h. Emergency procedures to follow if exposed to chemicals, including the locations of eye wash/shower stations and first aid stations (if applicable);

i. Location of the SDS files and chemical inventory list;

j. Proper labeling requirements for containers; and

k. Explanation on how to read and interpret each SDS.

3. Upon completion each employee will sign an "Acknowledgment of Receipt of Hazardous Materials Training."

New Chemical Hazard

Prior to a new chemical hazard being introduced into any section of the workplace, each employee will be given information and training as outlined above and/or as outlined on the attached Employee Training Guidelines by HCP Coordinator who is responsible for ensuring that SDS(s) on the new chemical(s) are available prior to use.

Additional Training

1. All employees will attend additional training, as necessary, to review the company program and applicable SDSs, and to ensure that all employees understand their responsibilities under the HCP.

2. After attending the training class, each employee will sign a form to verify that they received the training, that the written HCP was made available for review, and that he/she understands the HCP.

Inventory List of Hazardous Chemicals

1. An inventory list of the hazardous chemicals that has been used by M&S Engineering, LLC is attached to the back of this Hazard Communication Plan.

2. Further information can be obtained from the HCP Coordinator.

Non-Routine Tasks

1. M&S Engineering, LLC will identify any non-routine tasks that may be performed by M&S Engineering employees.

2. Before any non-routine task is performed, employees will be instructed on any chemicals that may be present, the exposure hazards associated with those chemicals, and the safety procedures that will be followed.

3. Training for non-routine tasks will be conducted and documented every time this operation occurs.

4. As a minimum, the training will include:

a. Specific chemical name(s) and hazard(s);

b. Protective personal equipment required and safety measures to be taken;

c. Measures that have been taken to lessen the hazards: ventilation, respirators, etc.; and

d. Emergency procedures.

Other Personnel Exposure (Contractors)

1. The Safety Manager is responsible for providing other personnel or outside contractors with the following information:

a. Hazardous chemicals to which they may be exposed to while in the workplace;

b. Measures to lessen the possibility of exposure;

c. Location of SDSs and labeling requirements for all hazardous chemicals; and

d. Procedures to follow if they are exposed.

2. The Safety Manager is also responsible for contacting each contractor before work is started to gather and disseminate any information concerning chemical hazards the contractor is bringing into the workplace.

Hazard Communication Program Requirements
Employer Checklist

The key elements that each employer must implement are; a written program, employee training, record availability and storage.

The Written Hazard Communication Program

1. Have you prepared a written list of all the hazardous chemicals present in the workplace?

2. Are you prepared to update your hazardous chemical list?

3. Do you have up-to-date Safety Data Sheets (SDSs) for all materials on your hazardous chemicals list?

4. Is the list of hazardous chemicals cross-referenced/indexed so that identifiers on the list refer to the SDS and warning labels?

5. Have you developed a system to ensure that all incoming hazardous chemicals are received with proper warning labels and SDSs?

6. Do you have procedures in your workplace to ensure proper labeling and warning signs for bulk storage, secondary usage containers and pipes that hold hazardous chemicals?

7. Do you have written procedures on how you will inform your employees of the chemical hazards associated with unlabeled pipes?

8. Do you have a complete list of the chemical hazards and precautions that you can give to outside contractors?

9. Have your employees been informed of the hazards associated with performing non-routine tasks (i. e., confined space entry, repair and maintenance operations)?

10. Is your hazard communication program in writing and available to your employees?

Information and Training

11. Does the training cover all types of harmful chemicals with which the employee may come into contact under normal usage and unforeseeable emergency?

12. Are your workers familiar with the different types of chemicals and the major hazards associated with them (i.e., solvents, corrosives, etc.)?

13. Are your employees aware of the specific requirements in the Hazard Communication Program (HCP)?

14. Does your program train employees in: (a) operations where hazardous chemicals are present and (b) location and availability of your written HCP including lists of chemicals and SDSs?

15. Does your training program include the explanation of labels and warnings that have been established in their work areas?

16. Do your employees understand methods to detect the presence or release of chemicals in the workplace?

17. Does your training program provide information on the appropriate first aid procedures in the event of an emergency?

18. Are employees trained in the proper work practices and personal protective equipment in relation to the hazardous chemicals in the work area?

19. Does the training include explanation of the labeling system and SDSs the employees can obtain and use.

20. Have you worked out a system to ensure that new employees are trained?

21. Have you developed a system with purchasing or other staff to make sure that additional training is provided if a new chemical is introduced into the work area?

22. Do you have a system to ensure that the current (up-to-date) SDSs are in work areas where the chemicals are used?

23. If you become aware of new hazards relating to the chemical in use, do you have a system for informing employees?

M&S Engineering, LLC

Hazard Communication Program

Acknowledgment of Receipt of
Hazard Communication Training

My signature below acknowledges that I have received training concerning Hazard Communication. I understand that this training fulfills the employee training requirement of OSHA's Hazard Communication Standard.

The classroom training included the following:

1. A personal copy of the M&S Engineering, LLC Hazard Communication Plan.

2. Understanding the purpose and scope of the OSHA Hazard Communication Standard.

3. Definition of the classification "hazardous chemical."

4. Explanation of situations and elements that must be present for a material to be considered a health hazard.

5. Explanation and interpretation of labels, including what is required on all containers, and standardized labels that are used to identify chemicals and their hazards.

6. Understanding and interpretation of Safety Data Sheets (SDS), which must be obtained for each hazardous chemical.

7. Names and characteristics of all hazardous chemicals in my work area.

8. The name of the company Hazard Communication Coordinator.

9. My responsibilities as an employee of M&S Engineering, LLC.

Employee name: _____
(Please print)

Employee Signature: _____

Date: _____

Company Representative: _____
(Please print)

Date: _____

Chemical Inventory List for M&S Engineering, LLC

(Name of material, work areas where used, where stored, etc.)

Chemical Name	Location Used	When Used

Appendix R

Hearing Conservation Program

Hearing Conservation Program

If on-site operations have the potential to expose employees to noise levels of 85 decibels or greater in an eight-hour time-weighted average (TWA), then a hearing conservation program must be implemented.

M&S Engineering, LLC do not have High Noise Operations requiring a hearing conservation program. If any M&S Engineering, LLC employees or contractors enter a specific site with High Noise Operations, all employees and contractors will comply with the Host Organizations Policy for Hearing Protection.

Appendix S

Heat

Stress

Heat Stress

During the summer, and during production, employees who are required to perform their duties outdoors may be exposed to heat stress. M&S Engineering, LLC have initiated a heat stress prevention and treatment program to assist these workers.

Policy

1. Any form of heat stress can be a potentially serious health problem.

2. In most instances, the health hazards from heat can be prevented through proper diet, proper clothing and common sense.

3. In the summertime, always drink plenty of liquids, preferably water and take periodic breaks by getting out of the heat.

4. Should a heat emergency arise, get help immediately. Any delay could be life threatening.

Handling the Heat

1. Under normal conditions, the body regulates its temperature.

2. Heat stress occurs when abnormally hot air and/or high humidity, or extremely heavy exerting prevents the body from cooling itself fast enough.

3. When this happens a worker may suffer a heat stress/cramps, heat exhaustion or heat stroke.

Heat Cramps

1. Heat cramps are muscular pains and spasms due to heavy exertion.

2. Any muscles can be affected, but most often it's the muscles that are being used.

3. Loss of water and salt from heavy sweating cause these cramps.

Symptoms of Heat Cramps

- painful muscle spasms
- sweaty skin
- normal body temperature

First Aid for Heat Cramps

- sit or lie down in a cool area
- drink one half glassful of water every 15 minutes
- gently stretch and massage cramped muscles
- insure that every worker is adequately hydrated.

Heat Exhaustion

1. Heat exhaustion typically occurs when people exercise heavily or work in a warm, humid place where body fluids are lost through heavy sweating.

2. When it's humid, sweat does not evaporate fast enough to cool the body properly.

Symptoms of Heat Exhaustion

- cool, pale and moist skin
- heavy sweating
- headache, nausea, vomiting
- dilated pupils
- dizziness, disorientation
- slight elevation in body temperature

First Aid for Heat Exhaustion

- remove victim from heat
- apply cool wet cloths
- fan victim, stop if victim develops goose bumps or shivers
- have victim lie down to prevent shock
- give victim one-half glassful of water to drink every 15 minutes if he or she is fully conscious and can tolerate it
- get medical attention

Heat Stroke

1. Heat stroke is **life threatening**.

2. The body's temperature-control system, which produces sweating to cool the body, stops working.

3. Through dehydration, the body no longer has enough water to produce sweat.

4. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Symptoms of Heat Stroke

- hot, dry, red or spotted skin
- extremely high body temperature
- very small pupils
- mental confusion
- convulsions
- loss of consciousness

First Aid for Heat Stroke

- get medical attention immediately
- have victim lie down to prevent shock
- remove person from heat - give nothing by mouth
- cool victim - immerse him/her in a cool bath or apply cool compresses to the body and fan it

Appendix T

Independent Contractors Safety Policy

Independent Contractors Safety Policy

General Policy

M&S Engineering, LLC has established an Independent Contractor Safety Policy to ensure maximum safety communication and performance by independent contractors (subcontractors) during the course of contract work at company locations and host site locations.

1. The Independent Contractor Safety Policy establishes guidelines to be followed whenever contractors work for this company. The rules have been established to:

   a. Provide a safe working environment,

   b. Govern facility relationships with contractors, and

   c. Ensure that their employees and employees at the workplace in which the contracted work is performed are trained to protect themselves from all potential and existing hazards.

2. All employees of the Independent Contractor will be informed by their supervisors of the information and/or parts of the contractor safety policy necessary for them to conduct themselves and perform their jobs in a safe manner during contract work. The effectiveness of the contractor safety policy depends upon the active support and involvement of all employees.

3. Each independent contractor will have a complete copy of this contractor safety policy, and will sign the acknowledgment form at the end of this written plan.

Independent Contractor

Subcontractor employees must perform their work safely. Considering that contractors often perform very specialized and potentially hazardous tasks, such as non-routine repair activities, their work must be controlled. Independent contractor responsibilities when accepting contracts with our Company include the following procedures.

1. Assure that their employees are trained in the work practices necessary to safely perform their job.

2. Instruct their employees in the potential fire, explosion, or toxic release hazards related to their job and the process.

3. Assure that their employees know the applicable provisions of the emergency action plan.

4. Document their employee training.

5. Inform their employees of and then enforce safety rules of the facility, particularly those implemented to control the hazards of the contracted process during operations.

6. Require that all of their subcontractors abide by these safety procedures.

7. Use only the premises entrance designated, and follow the facility access control practice. The independent contractor will ensure that each of the employees are issued and wear some form of easily seen identification.

8. Provide supervisors and employees who are competent and adequately trained, including training in all health and safety aspects of the work involved in the contract.

9. Provide all tools and equipment for the work to be done, including personal protective equipment (PPE). Ensure that equipment is in proper working order, that employees are instructed in the proper use, and that it is worn when needed.

10. Each Independent Contractor work methods and experience should be evaluated. Ensure that the job in question and their employees have the appropriate.

a. Job skills,

b. Equipment,

c. Knowledge, experience, expertise, and

d. Permits, licenses, certifications, or skilled trades people necessary to be capable of performing the work in question.

11. Certificates of Insurance.

a. All independent contractors, that perform a service for M&S Engineering, LLC, should have their insurance agent provide an original certificate of insurance showing evidence of their liability and workers' compensation coverage.

b. M&S Engineering, LLC should be named as the certificate holder.

c. Maintain a list of all contractors who perform services for M&S Engineering, LLC and verify there are current certificates of insurance indicating insurance is in effect.

d. Maintain the list and certificates in the main office. Keep the original certificate in your contractor file.

12. Each independent contractor must be responsible for ensuring that their employees comply with all applicable local, state, and federal safety requirements as well as any safety rules and regulations set forth by M&S Engineering, LLC at the location where they are performing the contracted work.

13. Provide information to the M&S Engineering, LLC Supervisor, or Responsible Safety Officer, concerning any safety and health hazards that may arise during the course of the contractor's work. The Subcontractor will also inform the Supervisor of the means necessary to avoid danger from those hazards. This would include Hazard Communication and all other potential hazards.

14. Make certain the Independent Contractor has been informed of any emergency signals and procedures that may be put into operation in areas where the contractor's employees are working. The independent contractor will have current telephone numbers of the nearest hospital, ambulance service, and fire department.

15. Advise and train their employees on hazards associated with the work to be performed.

16. Keep the designated representative of M&S Engineering, LLC fully informed of any work that may affect the safety of company employees or property.

Company Responsibilities

M&S Engineering, LLC has specific safety responsibilities when hiring independent contractors to perform work. The Company responsibilities, when hiring contractors, include the following:

1. Take steps to protect contract workers who perform work on or near a potentially hazardous process.

2. Obtain and evaluate information regarding the contract employer's safety performance and programs.

3. Inform the contractor of known potential fire, explosion, or toxic release hazards related to the contractor's work and the process.

4. Explain the applicable provisions of the emergency action plan to the contractor, and require that the contractor brief all on-site workers of the requirements.

5. Develop and implement safe work practice procedures to control contract employee entry into a hazardous work area.

6. Periodically evaluate the contract employers' fulfillment of his or her responsibilities under this policy.

7. Monitor the independent contractor's compliance with the contract throughout the duration of the work. This will include the following:

   a. When checking their work during the project, note any negligent or unlawful act or condition in violation of safety standards or requirements.

   b. Any items noted should be brought immediately to the attention of the contractor's designated representative in writing, with a copy of the notice being sent to their home office concurrently.

   c. However, if an unsafe act or a condition is noted that creates an imminent danger of serious injury, immediate steps should be taken with their designated representative, or in his or her absence, their employees to stop the unsafe act or condition.

   d. Do not allow work that is in violation of a regulation to continue.

8. For work for which M&S Engineering, LLC have developed specific and generally applicable procedures, make sure contractors and their subcontractors follow the same procedures.

9. Do not allow loaning of tools and equipment to outside independent contractors and their subcontractors. Contractors are required to provide the necessary tools and equipment.

M&S Engineering, LLC
Independent Contractor (Subcontractor)
Safety Policy

As a representative of (independent contractor)_____

I acknowledge that I have received a copy of these safety policies.

I further acknowledge that our company, and any subcontractors working for the above named independent contractor, will abide by the requirements of this policy.

_____
Signature

_____
Title

_____
Date

Appendix U

Ladder

Safety

Ladder Safety

General Requirements

Ladders are used in some maintenance operations. Accidents when using ladders and stairways can be severe.

1. Ladders must have nonconductive side rails if they are used where the worker or the ladder could contact energized electrical conductors or equipment.

2. Portable and fixed ladders with structural defects such as broken or missing rungs, cleats, or steps, broken or split rails, or corroded components shall be withdrawn from service by immediately tagging “Do Not Use” or marking in a manner that identifies them as defective.

Training

1. Employees who are required to use ladders their employment with M&S Engineering, LLC will be trained in the use of ladders and the training will be documented.

2. The training must enable each employee to recognize hazards related to the safe use of ladders, and how to use ladders safely.

3. The subjects covered include, but are not limited to:

   a. The nature of fall hazards in the work area.

   b. The proper construction, use, placement and care of ladders.

   c. The maximum intended load-carrying capacities of ladders used.

Safety Related Work Practices

1. Inspect all ladders before and after each use. Report any damage or hazardous conditions to a supervisor immediately. Never use a ladder that is damaged or in hazardous condition.

2. Ladders should be used only for the purpose for which they were designed.

3. Ladders will be maintained free of oil, grease and other slipping hazards.

4. Ladders will not be loaded beyond the manufacturers rated capacity.

5. No more than one person should ever be on a ladder at any time.

6. The base of portable straight ladders should be placed a distance of one foot from the structure for every four feet of length of the ladder.

7. Portable straight ladders should extend at least three feet above the surface level of the landing.

8. Stepladders greater than 10 feet high should be supported by another person or other means that will ensure stability.

9. The two highest steps of a stepladder should never be used as steps.

10. Always face the ladder when ascending or descending.

11. When working from a ladder, place the ladder as near the work as possible. Do not overreach to perform work from a ladder.

12. The area around the top and bottom of a ladder will be kept clean.

13. Ladders will not be moved, shifted or extended while someone is on the ladder.

14. Do not “walk” ladders.

15. Ladders shall not be placed in front of doors opening toward the ladder unless the door is open, locked or guarded.

Appendix V

Control of Hazardous Energy

(Lockout/Tagout)

Control of Hazardous Energy
(Lockout/Tagout)

Application

This written procedure applies to all M&S Engineering, LLC employees who perform Lockout/Tagout operations or who work in areas subject to lockout tagout work instructions.

Definitions

Lockout (LOTO) - Placement of a lockout device on an energy isolating device to prevent the equipment being controlled from being operated until the device is removed.

Tagout - Placement of a prominent warning device, which is securely fastened to the energy isolating device, to indicate that the energy isolating device and the equipment being controlled cannot be operated. Tags do not provided the physical restraint that a lock does

Energy-Isolating Device - Any mechanical device that physically prevents the transmission or release of energy (for example, manually operated circuit breakers, disconnecting switches, line valves, and blocks).

Authorized Employees - Any employee whose job would have them perform service, maintenance, or adjustment on any piece of equipment and who is trained in lockout/tagout.

Affected Employees - Any employee who will or could be affected by equipment being locked out or tagged out, or if they could affect the authorized employee attempting to lockout or tagout equipment.

Responsible Individuals

The designated Responsible Safety Officer is responsible for the company's program.

Safety Related Work Practices

1. LOTO will be used to ensure that equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any service or maintenance where the unexpected energization, start-up of the equipment, or release of stored energy could cause injury.

2. Only authorized and trained employees shall perform lockout/tagout.

3. Contractors will use LOTO procedures that are compatible with M&S Engineering, LLC LOTO procedures.

4. Lockout/tagout devices will be removed from the isolating device ONLY by the employee who applied the device.

5. Failure to follow this Lockout/Tagout work instruction may result in disciplinary action as outlined in the M&S Engineering, LLC Disciplinary Policy.

Lockout

1. Machinery equipped with securable controls will be locked in OFF position during repair work.

2. In all cases, tags with proper wording will be placed on the controls and power source during repair work.

3. Although electric disconnects are the most common means of lockout, other devices may also need to be locked out, such as air, hydraulic lines, or any other stored energy.

4. Lockout is to be used on the primary power control or valve.

   a. In the case of electrically driven devices, the lockout shall be applied to the disconnect or breaker rather than the start/stop station at the equipment.

   b. When equipment uses several power sources, each source shall be capable of being locked out.

5. All personnel engaged in the installation, inspection, or repair of equipment powered by air, water, hydraulics, or electricity shall be provided with a key type padlock.

   a. Each lock shall be issued with one key only and a tag with the employee name.

   b. If the work requires more than one person to perform the repair, each person shall place his/her own lock on the disconnect.

Lockout Devices

1. The approved lockout lock is a Master Lock. No other lock shall be used.

2. All locks will have different keys.

3. Each lock will be issued with one key only to an employee, and an approved Tagout Tag.

Tagout Devices

All equipment is able to take a lock and tag. Tag out only procedures will not be used.

Shift/Personnel Changes

1. In order to ensure continuity of energy control during shift/personnel changes, a lock shall be affixed at all times and locks shall only be removed by the employee who applied the device.

2. The following step shall be followed:

   a. The employee leaving the shift shall remove their lock, only after a lock has been affixed by an employee authorized to continue the equipment repair/maintenance.

   b. The employee authorized to continue the equipment repair/maintenance shall affix his lock in the presence of the worker going off shift.

c. If a hasp is used for multiple locks, the worker coming on shift will apply his lock and tag BEFORE the worker going off shift takes his off.

Exceptions to Lockout/Tagout

Minor tool changes, adjustments, and servicing activities that take place during normal production operations; if they are routine, repetitive, and integral to the use of the equipment for production, are exempt from this lockout/tagout work instruction provided that the work is performed using alternative measures that provide effective protection.

Preparation for Lockout

The following steps will be followed in applying LOTO:

1. Notify affected employees that service or maintenance is required and the equipment must be shut down and locked out to perform the service or maintenance.

2. Insure the authorized employee is familiar with the equipment and associated hazards.

3. If the equipment is operating, the authorized employee shall shut it down.

4. Following the written procedures, de-activate the energy isolating devices (for example, disconnect breakers, shutoff air/hydraulic valves, etc.) with assigned individual locks or tags.

5. Stored energy, such as capacitors, springs, elevated machine members, rotating parts; and air, steam, or hydraulic pressure must be dissipated or restrained by methods such as grounding, repositioning, blocking, or bleeding down, etc.

6. After the equipment has been locked out/tagged out, an attempt to start the equipment must be made before work is started.

7. The equipment is now locked out.

NOTE: Before work begins on equipment with cord or plug-type electrical connectors, where all energy is de-energized when the plug is removed, a plug lock-box will be installed, locked and tagged out.

Restoring the Equipment Back to Service:

After maintenance or service is completed and the equipment is ready to return to normal operating condition, the following steps shall be taken:

1. Check the equipment and around the immediate area to ensure that nonessential items have been removed and that the equipment components are operationally intact.

2. Check the work area to ensure that all employees have been safely positioned or removed from the area.

3. Verify that the controls are in the neutral position.

4. Remove the lockout devices and re-energize equipment.

5. Notify the affected employees that the servicing or maintenance is complete and the equipment is ready to use.

Testing or Positioning Equipment with Lockout/Tagout Devices Removed

When lockout/tagout devices must be temporarily removed from the energy isolating device, in order for the equipment to be energized or located to a test position, the following steps will be taken:

1. Inspect the work area to ensure that nonessential items have been removed and the equipment components are operationally intact.

2. Ensure that all employees have been safely positioned or removed from the area.

3. Remove the lockout/tagout device as specified in the equipment specific removal procedure.

4. Energize and proceed with testing or positioning.

5. Once testing or positioning is complete, de-energize all systems and reapply the lockout/tagout device in accordance with normal lockout/tagout work instruction.

Lockout Removal by Someone Other Than the Person Who Applied the Device

When the employee who applied the lockout/ tagout device is not available, and the equipment must be restored to full operation, the lockout/tagout device may be removed ONLY with approval from the Site Supervisor and the Responsible Safety Officer.

The following steps will be taken:

a. Verify that the employee who applied the device is not onsite.

b. Make all reasonable efforts to notify the employee that the lockout device must be removed.

c. The Supervisor will notify the designated Responsible Safety Officer to obtain permission to remove the lock and tag.

d. Prior to the approval for the lock removal, an expert in the energy being locked out/tagged out must verify that the equipment is in the neutral position.

e. The expert shall verify that the equipment is safe to return to service and shall take full responsibility for the lock removal.

f. Once approval has been granted and the expert has verified that the equipment is safe to operate, the lock will be cut off and the equipment will be placed back into service.

g. A report of the incident will be made by the Site Supervisor of removing the lock.

h. The Safety Supervisor will review the circumstances to determine why the initial worker was not available and why the lock had to be removed.

Annual Audits

1. An audit of the program will be conducted periodically by the Safety manager.

2. Annual evaluations of authorized employees will be conducted by Safety Manager or other employees designated by the Company. The evaluations will be documented.

Equipment Specific LOTO Procedures

1. M&S Engineering, LLC will develop Equipment Lockout/Tagout Procedures for all equipment that must be locked out for maintenance and servicing.

2. The procedures will include:

a. Equipment name and location.

b. Hazards identified with the equipment.

c. List of minimum requirements when lockout/tagout must be used.

d. The number of locks, tags, and lockout devices needed.

5. A list of the types of maintenance that will require LOTO.

3. A sample LOTO Procedure is attached with this plan.

Training Requirements

1. Employees who perform LOTO shall receive training on all potentially hazardous energy sources and all aspects of lockout/tagout procedures.

2. LOTO training for authorized employees shall include the following information:

a. An overview of LOTO procedures, and equipment specific lockout/tagout procedures.

b. Recognition of all potentially hazardous energy sources.

c. Identification of the hazards of uncontrolled energy and the importance of lockout/tagout.

d. Identification of when to use lockout/tagout.

e. Application of energy controls and lockout/tagout devices.

f. Performance of equipment shutdown, isolation, and verification of isolation.

g. The methods and means necessary for energy isolation.

h. Inspection and testing of individual power tools.

3. Affected employees shall receive general instruction in the purpose and use of lockout/tagout.

4. Employee retraining will be required for all authorized and affected employees when the following situation occurs:

a. There is a change in their job assignments.

b. There is a change in equipment or processes that present a new hazard.

c. There is a change in M&S Engineering, LLC LOTO procedures.

d. Employee does not demonstrate adequate knowledge of lockout/tagout.

Appendix W

Machine

Safety

Machine Safety

Policy

The following procedures will be followed in using machinery at M&S Engineering, LLC.

General Safety Procedures

1. An employee will be properly trained before operating any machine or equipment.

2. Any machine part, function or process which may cause injury will be properly guarded.

3. All permanent guards will be in place on the machine or equipment before an operator begins to operate the machine or equipment.

4. If there is a defective guard on a machine or equipment, the machine or equipment will not be used until it is repaired.

5. Operators will wear the appropriate personal protection equipment before using machines and equipment.

6. Ensure that the machine and equipment work area is well-lit, dry and clean before beginning work operations. Maintain good housekeeping around machines and equipment.

7. Operators will not wear loose clothing or jewelry that could become entangled in the machinery or equipment.

8. Only qualified maintenance employees will repair or adjust machinery or equipment.

9. Machinery and equipment will never be repaired when it is running.

10. If a lock or tag is in place on machinery or equipment, the lock or tag will be removed only by an authorized person. This machinery or equipment will not be used until the lock or tag has been removed.

11. Operators must pay close attention to the work operation they are performing on machines and equipment. If distracted or unable to focus on the work operation, the operator will stop work with that machine or equipment.

12. Regularly inspect all machinery, equipment, cords and accessories. If repairs are needed, report it to the Responsible Safety Officer immediately.

13. Always use the proper piece of machinery or equipment for the job.

Appendix X

Medical Response and Bloodborne Pathogens

Medical Response and Bloodborne Pathogens

Policy

There is a medical facility in close proximity to M&S Engineering, LLC located in Spring Branch, Texas. M&S Engineering, LLC has determined that designated employees will be trained in a Nationally Approved First Aid and Adult CPR Course and in protection from Bloodborne Pathogen exposure. A copy of the Bloodborne Pathogen Plan is included in this appendix.

Responder Procedures

1. The employees, that have received the training, will be designated, and will be expected to respond to an injury or illness as part of their employee duties.

2. If an employee has a minor injury, the employee will either self-administer first aid from the first aid kit, or one of the company's responders will assist in administering first aid.

3. If a person suffers a more serious injury or apparent illness, a responder will be notified.

4. The responder will take the nearest first aid kit, and proceed to the injured or sick person.

5. The responder will assess the extent of the injury or illness, and determine if additional medical assistance is needed. If so, 911, or other emergency services, will be called.

6. Once the extent of the injury or illness has been determined, and EMS has been called (if needed), the responder will don the appropriate protective equipment and provide proper treatment.

Bloodborne Pathogens Control Plan

Policy

1. This Exposure Control Plan has been developed to provide the procedures to protect medical responders from exposure to Bloodborne Illnesses.

2. The Program Administrator is the Responsible Safety Officer.

3. This plan meets the requirements of the OSHA Regulation 29 CFR 1910.1030.

Determination of Employee's Exposure

1. Employees listed below are assigned to perform first aid duties and are reasonably anticipated to be exposed to blood and other potentially infectious bodily fluids. Their inclusion in all provisions of this exposure control program is mandatory.

_____

_____

_____

_____

_____

_____

Procedures for Protection from Exposure

The following procedures will be used by first aid responders to minimize or prevent exposure to blood borne pathogens:

1. Universal Precautions: Universal Precautions are mandatory. These precautions require that all human blood and certain human body fluids be treated as if known to be infectious for HIV, HBV, and other blood borne pathogens.

2. Work Practices: The following work practice controls will be used when providing first aid:

a. Personal protective equipment (PPE) will be provided and used as applicable to the first aid rendered. Use of the following PPE is mandatory:

- Latex gloves (or equivalent)
- Safety glasses
- _
- _

b. Employees MUST wash their hands and any other exposed skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following contact of such body areas with blood or other potentially infectious materials.

c. Employees MUST wash their hands immediately after removal of gloves or other personal protective equipment.

d. All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, splattering, and generation of droplets of these substances.

e. Contaminated surfaces will be cleaned as soon as possible. No employee except a first aid responder trained in blood borne pathogens control will clean blood from any contaminated surface.

f. For cleaning, a 1:10 bleach to water solution, or an equivalent EPA registered disinfectant, will be used.

3. Training. All first aid responders will participate in a training session that will be provided at the time of initial assignment, and every year thereafter. Training will include the following:

a. An explanation of the blood borne pathogens standard (29 CFR 1910.1030) and the fact that a copy of the text of this standard will be accessible to employees at all times.

b. A general explanation of the epidemiology and symptoms of blood borne diseases.

c. An explanation of the modes of transmission of blood borne pathogens.

d. An explanation of the company's exposure control plan and the means by which employees can obtain a copy of the written plan.

e. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.

f. An explanation of the use and limitations of methods that will prevent or reduce exposure including engineering controls, work practice, and personal protective equipment.

g. Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment.

h. An explanation of the basis for selection of personal protective equipment.

i. Information on the hepatitis B vaccine and a statement that the vaccine will be offered free of charge.

j. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.

k. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.

l. Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident.

m. An explanation of the signs and labels and/or color coding that is used in the facility.

n. An opportunity for interactive questions and answers with the person conducting the training session.

The designated Responsible Safety Officer will keep a record on file concerning all training sessions.

4. Bio-Hazardous Waste. Any waste contaminated with blood, for example rags or gauze, will be decontaminated on-site by thorough soaking in a solution of one part bleach to 10 parts water prior to disposal. Alternatively, the waste may be placed in a red, or biohazard labeled bag, and disposed of as a bio-hazardous waste, in accordance with applicable hazardous waste regulations.

5. Hepatitis B Vaccination. The Hepatitis B vaccine shall be made available, cost-free and within 10 working days, to all employees assigned first aid responsibilities. Employees who decline the vaccination will be required to sign the declination statement specified in Annex A.

6. Post-Exposure Evaluation. Any time an exposure incident occurs during the administration of first aid, employees must contact the program coordinator to ensure the proper evaluation and follow-up, as specified in Appendix B.

7. Record keeping. A confidential file containing the information presented in Appendix C will be maintained for each covered employee.

Annex A: Hepatitis B Vaccine Declination Form

HEPATITIS B VACCINE - DECLINATION STATEMENT

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____

Signature

_____

Date

Annex B: Post-Exposure Evaluation and Follow-up

Post exposure medical evaluation and follow up will include the following:

1. Documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred.

2. Identification and documentation of the source individual, unless infeasible or prohibited by state or local law. If consent is obtained, (where required), the source individual's blood shall be tested and the results documented. If the source individual is known to be infected with HIV or HBV, this shall be documented without a repeat test.

3. Results of the source individual's testing will be made available to the exposed employee, along with applicable regulations concerning disclosure of the identity and infectious status of the source individual.

4. The exposed employee's blood shall be tested as soon as feasible after consent is obtained.

5. If the employee consents to baseline blood collection but does not give consent at that time for HIV serologic testing, the sample shall be preserved for 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.

6. Post-exposure prophylaxis will be provided, as recommended by the U.S. Public Health Service.

7. Counseling will be made available to the employee upon request.

8. Evaluation of reported illnesses. Within 15 days of completion, a copy of the evaluating healthcare professional's written opinion shall be obtained by (Person Designated) and provided to the employee. This written opinion will be limited to the following information:

a. That the employee has been informed of the results of the evaluation.

b. That the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

9. **Note**: Other findings or diagnoses will remain confidential.

10. The Responsible Safety Officer is responsible for providing the following information to the healthcare professional following an exposure incident and prior to medical evaluation:

a. A copy of 29 CFR 1910.1030.

b. A description of the exposed employee's duties as they relate to the exposure incident.

c. Documentation of the route(s) of exposure and circumstances leading to exposure.

d. Results of the source individual's blood testing, if available.
e. All medical records relevant to the appropriate treatment of the employee including vaccination status.

Annex C: Record keeping for the Exposure Control Plan

Record Keeping

1. The Medical Clinic contracted by M&S Engineering, LLC is responsible for maintaining records required by this plan.

2. The Clinic, and the Company, will ensure that all medical records are kept confidential.

3. The following records will be kept on file:

a. A file for each employee with occupational exposure to blood or other potentially infectious materials including the name and social security number of the employee, a copy of the employee's hepatitis-B vaccination status, any medical records relative to the employee's ability to receive vaccination.

b. A copy of all results of examinations, medical testing, and follow-up procedures following an exposure incident.

c. The employer's copy of the healthcare professional's written opinion regarding post-exposure evaluation and follow-up.

d. A copy of the information provided to the healthcare professional regarding post-exposure evaluation and follow-up.

4. The above records will not be disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by the blood borne pathogens standard or by law. Additionally, these records will be maintained for at least the duration of employment plus thirty (30) years.

Extract of OSHA Interpretation Letter Dated - 11/01/2000 (Still current)
Entitled: Hepatitis B vaccination requirements for employees providing first aid as a collateral duty.

According to the Bloodborne Pathogens Standard (29 CFR 1910.1030) and OSHA enforcement policy, all employees with occupational exposure to blood and other potentially infectious materials (OPIM) must be covered by the standard.

This would include, in addition to all the applicable provisions of the standard, the administration of the hepatitis B virus (HBV) vaccination series prior to employee exposure, as indicated by paragraph (f)(2) of the standard, and provided according to recommendations of the U.S. Public Health Service. In reference to your situation, OSHA has provided an exception in its enforcement policy.

According to the compliance directive, [CPL 2-2.69] *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens*, employers **would not be cited** if they have **not offered the hepatitis B vaccination series** to an employee whose only exposure to blood would be responding to injuries resulting from workplace incidents **as long as this was only a collateral duty of the employee and certain other requirements have been met.** Members of your AED Team would also fall under this category if the same conditions existed.

The requirements of the exemption stated in the compliance directive are:

"[b. Any first aid rendered by such person is rendered only as a collateral duty, responding solely to injuries resulting from workplace incidents, generally at the location where the incident occurred.

NOTE: This exception does not apply to designated first aid providers who render assistance on a regular basis, for example, at a first aid station, clinic, dispensary or other location where injured employees routinely go for assistance; nor does it apply to any healthcare, emergency, or public safety personnel who are expected to render first aid in the course of their work. These employees must be offered the vaccine prior to exposure.

c. The employer's exposure control plan must specifically address the provision of the hepatitis B vaccine to all unvaccinated first aid providers who render assistance in any situation involving the presence of blood or OPIM (regardless of whether an actual "exposure incident" as defined by the standard occurred) and the provision of appropriate post-exposure evaluation, prophylaxis, and follow-up for those employees who experience an "exposure incident." The plan must include:

1) Provision for a reporting procedure that ensures that all first aid incidents involving the presence of blood or OPIM will be reported to the employer before the end of the work shift during which the incident occurred. The report must include the names of all first aid providers who rendered assistance, regardless of whether personal protective equipment was used and must describe the first aid incident, including time and date. The description must include a determination of whether or not, in addition to the presence of blood or other potentially infectious materials, an "exposure incident," as defined by the standard, occurred. This determination is necessary in order to ensure that the proper post-exposure evaluation, prophylaxis, and follow-up procedures required by paragraph (f)(3) of the standard are made available immediately, whenever there has been an "exposure incident" as defined by the

standard.

2) A report that lists all such first aid incidents, that is readily available, upon request, to all employees and to the Assistant Secretary.

3) Provision for the bloodborne pathogens training program for designated first aiders to include the specifics of this reporting procedure.

4) Provision for the full hepatitis B vaccination series to be made available as soon as possible, but in no event later than 24 hours, to all unvaccinated first aid providers who have rendered assistance in any situation involving the presence of blood or OPIM, regardless of whether or not a specific "exposure incident," as defined by the standard, has occurred.]"

Appendix Y

Office

Safety

Office Safety

Following are office safety rules and regulations will apply to all M&S Engineering, LLC Employees and Contractors that work in any M&S Engineering offices.

1. Employee workstations where terminals are present should be equipped to allow comfortable computer use. This should include but not be limited to: wrist rests under keyboards, non-glare screens, adjustable height terminal platforms and adjustable height chairs.

2. An office cleanliness/housekeeping program that includes, but not limited to, keeping offices in order at all times and not letting paper, boxes or other combustible materials accumulate on desks and/or floors; seeing that spills are cleaned immediately and tripping hazards, such as rugs, mats, boxes and other hazards are eliminated immediately.

3. Electrical cords and cables should be kept out of paths, walkways and aisles.

4. File cabinets should be installed to prevent the cabinet from overturning when file drawers are open.

5. Employees should wear proper personal protection equipment to minimize cut and laceration injuries when handling sharp edges on paper and cards.

6. Use the safe-lifting procedures when lifting, pushing, pulling and moving objects. Use two-wheel hand carts to move objects when possible.

Appendix Z

Personal Protective Equipment

Personal Protective Equipment

Policy

1. Protective equipment, including personal protective equipment (PPE) for eyes, face, head, and extremities will be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

2. All PPE will be of safe design and construction for the work to be performed, and will comply with the Job Hazard Analysis for that operation.

Respiratory Protection:

Respiratory Protection is not required for operations at M&S Engineering, LLC.

Protective Gloves:

1. When it is determined that exposure to physical hazards or chemical agents can cause injury to the hands of workers, protective gloves must be provided and required to be worn when these exposures exist.

2. Gloves must be selected based on the hazard or exposure.

Protective Eye and Face Equipment:

1. Safety glasses or protective goggles, that comply with ANSI Z87.1, must be provided and use of the equipment enforced when there is a reasonable or potential probability that injury could occur from exposure to foreign material or objects getting into the eyes.

a. When it can be foreseen that there is a likelihood of facial injury occurring from a work procedure, protective face shields must also be provided and required.

b. The use of a protective face shield does not negate the need for safety glasses or goggles.

c. If a face shield or visor is utilized, safety glasses or goggles must still be worn under the protective shield.

Hearing Protection

1. Areas designated as high noise areas will be marked.

2. Employees will wear either the throw away foam ear plugs, or will wear ear muffs when working in these areas.

Protective Footwear:

1. Employees may wear casual footwear when working at M&S Engineering, LLC office locations. Proper hard soled footwear will be worn by Field Service Personnel when performing duties related to field service operations.

2. For areas where water and/or cleaning materials are used, appropriate footwear will be worn.

Safety Related Work Practices

1. Use all personal protective equipment that is required by the Job Hazard Analysis.

2. Never purposely alter or change personal protective equipment from the original condition.

3. Maintain all personal protective equipment in as clean and sanitary condition as possible at all times.

4. Immediately report any malfunctions or deficiencies in personal protective equipment to the supervisor.

5. Know the uses and limitations of any personal protective equipment before using it.

6. Clothing is considered as personal protective equipment. Employees must be fully and adequately dressed at all times.