SAFETY MANUAL

REpower MM100

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REPOWER Systems	Section I OVERVIEW	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section I: Overview

Contents

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1.0 HSE Policy Statement

Policy Statement

It is the policy and goal of **REPOWER USA** to provide pro-active planning of HSE loss control and operating efficiency in all aspects of our operations. **REPOWER USA** Management and HSE Department are dedicated to providing active leadership and support in developing and maintaining an effective HSE Program. Management is not only interested in the continued growth of our organization, but is also concerned about the health, safety, and environmental well-being of each employee and will make every effort to provide a healthy, safe, and environmentally clean work environment. **REPOWER USA** has every incentive, legal, moral, and economic to minimize hazards that may adversely affect the HSE of our personnel, the security of our property, and the preservation of our environment, as well as the well-being of the public who are exposed to potentially hazardous operations. It is our intention and goal, as a minimum, not only to develop a plan to fully meet required regulatory compliance obligations but also to achieve a level of performance surpassing the best applicable experience similar to ours.

Achieving these goals will require the cooperation and support of each employee with their pro-active participation in:

- Observing all HSE practices and procedures
- Involvement and compliance by fellow employees
- Providing meaningful "feed-back" to Management & HSE Department with the appropriate reporting of substandard conditions and/or practices.

REPOWER USA is aware that no program is of value without the complete support and dedication of every employee. Only pro-active efforts as a **TEAM** will make the program work and help to achieve identified goals. Management & HSE Department will recognize pro-active planning of HSE loss control and operating efficiency achievements in all aspects of our operations.

NO JOB is so IMPORTANT nor any SERVICE so URGENT that EACH EMPLOYEE CANNOT TAKE the TIME to PERFORM OUR WORK in a HEALTHY, SAFE, SECURE & ENVIRONMENTAL OBJECTIVE MANNER and with QUALITY.
It is the premier OBJECTIVE of REPOWER USA to set REASONABLE METHODS to IDENTIFY, RECOGNIZE and MEDIGATION of HAZARDS in the WORKPLACE.

For this reason, unsafe work practices by any employee will be subject to the disciplinary action outlined in the Progressive Disciplinary Policy (e.g. reference RPHSE – 28) and as Senior Management deems necessary to correct the situation, up to and including termination of employment.

Sincerely,

Steve Dayney
CEO USA
REPOWER

2.0 Objectives

The overall objective of the HSE Program is protecting our employees, our clients, community and the public, preventing and controlling accidents, increasing effectiveness of operations, and protecting our environment. Hereafter **REPOWER Systems** will be **REPOWER USA.**

2.1 In addition to these objectives, REPOWER USA is committed to

- Advising each manager, supervisor, and employee of HSE requirements and holding them accountable for their performance
- Recognizing the importance of health, safety and environmental factors where they may be in competition with economic factors
- Complying with all laws and regulations governing health, safety, and environmental protection
- Designing and managing HSE operations to minimize environmental and human health impacts and to provide work places free of recognized HSE hazards
- Identifying, evaluating and monitoring performance in HSE protection.
- Providing professional HSE staff to support health, safety, and environmental protection
- Providing HSE training to protect human, environmental, and physical resources
- Participating in programs designed to continue our knowledge in HSE Management

THIS HEALTH, SAFETY & ENVIRONMENTAL PROGRAM has been DEVELOPED to SUPPLEMENT the POLICY and PROCEDURES FOUND in this MANUAL, the REPOWER USA EMPLOYEE HANDBOOK, and ALL APPLICABLE INDUSTRY & COMMON SENSE STANDARDS THAT are APPROPRIATE to the TASK being PERFORMED in the WORK PLACE ENVIRONMENT.

3.0 Outline

3.1 HSE Communications

- Daily Site-Specific HSE Instructions
- A daily meeting held by the Field Supervisor(s) with his/her crew to discuss job safety, accidents, and/or other job-related information
- HSE Meetings
- A weekly safety meeting conducted by each Field Superintendent/Supervisor with his/her crew with suggested topics and meeting outlines provided by HSE Department, as required
- Pre-job HSE Meetings
- HSE meetings held at specific job site in conjunction with the clients to discuss all aspects of the job are discussed as well as the client's HSE requirements

- Pre-Employment HSE Orientations
- Publications
- A **REPOWER USA** newsletter published quarterly with articles relating to Health, Safety & Environmental issues and company activities
- Other HSE publications that are sent to each job location to serve as source material for HSE meetings
- HSE Performance Reports
- HSE Reports that are developed by the HSE Department and distributed to project and office management
- Reports measuring frequency, severity and cost of accidents per division and/or project
  - **Accident/Injury/Near Miss Investigations**
    - All accidents shall be fully investigated and followed with written reports reviewed at communication meetings
    - Significant incidents (near misses) shall be investigated, reported, and reviewed as indicated above
  - **Inspections**
    - Job Site Inspections shall be conducted weekly
    - HSE Job Site Inspections shall be conducted weekly, monthly, bi-quarterly, and annually (as applicable)
    - Equipment and Tool Inspection shall be conducted weekly and according to OSHA requirements
  - **HSE Recognition Programs**
    - Scheduled Company-Wide Recognition Awards Program
    - Periodic Job or Project Recognition Awards Programs
    - Recognition for Quality Performance by Company Management
  - **Alcohol and Drug Abuse Programs**
    - Pre-Employment Testing
    - Post-Accident Testing
    - Random Testing
    - Probable-Cause Testing
    - Periodic Testing

3.2 Identification and Evaluation of Hazards

REPOWER USA believes that the first step in a complete Health, Safety & Environmental program is to identify and evaluate work place hazards. These hazards will be generally associated with but not limited to machinery, equipment, tools, operations, materials, and the physical area. There are ways to acquire information about work place hazards.
REPOWER USA has elected to begin with **YOU**, our employees. **YOU** are the professional who is familiar with your operations and the hazards associated with them.

The second phase information is obtained is from inspection reports and Accident/Injury/Near Miss Reports. The third way we acquire meaningful hazard information is through hazard analysis. These analysis probe operational and management systems to uncover hazards that may have been overlooked, or developed after the project started, or may exist because original procedures and tasks were modified. The greatest benefit of hazard analysis is that it causes employees to view each operation as part of a system. In doing so, we can assess each step in the operation while keeping the relationship between the steps and the interaction between employees and equipment, materials, the environment, and each other in perspective.

- **Other benefits of this analysis include**
  - Pro-active identification of hazardous conditions and potential accidents
  - Providing information with which effective control measures can be established, determining the level of knowledge and skill as well as the physical requirements that employees need to execute specific tasks
  - Discovering and eliminating unsafe procedures, techniques, motions, promotions, and actions

3.3 General Employee HSE Training

- Orientation-New Employee HSE Training
- Health, Safety & Environmental Policy
- Dress Code (as applicable to job site requirements)
- Housekeeping Procedures
- Hazard Communication
- Personal Protective Equipment (PPE)
- Incident Reporting
- Fire Prevention and Protection
- Access to Exposure and Medical Records
- Drug and Alcohol Abuse Program
- **REPOWER USA** Basic HSE Rules
- Site Specific (as applicable for assignment):
  - Emergency Alarms and Procedures
  - Evacuation Procedures
  - Escape Respirator
  - Safety Shower and Eyewash
  - Hazardous Materials

3.4 Project Employees HSE Training

- Housekeeping (Site Specific)
- Access to Employee Exposure and Medical Records
- Basic and Advanced Fire Fighting
- Hazard Communication
- Hearing Conservation/Hearing Protectors
- Lockout/Tagout/Control of Hazardous Energy

- Respirator Protection/Respirator Training and Fit Testing (as applicable)
- Fall Protection/Ladder Safety/Scaffold
- General/Aerial Lifting Practices
- Permit-to-Work System
- Floor/Wall Openings/Stairways
- Safety Shower, Eyewash and Neutralization Tub
- Personal Protective Equipment (PPE)
- Confined Space Entry
- Hole/Man-way Watch
- Accident Prevention Signs and Tags
- Traffic Control/Safety Barricades
- First Aid/CPR
  - General (Awareness Level)
  - Advanced – First Responder Level (Field Supervision – as applicable)
  - Bloodborne Pathogens
- Hazardous Materials **(HAZMAT)**
- Hazardous Waste Operations and Emergency Response **(HAZWOPER)**
- Assured Equipment Grounding Conductor Program
- Compressed Gas Cylinders
- Overhead Crane Training
- Onshore Crane & Rigging Certification (Operators)
- Basic Rigging and Sling Safety
- Hand Signals
- Hand Tool Safety
  - Portable Grinders
  - Welding, Cutting, and Brazing
- Driver/Fleet Safety
- Personal Conduct
- Office Safety
- Excavations (as applicable at job site)
- Drug and Alcohol Abuse

3.5 Supervisor (Advance) HSE Training

- Accident Investigation (Supervisory Level)
- Disciplinary Action (Supervisory Level)
- HSE Program Enforcement (Supervisory Level)
- First Aid/CPR (First Responder + EMT III Levels as applicable)
- Drug and Alcohol Abuse Training (Supervisory Level)
- Identification and Evaluation of Hazards
- Housekeeping
- Lockout/Tagout/Control of Hazardous Energy
- **HAZMAT** (Supervisory Level)
- Permit-to-Work (Supervisory Level)
- Confined Space Entry (Supervisory Level)
- Human/Employee Relations
- Technical Skills
- Workers' Compensation
- Company Policies
- Hazard Communication (Supervisory Level)
- Conducting HSE Meetings (Supervisory Level)
- Job Site Inspections (Supervisory Level)

3.6 Hazard Communication (Right-to-Know Compliance) (HAZCOM)

- Hazard Communication Policy
- Chemicals In The Workplace
- Hazard Evaluation
- List of Hazardous Chemicals
- Labeling and Other Identification Methods
- Material Safety Data Sheet
- Non-Routine Tasks
- Outside or Other Employers

3.7 Hazardous Waste Operations and Emergency Response (HAZWOPER)

- Hazard Recognition
- Labeling and Shipping Papers
- Material Safety Data Sheets
- Container Shapes
- Respiratory Protection
- Personal Protective Equipment (PPE)
- Emergency Response Planning

- Hazardous Materials Management
- Spill Assessment and Site Control
- Toxicology/Health Effects
- Monitoring Instruments
- Control and Containment
- Decontamination Procedures
- Fire Extinguishing Procedures
- Rescue and Medical Emergencies
- Media/Community Relations

3.8 Community First Aid/CPR – Medic First Aid/CPR

- Certified American Red Cross and/or Medic First Aid Instructor
- CPR/First Aid-Adult, Child, and Infant

3.9 Hearing Conservation

- Area and Personnel Monitoring
- Hearing Protection
- Engineering Controls
- Personal Protective Equipment (PPE)
- Employee Training

3.10 General Training Program

- Hazard Communication
- Respiratory Protection
- Hydrogen Sulfide (H_2S)
- Confined Space Entry
- Lockout/Tagout/Control of Hazardous Energy
- Electrical Safety – Qualified – Non-Qualified
- Fire Prevention and Extinguisher Safety
- Excavations
- Aerial, Ladder, Stairways & Scaffolding Safety
- Accident Prevention Signs/Tags
- Bloodborne Pathogens
- Hearing Conservation
- Permit-to-Work

- Welding and Cutting
- Rigging Fundamentals
- Crane Operations –Mobile

3.11 Project Economic Management

- Maintaining direct contact with treating doctors and auditing of expenses.
- Reviewing claims on a regular basis with Workers' Compensation Carrier.
- Provide restricted or light work duty.
- Constant review of Injuries/Illnesses/Near Misses.
- Pre-employment workers' compensation background checks.

4.0 Roles and Responsibilities

The **REPOWER USA** HSE Program is developed and administered by **REPOWER USA** HSE Department.

The program's overall effectiveness is the responsibility of everyone, with management and supervision being ultimately responsible for the well-being and actions of those employees under their charge. It is also very important for **REPOWER USA** employees to understand that all accidents can be prevented and his or her role in the HSE Program is a very important one.

4.1 Corporate Management

Corporate Management has the ultimate responsibility for the prevention of accidents. Specific responsibility and authority for the implementation of the HSE Program rests with each member of management and supervision.

- Maintain an active progressive HSE Plan that all members of management participate in to form an effective and pro-active HSE Program for the establishment of a safe and healthy work environment
- Provide a work environment in which identified occupational hazards are controlled when elimination is not feasible
- Require that all employees follow established HSE rules and work practices
- Provide adequate financial support for the achievement of all approved HSE Program objectives
- Maintain primary responsibility for the HSE Program, which involves continuing to monitor the HSE Program's effectiveness
- Provide the motivation to get the HSE Program started and to oversee the program's operations
- Actively support the HSE Program with the decisions and directives that are required
- Delegate authority to expedite and facilitate the application of the HSE Program

4.2 HSE Department

- Develop, maintain, coordinate, and manage the HSE Program
- Prepare for and attend Sales Presentations, Performance Evaluations, and Special Customer Committees, and HSE Committees
- Manage Workers' Compensation Program investigations
- Conduct field inspections to determine compliance with all required HSE rules, policies and procedures and report findings to Corporate Management
- Coordinate HSE Recognition Programs
- Evaluate and investigate all injuries, illnesses and incidents
- Assist in development and coordination of HSE training programs
- Maintain and evaluate recordkeeping and statistical reports
- Attend the meetings and conferences of the American Society of Safety Engineers, Safety Councils, and other organizations considered advantageous to professional development
- Attend training institutions and/or seminars that provide current methods and/or systems training in accident prevention and safety development

4.3 Department Managers/Operations Managers

- Assume responsibility and accountability for a superior level of HSE performance in their areas
- Educate and train employees regarding job hazards
- Utilize engineering methods for controlling work place hazards
- Institute work practices that reflect the safest and most efficient methods available for accomplishing assigned tasks

4.4 Field Supervisors

- Assume responsibility for pro-actively supporting the HSE Program
- Assume accountability for the HSE performance of their assigned personnel.
- Instruct each employee in hazard identification of the job and how to avoid and/or control identified hazards
- Advise each employee that the violation of established HSE rules will not be tolerated
- Institute prompt corrective action whenever unsafe acts and/or conditions are observed or reported by employees
- Provide needed HSE equipment or other protective devices for assigned tasks as required
- Conduct regular HSE inspections of their area of responsibility and submit reports as required
- Instill a **REPOWER USA** pro-active HSE awareness in each employee by demonstrating a **REPOWER USA** HSE culture consistent with HSE practices
- Report and investigate all accidents/injuries/near misses to determine causes and implement corrective action to prevent recurrence

- Review all accidents/injuries/near-misses with each employee in their area of responsibility
- Provide applicable HSE training and recurring training to all new employees and transferred employees
- Conduct HSE meetings and be informed on each portion of the HSE Program and related issues
- Enforce good housekeeping practices
- Observe and enforce proper use of Personal Protective Equipment (PPE)
- Ensure that all assigned personnel are informed of the HSE Program
- Ensure that supervised employees are participating in the HSE Program
- Obtain and/or render prompt First Aid to injured employees

4.5 REPOWER USA Employees, Sub-contractors & Part-time Workers Employees

- Review HSE Program and Employee HSE Work Practices Handbook and comply with all applicable HSE policies, procedures, and rules
- Support and participate in the HSE Program
- Perform jobs in the safest manner possible
- Report workplace hazards and make suggestions for control and/or elimination of identified hazards.
- Operate in a manner that enhances their personal safety and that of their fellow workers
- Work according to good HSE practices as instructed, discussed, or posted by **REPOWER USA** Management and the HSE Department
- Request and use Personal Protective Equipment (PPE) provided for specific tasks
- Report all accidents, injuries, illnesses, and near misses to their immediate supervisor on the day of occurrence
- Refrain from taking shortcuts in established work practices.
- Attend all HSE meetings and take a pro-active part in the discussions.
- **SHALL NOT** start any work under any unsafe conditions unsafe or questionable circumstances without first bringing these conditions to the attention of the On-Site Supervisor for remediation and/or correction.

5.0 Audits/Inspections/Meetings

Each Operations Manager/Field Supervisor will schedule a weekly/monthly job site inspection for each facility assigned to their area of responsibility. A written report (checklist or narrative) is to be completed for each inspection. This report is to be forwarded to the HSE Department for review and retention. The report will cover the identification of recognized hazards, unsafe practices, unsafe conditions, and unsafe tools or equipment. The report shall also indicate any corrective action taken.

5.1 Inspections are to serve two basic functions

- To maintain a safe working environment and control the unsafe actions of people
- To maintain operational profitability - Management inspections can be used to measure Field Supervisory Level performance
- Scheduled HSE inspections should in no way relieve Field Supervisory force of its responsibility for continuous surveillance of **REPOWER USA** employees, equipment and work environment

5.2 Accident/Injury/Near Miss Investigation Reports

An Accident/Injury/Near Miss Report is required for all work-related injuries or illnesses, regardless of the severity. Accidents/injuries/near misses must be reported immediately to the On-Site Field Supervisor. On-Site Field Supervisors are responsible for obtaining the information required to fully complete Accident/Injury/Near Miss Report. All of the information areas on the report must be completed (if unknown, so indicate). The Accident/Injury/Near Miss Reports must be forwarded to the HSE Department within **12 HOURS**. Reporting time constraints mandated by regulations prohibit delays in the submittal of the Accident/Injury/Near Miss Reports.

5.3 On-Site Supervisor's Investigation Report

Often the Accident/Injury/Near Miss Report are vague and inadequate. Each Operations Manager will instruct all first line supervision to conduct an accident investigation of each accident, injury, illness, and near miss. The value of the On-Site Field Supervisor's Investigation Report is to add clarity to the circumstances surrounding the event. The intent of the investigation is to isolate and determine causes and identify methods to prevent recurrence. Once the event that led to the accident is uncovered, a pro-active plan for eliminating further accidents must be developed and implemented. The On-Site Field Supervisor Investigation Report will be prepared and submitted to the HSE Department within **24 HOURS**.

5.4 HSE Meetings

The Operations Manager will instruct each On-Site Supervisor to conduct HSE meetings with all assigned personnel. A written record will be completed indicating the topics discussed, date, and the names of the persons attending the meeting. Meeting records are to be forwarded to the HSE Department. HSE meetings shall be used for the communication of HSE data and employee training needs. Accidents/Injuries/Near Misses and the contributing hazards shall be reviewed with assigned personnel to inform others and prevent recurrence.

5.5 HSE Management System

5.1.1 Introduction

An effective HSE Management System is decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related cost. **REPOWER USA** has instituted such a program and advises and encourages its employees to participate in the established program that provides adequate systematic policies, procedures, and practices to protect them selves and fellow employees. Additionally, follow training practices to recognize, job-related safety and health hazards. Use the tools provided for systematic identification, evaluation, and prevention or control of general workplace hazards, specific job hazards, and potential hazards that may arise from foreseeable conditions.

Although compliance with the law, including specific Federal, State, Local, Company policies and procedures and other regulatory guidelines is an important objective. The effective program goes beyond specific requirements of law to address all hazards. The effective program will seek to prevent injuries and illnesses, whether or not compliance or the law is at issue.

5.1.2 Major Elements of an Effective Management System

The **REPOWER USA** HSE Management System includes the following four main elements:

- **Management Commitment and Employee Involvement**
  The element of Management Commitment and Employee Involvement are complementary and form the core of any occupational HSE program. Management's commitment provides the motivating force and the economic resources for organizing and controlling activities within any organization. In this program and the referenced corporate guidelines fully identify and express Management support. In this program management takes the stance that **REPOWER USA** regards worker health and safety as a fundamental value of the organization and applies its commitment to health and safety with as much vigor and economic support as other organizational goals.

  Employee involvement provides the method with which the workforce a involved in developing and expressing their commitment to health and safety protection for themselves and for their fellow workers.

REPOWER USA has elected to employ the following actions to implement the **REPOWER USA** HSE Management System.

- Clearly communicate the established worksite policy on HSE working conditions, so that all on-site workforce fully understands and assumes responsibility for the priority and importance of HSE protection within **REPOWER USA.**
- Communicate the **REPOWER USA** goals for HSE Program and Plan. Fully define objectives for obtaining these goals to all workforce members to ensure complete understanding of results desired and measures planned for achieving them.
- **REPOWER USA** will provide visible top management involvement in implementing the HSE Program to communicate management's commitment is serious and all workforce members understand.
- **REPOWER USA** will arrange for a program to encourage employee involvement in the HSE Program/Plan and in decisions that affect their health, safety and environmental welfare to ensure development of a HSE culture that effectively achieves the program's goals and objectives.
- **REPOWER USA** roles and responsibilities have been assigned for all aspects of the HSE Program/Plan communicates to managers, supervisors and employees know what performance is expected of them.
- **REPOWER USA** provides adequate authority and resources to responsible parties for their support in reaching established goals and objectives.
- **REPOWER USA** requires full accountability of managers, supervisors and employees for meeting their respective responsibilities to ensure essential tasks are performed.
- **REPOWER USA** provides the services of an HSE Advisor to annually and/or as applicable to evaluate the HSE Program/Plan in meeting the goals and objectives to ensure deficiencies are identified to forma a bases to revise goals and objectives that have not met the context of the plan.

- **Worksite Analysis**

  REPOWER USA will provide the services of a HSE Advisor to perform and train On-Site Field Supervisors a practical analysis of the work environment to identify existing hazards, work conditions, and operations in which changes may occur to generate additional HSE hazards.

  These analyses will address the following areas:

  - Conduct comprehensive baseline worksite survey for HSE issues and periodic comprehensive update surveys involving on-site workforce in this effort.

- Analyze HSE plans for each pre-qualification and job-site processes, materials, and equipment.
- Perform formal job hazards analyses, employee training and review of employee job safety analyses (JSA).
- Perform scheduled and unscheduled job-site HSE inspections to establish an on-going identification of hazards and hazards control.
- Communicate the **REPOWER USA** system for employees in notifying management and supervision of conditions that appear hazardous and receive timely and appropriate responses and encourage workforce personnel to work within the system without fear of reprisal.
- Investigate "ALL" accidents/injuries/near miss incidents to identify the cause and method of prevention. Use established "Root Cause Investigation Methods".
- Track trends of injuries and identified hazards to establish patterns in common causes and provide methods of future prevention.

REPOWER USA HSE advisor will formulate a report of the job-site analysis and review analysis with on-site workforce, supervision and management for documentation and records.

- **Hazard Prevention and Control**
  REPOWER USA has established appropriate hazard prevention and controls within the HSE Manual and Plan. The **REPOWER USA** HSE Manual has hazard prevention and control awareness and evaluation woven throughout its contents. Below are some of the key areas to reference information requirements.
  Reference:
  - **7.1.2 RPHSE – 2 Job Site HSE Inspection – Job HSE Analysis**
  - **7.1.5 RPHSE – 5 Personnel Protective Equipment (PPE)**
  - **7.1.5A RPHSE – 5A Respiratory Protection**
  - **7.1.6 RPHSE – 6 Hearing Conservation**
  - **7.1.7 RPHSE – 7 Permit-to-Work**
  - **7.1.8 RPHSE – 8 Hazard Communication (HAZCOM)**
  - **7.1.8A RPHSE – 8A Identification and Evaluation of Hazards**
  - **7.1.12 RPHSE – 12 Fall Protection**
- **Training**
  REPOWER USA has established a Training Matrix for employees. This training identifies requirements for Management, Supervision, HSE Advisor, contractors and sub-contractors. **Reference Section I – Item 7.0**

6.0 Basic HSE Rules

The purpose of the Basic HSE Rules is to provide a set of basic and enforceable safe working rules, which will help preserve the health, safety, and environmental welfare of our employees. Compliance with these Basic HSE Rules is essential at all times. Each member of Management and Supervision is charged with ensuring compliance by all of their assigned personnel.

In the event the Basic HSE Rules conflict with other rules applicable to a specific job site, the most stringent rule or safest practice will prevail. These Basic HSE Rules are presented to each **REPOWER USA** Project employees during HSE Orientation or Job Site Orientation. Any violation of Basic HSE Rules will be considered cause for Progressive Disciplinary action.

7.0 Training

7.1 HSE, Skill & Trade Craft Training

The HSE Department shall develop and implement a training program that will provide training for each new employee and existing employees in a new work environment. Training programs are designed to assist the employee in correct work procedures, the use of required personal safety equipment, and where to get assistance when needed.

The HSE Department will routinely monitor this training. Specialized training must be conducted for those employees working in the offshore environment and for other work assignments where unusual hazards or regulatory requirements may exist. All employees will receive training in the recognition of hazards, avoidance and prevention of unsafe conditions, and the regulations applicable to the work environment to control or eliminate any hazards or exposures to illness or injury.

8.0 Recordkeeping

Systems shall be established and maintained by the HSE Department to ensure records are kept in accordance with applicable regulations and internal company procedures.

8.1 Such records shall include, but are not be limited to

- Accident/Injury/Illness/Near Miss Reports and Logs
- Accident/Injury/Near Miss Investigation
- Employee Training Records
- HSE Meeting Minutes
- Job Site Inspection Reports
- Driver Qualification Records
- Injury/Illness Statistics
- Vehicle Accident Statistics
- Employee Medical Files

9.0 HSE Manual Evaluation

The final process in hazard control is to evaluate the effectiveness of a HSE Program.

9.1 Evaluation involves answering the following questions

- Is there a reduction of injuries, workers' compensation cases, and damage losses
- What impact are the above answers having on improving operational efficiency and effectiveness

The HSE Department will examine the program to see if it has accomplished its objectives and whether the objectives have been achieved in accordance with the program plan. **REPOWER USA** Management and/or HSE Department may elect to have the HSE Manual evaluated by a Third Party Group to satisfy Client or Regulatory requirements.

9.2 Criteria used to determine effectiveness of the HSE Program are

- Number and severity of injuries to workers compared with work hours
- Cost of medical care
- Material damage costs
- Facility damage costs
- Equipment and tool damage or replacement costs
- Number of days lost from accidents

A major indicator of the effectiveness of a HSE Program is the experience rating (EMR) given to us by the insurance carrier responsible for paying Worker Compensation. This EMR is a comparison of the actual losses of **REPOWER USA** with the losses that would be expected from a risk of such size and classification. Experience rating determines whether the individual risk is better or worse than the average and to what extent the premium should be modified to reflect this variation. Experience modification is determined in accordance with the Experience Rating Plan (ERP) formula, which has been approved by the insurance commissioners. Loss frequency is penalized more heavily than loss severity because it is assumed that the insured can control the small loss more easily than less frequent, severe loss.

Forms

Section I – Forms & Information
Form 1 – General HSE Responsibilities
General HSE Responsibility Chart (Page 1)

Position	Responsibilities
Corporate Management	Maintain an active progressive HSE Plan that all members of management participate in and form an effective and pro-active HSE Program for the establishment of a safe and health work environment.
	Provide a work environment in which identified occupational hazards are controlled when elimination of hazard is not feasible.
	Require that all employees follow established HSE rules and work practices.
	Provide adequate financial support for the achievement of all approved HSE Program objectives.
	Maintain primary responsibility for the HSE Program, which involves continuing to monitor the HSE Program's effectiveness.
	Provide the motivation to get the HSE Program started and to oversee the program's operations.
	Actively support the HSE Program with the decisions and directives that are required.
	Delegate authority to expedite and facilitate the application of the HSE Program.
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
HSE Department	Develop, maintain, coordinate, and manage the HSE Program.
	Prepare for and attend Sales Presentations, Performance Evaluations, and Special Customer Committees, and HSE Committees.
	Manage Worker's Compensation Program investigations.
	Conduct field inspections to determine compliance with all required HSE rules, policies and procedures, and report findings to Corporate Management.
	Coordinate HSE Recognition Programs.
	Evaluate and investigate all injuries, illnesses and incidents.
	Assist in development and coordination of HSE training programs.
	Maintain and evaluate recordkeeping and statistical reports.
	Attend the meetings and conferences of the American Society of Safety Engineers, Safety Councils, and other organizations considered advantageous to professional development.

General HSE Responsibility Chart (Page 2)

HSE Department	Attend training institutions and/or seminars that provide current methods and/or systems training in accident prevention and HSE development.
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Department & Operations Managers	Assume responsibility and accountability for a superior level of HSE performance in their areas.
	Educate and train employees regarding job hazards.
	Utilize engineering methods for controlling work place hazards.
	Institute work practices that reflect the safest and most efficient methods available for accomplishing assigned tasks.
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Field Supervisors	Assume on-site responsibility for pro-active support for the HSE Program.
	Assume accountability for the HSE performance of their assigned personnel.
	Instruct on-site employee in hazard identification of the job and how to avoid and/or control identified hazards.
	Advise each employee that the violation of established HSE policies and procedures will not be tolerated.
	Institute prompt corrective action whenever unsafe acts and/or conditions are observed or reported by employees.
	Provide needed HSE equipment or other protective devices for assigned tasks as required.
	Conduct regular HSE inspections of their areas or responsibility and submit reports as required.
	Instill a **REPOWER** pro-active HSE awareness in each employee by demonstrating a **REPOWER** HSE culture consistent with HSE practices.
	Report and investigate all accidents/injuries/near misses to determine causes and implement corrective action to prevent recurrence.
	Review all accidents/injuries/near misses with each employee in their area of responsibility.
	Provide applicable HSE training and recurring training to all new employees and transferred employees.
	Conduct HSE meetings and be informed on each portion of the HSE Program and related issues.
	Enforce good housekeeping practices.
	Observe and enforce proper use of Personal Protective Equipment (PPE).
	Ensure that all assigned personnel are informed of the HSE Program.
	Ensure that supervised employees are participating in the HSE Program.
	Obtain and/or render prompt First Aid to injured employees.
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

General HSE Responsibility Chart (Page 3)

REPOWER Employees, Sub-contractors & Part-time workers	Review HSE Program and Employee HSE Work Practices Handbook and comply with all applicable HSE policies, procedures, and rules.
	Support and participate in the HSE Program.
	Perform their assigned jobs in a professional and safe manner.
	Report workplace hazards and make suggestions for control and/or elimination of identified hazards.
	Operate in a manner that enhances their personal safety and that of their fellow workers.
	Work according to good HSE practices as instructed, discussed, or posted by **REPOWER** Management and the HSE Department.
	Request and use Personal Protective Equipment (PPE) provided for specific tasks.
	Report all accidents, injuries, illnesses, and near misses to their immediate supervisor on the day of occurrence.
	Refrain from taking shortcuts in established work practices.
	Attend all HSE meetings and take a pro-active part in the discussions.
	SHALL NOT start any work under any unsafe conditions and/or questionable circumstances without first bringing these conditions to the attention of the On-site Field Superintendent/Supervisor for remediation and /or correction.

Section I – Forms & Information
Form 2 – Minimum Training

Employee Minimum Training

Item No.	Training Description	Training Frequency
	Orientation – New Employee HSE Training	
1	**REPOWER** HSE Policy – December 2008	**Initial Hire**
2	Job site dress code (as applicable to specific job-site)	**Initial Hire**
3	Housekeeping	**Initial Hire**
4	Hazard Communication (**HAZCOM**)	**Initial Hire /Annually**
5	Personal Protective Equipment (PPE)	**Initial Hire /Annually**
6	Accident/Injury/Near Miss Reporting	**Initial Hire**
7	Fire Prevention & Protection	**Initial Hire**
8	Access to Medical Records	**Initial Hire**
9	Alcohol and Drug Program	**Initial Hire /Annually**
10	**REPOWER** Basic HSE Rules	**Initial Hire**
11	**REPOWER** Site Specific (as applicable to job assignment)	**Initial Hire /Annually**
	❖ Emergency Alarms and Procedures	**Initial Hire**
	❖ Site Evacuation Procedures	**Initial Hire**
	❖ Escape Respirator	**Initial Hire**
	❖ HSE Equipment ❖ (Safety Showers & Eyewash stations)	**Initial Hire**
	❖ On-Site Hazardous Materials	**Initial Hire**

Section I – Forms & Information
Form 2 – Minimum Training
Project Employee Minimum Training

Item No.	Training Description	Training Frequency
1	General and Site Specific Housekeeping	Annual
2	Access to Employee Exposure and Medical Records	Annual
3	Basic Advanced Fire Fighting	Annual
4	Hazard Communication (**HAZCOM**)	Annual
5	Hearing Conservation	Annual
6	Permit-to-Work	Annual
7	Respiratory Protection	Annual
8	Fall Protection	Annual
9	Personal Protective Equipment (PPE)	Annual
10	Accident/Injury/Illness/Near Miss Investigation & Reporting	Annual
11	First Aid/CPR Awareness Level	2 years
12	Hazardous Materials (**HAZMAT**) Awareness Level	Annual
13	Hazardous Waste Operations and Emergency Response (**HAZWOPER**) Awareness Level	Annual
14	Natural Occurring Radioactive Material (**NORM**) Awareness Level	Annual
15	Hand and Portable Too Safety	Annual
16	Electrical Safety – Equipment Grounding	Annual
17	Crane and Lifting Equipment Awareness Level	Annual
18	Power Lift Truck (Fork Lift) Operation Awareness Level	Annual
19	Vehicle Operation	Annual
20	Welding Operations	Annual
21	Equipment and Process Purging	Annual
22	Hydrogen Sulfide (**H2S**) Awareness Level (as applicable)	Annual
23	Asbestos Operation Awareness Level (as applicable)	Annual
24	Identification and Evaluation of Hazards	Annual
25	**REPOWER** Progressive Disciplinary Policy	Annual
26	**REPOWER** HSE Policy – December 2008	Annual
27	Emergency Response Plan (ERP) Awareness Level	Annual
28	**REPOWER** Alcohol & Drug Program	Annual
29	Bloodborne Pathogens	Annual

Section I – Forms & Information
Form 3 – Minimum Training
Manager/Supervisor Training

Item No.	Training Description	Training Frequency
	Advance Training	
1	**ALL** items identified in Project Employee Minimum Training	**Annual**
2	Accident/Injury/Illness/Near Miss Investigation & Reporting (Advance Level)	**Annual**
3	Progressive Disciplinary Program (Advance Level)	**Annual**
4	**REPOWER** HSE Program Enforcement (Advance Level)	**Annual**
5	First Aid/CPR (as applicable)	**2 years**
6	**REPOWER** Alcohol and Drug Program (Supervisory Level)	**Annual**
7	Identification and Evaluation of Hazards (Supervisory Level)	**Annual**
8	Hazardous Waste Operation and Emergency Response (**HAZWOPER**)(Supervisory Level) (as applicable)	**Annual**
9	Hazardous Materials (**HAZMAT**) (Supervisory Level) (as applicable)	**Annual**
10	Human/Employee Relations	**Annual**
11	Permit-to-Work (Supervisory Level)	**Annual**
12	Audits/Job Site Inspections (Supervisory Level)	**Annual**
13	**REPOWER** HSE Manual & Company Policies	**Annual**
14	Others (as applicable)(Internal Company)	**(as applicable)**

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section II: INTRODUCTION

Section	Topic	Page No.
1.0	Introduction	3
2.0	HSE Philosophy	3
3.0	HSE Manual Revision Request	4

1.0 Introduction

1.1 The Code of Federal Regulations (CFR)

The Code of Federal Regulations, also referred to as the CFR, consists of all the regulations developed by the various regulatory agencies of the U.S. Government. The code is currently divided into 50 titles. Each title covers the regulations of a specific agency or covers a specific subject.

1.2 For example:

United States

Occupational Safety and Health Administration (OSHA)
Environmental Protection Agency (EPA)
Department of Transportation (DOT)
OSHA 29 CFR EPA 40 CFR
MMS 30 CFR DOT 49 CFR
USCG 33 CFR
State and Local Regulatory Requirements

Canada

Canada Occupational Safety and Health Administration
Provincial Trade Craft Training

In addition, there are other federal, state, and local agencies, such as the Texas Railroad Commission (TRC), National Fire Protection Agency (NFPA), State of Louisiana Administrative Code (LA Admin Code), and American Petroleum Institute (API), etc., which also govern specific subjects.

2.0 HSE Philosophy

The **REPOWER USA** Health, Safety & Environmental Manual has been developed to identify health, safety and environmental regulations required by various regulatory agencies, safe work practices, and industry standards. The purpose of this manual is to assist **REPOWER USA** employees in performing work tasks safely and efficiently. All regulations do not, and cannot apply to all job locations and situations. **REPOWER USA** cannot develop a procedure to cover all work situations. Even if this could be accomplished, HSE rules alone cannot prevent accidents. **You** have a personal responsibility for your own HSE protection and for fellow workers. It is the responsibility of every **REPOWER USA** Team Member to be dedicated to the principle of pro-active accident prevention, which is an essential part of the planning and execution of every job.

Team Members also determine when and where specific HSE standards and rules should be used. Two types of rules appear in this manual; **"shall" rules** and **"should" rules.**

REPOWER USA Senior Management, Department/Head of Service, and HSE Department approval is required before operations can be conducted that conflicts with a **"shall"** rule. It is at the discretion of Department/ Head of Service and On-Site Field Supervisory personnel, with communication with appropriate HSE Department personnel, to decide on the variance and levels of **"should"** rules in their particular operation while understanding the requirements that HSE **shall** not be compromised in any way.

3.0 HSE Manual Revision Request

This form **must be** completed before revisions will be processed for **REPOWER USA** HSE Manual.

Section II – Forms & Information
Form 1 – HSE Manual Revision Request Form

Date Submitted: _____

Requested revision(s): _____
(Attach a marked up page indicating suggested revisions)

Identify Location: _____ _____ _____
(Section Title) (Section Number) (Paragraph/page)

_____ _____ _____
(Policy/Procedure) (Number) (Paragraph/page)

Request "**NEW TEXT**": _____
(Attach a copy of "**NEW TEXT**" that is proposed for review)

Identify Location: _____ _____ _____
(Section Title) (Section Number) (Paragraph/page)

_____ _____ _____
(Policy/Procedure) (Number) (Paragraph/page)

Reason for suggested revision(s): _____

(Policy or Procedure - update, change, spelling, grammar, typographical or other corrections)
NOTE: A marked up copy of suggested alterations MUST accompany this form.

Comments: _____

Approval Levels:

Head of Service/Operations Manager: _____	Date: _____
HSE Department: _____	Date Received: _____
REPOWER HSE Manager: _____	Date Reviewed: _____
REPOWER HSE Committee Chairperson: _____	Date Reviewed: _____
Committee Member: _____	Date Reviewed: _____
Committee Member: _____	Date Reviewed: _____
Committee Member: _____	Date Reviewed: _____

Revision Profile

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0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
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REPOWER USA Corp.

Section III: HSE Policy & Procedures

Contents

Section	Topic	Page No.
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3.0	General HSE Rules	4
4.0	Search and Seizure Policy	4
5.0	HSE Meetings	5
6.0	General Personal Conduct	7
7.0	HSE Procedures	8

1.0 Introduction

The primary OBJECTIVE and FOCUS in HSE for REPOWER USA is to provide a Healthy and Safe place to work, an Environmental goal to leave the environment clean for those that follow us, and to identify hazards, and to prevent accidents and injuries in the work force.

To assist in this goal, **REPOWER USA** Management has developed a HSE Plan and a HSE Manual with the appropriate applicable and enforceable policies and procedures. **REPOWER USA** provides each employee workable methods and applicable policies and procedures to perform their job in a healthy, safe, and environmental clean work environment. The **REPOWER USA** Team Member, contract, part-time, and job-specific employee are to pro-actively support and implement both the philosophy and the letter of this policy. To meet our goal, it is very important for each of us to understand this policy and conduct our daily business in a manner that assures compliance. However, keep in mind that **the decision to work within the HSE Policies and Procedures is YOURS.**

"THINK, and USE YOUR COMMON SENSE!"

If for any reason you suspect the area or operation to be unsafe, **STOP!** Report the situation to your On-Site Supervisor before proceeding with a potentially hazardous task. **ASK** questions. Ask for an explanation of areas that you do not understand thoroughly. Caution must be utilized in each work process. All accidents, regardless of their nature, share three basic characteristics. Your awareness and understanding of these characteristics are fundamental in the prevention of accidents.

- Accidents/Injuries/Near Misses **are** the results of many accumulative reasons
- Accidents/Injuries/Near Misses **can** be prevented by the appropriate application of HSE Policies and Procedures
- Unless these causes are eliminated these same accidents/injuries/near misses **will** continue to occur
- Remember, each of us can prevent accidents

2.0 Scope and Purpose

This HSE Manual shall be utilized as a tool to help accomplish our goal of a healthy, safe, and environmentally clean work place at all **REPOWER USA** work locations as well as assist you in the specific precautions you **must** take to maintain and improve your safe working environment.

This manual serves as a guide and a reference tool in maintaining a uniform safety policy by specifying **minimum** rules and standards, which are applicable in all areas, and endorsed by **REPOWER USA** Management and the HSE Department. Local, State, and Federal regulations (including but not limited to Federal and State OSHA, MMS, DOT, TRC, and MSHA) may require additional precautions.

Please check with your On-Site Field Superintendent/Supervisor and/or the HSE Department for site-specific procedures that would require additional or specific requirements.

3.0 General Safety Rules

The following rules apply to all **REPOWER USA** employees, contract employees, and the employees of any sub-contractor which does business with **REPOWER USA.**

- **ALWAYS THINK SAFETY** - Keep in mind that one of your primary responsibilities as an employee is to perform your duties in a safe manner
- **MAINTAIN a PRO-ACTIVE INTEREST** - Give your undivided attention to HSE discussions, which the Field Superintendent, Supervisor, Management or the HSE Department may introduce to prepare you for new or different work. **ASK** questions if you do not understand thoroughly
- **ALWAYS be ALERT** - Correct or eliminate an obvious hazard yourself whenever possible. Report all hazards and the corrective measures you have taken to your On-Site Supervisor. If a hazard cannot be corrected immediately mark it until it can be corrected. Personnel coming on duty must be informed of any changes or conditions that might present a hazard
- **NEVER ATTEMPT to do a JOB ALONE** - Use the buddy system, common sense, and safe working practices tell you to call for assistance when needed
- **LEARN the APPROVED SAFE PRACTICES** – That are applicable to your work and observe them at all times

Failure to observe these applicable HSE rules and regulations could result in serious injury to you and/or a fellow employee. For this reason, unsafe work practices will result in disciplinary action, as management deems necessary to correct the situation, up to and including immediate termination.

4.0 Search and Seizure Policy

This **REPOWER USA** policy is to maintain a work environment that is safe for all employees and others and is conducive to maintaining high work standards. As part of this policy no illegal drugs, intoxicating beverages, explosives, firearms, or other weapons are allowed on **REPOWER USA** or Client facilities, including vehicles, operated by **REPOWER USA**. Illegal drugs include all controlled substances not prescribed by a licensed physician for use by the person possessing them (Reference **REPOWER USA** Policy on Drug and Alcohol Misuse).

As a further precaution, entry into or remaining at **REPOWER USA** operated facilities is conditioned upon the **REPOWER USA** maintaining the right to search the person and the personal effects of the individual for illegal drugs, intoxicating beverages, explosives, firearms, or other weapons or unauthorized possession of **REPOWER USA** property.

Searches may be made without warning and may include lockers, rooms, workstations, desks, and/or other areas operated by the **REPOWER USA** employees, as appropriate. Searches may also be made on departure from any **REPOWER USA** facility. Prior to any search or screening employees, contract personnel and third party sub-contractors seeking admission to the **REPOWER USA** premises or leaving will be requested to sign a form stating that they have read, understood, and consented to the **REPOWER USA** policy on search and seizure. Employees and non-employees have the right not to be searched.

However, the refusal of an employee to submit to a search will be cause for immediate discharge from the **REPOWER USA**. In all cases of a refusal to consent to a search, the responsible supervisor will arrange for the refusing person to be removed immediately from **REPOWER USA** or the Client's property. Non-employees refusing to allow a search will not be allowed entry on **REPOWER USA** property. Prohibited items discovered through a **REPOWER USA** search may be taken into custody and may be turned over to the proper law enforcement authorities, if appropriate. This policy is in effect at all **REPOWER USA** work sites and production facilities owned, operated, contracted or leased by **REPOWER USA** for **REPOWER USA** and/or a Client's use.

5.0 HSE Meetings

5.1 Procedures

Supervisors at all work locations are responsible for holding weekly safety meetings with their assigned personnel (including sub-contractors). These meetings if on a client controlled work site, may be brief, 10-15 minutes in duration. At other work sites controlled by **REPOWER USA**, the meetings could be 15-30 minutes in duration, depending on topics covered (i.e. HSE Meetings held for training purposes might require additional time whereas a HSE Meeting held to warn personnel of a hazard might be briefer).

ALL HSE Meetings will be fully documented on a **HSE MEETING REPORT FORM** to record time, date and topic covered, duration, and person presenting the topic and all personnel attending. This information is required to update employee-training records.

A Safety Meeting should be held immediately following an injury or near miss incident to warn assigned personnel in an effort to preclude similar incidents. A **HSE MEETING REPORT** is required to document this potential hazard for future training.

The HSE Department and Field Supervisor/Operations/Head of Service will meet once each month to evaluate and discuss current safety issues, to develop and/or recommend additional training programs for improving employee's safety performance, and to review recent injuries and accidents. Minutes of each meeting shall be taken to document actions and to identify required training.

5.2 Planning a Safety Meeting

Ensuring that HSE Meetings are effective and interesting is very important to providing employees with tools that enhance their pro-active HSE culture. Pre-Planning is the key to insure that the subject matter is pertinent and that the meeting will be effective and interesting.

The development of a successful meeting plan should include the following points:

- **Advance Preparation** - The planning determines the results. Never conduct a meeting without preparation
- **Select A Major Topic** - Make it timely and practical - one that a group can discuss
- **Obtain Facts & Figures** - Be sure they are correct and complete. Prepare visual aids when possible, such as a simple chart or table
- **Plan the Presentation** - Determine the best way to present the meeting subject. Try to anticipate the group's reactions and questions. Outline the results you want to accomplish
- **Set the Length** - Allow adequate time but set a reasonable limit
- **Be Sincere** - Your sincerity and interest in the workers' welfare must be real
- **Introduce the Topic** -Tell what the meeting will address in simple terms. Use a punch line or some other good lead in. Get the group's attention
- **Present Facts**
- **Arouse Interest** - State highly pertinent facts in an interesting manner.
- **Promote Discussion** - Ask open-ended questions that cannot be answered **"Yes"** or **"No"**. Encourage members of the group to think individually and collectively. Let them talk
- **Agree On An Action Plan** - Try for group agreement on methods of correction and improvement. Write these down
- **Summarize the Meeting** - Review briefly what has been discussed and decided. **Always Follow Up!**
- **Suggestions to help make the meeting successful**
- Control the meeting and prevent it from becoming a **"gripe session".**
- **NEVER** reprimand employees during a meeting as the reprimand will nullify the wanted effect.

The On-Site Field Supervisor or the person conducting the meetings should observe workers' reactions to determine if the meeting is accomplishing its purposes. Constant effort and planning will assure that safety meetings are productive and informative.

6.0 Personal Conduct

6.1 General

REPOWER USA desires a reputation for furnishing qualified and professional personnel, providing Quality work, a Healthy and Safe work environment, and leaving the environment clean for those that follow us, which places tremendous responsibility on every employee. As an employee of **REPOWER USA** your conduct (good or bad) is a reflection on **REPOWER USA**. Therefore, if any employee's Personal Conduct discredit, or lessens the Client's and/or the general public's opinion of **REPOWER USA**, he/she will be subject to disciplinary action up to and including termination.

Each Employee is expected to perform their assigned duties in the manner of a mature qualified professional.

Boisterous or unruly conduct while on duty at a job site **OR** while off duty at any lodging facilities provided by **REPOWER USA** is strictly prohibited and will not be tolerated.

6.2 HSE Violation Disciplinary Action and Enforcement

Any non-compliance or violation of safety rules, policies, and/or procedures observed by anyone **SHALL** be reported to the On-Site Field Superintendent/Supervisors, On-Site HSE Coordinator and/or HSE Manager immediately. If flagrant disregard or violation of safe work rules/practices or a major violation has occurred the On-Site Field Supervisor, Head of Service **SHALL** take such action as deemed necessary to ensure compliance with applicable safe work rules/practices, including but not limited to, the following.

- **First Offense**
  The On-Site Field Supervisor or the Head of Service shall write a letter of reprimand to the Employee with copies to the Employee's personnel file and to the HSE Department.
- **Second Offense**
  The On-Site Field Supervisor/Operation Manager may order that the Employee be suspended from work without pay for one or more days. A second letter of reprimand **SHALL** be written to the Employee with copies to the Employee's personnel file and the **REPOWER USA** HSE Manager. The Head of Service shall also counsel the Employees' immediate On-Site Field Supervisor on safe work performance.
- **Third Offense**
  Employee is **immediately** terminated from employment with **REPOWER USA**.

NOTE: If non-compliance or violation of these safety rules is considered serious enough, the Head of Service and/or Manager of HSE may omit the first or second step listed above, or both, and go to the next step.

6.3 **Vehicle Safety Violation Disciplinary Action and Enforcement**

REPOWER USA Management and he HSE Department promotes safe driving habits in employees operating motor vehicles during, after and prior to work hours as part of a preventive and pro-active HSE program. **"REPOWER USA vehicles"** refers to **REPOWER USA** owned and/or operated Client owned, leased and/or rented and personal vehicles used on **REPOWER USA** business.

- **Defensive Driving REPOWER USA** business will use techniques of Defensive Driving and will attend the HSE Department recommended driving course for the following reasons:

  Following any preventable accident.

  When an investigation of a moving-traffic violation indicates a need, any unsafe vehicle operation practices by any employee will be subject to disciplinary actions deemed necessary by **REPOWER USA** Management and HSE Department. These actions are to ensure compliance with applicable safe work rules and procedures, including, but not limited to, the following:

- **First Offense:**
  Written reprimand and/or two days off without pay
  Immediate Discharge
- **Second Offense:**
  Immediate Discharge

  NOTE: If non-compliance or violation of these HSE rules is considered serious enough, the Field Superintendent/ Head of Service and/or REPOWER USA HSE Manager may omit the first step listed above and go to the next step.

7.0 HSE Policies and Procedures

The following is a listing of the **REPOWER USA**/ HSE Policies and Procedures developed by **REPOWER USA** using the appropriate governmental regulations as the basis of the standard. **REPOWER USA** HSE Policies and Procedures shall be used and adhered to by all employees and contractors, as applicable, in the performance of their jobs. These standards **shall not** supersede any governmental regulations but rather to provide guidance and structure to all employees and contractors in the safe execution of their jobs. In the unlikely event any of these standards differ from the associated regulation, the **regulation shall prevail** and supersede the standard.

Anyone noticing any discrepancy in any policy or procedure should notify his/ her On-Site Field Superintendent/Supervisor immediately who in-turn should notify the **REPOWER USA** HSE Manager at appropriate office.

7.1 HSE Policies & Procedures

7.1.1	RPSHSE – 1	Accident/Injury/Near Miss/Incident Investigation and Reporting
7.1.1A	RPSHSE – 1A	Accident/Injury/Near Miss Prevention
7.1.2	RPSHSE – 2	Job Site HSE Inspection – Job HSE Analysis
7.1.3	RPSHSE – 3	General Offices and Warehouse HSE
7.1.4	RPSHSE – 4	Fire Extinguisher Classifications and Rating
7.1.4A	RPSHSE – 4A	Prevention of Fires
7.1.5	RPSHSE – 5	Personal Protective Equipment (PPE)
7.1.5A	RPSHSE – 5A	Respiratory Protection
7.1.6	RPSHSE – 6	Hearing Conservation
7.1.7	RPSHSE – 7	Permit-to-Work
7.1.7A	RPSHSE – 7A	Confined Space
7.1.7B	RPSHSE – 7B	Lockout – Tagout (LOTO)
7.1.7C	RPSHSE – 7C	Safe and Hot Work Permits
7.1.8	RPSHSE – 8	Hazard Communications (HAZCOM)
7.1.8	RPSHSE – 8A	Identification and Evaluation of Hazards
7.1.9	RPSHSE – 9	Hazardous Waste Operations (HAZWOPER)
7.1.9A	RPSHSE – 9A	Emergency Response
7.1.10	RPSHSE – 10	Hand and Portable Tool Safety
7.1.11	RPSHSE – 11	Electrical Safety
7.1.11A	RPSHSE – 11A	Equipment Grounding
7.1.12	RPSHSE – 12	Fall Protection
7.1.13	RPSHSE – 13	Crane and Lifting Equipment
7.1.14	RPSHSE – 14	Vehicle Operations
7.1.15	RPSHSE – 15	Progressive Disciplinary
7.1.16	RPSHSE – 16	First Aid and Cardiopulmonary Resuscitation (CPR)
7.1.17	RPSHSE – 17	Bloodborne Pathogens
7.1.18	RPSHSE – 18	Illness, Injury Prevention Program
7.1.19	RPSHSE – 19	Contractor Management
7.1.20	RPSHSE – 20	Drug and Alcohol Program

Section III – Forms & Information
Form 1 – Consent to Search From

I do hereby voluntarily consent to a search of my person, tool boxes, vehicles by Management representative of **REPOWER Systems USA**, my employer. This consent is voluntarily given with full knowledge by me that should the search result in discovery of alcoholic beverages, drugs, drug paraphernalia or other items of contraband that I may be subject to disciplinary action.

_____

Employee Signature

_____

Date

_____

Witness

Section III – Forms & Information
Form 2 – General Drug Policy Acknowledgement Form

I have been advised that **REPOWER Systems USA** has adopted a Prohibited Drug and Alcohol Policy for the purpose of maintaining a safe work environment and to protect Company property. That policy is:

The use, possession, distribution, transfer or storage of prohibited drugs, inhalants or alcoholic beverages in or on Company property or being under the influence of drugs, inhalants or alcohol while acting within the scope of employment is prohibited, as is the misuse of legitimately prescribed drugs.

Further, no employee shall report to work under the influence of prohibited drugs or alcohol.

Compliance with this policy, including consent to searches and medical tests, is a condition of employment.

The intention of the Management of **REPOWER Systems USA** is to provide a safe work environment for employees and to protect Company property. Prohibited drugs or alcohol have been determined by Management to be a threat to those goals.

Acknowledged:

_____

Employee Signature

_____

Print Name

_____

Date

REpower Systems	Section III RPSHSE 7.1.1	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format Evergreen QHSSE Solutions LLC	On File
11/08	Owens O'Quinn – QHSSE Consultant Evergreen QHSSE Solutions LLC	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.1 RPSHSE – 1 Accident/Injury/Near Miss/Incident Investigation Reporting

Contents

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1.0 Introduction

RPSHSE 7.1.1 addresses the following procedures:

- Reporting of Accidents/Injuries/Near Miss or Incidents
- Accident Reporting
- Injury Reporting
- Near Miss Reporting
- Incident Reporting
- Accident/Injury/Near Miss/Incident Investigation

After reviewing the 7.1.1 RPSHSE - 1 Procedure each employee and On-Site Supervisor should be capable in reporting an accident/injury/near miss/incident and of conducting a meaningful investigation to prevent the reoccurrence of unsafe acts and/or unsafe conditions.

2.0 Policy

RPSHSE's policy is to report and investigate the following incidents:

- All Injuries and job related Illness, including:
  - First Aid Cases **FAC**
  - Professional Medical Cases **PMC**
  - No Lost Time Accidents **NLTA**
  - Lost Time Accidents **LTA**
  - Fatality Cases **FC**
- Near Miss Incidents
- Spills/Releases
- Vehicle Accidents
- Property Damage
- Major Accidents
- Identified Hazards

A report is required for all on-site accidents, injuries, near misses, incident or illnesses, regardless of the severity.

3.0 Reporting

3.1 Accident/Injury/Near Miss/Incident Reporting

Effective accident/injury/near misses/incident reporting is based on complete and unbiased knowledge of the root cause that resulted in the development of the situation that lead to the incident.

Accuracy and completeness in reporting is critical for the Company, insurance reporting, federal and state mandated reporting, as well as to assist in the development of preventive measures to reduce the probability of and potential for recurrences.

3.2 On-Site Field Supervisor Investigation Report

This report is a detailed investigation about the accident/incident compiled by the immediate On-Site Supervisor and/or investigation team. This report is required for all incidents, even when only a minor injury or near miss occurs. This report is an integral part of Root Cause Analysis during the investigation following the subject incident report.

3.3 Potential Incident (Near Miss) Report

This report is beneficial in recording the information surrounding incidents without injury that have the potential of developing into a serious or fatal incident. The premier purpose in the initiation of this report by the On-Site Field Supervisor is to investigate circumstances leading to and surrounding the incident to assist **REPOWER USA** Management and HSE Operation in planning preventive measures, equipment repairs, and employee training, etc.

4.0 Procedures

4.1 Injury Reporting

An **Injury Report** is required for **all** work related injuries or illnesses, regardless of the severity. Specific **"1st Report of Injury"** forms for each Country and State are mandatory and required for filing insurance and Worker Compensation claims. This form records the basic information concerning an injury and is the first (1st) and primary report(s) completed by the injured employee(s) and the immediate On-Site Supervisor at the work location.

Reports for injuries that do not require treatment other than first aid should be noted as a **"First Aid Case"**. Injuries must be reported immediately to the On-Site Supervisor in charge, preferably before the end of the employee's shift. The On-Site Supervisor is responsible for assisting the employee in obtaining the information required to fully complete the Injury Report. All of the information areas on the report must be completed (if unknown, so indicate).

The Injury Report must be submitted to the HSE Manager within **24 HOURS**. A copy should be kept on site.

Reporting time constraints mandated by regulations prohibit delays in the submittal of the Injury Reports.

4.2 Required Forms for Injury/Illness Reporting

The State and Federal forms are required as follows:

4.2.1 Onshore Operations

- **First Report of Injury or Illness Report**
  Required for the initial reporting of any injury and illness at each respective job site in the United States of America. The On-Site Field Supervisor who **DO NOT** have access to the correct State forms and must report job accidents and illnesses in various States should contact the HSE Manager immediately, and/or complete the On-Site Field Supervisor's Investigation Report and submit to the HSE Manager to initiate the reporting process.
- **Supplemental Report of Injury**
  Required when an injured employee returns to work or an injured employee has an additional disability due to the injury after returning to work or an injured employee has an increase or decrease in earnings during a temporary return to work status or an injured employee resigns or is terminated.
- **Employer's Wage Statement**
  Required when an employee is disabled for at least 8 days. This report will be completed by the HSE Manager upon notification by the On-Site Field Supervisor that the employee has missed 7 days of work.

4.2.2 Offshore and Longshoreman Operations

- **Operation of Labor First Report of Injury or Illness**
  Required for the initial reporting of any injury offshore, in dock operations, offshore transportation, and/or long-shore operations.
- **Operation of Labor Supplementary Report of Accident/ Illness**
  Required whenever the First Report of Injury or Illness does not show the date employee returned to work or when an injured employee has returned to work and later becomes disabled for work.
- **Operation of Labor Supplementary Report of Disability**
  Required when an injured employee is disabled for more than 3 days. This form will be completed by the HSE Manager upon notification by the On-Site Supervisor in charge that the employee has not returned to work by the 4th workday.

It is critical that the On-Site Supervisors maintain daily communication with the HSE Manager on the status of injured employees until the employee returns to full time work with a full Doctors release.

4.3 On-Site Field Supervisor Investigation Report

Often the Injury Report is vague and inadequate. The value of the On-Site Field Supervisor's Investigation Report is to add clarity to the circumstances surrounding the event. The intent of the investigation is to isolate and determine the causes and identify methods to prevent recurrence. The value of the investigation is destroyed if there is a suspicious purpose to place blame. Once the event that led to the accident is uncovered, a positive plan for eliminating further accidents must be developed and implemented.

Each Operation/Head of Service will instruct all first line supervision to conduct an accident investigation of each injury, illness, and/or near miss. The On-Site Field Supervisor Investigation Report will be prepared and submitted to the HSE Manager within **24 HOURS.**

The On-Site Field Supervisor's Investigation Report includes information on the person injured, his/her job title, the tasks being performed at the time of the accident, who directed the work, identifies the witnesses and includes witness statements regarding the accident, and the cause of the accident and what corrective action was taken. The On-Site Field Supervisor Investigation Report is made a part of the official records concerning the incident and must be taken seriously. **Unsatisfactory and/or incomplete reports will not be accepted.**

4.4 Other Reports

The following reports should be filled out and forwarded to the HSE Manager as follows:

- **"Near miss" incidents** without injury that could have been more serious should be reported to the On-Site Field Supervisor and documented immediately in the Near Miss Incident Report.
- **Spill/Release** of chemicals, petroleum products, hazardous materials, etc. must be reported and documented on the Spill Report Form for required environmental compliance.
- **Property Damage and/or Vehicle/Equipment** damage or accidents must be reported and documented on the Property Damage Report for insurance requirements.

4.5 Responsibilities

- **First-Line On-Site Supervisor** - has the responsibility of ensuring an investigation is conducted, verbally informing the Operation/Head of Service and the HSE Manager of any actions that should be taken and completing the appropriate reports. It will be the responsibility of the HSE Manager to direct the Operation/Head of Service to participate as a member of the investigation.
- **Operation/Head of Service** – has the responsibility for maintaining a list of corrective action items for his/her area, assigning the responsible party and establishing a completion date for each corrective action item. The Operation/Head of Service is also responsible for the follow-up of each of the corrections until all are completed, and will act as a liaison between the First-Line On-Site Supervisor and the HSE Manager. Operation/Head of Service should, whenever possible, arrange with the HSE Manager for **"light duty"** assignments for injured workers who are at partial capacity.
- **HSE Manager** will review all reports, tabulate results and provide trend analysis to management. If the severity of the accident indicates that the injured employee will be absent from work for more than one workday the HSE Manager must be notified of the incident by telephone at the applicable office so that case management activities with the insurance carrier can be implemented. All medical bills should be sent directly to the Worker Compensation carrier from the medical provider. The HSE Manager will verify Worker Compensation coverage for the provider as required. No employee shall be allowed to return to work after treatment and/or rehabilitation without a **Return-To-Work** release from his/her treating physician and notification to the HSE Manager.

5.0 Investigation Meeting

The On-Site Field Supervisors will promptly follow up each reported employee accident/injury/illness, **REPOWER USA** vehicle accident, **REPOWER USA** property damage, and Third Party Accident/Injury/Illness with an investigation report. Investigations should be conducted as soon as possible following notification of the incident.

Good accident investigations help prevent future accidents and protect the **REPOWER USA** from unwarranted liability. The On-Site Field Supervisor investigation must be thorough, requiring a meeting of all involved and investigation of the accident scene in order to pinpoint the true cause of the accident.

This process will help to determine the appropriate corrective action needed to prevent similar accidents from occurring in the future.

- Attempt to visit the accident scene prior to conducting the investigation meeting, if possible. In addition, draw a diagram, take pictures (if permitted), prepare overheads, etc. to assist in the review.
- Arrange a time and place and invite all necessary personnel.
- Arrive early and engage in informal conversation to establish a relaxed atmosphere.
- Start meeting on time. Never be late.
- Open with an introduction (i.e. why we are here) and identify those present, if necessary. **WE ARE HERE TO...**
  - Establish facts of what happened.
  - Not to find fault or establish blame.
  - Discover contributing factors.
  - Develop methods to prevent reoccurrence.
    - Use the **"4-W" & "1-H"** approach to establish the facts.
  - When did it happen?
  - Where did it happen?
  - What happened?
  - Why did it happen?
  - How did it happen?

Make a diagram, using a chalkboard, and walk through the accident for demonstration and reference. You may have to back-step to establish prior activities, which might have contributed to the accident/incident.

Ask When, Where, What, Why, and How until the root causes are found. Make a notation as they are revealed by the investigation team. Start with those directly involved in the accident/incident. Then review the contributing factors.

- Now discuss ways to eliminate or correct the factors that contributed to the accident.
  - Once again, list ideas and review them with the team.
  - Assign the corrective action to the individual responsible.
  - The individuals shall report when the corrective action has been completed.
- Prepare a final investigation report and distribute it to all involved personnel with diagrams or any other attachments.
- Avoid doing the following items:
  - **NEVER** attempt to find fault.
  - **Do Not** blame any person for the accident/incident.
  - **Do Not** humiliate anyone.
  - **Do Not** discuss any disciplinary action at this meeting.

Remember, discuss the facts, reveal the causes or contributing factors and take positive action to prevent reoccurrence.

6.0 Classification of Severity

6.1 First Aid Case (FAC)

Minor injuries such as scratches, cuts, burns, splinters, etc., which do not ordinarily require medical care. Any one-time treatment and any follow up visit for the purpose of observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care. Such one-time treatment and follow up visit for the purpose of observation is considered first aid even though provided by a physician or registered professional personnel.

6.2 Professional Medical Case (PMC)

Injuries that must be treated **only** by a physician or licensed medical personnel. Injuries that impair bodily function (i.e., normal use of senses, limbs, etc.). Injuries resulting in damage to the physical structure (i.e.: fractures). Injuries that involve complications requiring follow up medical treatment.

6.3 No Lost Time Accidents (NLTA)

An NLTA results when the injured employee has sustained a minor injury and was taken to a doctor or emergency facility due to the potential for a greater injury and to ensure no extended injury and/or illness not apparent to visual evaluation at accident/injury/illness site were overlooked.

6.4 Lost Time Case (LTC)

- An LTC results when the injured employee is unable to return to his/her regular duty, or is on limited/light duty status on the next regularly scheduled workday due to the injury or resulting treatment.
- If the injured is released to a limited/light duty status and **no** limited/light duty is available and he/she begins to lose time, the case shall be considered a LTC.
- Working any part of a workday as well as losing time that same day shall constitute a day worked.

6.5 Fatality (FC)

Any injury resulting in Death.

The HSE Manager may reclassify the severity of some accidents based upon final review of all pertinent documented information.

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
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11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III 7.1.1A RPSHSE – 1A
Accident Prevention – Color Codes, Signs, & Tags

Contents

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2.0	Safety Color Codes	3
3.0	Accident Prevention Signs	3
4.0	Accident Prevention Tags	4
5.0	Tagging and Flagging	5

1.0 Introduction

This standard is designed to establish universal color, codes, signs, and tagging requirements to meet OSHA standards and to minimize incident or injury by ensuring that all personnel are aware of unsafe situations and conditions in the work place. The following are general requirements imposed by OSHA. Additional requirements apply to specific hazards and operations.

2.0 Safety Color Codes

- **RED - DANGER**
  - Fire equipment and apparatus
  - Danger
  - Safety cans or other portable containers of flammable liquids
  - Red lights provided at barricades and temporary obstructions
  - Danger signs are painted red
  - Stop
  - Emergency stop button, bars, or electrical switches used for the emergency stopping of machines and equipment
- **YELLOW - CAUTION**
  - Should physical hazards such as falling, tripping, or caught between, slow area, etc.

3.0 Accident Prevention Signs

3.1 General

Accident Prevention Signs should meet the following OSHA standards:

- Should denote specific hazards and provide warnings and safety instructions for the personnel and the public who are likely to be exposed to the hazard
- Should be used if failing to indicate a hazard could result in personal injury or property damage.
- Must have rounded or blunt corners and fastened where they do not constitute a hazard.
- Coloring must conform to Table 1 of the ***American National Standard*** (ANSI) Z53.1.
- Wording is easily read and concise. Contains enough information to be easily understood and make a positive, rather than negative suggestion.

3.2 Types of Accident Prevention Signs

- **Danger Signs** – warn of specific dangers and radiation hazards; indicates immediate danger and that precautions are necessary.
  Colors: Red with black or white lettering.
- **Caution Signs** – warn against potential hazards or to caution against unsafe practices.
  Colors: Yellow background; black panel with yellow lettering; or black lettering against yellow background.
- **Safety Instruction Signs** - supply general instructions and suggestions relative to safety measures.
  Colors: White background; green panel with white lettering; or black lettering against white background.
- **Biological Hazard Signs** – signify the actual or potential presence of a biohazard or infectious agent presenting a risk or potential risk to the well-being of man or identify a contaminated areas (See Biological Hazard Tags for Colors).

4.0 Accident Prevention Tags

4.1 General

- Used as a means to prevent accidental injury or illness to employees exposed to hazardous or potentially hazardous conditions and equipment, or during operations which are unusual, unexpected, or which are not readily apparent.
- Used until the identified hazard is eliminated or the hazardous operation has been completed. Tags are **NOT** required where signs, guarding or other positive means of protection are being used.
- Contain a signal word (Caution, Danger, Warning, etc.) and a major message (Do Not Start, High Voltage, etc.). The signal word should be readable at a minimum distance of five (5) feet or greater as warranted by the hazard.
- Affixed as close as safely possible to the hazard, and attached with string, wire, or adhesive that prevents loss or unintentional removal.

4.2 Types of Tags

- **Danger Tags** – indicate major hazard situations where an immediate hazard presents a threat, death, or serious injury to personnel.
  Color: ***RED***, or predominantly red, with lettering or symbols in contrasting color.
- **Caution Tags** – indicate minor hazard situations where a non-immediate or potential hazardous unsafe practice presents a lesser threat of personnel injury.
  Color: **YELLOW**, or predominately yellow, with lettering or symbols in a contrasting color.

- **Warning Tags** – indicate a hazard level between Caution and Danger, in lieu of the Caution Tag.
  Color: **ORANGE**, or predominately orange, with lettering or symbols in a contrasting color.
- **Biological Hazard Tags** – identifying the actual or potential presence of a biological hazard and equipment, containers, rooms, etc. that contain or are contaminated with hazardous biological agents.
  Color: **FLUORESCENT ORANGE**, or orange-red, with lettering or symbols in a contrasting color.

5.0 Tagging and Flagging

5.1 Purpose

The purpose of tagging and flagging is to communicate with other people working in the area that a hazard condition or situation exists. Using tagged equipment could result in bodily injury, costly mechanical damage, fire, or the disruption of operations. Before re-commissioning any equipment, the following list is representative of situations where tagging is warranted:

- Valves not in normal operating position.
- Valves that should not be used under normal operating conditions.
- Switches, valves, and blinds used to isolate control lines or equipment undergoing maintenance as outlined in Safety Standard SS13, Lockout/Tagout.
- Defective or leaking valves.
- Equipment, tools, etc., that are unsafe to use.
- Safety or emergency equipment that will not function properly and is unsafe to use.

5.2 Definitions

- **Tag** – a weatherproof tag that is marked with the name of the equipment, the name of the person affixing the tag and the date, time and reason for tagging the equipment.
- **Flag** – a piece of bright orange or red ribbon attached in addition to a tag only when the tag is not readily visible, such as tags on overhead valves. **Flags should never be used without a tag.**

5.3 Procedures

- Tagged equipment requires the following:
  - Equipment name, identification, and the condition, and fault or reason for the tagging to ensure that proper attention is given to needed repairs.
  - Date, time, and signature. If the tag is not readily visible a flag should also be attached.

- Notify your immediate supervisor.

- Tags and flags shall be removed immediately after the conditions change so as they are not left on by mistake. Tags are not substitutes for careful checking of each device prior to re-commissioning equipment or to an operational change.

5.4 Responsibilities

- **Employee** – the responsibility for using tags where necessary belongs to the person repairing equipment, isolating equipment, shutting valves or switches or discovering an unsafe piece of equipment.
- **On-Site Field Supervisor** – the responsibility for acquiring the necessary repairs for tagged items rests with the notified Field Superintendent/Supervisor or designated alternate.

Upon the completion of the assigned job, all signs and tags shall be removed after thoroughly checking that no person will be jeopardized and that the equipment is repaired and functional. Removal of tags should be done by the person that signed the tag; but due to shift changes, etc., it can be removed by the Field Superintendent/Supervisor as outlined in **7.1.7B RPSHSE – 7B**, Lockout/Tagout – Control of Hazardous Energy.

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 1 – On-Site Field Supervisor Investigation Report

On-Site Field Supervisor Investigation Report (Page 1)

This Report must be completed and sent to the **REPOWER USA** HSE Manager within 24 **HOURS.**

Division:

☐ WIND TURBINE
☐ OPERATIONS
☐ WORK MANAGEMENT
☐ OTHER
☐ CORPORATE
☐ ENGINEERING
☐ TECHNICAL SERVICES

Job Number: _____ **Location:** _____
Facility Address: _____

Name of Injured: _____
Social Security Number: _____
Date of Birth:_____ **Age:**_____ **Sex:** ☐ **Male** ☐ **Female**

Home Address: _____

Telephone Number: Home _____ Work: _____
Job Title:_____
Length of Employment with REPOWER USA:

☐ Less than 3 months
☐ 3 months to 1 year
☐ 1 year to 3 years
☐ 3 years to 5 years
☐ 5 years to 7 years
☐ More than 7 years

Accident Time:_____ **Accident Date:**_____ **Day of the Week:** _____
Month/Day/Year that Injured Returned to Work:_____

Activity at the Time of Accident: _____

_____

_____

Describe What Happened: _____

_____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.

Tools, Equipment or Machinery in Use at the Time of Accident: _____

_____

Exact Location of Accident: _____

On-Site Field Supervisor Investigation Report (Page 2)

Nature of Injury:

☐ Foreign Body ☐ Strain/Sprain ☐ Dermatitis ☐ Skin Irritation
☐ Cut ☐ Contusion/Bruise ☐ Puncture ☐ Chest Pain
☐ Burn ☐ Hearing Loss ☐ Abrasion ☐ Vision Loss
☐ Other:

Part of Body:

☐ **Right** ☐ **Left**
☐ Head ☐ Eye ☐ Ear ☐ Face ☐ Neck
☐ Shoulder ☐ Arm ☐ Elbow ☐ Forearm ☐ Wrist
☐ Hand ☐ Finger ☐ Chest ☐ Lung ☐ Groin
☐ Hip ☐ Leg ☐ Knee ☐ Ankle ☐ Foot
☐ Toe ☐ Thigh ☐ Scalp ☐ Mouth/Teeth ☐ Skull
☐ Back ☐ Abdomen
☐ Other:_____ ☐ Multiple Body Parts

Accident Type:

☐ Slip(Not Fall) ☐ Fall(Same Level) ☐ Fall(Different Level) ☐ Struck Against
☐ Struck By ☐ Caught In/Between ☐ Vehicle ☐ Electrical
☐ Repetitive Motion ☐ Inhalation ☐ Absorption ☐ Ingestion
☐ Overexertion ☐ Temperature Extreme
☐ Other:

Hazardous Condition:

☐ Improper Guard ☐ Safety Devices Inoperative ☐ Defective Tool
☐ Improper Illumination ☐ Improper Ventilation ☐ Improper Dress
☐ Hazardous Dust/Gas ☐ Poor Housekeeping ☐ Congested Area
☐ Lack of PPE ☐ Hazardous Arrangement ☐ No Hazardous Condition
☐ Other:

Agency of Accident:

☐ Machine ☐ Vehicle ☐ Hand Tool ☐ Material Handled
☐ Conveyors ☐ Hoist/Crane ☐ Building ☐ Electrical Apparatus
☐ Chemicals ☐ Ladders ☐ Boilers, Vessels
☐ Stairs/Steps ☐ Floors ☐ Sheet/Scrap Plate
☐ Other:

Did Injured Refuse Medical Attention? ☐ No ☐ Yes (Signature Required)
NOTE:
When injured person refuses Medical Attention the ON-Site Field Supervisor "MUST OBTAIN THEIR SIGNATURE" on applicable form.

Severity of Injury:

☐ First Aid Case (FAC) ☐ Professional Medical Case (PMC) ☐ Lost Time Case (LTC)
☐ Non Lost Time Accident ☐ Fatality (FAT) ☐ No First Aid Required

Transportation to Hospital Required: ☐ No ☐ Yes
Transportation Used: _____
Name of Person Accompanying Injured to Hospital: _____
Name and Address of Physician: _____
Name and Address of Hospital: _____

Describe Corrective Action and Give Completion Dates: _____

_____

_____

On-Site Field Superintendent/Supervisor Investigation Report (Page 3)

List all Witnesses:_____

_____

_____

_____

List all Personnel assigned to Work Crew:_____

_____

_____

Report Prepared By:_____
Title:_____
Date Signed:_____ **Date sent to HSE Manager:**_____
APPROVED by HSE MANAGER:_____ **Date:**_____
Comments:_____

_____

_____

_____ _____

On-Site Field Supervisor Date

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 2 – Near Miss Incident Report

Near Miss Incident Report

This Report must be completed and sent to the REPOWER USA HSE Manager within 24 HOURS.

Description: _____

_____

Time, Date and Place of Incident: _____

_____

Nature of Incident: _____

_____

_____

All Personnel Involved: _____

_____

Equipment Involved: _____

_____

Description of Events: _____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.

Analysis: _____

_____

_____

Potential Loss Severity: ☐ Major ☐ Serious ☐ Minor ☐ None

Probable Recurrence Rate: ☐ Frequently ☐ Occasionally ☐ Rarely

Prevention:		
Specific Corrective Measures	Responsible Position/ Parties	Estimated Completion Date

_____ _____

On-Site Field Supervisor Date

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 3 – Vehicle Accident Report

Vehicle Accident Report (Page 1)

This Report must be completed and sent to the REPOWER USA HSE Manager within 24 **HOURS.**

Division:

☐ WIND TURBINE
☐ OPERATIONS
☐ WORK MANAGEMENT
☐ OTHER
☐ CORPORATE
☐ ENGINEERING
☐ TECHNICAL SERVICES

Name:_____ **Driver's Age:**_____ **Date of Accident:** _____

Date of Hire:_____

☐ **Company Car No.:**_____
☐ **Personal Car**
☐ **Rental/lease vehicle** **Type of vehicle:** _____
Work Location: _____

Accident Type:

☐ HIT OTHER IN REAR
☐ HEAD-ON COLLISION
☐ CUT IN OR OUT-SIDESWIPED
☐ PULLED FROM PARKED POSITION
☐ JACKKNIFE
☐ OTHER
☐ INTERSECTION
☐ BACKING
☐ LOADING-UNLOADING
☐ CARGO FELL OUT
☐ UPSET
☐ PEDESTRIAN
☐ HIT STATIONARY OBJECT
☐ HIT IN REAR
☐ PARKED

Description of Accident (Draw Map of Accident on back, if necessary):

Vehicle Accident Report (Page 2)

Description of Accident: _____

_____

_____

_____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.

Accident Judged as: ☐ Avoidable ☐ Unavoidable

Recommended Preventive Action: _____

_____

_____

_____

Driver's Acknowledgement

I have read this report and agree to follow the above suggestions. In the future I will not only operate my vehicle in the safest possible manner but will be prepared to allow for the unsafe actions of other motorists and pedestrians.

Driver's Signature_____ Date_____

On-Site Field Supervisor's Signature _____ Date _____

Section I – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 4 – Property Damage Report

Property Damage Report (Page 1)

This Report must be completed and sent to the **REPOWER USA HSE Manager within 24 HOURS.**

Division: _____

☐ WIND TURBINE
☐ OPERATIONS
☐ WORK MANAGEMENT
☐ OTHER
☐ CORPORATE
☐ ENGINEERING
☐ TECHNICAL SERVICES

Customer: _____ **Location:** _____
Accident Date: _____ **Accident Time:** _____
All Personnel Involved: _____

_____

Equipment Damaged: _____

_____

_____

Owner/Rented From: _____

Extent of Damage: _____

Cause: _____

_____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.

Estimated Downtime: _____ **Estimated Cost to Repair:** _____

Description of Accident: _____

_____

_____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.

_____ _____
On-Site Field Superintendent/Supervisor Date

_____ _____
Representative of Damaged Equipment Date

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 5 – Spill Report Form

Spill Report Form (Page 1)

This Report must be completed and sent to the REPOWER USA HSE Manager within **24 HOURS**.

Location of Spill/Release: _____

Facility: _____

Country/State/County: _____

Landowner(s): _____

_____

Person Completing Spill Report Form: _____

SPILL/RELEASE SPECIFICS

Date and Time of Spill/Release: _____

_____

Substance Spilled/Released: _____
Volume Spilled/Released: _____
Volume Recovered: _____
If a Chemical was released, What is the know chemical's "Reportable Quantity": _____

_____

Cause of Incident: _____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.
Did spill reach water :(rivers, streams, slews, lakes, ditches, etc?) ____ Yes ____ No

If Yes: Name of water source: _____
Is slick moving? If so where? _____
Containment and cleanup actions: _____

_____

_____

Type of Waste Generated: _____

_____

Waste Disposition: _____

_____

_____

Spill Report Form (Page 2)

Any Immediate Damage Observed to Plants/Animals: _____

Plans To Prevent Reoccurrence: _____

REPORTING RECORD

Person in Charge and Telephone Number: _____
Facility On-Site Field Supervisor:
Date/Time Contacted: _____
Person Contacted: _____
Called By Whom: _____

REPOWER USA:
Date/Time Contacted: _____
Person Contacted: _____
Called By Whom: _____

If into Waterways:
National Response Center: 800/424-8802
Date/Time Contacted: _____
Person Contacted: _____
Called By Whom: _____
NRC Report Number: _____
State General Land Office:
Date/Time Contacted: _____
Person Contacted: _____
Called By Whom: _____
State GLO Report Number: _____
Comments made by Regulatory Agency: (i.e. written report required, etc.)

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 6 – Accident Report (as applicable for insurance carrier)

THIS FORM LEFT BLANK FOR INSERTION OF BELOW ITEM

UTILIZE LOCAL STATE INJURY FORM

TO BE OBTAINED FROM

INSURANCE CARRIER

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 7 - Employee Refusal of Medical Attention

Employee Refusal of Medical Attention

I have been advised of my right to medical attention due to an injury or potential injury on the job.

I have assisted in filling out the appropriate Accident/Injury/Incident/Near Miss Report and submitted the same to On-Site Field Supervisor and HSE Manager.

With my signature, I hold **REPOWER USA** harmless of any additional sustained injuries resulting from my refusal of medical attention at time of injury.

Acknowledged:

_____

Employee Signature

_____

Employee Social Security Number

_____ _____

Print Name Date

_____ _____

On-Site Field Supervisor Date

Section III – Forms & Information
7.1.1 RPSHSE – 1
Accident/Injury/Near Miss/Incident Investigation Reporting

Form 8 – Employee Injury Report

Employee Injury Report (Page 1)

This Report must be completed and sent to the **REPOWER USA HSE Manager within 24 HOURS.**

Name of Injured: _____

Social Security Number: _____

Date of Birth:_____ **Age:**_____ **Sex:** ☐ **Male** ☐ **Female**

Home Address: _____

_____

Telephone Number: Home _____ **Work:** _____
Job Title:_____
Length of Employment with REPOWER USA:

☐ Less than 3 months ☐ 3 months to 1 year ☐ 1 year to 3 years
☐ 3 years to 5 years ☐ 5 years to 7 years ☐ More than 7 years

Accident Time:_____ **Accident Date:**_____ **Day of the Week:** _____
Month/Day/Year that Injured Returned to Work:_____

Activity at the Time of Accident: _____

_____

Describe What Happened: _____

_____

_____

NOTE:
The What, When, Where, Why, and How method to describe accident/injury/incident/near miss being investigated.

Report Prepared By:_____

Title: _____

Date Signed:_____ **Date sent to HSE Manager:** _____

APPROVED by HS&E MANAGER:_____ **Date:** _____

Comments:_____

_____

_____ _____
Employee Signature Date

REpower Systems	Section III RPSHSE 7.1.2	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format Evergreen QHSSE Solutions LLC	On File
11/08	Owens O'Quinn – QHSSE Consultant Evergreen QHSSE Solutions LLC	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III 7.1.2 RPSHSE - 2
Job Site HSE Inspection (JSSI) Job Safety Analysis (JSA)

Contents

Section	Topic	Page No.
1.0	Introduction	3
2.0	Policy	4
3.0	Procedures	6

1.0 Introduction

7.1.2 RPSHSE - 2 Inspections are a frequently used form of analysis to prevent accidents. It is possible to chart on paper many of the possible things that could go wrong, but in operating systems, inspections must be performed to detect actual faults and failures in equipment plus unsafe activities in the workplace. Inspections are a vital part of preventive and proactive management of accident/incident/near miss prevention.

There are several types of inspections; however the most frequently used are "general" and "detailed". In general inspections wide ranges of deficiencies are identified. In any particular facility the general inspection may only consist of a walk through that considers a wide range of safety problems.

There are also detailed inspections, which are tailored to all activity and equipment involved. For example, a rigging inspector must be able to identify about twenty (20) different kinds of effects in wire rope, some of which may be very visible, and others may be extremely difficult to identify and require special training and considerable experience.

Scheduled inspections are those required on a regular basis. Examples include:

- Annual Mineral Management Service (MMS) for the Gulf of Mexico Operators.
- **REPOWER USA** HSE Annual & Quarterly Inspections.
- **REPOWER USA** Employees Daily Site Inspections.

These inspections are governed by many aspects, which include legal or regulatory requirements, work cycles, equipment run hours, preventative maintenance schedules and preventive and proactive accident prevention programs.

Specialists may perform unscheduled inspections on random visits. These specialists include **REPOWER USA** Management Personnel, the HSE Manager, Third Party Auditors and Original Equipment Manufacturer (OEM) Representatives. Unscheduled inspections may occur when equipment is brought for maintenance, during Job Hazard Analysis (JHA) or Job Safety Analysis (JSA), process operation changes, and facility reviews.

The goal of every person filling the capacity of Inspector is to identify hazardous and defective conditions. Several strategies are used to cover the inspections. Some apply to the inspection of critical conditions or equipment that may require detailed training and the knowledge and experience necessary to recognize a problem. Some inspections may require the use of special instruments and tools with a properly trained inspector knowledgeable in the use and procedures for them. In other applications, nearly everyone is taught to identify unsafe activities and conditions.

Other inspections are needed by personnel that are not directly involved in performing work on the equipment or in the facility being inspected. This is necessary because people may not see their own mistakes or may be too familiar with the facility or equipment to notice things that are amiss.

Additionally, in some cases two (2) inspectors are necessary to consider the work completed. The individual who has performed the work should be the first inspector and a co-worker, which should be the On-Site Supervisor or specialists. The second inspector may be more knowledgeable and experienced. This double inspection provides redundancy and documented follow-up. Each situation will dictate who is qualified to conduct an inspection.

2.0 Policy

REPOWER USA's policy is to inspect Job Sites with HSE inspections for the following reasons:

- Assist in discovering unsafe conditions.
- Assist in bringing the operation up to accepted and approved safety standards.
- Follow up on previously identified hazards and unsafe activities or conditions.
- To take preventive and proactive approaches to accident/incident/near miss prevention.
- Communicate to **REPOWER USA** Management what hazards exists and what controls been implemented to eliminate or reduce their impact at the facility.

Each specific job site should have a job site inspection form developed to profile the particular equipment and/or operations for that facility. The inspection forms may include daily, weekly, monthly or annual required inspection guidelines by regulatory agencies along with **REPOWER USA** Health, Safety and Environmental Programs.

2.1 Informal Unscheduled Inspections

The **REPOWER USA** On-Site Supervisor, the On-Site HSE Coordinator and employees will do informal inspections on a daily basis. These routine observations should be informal; however, any observed deficiencies should be reported immediately and promptly corrected.

2.2 Formal Scheduled Monthly/ Weekly Inspections

The **REPOWER USA** On-Site Supervisor, On-Site HSE Coordinator, and/or a designated employee should do formal Scheduled Weekly Inspections on a regular basis. Depending on the job site, location, size, etc., these inspections may be weekly or monthly. Report observed deficiencies immediately and institute methods for prompt correction. The **REPOWER USA** On-Site Supervisor will keep an Action File until observed and reported hazards and/or unsafe activities or conditions corrected.

Any noted unsafe activity or condition will result in the "shut-down" of the operation, de-energizing involved machinery, and/or ***"red-tagging"*** *of the unsafe equipment that* presents an imminent threat to employees' safety, which cannot be corrected.

2.3 Quarterly Inspections

The **REPOWER USA** HSE Manager along with the On-Site Supervisor of the operation or the On-Site HSE Coordinator (as applicable) will perform a quarterly inspection of each location. Each work area will be inspected and all program documentation and previous inspections reviewed. A copy of quarterly inspections will be submitted to **REPOWER USA** Management for review and will become a part of this program's documentation.

2.4 Annual Inspections

The **REPOWER USA** HSE Manager along with the Department/Head of Service responsible for the operation will perform an annual inspection of each location. Each work area will be inspected and all program documentation and previous inspections reviewed. A copy of this annual inspections will be submitted to **REPOWER USA** Management for review and will become a part of this program's documentation.

3.0 Procedures

3.1 Formal Weekly Inspections by Facility Personnel

- Make sure all items on the form are checked. If an item is not in compliance identify action taken to correct the unsafe act or condition.
- In the comments or remarks section of the form identify the non-compliance item, reference to the "letter" topic heading and "number" subtopic heading, then detail the item and show corrective action.
- Review the Inspection Report at the Weekly HSE Meeting prior to submitting it to **REPOWER USA** Department/ Head of Service and the HSE Manager.
- Forward a copy of the Inspection Report to **REPOWER USA** Department/ Head of Service and HSE Manager following completion of the report for review and follow up.

3.2 Walk-through Inspection by Facility Personnel

- **Office Area** - Make sure the proper manuals, posters, etc. are present and posted.
- **Storage Areas** - (i.e.: tool storage areas, tool trailers, warehouse areas) Look for items such as the condition of tools, tool guards, assured grounding program, material storage, flammable liquid storage, housekeeping, fire extinguisher, etc.

- **Fuel Storage Area** - Make sure any tanks are in good condition, tied down securely, and grounded properly. The contents must be labeled, no-smoking signs posted, and near a fire extinguisher, etc.
- **Compressed Oxygen and Gas Cylinder Storage** - Check for valve caps, proper separation, and that they properly secured. There should be no-smoking signs posted, fire extinguishers present and good housekeeping.
- **Work Areas** - Observe work areas and look for unsafe acts and unsafe conditions relating to those activities. Also, evaluate items performed to ensure completion in a good, safe manner. Once the inspection is complete, review the items noted with the entire crew at the Weekly HSE Meeting prior to submitting the formal report. Once the formal report is completed, submit a copy to **REPOWER USA** Operation/ Head of Service and the HSE Manager.

3.3 Formal Quarterly Inspections by REPOWER USA HSE Manager

Make sure all items on the form are checked. If an item is not in compliance, note the action taken to correct the unsafe act or condition.

In the comments or remarks section of the form, identify the non-compliance item, make reference to the "letter" topic heading and "number" subtopic heading, then detail the item and show the corrective action taken.

- **Office Area** - Make sure the proper manuals, posters, etc. are present and posted.
- **Storage Areas** - (i.e.: tool storage areas, tool trailers, warehouse areas) Look for items such as the condition of tools, tool guards, assured grounding program, material storage, flammable liquid storage, housekeeping, fire extinguisher, etc.
- **Fuel Storage Area** - Make sure any tanks are in good condition, tied down securely, and grounded properly. The contents must be labeled, no-smoking signs posted, fire extinguishers present, etc.
- **Compressed Oxygen and Gas Cylinder Storage** - Check for valve caps, proper separation, and that they are secured properly. There should be no-smoking signs posted, fire extinguishers present, and good housekeeping.
- **Work Areas** - Observe work areas and look for unsafe acts and unsafe conditions relating to those activities. Also, evaluate items that are satisfactory or that are being performed in an appropriately safe manner.
- Review the Inspection Report with the **REPOWER USA** On-Site Supervisor and, as applicable the On-Site HSE Coordinator prior to submitting it to the Department/ Head of Service.

- A copy of the Inspection Report must also be forwarded to the HSE Committee Members for review prior to next scheduled HSE Committee Meeting.
- A copy of the completed check list and inspection report **SHALL** be given to the **REPOWER USA** On-Site Supervisor with instructions to correct any non-compliance items, and to reply by a certain date to advise of the corrective action taken.

3.4 Formal Quarterly Inspections by REPOWER USA Department/ Head of Service

Make sure all items on the form are checked. If an item is not in compliance, action must be taken to correct the unsafe act or condition.

In the comments or remarks section of the form, identify the non-compliance item, make reference to the "letter" topic heading and "number" subtopic heading, then detail the item and show the corrective action taken.

- **Office Area** - Make sure the proper manuals, posters, etc. are present and posted.
- **Storage Areas** - (i.e.: tool storage areas, tool trailers, warehouse areas) Look for items such as the condition of tools, tool guards, assured grounding program, material storage, flammable liquid storage, housekeeping, fire extinguisher, etc.
- **Fuel Storage Area** - Make sure any tanks are in good condition, tied down securely, and grounded properly. The contents must be labeled, no-smoking signs posted, fire extinguishers present, etc.
- **Compressed Oxygen and Gas Cylinder Storage** - Check for valve caps, proper separation, and that they are secured properly. There should be no-smoking signs posted, fire extinguishers present, and good housekeeping.
- **Work Areas** - Observe work areas and look for unsafe acts and unsafe conditions relating to those activities. Also, evaluate items that are satisfactory or that are being performed in a good, safe manner.
- Review the Inspection Report with the **REPOWER USA** On-Site Supervisor and, as applicable the On-Site HSE Coordinator prior to submitting it to the Department/ Head of Service.
- A copy of the Inspection Report must also be forwarded to HSE Committee Members for review prior to the next scheduled HSE Committee Meeting
- A copy of the completed check list and inspection report **SHALL** be given to the On-Site Supervisor with instructions to correct any non-compliance items, and to reply by a certain date to advise of the corrective action taken.

Section III
7.1.2 RPSHSE – 2
Job Site HSE Inspection (JSSI) Job Safety Analysis (JSA)

Form 1 - Onshore Job Site HS&E Inspection Report Checklist

Onshore Job Site HS&E Inspection Report Checklist (Page 1)

On-Site Field Superintendent/ Supervisor:	Department/Operations Manager:	Date of Inspection:
Department:	Job Location:	Job No:

NA = Not Applicable	OK= Acceptable	AN= Action Needed	AT= Action Taken

IAN = Immediate Action Necessary
NOTE: This will include all items that are Immediately Dangerous to Life or Health (IDLH) that may require shut down of equipment or facility to prevent any injury or damage to individuals or property.

NOTE: This checklist is to be used as a reference to assure that all items are addressed during the inspection. Additional checklist should be developed that are job or situation specific and included in this manual for use during the Quarterly and Annual Formal Inspections.

A.) Recordkeeping

29 CFR 1926.20 – 25

Item	NA	OK	AN or IAN	AT
1. OSHA Poster				
2. OSHA 300 Log				
3. Injury/Illness Reports				
4. Assured grounding				
5. Weekly HS&E Inspections				
6. Weekly HS&E Meetings				
7. Employee Orientation				
8. Employee Training				
9. Equipment (General)				
10. Respirator Training				
11. MSDS reviewed at-Site				

B.) Health & Environment
29 CFR 1926.50 – 57

Item	NA	OK	AN or IAN	AT
1. First Aid Supplies				
2. Posted Emergency Telephone numbers				
3. Valid First Aid Person				
4. Noise Protection				
5. Dust Protection				
6. Illumination				
7. Ventilation				
8. Housekeeping (General)				
9. Radiation Exposure				
10. Chemical Hazards				
11. Posted No Smoking Signs				
12. Eating Areas				

Onshore Job Site HS&E Inspection Report Checklist (Page 2)

C.)Personal Protective Equipment (PPE) 29 CFR 1926.100 – 105					D.) Fire Protection & Prevention 29 CFR 1926.150 – 154				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Safety Glasses/Goggles					1. Fire Extinguisher(s)				
2. Hearing Protection					a. Charged & visible				
3. Fall Protection					b. Proper type				
4. Respiratory Protection					c. Current Inspection				
5. Chemical Exposure Protection					d. Proper Quantity (at entire site)				
6. Safety Shoes					2. Posted NO Smoking Signs				
7. Face Protection					3. Flammable Liquid Storage area				
8. Hard Hats					4. Temporary Buildings				
					5. Temporary Heating Devices				
E.) Signs, Signals & Barricades 29 CFR 1926.200 – 202					**F.) Material Handling, Storage, Use & Disposal 29 CFR 1926.250 – 305**				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Posted Danger Signs					1. Material Stacked & Secured				
2.Assigned Flag Person					**Material Properly Stored**				
3.Proper Barricades with adequate warnings of hazards in area					2. Inspect all Rigging Equipment: a. slings b. safety devices				
					Material Properly Labeled				
					Material Monitoring System				
G.) Tools & Equipment 29 CFR 1926.300 – 305					**H.) Welding, Cutting & Brazing 29 CFR 1926.350 – 353**				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Proper Guards Installed					1.Compressed Gas Handling				
2.Pressure Switches					2. Hoses, torches, gauges				
3. Proper Use of Hand tools					3. Flashback Protection				
4.Proper use of Power tools					4. Arc Welding Equipment				
5.Abrasive & grinding tools					5. Ventilation, Hoses & Leads				
6. Condition of Tools					6. Fire Protection				

Onshore Job Site HS&E Inspection Report Checklist (Page 3)

I.) Electrical 29 CFR 1926.400 – 404					J.) Ladders 29 CFR 1926.450				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Proper Grounding & Bonding					1. Physical Condition				
2. Electrical Cords					2. Properly Sized & Placed				
3. Ground Fault Interrupter & Assured Grounding					3. Properly Constructed Job Ladders				
4. Proper Battery Use & Storage					4. Proper Ladder Footing placement & tie-down				
5. Proper use of Temporary Power					5. Non-Metal Ladders				
K.) Scaffolding 29 CFR 1926.451					**L.) Concrete, Forms & Shoring 29 CFR 1926.700 – 701**				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Proper Footing					1. Proper Support				
2. Proper Anchorage & Bracing					2. Stripped Forms				
3. Proper Rails & toe-boards					3. Platforms & Access				
K.) Scaffolding 29 CFR 1926.451					**L.) Concrete, Forms & Shoring 29 CFR 1926.700 – 701**				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
4. Proper Planking					4. Rebar Protection				
5. Proper Access					5. Guide-rails and Guying				
6. General Condition									
K.) Scaffolding 29 CFR 1926.451					**L.) Concrete, Forms & Shoring 29 CFR 1926.700 – 701**				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
7.Suspension Scaffolds (if applicable)									
a. Wire Ropes									
b. Fall Protection									

Onshore Job Site HS&E Inspection Report Checklist (Page 4)

M.) Floor/wall Openings & Stairways 29 CFR 1926.500					N.) Excavation, Trenching & Shoring 29 CFR 1926.650 – 652				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Guardrails & Toe-boards					1. Angle & Repose of Sloping				
2. Properly Secured Hold Covers					2. Spoil & Material Storage				
3. Handrails					3. Support & Shoring System				
4. Proper Sharp Edge Protection					4. Access & Egress				
					5. Digging Permit				
					6. Barricade, Signs & Isolation of Area				
O.) Motor Vehicles 29 CFR 1926.601					P.) Cranes, Hoist & Aerial Lifts 29 CFR 1926.550				
Item	NA	OK	AN or IAN	AT	Item	NA	OK	AN or IAN	AT
1. Seatbelts & Rollover Protection					1. Posted Load Capacity				
2. As Applicable Flagman					2. Legible Boom Angle				
3. Properly Installed Backup Alarms									

NOTES & SUMMARY

Date:_____
Location:_____
Inspector:_____
Reason for Inspection:_____
_____

Comments:
{Reference area by identification number on checklist}

_____
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_____

Page No._____

NOTES & SUMMARY

Comments:

{Reference area by identification number on checklist}

Page No. _____

Signature: _____

Section III
7.1.2 RPSHSE – 2
Job Site HSE Inspection (JSSI) Job Safety Analysis (JSA)

Form 2 - HSE Concern Action Tracking Chart

HS&E Concern Action Tracking Chart

Date Submitted	Concern No.	W/O No. Issued	Description of Safety Concern	Last Action Taken	Contact Date	Assigned Person	Target Date	Monthly Status Open/Closed	Completed Date

Section III
7.1.2 RPSHSE - 2
Job Site HSE Inspection (JSSI) Job Safety Analysis (JSA)

Form 3 – HSE Concern Report Form

HSE Concern Report Form

Date of HSE Concern Report:_____
Location:_____
Submitted to:
On-Site Field Supervisor:_____ On-Site HSE Coordinator:_____
Head of Service/Operations Manager:_____ HSE Manager:_____
Date Submitted to above REPOWER USA Personnel:_____
Summary of HSE Concern:

_____
_____
_____
_____
_____

Was an accident/incident/near miss reported for this HSE Concern: Yes:_____ No:_____
Equipment involved:_____
_____
Type of Operations involved:_____
_____
Recommended Solution of HS&E Concern:_____
_____
_____
_____
Date received by:
On-Site Field Supervisor:_____ On-Site HSE Coordinator:_____
Head of Service/Operations Manager:_____ HSE Manager:_____
Immediate action taken:_____
_____
Date entered on Tracking Chart Form:_____
Designated responsible person(s) for investigation:_____
Date of Investigation:_____
Final action after investigation:_____
_____
Date final action reported to location of HSE Concern submittal:_____
Closure Date:_____

Forms

REpower Systems	Section III RPSHSE 7.1.3	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
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11/08	J.K. Batrilleaux – Grammar/Technical Format Evergreen QHSSE Solutions LLC	On File
11/08	Owens O'Quinn – QHSSE Consultant Evergreen QHSSE Solutions LLC	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III 7.1.3 RPSHSE – 3
General Office & Warehouse HS&E

Contents

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3.0	Emergency Procedures in Case of Fire	3
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5.0	Housekeeping	5
6.0	Electrical Equipment	6
7.0	Flammable and Hazardous	7
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12.0	Stress/Safety/Security	12

1.0 Introduction

7.1.3 RPSHSE – 3 clarifies the misconception many people have about office injuries; they believe that they are non-existent. However, this is a serious mistake. Complacency, believing office accidents are unimportant, and/or not paying attention and hurrying are the primary causes of office accidents. Office and warehouse injuries may seem inconsequential because they often lack dramatic impact however, not giving these injuries the proper attention may result in infections and lost time for the injured employee. Injuries in the home and the office can be controlled by using the following precautions listed and by each individual being committed to safe behavior.

This standard covers precautions for controlling and reducing exposure to these hazards.

Examples of Office Incidents

- Slips, trips, and falls on the same level or from elevations
- Lifting or moving heavy or bulky objects
- Repetitive or awkward movements
- Falling objects or encounters with fixed or moving objects
- Caught in or between, abrasions
- Eye strain or muscle aches
- Stress
- Security and Safety
- People Problems

2.0 HSE Procedures

- Keep current emergency phone numbers for police, fire, and medical aid near the telephones, on bulletin boards, and at the receptionist area.
- Become familiar with all exits. An evacuation plan should include both primary and secondary escape routes.
- Know where first aid kits are located. Know who has been trained in first aid and cardiopulmonary resuscitation (CPR) procedures and where these people are located.

3.0 Emergency Procedures in Case of Fire

From chemical emergencies to fires and natural disasters like tornadoes, you need to know the best response for when something goes wrong. Your employer develops a plan to deal with such emergencies.

To do your part

- Know how to report a fire. Know and follow the Fire Prevention procedures in **REPOWER USA** HSE and Training Manual.
- Know the location and operating methods of all fire fighting equipment in the building.

- Know which type of extinguisher is effective on wood, paper, oil, grease and electrical fires.
- Be familiar with survival techniques in case you are trapped by fire.
- If caught in a smoke filled area, stoops over at the level of the light switch and take short breaths through your nose. If possible, hold a cloth in front of your face. **Note:** Heavy gases are heavier than air and will be floor-level.
- Before opening a door, touch it to check its temperature. If it is hot, **DO NOT** open it.
- During fire alarms, make quick last minute searches of your area to ensure all personnel are evacuating. Clear the area quickly and aid others if requested. Leave your area immediately. Close the door on your way out.
- During evacuations, stay calm and move rapidly. Follow the nearest exit signs. Remove high heels to avoid falling down stairs and slipping on floors.
- All employees are responsible for visitor orientation and evacuation.

4.0 Office Equipment and Furniture

4.1 File Cabinets

- **Do Not** open a file drawer if someone is working underneath.
- Whenever possible, arrange filing cabinets side by side and bolt together.
- **Do Not** overload the upper drawers. Only open one drawer at a time, never leave an open drawer unattended.
- **Do Not** place cabinets and files so that opening drawers block passageways.
- **Do Not** stack separate two-drawer filing cabinets unless they are designed for such use and can be fastened together.
- **Do Not** stack bookcases or file cabinets on top of tables or desks.
- **Remember,** large files and bookcases should be bolted to the wall, particularly in file rooms and libraries.
- **Do Not** attempt to move heavy files cabinets without assistance.

4.2 Office Furniture

- Properly position a chair before sitting down, and once seated, keep at least one foot and all chair legs on the floor at all times.
- **Do Not** scoot across the floor while sitting in a chair and do not lean sideways from a chair to pick up an object.
- Placing your feet on a desk or table while sitting in a chair can cause a painful and serious injury if your fall. This is particularly hazardous if the chair has casters.
- Always use an approved ladder or stool to reach articles above eye level.
- Avoid storing heavy objects above eye level.
- Broken glass tops on desks must be removed as soon as possible.

4.3 Office Supplies and Equipment

- Use staplers, paper cutters, pencils, knives, and scissors with care; they can produce serious cuts or wounds.
- A paper edge is capable of inflicting a painful cut. Avoid cuts by picking up an individual sheet of paper at the corner, not at the side. When sealing envelopes, use a damp sponge or commercial moisteners.
- Handle a sharpened pencil as carefully as you would an open knife or an ice pick. **Do Not** place sharpened pencils or other pointed objects upright in a container or upright in a pocket of your clothing.
- Pass scissors handle first, blades together, and keep them where they cannot fall.
- Keep items such as paper clips, thumbtacks, rubber bands, pencils, and the like off the floor where they are a slipping hazard.
- Secure paper cutter blades in the down position when not in use.
- Store X-Acto knives, thumb tacks, and other sharp objects in the proper containers or with the blades and points covered or shielded. Secure sharp edges before disposing of these items.

5.0 Housekeeping

Every year, nearly half a million people are injured when they slip, trip or fall at work. (Reference 7.1.18 RPSHSE – 18 Fall Protection and 7.1.19 RPSHSE – 19 Aerial Work)

5.1 To prevent slips

- Clean up spills immediately.
- Barricade wet areas until they are dry.

5.2 To prevent trips

- Keep pathways and work areas clean and free of clutter, including purses and boxes.
- Watch for and fix loose rugs and uneven flooring.
- Eliminate snaking extension cords and cables.

5.3 To prevent falls

- **Do Not** use makeshift climbing devices like boxes, shelves or chairs.
- Get a step stool or ladder to reach anything above shoulder level.
- Inspect the ladder or step stool before you use it.

5.4 General precautions

- Keep all passageways, entryways, aisles, storerooms, service rooms and work areas clean, orderly, sanitary and well maintained, with no obstructions.
- Aisles and hallways shall provide unobstructed movement and immediate access to emergency exits and to fire protection equipment.
- Properly stack material/boxes to avoid creating a hazard.

- Keep food, drink and excessive combustible materials away from electrical equipment, computers, and workstations of PC's. Damage to circuitry or destructive fires may result.
- **Do Not** throw glass, cans with rough edges, or similar objects in a wastepaper basket. **Do Not** use a wastepaper basket as an ashtray.
- Sharp burrs on metal furniture and splintered edges on wooden furniture should be eliminated by repair or replacement.

6.0 Electrical Equipment

Electrical equipment can pose a hazard if not inspected regularly and used properly.

- Use of extension cords should be minimized and arranged to avoid tripping hazards and electrical overload.
- **Do Not** pull an electrical cord to shut off power to any equipment.
- Disconnect (unplug) the power source before trying to remove jammed materials from a machine.
- Installation or repair of any electrical equipment shall be done by qualified workers using only approved materials.
- Office machines with moving parts, high temperature hazards, and electrical shock potential shall not be operated without the proper safeguards in place.
- Keep electric and telephone or PC cords off the floor and out of aisles. Cords with worn or exposed wires shall be replaced.
- Furniture should always be arranged to avoid contact with heaters.
- Electrical outlets must not be overloaded. Use caution with portable electric heaters.
- Extreme caution should be taken with paper shredders. Keep dangling ties, jewelry, and loose clothing away from the machines by standing to the side. Never try to un-jam a shredder unless the power is turned off.

7.0 Flammable and Hazardous Materials

7.1 To prevent fires

- Keep flammable or combustible material and residue in a building or operating area to a minimum. Store these in metal safety cans or storage cabinets that meet Underwriter's Laboratories, Inc. or Factory approval. Do not leave containers uncapped.
- Keep all flammable materials away from ignition sources.
- **Do Not** use aerosol sprays, cleaners, or insect repellant near ignition sources.
- Keep portable electric heaters away from furniture and other flammable materials. **Do Not** block forced-air heater outlets.

7.2 To protect yourself if a fire occurs

- Keep equipment and furniture away from exits and never lock or block exit doors.
- Learn the emergency exit routes in advance so you can get out quickly.
- At the first sign of a fire, call 911 and/or activate the appropriate Emergency Response Plan (ERP).
- Use the nearest extinguisher to put out a small fire if you have been trained to do so.
- If the fire is large, leave the area immediately by the closest evacuation route.
- Activate the fire alarm as you leave or report the fire from a safe place.
- Report to your predetermined assembly point.

8.0 Engineering/Ergonomics

8.1 Workstations

Keeping your workstation safe and comfortable is an excellent way to prevent injuries at work. Proper work area arrangement makes your work easier and reduces the risk of injuries

- Each workstation should be arranged to meet specific individual needs. Select the proper chair, adjust the chair's height, organize the desk, position the video monitor, and position the keyboard to suit the individual.
- When working at a PC for long hours, periodically change position, stand up and stretch to relieve muscle tension and eyestrain.
- Lighting should be installed or positioned to minimize direct or reflected glare or harsh shadows and to counteract potential stress and eye fatigue in PC users.

8.2 Musculoskeletal Disorders

Musculoskeletal disorders occur when you strain your body beyond safe limits or do the same thing repeatedly without giving your body time to rest.

Musculoskeletal disorders can occur at work or at play but all begin with physical stress on:

- Muscles
- Ligaments
- Nerves
- Tendons
- Cartilage
- Joints
- Spinal discs

The most common causes are:

- Awkward postures
- Repetitive motion

- Improper lifting
- Contact stress
- Extreme force
- Vibration

8.3 Prevention

The best way to prevent musculoskeletal disorders is to change the way you work to remove undue stress on your body.

- Learn to recognize and avoid awkward postures and positions.
- Arrange your work and your workstation so you keep your muscles relaxed.
- Move the work to you instead of moving your body to the work.
- Try to keep your work close to your body and near waist level.
- Keep commonly used items within easy reach.

8.4 Keyboard

If you use a keyboard

- Position it so your arms hang comfortably from your shoulders and close to your sides.
- Bend your arms at the elbow at a comfortable angle.
- Keep your hands in a straight line with your forearms so you do not bend your wrists.
- Use a keyboard tray long enough to use your mouse on it.
- Use a document holder to help you sit in a neutral position.

8.5 Video Display Terminal

If you work at a **VDT**

- Set the top of the screen at or just below eye level when you are sitting up straight.
- **Do Not** hunch over or tilt your head to avoid glare.
- Close blinds or change lighting to reduce glare.
- Your office area should be about as bright as your monitor screen.

8.6 Chair

You should adjust your chair

- To let you reach your work without hunching forward or pulling your shoulders up.
- So the seat height keeps your thighs parallel to the floor and your feet flat on the floor.
- To support your lower-back and keep its natural curve.

8.7 Planning

Protect your body from stress and injuries by reducing reaching, lifting and material moving. If you find you perform the same task repeatedly, decide whether you can make it easier or cut down on how often the task is repeated.

8.8 Body Awareness

Do regular body checks to monitor for body position and muscle stress. Try to vary your tasks to give your muscles a chance to rest.

If your muscles tighten up, or if you fell stiff, take a quick break:

- Stretch and move the tight muscles in the opposite direction.
- Drop your shoulders down and back.
- Roll and refocus your eyes.
- Take a few deep belly breaths.

9.0 Doors and Walkways

- Observe these precautions with doors:
  - Open doors into offices and hallways carefully; something or someone may be on the other side.
  - Approach blind corners with caution, especially near coffee rooms and reproduction rooms.
  - Approach doors that open toward you from the side, so that you will not be in the path of the door's swing if it should be opened unexpectedly.
  - **Do Not** stand in front of a door that opens toward you.
- Caution should be exercised when wearing high heels and/or hard heels in the office.
- Remove any type of spilled liquid from the floor immediately.
- Tack down loose carpeting or flooring.
- Be extremely careful entering buildings on wet/rainy days. Wipe your shoes dry on floor mats before walking on waxed floors. When office-building floors are waxed, a non-skid wax should be used. Check for raised or unsecured floor tiles to prevent tripping hazards.
- Use handrails on stairs. Never run on stairs and always keep one hand free.
- Approach blind corners with caution, especially near coffee rooms and reproduction rooms.

10.0 Lifting Techniques

When material must be carried, use proper lifting and carrying techniques. Improper lifting techniques may cause back strains and injuries, even if the object was not too heavy.

10.1 The key to safe and easy lifting

- Face the object squarely and get as close to it as you can.
- Balance yourself solidly, with one foot slightly in front of the other.
- Squat down, bending your knees. Keep your back straight and as nearly upright as possible.
- Grip the object firmly.

- Take a breath and hold it. Tighten your abdomen.
- Keeping your back straight, use your legs to bring you to a standing position.
- Make the lift smoothly and under control.
- When carrying an object, grip it firmly and hold it as close to your body as possible.
- Use a safe technique for setting the load down.
    - Keep your back straight.
    - Tighten your abdomen.
    - Bend at the knees.
    - Whenever possible, store heavy loads off the floor.

10.2 Special Dangers

- **Do Not** lift objects over your head.
- **Do Not** twist your body when lifting or setting an object down.
- **Do Not** reach over an obstacle to lift a load. Move whatever is in your way or go around it.
- Pace yourself to avoid fatigue when doing heavy work for a long period.

Office personnel going to field locations should be aware of the training and Personal Protective Equipment (PPE) that will be required for their visit and ensure they bring the equipment with them or arrange for the field to furnish the equipment before they arrive. Contact the On-Site Field Superintendent/Supervisor for specific requirements.

11.0 Warehouse HS&E

- Warehouses must have signs posted denoting **"SMOKING AREA"** and **"NON-SMOKING AREA"**.
- All storage areas must be kept free of materials that can cause tripping, fire, explosions, or pest infestation. Aisles, walkways, stairs, and loading platforms must be kept free of such materials.
- Gasoline and other volatile materials must not be stored in a warehouse. Appropriate outside storage should be provided.
- Large quantities of paint and thinners must also be stored outdoors in approved lockers and labeled for identification.
- Allowable floor or platform loadings must be determined by authorized professional personnel and posted. **Do Not** exceed the OSHA safe loading limit requirements.
- A nonskid surface should be provided on ramps and walkways where there is danger of slipping.
- **Do Not** overload shelves. Inspect shelves for strength.
- Bins and racks should be spaced to allow safe access to material.

12.0 Stress/Security/Safety

Working in an office is similar to being in the jungle. The dangers are hidden and subtle. You have to be on your guard every minute and ready to take action before you get hurt

12.1 Stress

Some general rules can help you deal with stress before it affects your work and your behavior.

- Work with your employer to make your workstation and tasks as comfortable as possible.
- Get organized – keep a list of tasks and check them off as you finish.
- Take breaks – stretch and change your position regularly.
- Relax your body – take deep belly breaths while you drop your shoulders and relax all your muscles.
- Keep a relaxed and positive outlook – replace negative thoughts with positive ones. Before you worry, ask yourself if the outcome is important and if the worrying will help.

12.2 Security and Safety

In every office, much can be done to improve security and safety within your area of responsibilities.

- Lock up your valuables or carry them with you.
- Mark personal items with your name or initials.
- Report all suspicious activities and situations.
- Report conditions that are safety hazards.
- Work in pairs.
- Use the buddy system when going to the restrooms, are in stairways, and in the parking lots.
- Park in well-lit areas.
- Never enter an elevator or other secluded areas with someone who looks out of place or is behaving strangely.

12.3 People Problems

Behavioral changes in fellow employees could signify a serious problem.

- Depression, angry outbursts and threats should be taken seriously and reported immediately.
- **Do Not** confront anyone who is behaving in an angry or threatening manner. Stay calm and speak softly and reassuringly as you leave the area.
- Trust your instincts. If a situation makes you uncomfortable, go to a safe location and immediately report your observations.
- When disputes or problems arise, address the problem or behavior, not the person.

Section III
7.1.3 RPSHSE – 3
General Office & Warehouse HSE

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Forms

Section III
RPSHSE 7.1.4
Classification/Rating of Fires and Extinguishers

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format Evergreen QHSSE Solutions LLC	On File
11/08	Owens O'Quinn – QHSSE Consultant Evergreen QHSSE Solutions LLC	On File
11/08	Tammy Conekin – Head of Service	On File

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Section III

7.1.4 RPSHSE – 4
Classification/Rating of Fires and Extinguishers

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1.0 Introduction

Fire extinguishers, as well as other equipment are provided for use on fires in the beginning (incipient) stage. Fires in this initial stage can be controlled or extinguished by portable fire extinguishers, without protective clothing or breathing apparatus. Any other fires should never be fought by employees but by the professional fire fighters of local fire departments. Should a fire or other emergency occur, employees should take appropriate steps to implement emergency action and/or evacuation procedures.

2.0 Fire Classification

The following classification system has been established to express the relative fire extinguishing capabilities of portable fire extinguishers.

Fires are usually divided into four basic types:

2.1 Class "A" Fires

Fires involving ordinary combustible materials (such as wood, cloth, rubber, and many plastics) and require the heat absorbing (cooling) effects of water, water solutions, or the coating effects of certain dry chemicals that retard combustion.

2.2 Class "B" Fires

Fires involving flammable or combustible liquids or flammable gases, and are readily extinguished by excluding air (oxygen), or inhibiting the release of combustible vapors, or interrupting the combustion chain reaction.

2.3 Class "C" Fires

Fires involving energized electrical equipment where safety to the operator requires the use of electrically nonconductive extinguishing agents.

Note: When electrical equipment is de-energized, the use of Class A or B extinguishers may be indicated.

2.4 Class "D" Fires

Fires involving certain combustible metals, (magnesium, titanium, zirconium, sodium, potassium, etc.) that require a heat absorbing extinguishing medium that does not reactive with the burning metals.

3.0 Fire Extinguisher Rating

On the basis of the preceding classification of fires and the physical testing of fire extinguishers by Underwriters Laboratories, Inc., (UL) ratings have been established for portable fire extinguishers.

These ratings consist of a **NUMERAL**, a **LETTER**, or combinations thereof. They appear on the labels affixed to the extinguishers listed by UL.

These NUMERALS and LETTERS *indicate the following:*

3.1 In the case of extinguishers suitable for use on Class A fires, the **NUMERAL** indicates the approximate relative fire extinguishing capabilities of various sizes of the suitable extinguishers available. For example, a 4-A extinguisher can be expected to extinguish approximately twice as much fire as a 2-A extinguisher .

3.2 In the case of extinguishers suitable for use on Class B fires, the **NUMERAL** also indicates the approximate relative fire extinguishing capabilities of various sizes of the suitable extinguishers available. In addition, the **NUMERAL** is an approximate indication of the square foot area of deep-layer flammable liquid fire that an average operator can extinguish. For example a 10-B unit can be expected to extinguish 10 square feet of deep-layer flammable-liquid fire when used by an average operator.

3.3 In the case of extinguishers suitable for use on Class C fires, no **NUMERAL** is used. Class C fires are essentially either Class A or B fires involving energized electrical wiring and equipment. The size of the different suitable extinguishers installed should be commensurate with the size and the extent of the area involving the electrical hazard or containing equipment being protected.

3.4 The **LETTERS** refer to the classes of fire on which the use of the particular extinguisher is most effective.

- **Examples**

  Foam extinguisher, rated 2-A, 5-B: This extinguisher should extinguish approximately twice as much Class A fire as a 1-A extinguisher and five times as much Class B fire as a 1-B extinguisher. Also, this extinguisher should extinguish a fire in a deep-layer flammable-liquid, such as in a drip pan having a surface area of 5 square feet, when used by an average operator.

- Dry chemical extinguisher, rated 10-B, C: This extinguisher should extinguish approximately ten times as much Class B fire as a 1-B unit and should successfully extinguish a deep-layer flammable-liquid fire with an area of 10 square feet when used by an average operator. It also is safe to use on fires involving energized electrical equipment.
- A Multipurpose extinguisher, rated 4-A, 20-B, C: This extinguisher should extinguish approximately four times as much Class A fire as a 1-A extinguisher, 20 times as much Class B fire as a 1-B extinguisher and a deep-layer flammable-liquid fire with an area of 20 square feet when used by an average operator. It is also safe to use on fires involving energized electrical equipment.
- Water type extinguishers are recommended for Class A fires only. Chemical extinguishers are recommended for Class A, B, and C fires. CO2 and Halon extinguishers are recommended for Class A, B, and C fires but are primarily used for Class C fires. Dry chemical extinguishers are used on a Class D fire but require special powder for some types of metals.

4.0 Definitions

4.1 **Combustible Liquid** – liquids with flash points at or above 100 °F. Although they are not as readily ignitable as flammable liquids, they can be ignited under certain conditions and must be handled with caution.

4.2 **Fire Point** – the lowest temperature at which the vapor-air mixture will continue to burn after it is ignited. This is generally a few degrees above the flash point.

4.3 **Fire Triangle** – flammable liquids are always covered with a layer of vapors. When mixed with air and when in contact with an ignition source, it is the vapor, not the liquid, which burns. A flammable liquid is usually more dangerous when temperatures are high because more vapors are generated.

Four components are necessary to start and sustain a fire, commonly known as the fire triangle:

Air + Heat + Fuel + Sustainable Combustion = FIRE

The most important factors in fire prevention is the containment of the fuel and the isolation of ignition sources from that fuel.

4.4 **Flammable Liquids**

- **LEL = Lower Explosive Limit** – the minimum concentration of vapor in the air below which the propagation of flame does not occur on contact with ignition source.
- **UEL = Upper Explosive Limit** – the maximum concentration of vapor in the air above which the propagation of flame does not occur on contact with ignition source.

4.5 **Flammable Liquids** – liquids with flash point below 100° F. Since this group of liquids can generate ignitable vapor concentrations at or below ordinary room or atmospheric temperatures, they must be handled and stored with extreme caution.

4.6 **Flash Point** – the lowest temperature at which a liquid gives off enough vapors to form a flammable mixture with air.

4.7 **Volatility** – the tendency or ability of a liquid to vaporize. Examples are ethanol and gasoline, which evaporate rapidly.

Source: NFPA-10,
Standard for Installation of Portable Fire Extinguishers

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
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11/08	J.K. Barrilleaux – Grammar/Technical Format Evergreen QHSSE Solutions LLC	On File
11/08	Owens O'Quinn – QHSSE Consultant Evergreen QHSSE Solutions LLC	On File
11/08	Tammy Conekin – Head of Service	On File

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Section III 7.1.4 A RPSHSE – 4 A
Fire Prevention

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1.0 Introduction

Our daily fieldwork involves the handling, transporting, and/or dealing with volumes of flammable liquids. Extraordinary measures to prevent any possibility of fire are called for on the part of all employees.

Fire extinguishers, as well as other equipment are provided for the use on fires in the beginning (incipient) stage. Fires in this initial stage can be controlled or extinguished by portable fire extinguishers without protective clothing or breathing apparatus. Any other fires should never be fought by employees but by the professional fire fighters of local fire departments. Should a fire or other emergency occur, employees should take appropriate steps to implement emergency action and/or evacuation procedures.

2.0 Emergency Preparedness

Each location should arrange an annual visit with the local fire department(s) and/or emergency response organizations to:

- Identify emergency contact personnel and points of contact (including 800 numbers)
- Discuss emergency response procedures
- Tour facilities and explaining operations and products handled
- Discuss equipment and personnel availability

3.0 General Rules

- All accidental fires on **REPOWER USA** property, no matter how small, must be reported immediately to HSE Department. The formal report should include all known or reasonably surmised details as an additional report may be required by governmental agencies.
- The prevention of fires is of utmost importance. Good housekeeping and equipment maintenance must be followed to keep fire hazards at a minimum.
- Furniture should be arranged to avoid contact with heaters.
- Matches and cigarette lighters should not be carried into any area that may have an explosive atmosphere. In operating areas with non-explosive atmospheres, only safety matches and approved double-action cigarette lighters may be carried.
- **Smoking** in operating areas is prohibited except where specifically designated by management. Smoking is prohibited on the floors of platforms and rigs, next to oil and gas wells, or in any area suspected of containing flammable vapors, whether a "No Smoking" sign is displayed or not.
    - Any area subject to contamination by flammable liquids or gases should be designated a **"No Smoking"** area by local management. **"No Smoking"** signs should be displayed in the area.
    - Attics of all buildings and warehouse areas must be designated as **"No Smoking"** areas and **"No Smoking"** signs must be prominently displayed there.

- Cans of oil and kerosene, oily rags, waste, and debris must not be allowed near stoves, furnaces, or gas fires.
- Oily waste or oil-soaked clothing must be disposed of because of the possibility of spontaneous combustion. To prevent such fires, approved metal containers must be provided for the disposal of oily rags, waste, and other flammable rubbish. These containers must be emptied often enough to keep the premises in a safe, sanitary condition.
- Buildings in which gas or petroleum products are being handled must be well ventilated. Control rooms containing a positive pressure air system must be equipped with a visible or audible alarm to detect the failure of the positive pressure air system.
- Before an open flame such as a welding torch is carried into a closed building or tank, a test should be made to detect the presence of gas, using an approved combustible-gas indicator.
- Due to the probability of electrostatic charge generation, carbon dioxide (CO_2) must not be injected into any space containing a flammable atmosphere that is not on fire.
- When high gravity/high vapor pressure hydrocarbon liquids, such as condensates, gasoline, and some crude oils, are drawn into open containers, a metal container must be used and the open container must be properly bonded or grounded.

  Bonding can be achieved by hanging the bare metal handle of the metal container (no wood, rubber, or plastic cover on the handle) over the valve from which the fluid is being drawn. It can also be achieved by setting the metal container down on a steel plate or steel deck definitely known to be in contact with the vessel from which fluid is being drawn.

  Bonding can also be accomplished by threaded connections or by connecting a metal cable from the container to the outlet piping or the container from which the fluid is being drawn. If not bonded together, each object must be separately grounded. A cable of stranded wires, rather than a single solid wire, should be employed for cables that are to be connected and disconnected frequently. Terminals should be properly secured to prevent accidental disconnections.
- High gravity/high vapor pressure hydrocarbon liquids must not be drawn into open plastic or rubber containers. These types of buckets or pails can build up an electrostatic charge and they cannot be properly bonded or grounded because of the possible non-conductivity or the high resistance composition of this material.
- Because personnel can be electrostatically charged enough to cause an incendiary spark, hands must not be placed in or under the stream being drawn into the container.
  - Before the valve is opened, human bonding can be accomplished by skin contact with the valve or vessel from which the fluid is being drawn.
- The use of gasoline as a cleaning agent is prohibited. The only flammable liquids approved for use in cleaning machinery are kerosene and varsol.

These liquids should not be used on hot metal surfaces or sprayed around operating machinery where there is a source of ignition. Hydrocarbon resistant rubber gloves should be worn to protect the hands.

- Gasoline, kerosene, or other flammable liquids must not be stored in glass containers or unapproved plastic containers. Only approved safety cans may be used to store or transport gasoline or solvents.
- Unless authorized, individuals must not draw liquid from a high pressure, field separator bleeder line to an open vessel.
- Oil and gasoline from leaks should not be burned. This leakage should be cleaned up and disposed of in a prescribed manner.
- Lines containing hydrocarbons or combustible materials under pressure must not be heated by open flame to remove ice or paraffin plugs.
- All flammable hydrocarbon leaks should be reported and repaired immediately, if possible. If immediate repair is not possible, adequate warning signs must be posted and extra precautions against fires instituted.
- In the event of a severe gasoline or gas leak in the plant yard, all fires and engines should be shut down without delay.
- When testing for gas leaks on domestic gas connections, use soapsuds or an approved leak-detector. Never use an open flame.
- Because paint, insect sprays, aerosol sprays, and most paint removers are usually flammable, they should not be used near open flames or other sources of ignition. Read the labels on the containers.
- Fire drills shall be held at regular intervals to familiarize personnel with the location and operation of fire extinguishing equipment.
- Fire fighting equipment is for the use of fire extinguishing only and must be kept in its designated place at all times when not in use.
- All fire protection equipment must be located in the designated areas that are clearly identified with the appropriate markings. This equipment should be located near likely fire hazards, but it must also be accessible to operating personnel. The number, type, and location of the extinguishers must meet the latest National Fire Protection Agency (NFPA) or other applicable standards.
- Partially used fire extinguishers must be discharged of pressure, recharged, or replaced immediately.
- Fire extinguishers should be kept filled and maintained according to the manufacturer's instructions to ensure operation at top efficiency the instant they are used. An empty, used or defective fire extinguisher must be taken out of service.
- All fire extinguisher hose nozzles should be kept free of obstructions at all times. In areas where insects tend to nest in protected small areas the nozzle should be protected to prevent plugging.

- All employees should be instructed in the proper use of available fire fighting equipment. If a place requires special precautions against fire employees at that location must be instructed in those precautions. **REPOWER USA** employees will act **ONLY** in regards to incipient stage fires which will require the use of appropriate fire extinguishers. Training for appropriate fire extinguisher usage is completed and documented in each **REPOWER USA** Training Profile with appropriate documentation to ensure that a sufficient level of competence has been demonstrated. Each **REPOWER USA** employee shall receive training prior to being assigned to a specific site and complete a refresher annually there after.

  The basic instruction is to direct the flow from an extinguisher toward the source of the flame in order to shut out oxygen. Instructions on the extinguisher labels should be observed.

- Welding on the outer shell of a fire extinguisher is prohibited unless done by an American Society of Mechanical Engineers (ASME) coded welder.
- All fire hoses and hose reels should be inspected at least once every 12 months or more frequently if subjected to unusual exposure or use.
- Instruction labels on fire extinguishers should be protected.
- Firewater systems should have a primary and secondary power source. They should be remotely located from potential fire hazard areas. These facilities should be started and operated weekly and all personnel should be familiar with the starting and operating procedures.
- Personnel assigned to locations where automatic extinguishing systems are employed should be instructed to vacate enclosed buildings in the event of an extinguisher discharging to prevent excessive inhalation of the chemical.

- In buildings equipped with an automatic fire protection system (i.e., Halon) all doors must remain closed except when persons enter or leave the building. The automatic louver closure and exhaust fan shut-down system must be operable.
- Adapters should be available to connect city fire equipment to existing equipment when possible.
- All assigned **REPOWER USA** vehicles should be equipped with an approved fire extinguisher. The size of the extinguisher should be determined by the anticipated need.
- Sock type filters that have been exposed to gas having any sulfur content should be disposed of immediately.
- The burning of waste oil, grass, brush, rubbish, or other combustible material is prohibited without supervisory authorization and the required permits.
- Extreme care should be used to prevent accidentally starting a fire when working in dry woods, brush, marshes, and prairies. A fire extinguisher or an appropriate water source should be available.

4.0 Inspections – Fire Extinguishers

A Competent Inspector (CI), in accordance with all applicable regulatory and **REPOWER USA** requirements, must perform the inspection and maintenance of all fire equipment. Records of the inspection and maintenance should be maintained.

The following general guidelines should be observed:

- All portable and semi-portable extinguishers must be inspected monthly to ensure that they are in their designated places, that they have not been tampered with, and to detect any obvious physical damage, corrosion, or other impairments.
  - A more thorough inspection should be performed every six months or yearly as conditions dictate. Extinguishers should be recharged as needed, repaired to ensure reliable operation, and replaced as needed. The following guidelines on thorough inspections are recommended:
- Inside air-conditioned buildings - once a year.
- In open buildings or outside - every six months.
  - Each extinguisher must have a durable tag securely attached to show the maintenance or recharge date.
  - Extinguishers removed from the premises to be recharged must be replaced with spare extinguishers.
- Hydrostatic testing at 75 % of factory test pressures must be conducted if a portable extinguisher shows evidence of corrosion, deterioration, or mechanical damage. Fire extinguisher hoses that have a shut off nozzle at the discharge end must be included in the hydrostatic test. Also, hydrostatic tests must be conducted at the following intervals:
  - Carbon dioxide extinguisher **5 years**
  - Dry chemical units with stainless steel, aluminum, or soldered brass shells **5 years**
  - Cartridge dry chemical units with brazed-brass or mild-steel shells such as Ansul or General, located in or around a saltwater environment or any other corrosive condition **6 years**
  - Pressurized dry chemical units with brazed-brass or mild-steel shells **12 years**
  - All others **12 years**
- Sprinkler systems must be kept in good operating condition.
- The following precautions apply to fixed dry chemical, Halon, and carbon dioxide extinguishing systems.
  - Expellant gas containers must be inspected and checked for pressure and weight against the required minimums, semi-annually.
  - The complete system, including alarms, shutdowns, and other associated equipment, must be thoroughly inspected and checked for proper operation by a qualified inspector annually, at the least.
  - Dry chemical containers must be sampled annually from the top, at the center and near the wall of the container to determine the existence of packing or deterioration.

- Records of inspections and tests must be maintained. The preventive maintenance report, or a similar form, is typically used for this purpose. The report should be reviewed monthly to ensure that all inspections are being made and that defective equipment is being promptly repaired or replaced.

- The pressure testing requirements for Halon, nitrogen, and carbon dioxide cylinders are as follows:
  - Cylinders sent in for recharging must be hydrostatically tested if more than five years has elapsed since the last test.
  - Cylinders continuously in service without discharging must be pressure tested every 12 years. Refer to the National Fire Protection Association (NFPA) 12-A for additional information. Although that document permits a maximum interval of 20 years between pressure tests for Halon cylinders continuously in service, a 12-year interval is recommended for field installations.

Refer to **RPSHSE – 4 Classification and Rating of Fires and Portable Extinguishers** for additional information.

Section III
7.1.4 RPSHSE – 4
Classification/Rating of Fires and Extinguishers

NO FORMS APPLICABLE

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TRAINING WILL ADDRESS THIS GROUP

Forms

REPOWER Systems	Section III RPSHSE 7.1.5	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III 7.1.5 RPSHSE - 5

Personal Protective Equipment (PPE)

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1.0 Introduction

The use of Personal Protective Clothing and Equipment is **required** when doing certain types of work. This standard is designed to teach employees the required Personal Protective Equipment (PPE) for the job at hand. Each employee is responsible for checking his or her protective clothing and equipment before using it.

Maintain personal protective clothing and equipment in a clean condition. When there is chemical contamination, decontaminate the clothing by the most appropriate method to remove the contamination or dispose of the clothing properly. **Do Not** wear or use defective or contaminated clothing or equipment. **Do Not** bring contaminated clothing or equipment into eating areas. On-site Field Supervisors are trained in the recognition of contaminated Personal Protective Equipment (PPE) and proper industry standard for the decontamination or disposal of contaminated Personal Protective Equipment (PPE).

Remove any clothing saturated with oil or petroleum products as soon as possible and wash the affected part of the body with soap and water. Oil or petroleum products may irritate the skin and are dangerous in the case of fire. Wear normal wearing apparel **"outer garments"** under all types of protective clothing. Store personal protective clothing or equipment in a proper area or container so it will remain clean, undamaged, and ready for use.

It is the **REPOWER USA** policy to furnish personal protective equipment such as head ear, non-prescription safety glasses, and uniforms. Special protective equipment such as Nomex clothes and respirators, etc. will be provided by either the Client or **REPOWER USA**, as required on a specific job basis. It is **REPOWER USA** policy **NOT TO PERMIT** the use of employee-owned personal protective equipment (PPE).

2.0 Personal Protective Equipment (PPE) Hazard Assessment

REPOWER USA has assessed the need for Personal Protective Equipment (PPE) concerning the types of services offered to the Client and **REPOWER USA** personnel have been trained and equipped accordingly. As new equipment is required due to changes in processes, procedures, or potential exposure, the affected employee(s) shall be notified of the potential hazard and the appropriate steps needed to protect themselves. The appropriate steps may include the use of additional Personal Protective Equipment (PPE) up to and including work practices or procedure redesigns.

Personal Protection Equipment (PPE) requirements, potential hazards, controls, recommendations and actions are addressed in their respective topic areas.

The data included in each topic area represents the assessment of the potential hazards and exposure to which **REPOWER USA** personnel may be exposed and the recommendations and findings of the assessment. The assessment was conducted in accordance with 29 CFR 1910.132 and other applicable publications.

The Personal Protective Equipment (PPE) Assessment Program is reviewed on an annual basis with more frequent reviews when new equipment is introduced, when industry accidents occur, and hazard reports or operational processes changes. The **REPOWER USA** HSE Department is responsible for the program review and the implementation of the required modifications.

3.0 Wearing Apparel (General)

3.1 Jewelry

Do Not wear rings, watches, bracelets, and other jewelry while using tools or working around electrical equipment or machinery with rotating components. However, such articles may be worn if they are rendered secure or nonconductive by covering, wrapping, or insulating by some other method.

3.2 Special Clothing

The special clothing in **Appendix IV** provides increased protection to employees exposed to hazardous substances or working conditions. Clothing purchased by **REPOWER USA** for employee use is to be worn for all required work.

- Nomex clothing is designed to protect the wearer from unexpected short-duration flash fires by providing an insulating barrier between the wearer's skin and the flames. It also prevents garment ignition, a major factor in burn injuries. Nomex clothing is not designed for deliberate entry into a fire situation; it does provide a few additional seconds to escape from an unexpected fire situation. This extra margin of safety could prevent serious injury.

  REPOWER USA will provide Nomex clothing for employees working in Operations/Mechanical crews for work that requires such protective clothing.

3.3 Outer Garments

Employees working in operations or maintenance must wear apparel that minimizes body exposure to burns, chemicals or the natural elements (i.e., the sun, wind, rain, etc.). Clothing such as sleeveless or mesh shirts, tank tops, muscle shirts, shorts, etc. are **NOT PERMITTED** as outer garments as they may prove a safety hazard due to the lack of adequate protection for the body.

- Minimum acceptable outerwear apparel permitted includes sport shirts or blouses with sleeves, worn with full-length trousers or over-alls.

- Clothing made from synthetic material is **not permitted.** Synthetic clothing may produce static electricity and melt upon contact with fire. Some jobs may require more than the minimum acceptable clothing, and/or due to HSE Regulations of Client/**REPOWER USA** requirements employees may be required to wear additional safety clothing.
- Trouser legs should not be rolled above the ankles for most work. Shirttail should be tucked in.
- **Do Not** wear long, dangling sleeves, neckties or other loose clothing when working with tools on machinery.

3.4 Welders

Welders should have apparel that

- Protects the skin from hot sparks, electrical arcs or welding rays.
- **Do Not** catch sparks. Open pockets and pants cuffs are spark catchers; ensure that shirt pockets are closed and pants are not cuffed.

Welders shall not use their clothing to clean torch tips. Acetylene-impregnated clothing is highly flammable.

4.0 Footwear

Foot injuries can occur while walking, climbing, lifting materials, or working around benches, etc., where equipment, parts, or supplies are stored or used. Typical foot injuries occur due to falling objects that strike the foot with adequate energy to cause bruising, breaking, or possibly severance of the limb. Other injuries occur due to using shovels, stepping or rocks, piping, etc., and chemical on heat burns from process treatment, steam, etc.

4.1 General

Field employees are required to wear sturdy leatherwork shoes or boots. Steel-toed footwear is required at certain work sites by Client request. **Canvas tennis shoes and light footwear (sandals and flip-flops) are not acceptable.** Employees are encouraged to wear safety shoes with cross hatch tread soles with pronounced heels (no wedge type soles). **NO METAL** may protrude from shoe bottoms (for example, nails, heeltaps, etc.). **Shoes with hobnailed or metal plates shall not be worn, as there is a danger of sparks slips, or falls.**

Keep shoes in good repair. Slipping accidents are more likely to occur when shoe heels and soles are run down and worn. Nails or other sharp objects will easily penetrate a thin worn shoe sole.

The employee's immediate On-Site Field Supervisor is responsible for monitoring this policy.

In job sites where required by Client, approved safety-toe protective footwear must meet the standards established by the American National Standards Institute, Inc (ANSI). Each shoe must have the proper ANSI Z41 verification stamped in the shoe, typically on the underside of the shoe tongue. I-75 (impact rating) and C-75 (compression rating) are the highest classification ratings available.

Chemical/Physical Hazard Boots Employees should wear rubber boots or appropriate footwear while working in or around water, oil, petroleum, or chemical products. On-Site Field Supervisors are to be trained in the recognition of proper footwear and the proper industry standards for Personal Protective Equipment (PPE) for chemical exposure.

4.2 Annual Footwear Assessment Program

4.2.1 Controls:

Unless discussing chemical or hazardous material protection, OSHA Regulations are vague concerning the use of protective footwear except in the Outer Continental Shelf (OCS) waters. However, **REPOWER USA** has a policy that sets forth the minimum acceptable footwear requirements.

This policy is relative to all **REPOWER USA** operations and areas other than where office and clerical work is taking place. The **REPOWER USA** Health, Safety, and Environmental Manual, Section III, **7.1.5 RPSHSE – 5** specifies the minimum requirements, discusses the **"Footwear Protection Program"**, and addresses the additional requirements adopted locally.

4.2.2 Recommendations

With the implementation of a local **"Footwear Protection Program"** employees are encouraged to purchase footwear above **REPOWER USA** minimum guidelines. The additional protection of safety-toed footwear could possibly reduce or prevent crushing/bruising injuries as well as slips, trips and falls from substandard heel and sole footwear.

4.2.3 Action

The minimum footwear requirements, as outlined in **REPOWER USA** Health, Safety and Environmental Manual, Section III, **7.1.5 RPSHSE - 5**, Personal Protective Equipment (PPE), are adequate to cover existing hazards.

5.0 Personal Flotation Devices (Life Vests)

During offshore transportation, personnel transfers, spill cleanup operations, etc. life vests must be worn at all times. An employee shall wear a life preserver or work vest approved by the U.S. Coast Guard while working above, in, or around water. Prior to each use, inspect the life jackets and buoyant work vests for dry rot, chemical damage, or other damage that might affect their strength and buoyancy.

NOTE: AT THIS POINT THIS PORTION IS NOT APPLICABLE TO REPOWER USA OPERATIONS – BUT WILL BE LISTED FOR FUTURE OFFSHORE OPERATIONS AS APPLICABLE

(Documentation of Personal User Inspections is not required.) Repair or replace defective life jackets or work vests.

6.0 Fall Protection and Retrieval Equipment

Slips, trips, and falls continue to be the leading cause of accidents and serious work place injuries. The significant amount of work environment exposure to falls or potential falls of each employee during their daily work tasks is part of the reason these types of accidents account for a large portion of occupational injuries.

Injuries can occur to the body from many potential incidents.
Some examples are:

- Falls from heights.
- Slips and trips.
- Falls while walking on different elevations.
- Stairways.
- Climbing ladders.

6.1 General

Fall protection and retrieval equipment is used to protect employees working in conditions that require the fall protection of personnel. **REPOWER USA** operations and maintenance are generally performed at or about ground level, lifelines or harnesses are seldom used. Due to the infrequency of use, when a job requiring fall protection occurs, a review of this material shall be given to all employees through the pre-job HSE Orientation and Training. On-Site Field Supervisors are to be trained in the recognition of the proper footwear and the proper industry standards for Personal Protective Equipment (PPE) for chemical exposure. Generally, safety harnesses provide increased protection to employees in case of a fall but harnesses are appropriate to use in the situations discussed below.

Harnesses and lifelines shall be worn

- While working on structures outside of the protection of handrails that are more than 6 feet above the ground.
- Near the edges of tank roofs, roofs, or buildings, etc., that railing do not guard against.
- While working from a ladder height over 6 feet above ground and requires the use of both hands. The safety harness lifeline will be attached to a permanent member.
- Only approved harnesses and lifelines can be used in operations.

6.2 Strength and Storage Requirements

Lifelines (harness lanyards) must be a minimum of ½" nylon, or the equivalent, with a breaking strength of at least 5,400 pounds. Lifelines must have a maximum length to prevent a fall of more than 3.5 feet.

- Lifelines or lanyards used for fall protection must be secured to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds.
- Maintenance crews shall be equipped with the appropriate fall protection and retrieval equipment where required. Various components of the equipment are to be used during the vertical entry into confined spaces of more than four feet in depth.
- If the harness has experienced an impact force, such as that incurred in arresting a fall, remove it from service immediately and never use it again for personal safeguarding.
- Store harnesses, lifelines, and lanyards in a clean dry place free from abrasive or cutting materials, direct sunlight, and excessive heat.

6.3 Fall Protection and Retrieval Equipment Assessment Program

6.3.1 Controls

Regulations cover a portion of work place activities such as harnesses, ladder and stairway use and design, and walking surface design. These regulations are included in the facility design as outlined in API Recommended Practices. In addition, **REPOWER USA** has trained its personnel on the rules for preventing slips, trips, and falls through the use of videos, General Safety Rules, and Housekeeping Practices (which require clean up and barricading spills). Control from contact with hot fluids includes the use of engineering practices, proper procedures, and the proper Personal Protective Equipment (PPE). Regulations covet general control procedures such as boil over protection on tanks and protection against employee contact. **REPOWER USA** employees are trained in the proper storage and maintenance of Fall Protection Equipment.

6.3.2 Recommendations

REPOWER USA shall continue to enhance the training standards to meet the challenge of the changing regulations and recommended design changes to the facilities at which **REPOWER USA** works and/or operates for their Clients. This is to minimize potential injuries from slips, trips, and falls, contact with hot fluids from process operations, or other miscellaneous activities that can affect the entire body. Utilize industry statistics and incidents etc. to personalize the importance of following safe work practices.

6.3.3 Actions

REPOWER USA shall continue to enhance the training standards to meet the challenge of the changing regulations with emphasis on the proper use of Personal Protective Equipment (PPE) to reduce the potential of injuries in the work place.

7.0 Gloves

Hand hazards are present at all times while employees are working. Hand injuries such as nicks, scraps, cuts, punctures, burns, etc. occur if the hand comes in contact with hot surfaces (+120° F) or sharp objects (razors, knives, sheet metal, broken glass, nails or other miscellaneous objects with sharp edges).

Additional injuries can occur when the hand is hit by moving objects such as falling pipe, dropped tools, or unexpected equipment movement and by inserting the hand into known pinch points such as between a wrench and a piece of equipment or between a pipe or object being moved.

7.1 General

Special protective gloves may be required in certain situations for protection against hazardous or toxic substances. **ALWAYS** refer to the Material Safety Data Sheets (MSDS) and the Original Equipment Manufacturer (OEM) of chemical products or the Client for the recommended glove types in the handling of hazardous substances.

- On-Site Field Supervisors are responsible for specifying when employees must wear protective gloves.
- When working near energized high voltage circuits or equipment **REPOWER USA** qualified electrical personnel shall wear rubber gloves with leather protectors in the following situations:
  - Conducting a voltmeter test on high voltage cables.
  - Opening or closing high voltage cutouts and removing or replacing fuses. **REPOWER USA** qualified electrical personnel must wear gloves even when using hot sticks.
  - While working on or within falling or reaching distance (i.e., less than 5 feet) of any circuit or piece of equipment which may become energized above 300 volts. **Do Not** remove gloves until entirely out of falling or reaching distance of such circuits or apparatus.

7.2 Glove Assessment Program

7.2.1 Controls

OSHA has regulations concerning the protection of hands for specific jobs such as welding or handling extremely cold or hot materials, etc. In addition, **REPOWER USA** has a policy that advocates the use of the appropriate gloves when conducting day-to-day activities as well as specific tasks that pose a potential hand hazard.

7.2.2 Recommendations

Injury history indicates numerous hand injuries that resulted from pinch points, misuse of tools and equipment, and/or contact with cold or hot surfaces, sharp objects, or other materials.

Designing out the daily potential exposures has reduced the number of hand injuries to the electricians, operators, and mechanics. To reduce the potential of hand injuries the appropriate pneumatic tools have been purchased to replace some types of hand tools and the above mentioned glove policy has been implemented. A review is completed at the start of each job to assess any new injury potential or trend as well as to provide training on the proper use and importance of gloves.

7.2.3 Action

The training of **REPOWER USA** personnel about the rules, policies and hazards shall continue periodically to maintain understanding. The training shall include awareness of **REPOWER USA** Health, Safety, and Environmental Manual, Section III, **7.1.5 RPSHSE - 5**, Personal Protective Equipment (PPE) and other published data. Additionally, **REPOWER USA** HSE Department **"SAFETY ALERTS"** and published industry alerts shall be utilized to heighten awareness of **REPOWER USA** employees to the potential of hand injuries and their exposure to more serious injuries.

8.0 Hard Hat Classification

REPOWER USA employees could probably be struck by objects, equipment or other miscellaneous items used in or around the facilities in which they work. These objects can fall from various heights above the employee or from unsecured work equipment during use.

8.1 General

Hard hats are designed to prevent head injury due to impact, flying particles, and chemical spills, and, in some cases, electrical shock. Hard hats can also help to contain an employee's hair and prevent its entanglement in machinery or its exposure to irritating substances.

ALL REPOWER USA hard hats must comply with ANSI 89.1 Class "B" requirements at a minimum. ANSI classes are as follows:

- **Class A - Meet all the material strength and fire resistance requirements of ANSI Z89.1-1969 (influences protection) but have limited voltage protection qualities.**
- **Class B - Same as Class A but has qualities for high voltage protection as listed in ANSI Z89.2-1971 (electrical protection).**
- **Class C - has no voltage protection qualities. This class does not meet OSHA or ANSI requirements.**

8.2 Proper Use

Each **REPOWER USA** employee or visitor in field operations will be issued an approved hard hat. Hard hats **MUST** be worn at all times in field locations except when an employee or visitor is:

- In an office.

- In a vehicle.
- In a control room.
- In a break area.
- **Do Not** store hard hats in the rear window of a vehicle.

Each manned facility shall have an adequate supply of visitor hard hats, which are kept in a clean and sanitary condition.

8.3 Modifications

Do Not modify a hard hat in any way, which will alter its safety features. This includes drilling holes, trimming or painting which could alter the properties of the plastic.

No metallic stickers or metallic objects may protrude or be affixed to any hardhat or hardhat accessory.

REPOWER USA - approved safety award decals, general safety slogan stickers, etc., are permitted.

The hardhat suspension must be well maintained and adjusted with about one inch of clearance between it and the shell. Winter liners to protect the ears, head and neck are recommended when working in cold weather.

8.4 Hard Hat Assessment Program

8.4.1 Controls

In the **REPOWER USA** Health, Safety, and Environmental Manual, the policies and procedures state that non-authorized personnel are required to remain outside of barricaded areas when overhead/dangerous work is being performed. Jobs shall be conducted in a safe manner including the securing of tools, scaffold boards, equipment, and other loose items when working from heights. Non-authorized personnel shall remain outside the person wire patterns of rigs/derricks when equipment is operating. When working around cranes, employees must use tag lines to remain clear of overhead loads. When overhead/dangerous work has the potential of generating flying objects such as hammers, pile drivers, etc. steps shall be taken to minimize the potential impact to other workers. A common practice to secure a work site is to install additional guards and secure tools with rope or etc.

8.4.2 Recommendations

It is mandatory that all **REPOWER USA** employees working outside a normal office environment shall wear an approved **HARD HAT** that meets the most current ANSI Standard. Hard hats may be required in office environments as well as where the job hazards dictate.

8.4.3 Action

REPOWER USA shall continue to supply ANSI approved hard hats for all **REPOWER USA** personnel working in or around operating areas and also require their use when outside the building. In addition, wearing hard hats is required in mechanic shops whenever overhead work is in progress etc.

9.0 Eye and Face Protection

Injuries to the eyes and face can occur due to flying materials from operations such as handling chemicals, painting, chipping, grinding, or when wind conditions lift and carry airborne particles. In addition, welding and gas brazing/cutting operations can cause injuries due to flying particles, high heat, and light exposure.

9.1 General

Employees are required to wear the proper eye protection whenever an eye and/or face hazard exists. Supervisors are also responsible for ensuring that employees wear adequate eye protection when required.

- Learn to recognize potential eye/face hazards, wear eye protection and know the correct type of eye protection needed.
- Anyone working near or observing another person doing work, which requires eye protection, must also wear eye protection.
- There are many types of eye and face protection. The general rule is that maximum protection may be used for minimum exposure but minimum protection must never be used for maximum exposure. Minimum protection is spectacle-type safety glasses.
- Properly adjust safety glasses, goggles, and shields to ensure maximum eye and face protection and comfort. When adjusting goggles set the headbands properly on the head and adjust them to allow the lenses and face piece to cover the eye area completely.

9.2 Spectacle-type Safety Glasses

Each employee who is issued a pair of safety glasses is responsible for their proper care and for having them available for use on all occasions needed.

Employees must wear industrial-grade safety glasses as minimum protection. Wear safety glasses to protect your eyes when:

- Machining and drilling.
- Removing retaining bands on bundled material.
- Using striking tools: hammers, axes, hatchets, etc.
- Moving/cutting tree branches.
- Cutting and splicing wire rope.
- Light grinding.
- Digging with a pick.

- Operating power mower or edgers.
- Any general light work where in the opinion of the supervisor, this type of eye protection is required. (See ANSI Selection Chart.).

Prescription lenses in street wear frames shall not be substituted for industrial safety spectacles. These lenses are heat-treated and have an acceptable breakage pattern but they are thinner and withstand less impact. Tinted lenses will not provide adequate protection from welding arcs and are unacceptable in welding areas.

Polycarbonate safety lens spectacles meet the ANSI Z87.1 requirements and offer the same impact protection as spectacle-type safety glasses.

9.3 Goggles

Impact Resistant (Direct Ventilation) – the are general-purpose (except chemical) with a .050" minimum thickness and removable plastic lens goggles which are made to wear with safety glasses. They provide protection to employees where there is a possibility that an impact could occur with significant force, such as:

- Handling materials that are not chemically hazardous but that contain large chips, particles, sand, dirt, etc.
- Scraping paint, rusts, scale, etc.
- Heavy chipping, hammering, etc.
- Performing any general heavy work where, in the opinion of the supervisor, this type of eye protection is required.

Chemical Resistant (Indirect Ventilation) - these are similar to impact goggles but they are indirectly vented to resist chemical exposure. Wear them when there is a chance of chemical splash, such as:

- When performing lab analysis.
- Repairing, unplugging, filling, opening or disconnecting lines, pumps, equipment, flanges, or containers which may spray, pour, drip, or splash.
- When handling sodium chromate or any other chemically corrosive dust.
- Performing any job where an eye injury can occur due to splash or spray.

9.4 Welding Goggles and Hood

Welders shall wear welding hoods with the appropriate shaded lenses while welding.

Clear safety spectacles with side shields must be worn under welding hoods. Check welding hoods frequently for light leaks around the lens frame and around the body of the hood.

Any person directly observing brazing, cutting or welding operations should wear eyecup type welding goggles or a welding hood with appropriate lenses.

Any other person close to welding operations who might be subject to reflected or incidental arc flash should wear approved safety glasses, goggles, or a welding hood with the appropriate shaded lenses.

9.5 Face Shields

Plastic face shields of .060" thickness may be used as face protection from sparks and flying particles in grinding, machining, buffing, sanding, chipping, etc. Wear face shields for face protection in addition to goggles and/or safety glasses.

NEVER wear face shields by themselves for face protection.

9.6 Eye and Face Protection Assessment Program

9.6.1 Controls

Current regulations govern the use of eye protection when handling chemicals, chipping, grinding, welding, brazing and cutting, or other jobs that expose the employee to potential eye injuries. Specific jobs require Personal Protective Equipment (PPE) for the type of hazard presented by the task. The type of Personal Protective Equipment (PPE) is found in the **REPOWER USA** HSE Manual, Section III, **7.1.5 RPSHSE - 5**, Personal Protective Equipment (PPE).

In addition to wearing the required Personal Protective Equipment (PPE), employees shall review the work area to determine if any non-protected personnel in adjacent areas could be affected by the job(s) being performed. If other work areas are potentially exposed to eye and face hazards then posting signs, barricading the area, and wearing Personal Protective Equipment (PPE), etc. shall be required to protect those additional personnel.

9.6.2 Recommendation

REPOWER USA shall continue to enhance the training standards for Personal Protective Equipment (PPE) and shall be focused on thorough training and safety meetings to meet the challenge of the changing regulations and work environment. No additional policies are warranted at this time for protection from wind blown particulate matter.

Due to the special nature of welding, gas brazing and cutting operations it is recommended that **ALL** contract personnel with expertise in these areas continue to be used on a normal basis to minimize the potential for injuries. However, if training and proper Personal Protective Equipment (PPE) is utilized by **REPOWER USA** personnel as outlined in the **REPOWER USA** Health, Safety, and Environmental Manual, their exposure will be minimized.

9.6.3 **Action**

REPOWER USA shall provide impact/splash-protective goggles and face shields as well as specific eyewear for cutting/welding operations as necessary for **REPOWER USA** personnel. In addition, **REPOWER USA** shall provide non-prescription safety glasses for employees to encourage eye safety in all facets of operations.

10.0 Hearing Conservation

Hearing damage can occur from regular, periodic or continuous exposure to high noises (85 dBA+). Large sound blasts or explosions can also cause instantaneous damage to hearing as well.

The type of noise most commonly encountered in **REPOWER USA** operations is periodic exposure to elevated noise levels from machines, electric motors, process flows, steam generators, etc.

All employees and casual visitors exposed to noise levels equal to or greater than 85 decibels shall wear hearing protection devices.

- Hearing protectors should be provided to employees (and made available to casual visitors). Either plug or muff types should be available. On-Site Field Supervisors are responsible for ensuring that hearing protection is worn in required areas.
- Disposable or reusable ear plugs (inserts) and earmuffs are furnished by **REPOWER USA**.
- Soiled disposable plugs are not to be reused.
- Earmuffs or plugs are **REQUIRED** in some designated areas where high noise levels exist. Noise level **CAUTION** signs must be posted on entrance doors or close to these areas.

  The sign should state:
  "Caution: Ear protection is required while equipment is operating"

  MUFFS or **PLUGS** are **REQUIRED** when equipment is operating in the areas listed below:

- Engine rooms.
- Turbine and pump rooms.
- Compressor rooms.
- Other locations where high noise levels may be identified or may occur, signs should be posted and hearing protection should be required and made easily accessible.

To allow for the proper usage of personal hearing protection, earmuffs or plugs should be placed outside of designated areas such as pumps, turbines, and engine rooms.

When using loud machinery or power tools, employees are required to wear **MUFFS** or **PLUGS**.

10.1 Hearing Conservation Assessment Program

10.1.1 Controls

OSHA regulated hearing protections are achieved by setting the protection levels for all workers exposed to occupational noise. These controls form the basis for **REPOWER USA's Hearing Conservation Program** and include items such as high noise level area postings, sound level and noise dosimeter surveys, and training and annual audio metric testing where required.

In addition, **REPOWER USA** has General Safety Rules outlined in the REPOWER USA Health, Safety and Environmental Manual, **Section III, 7.1.9 RPSHSE - 9**, Hearing Conservation that require all personnel to wear hearing protection when noise levels reach 85 dBA or greater.

10.1.2 Recommendations

This data is due to the types of noises our personnel are exposed to, the duration of exposure, and the way equipment is spaced. Potential high noise generating sources at client facilities should be reduced during upgrades in facilities by designing out equipment or dampening potential noise generation equipment. The **REPOWER USA** Health, Safety and Environmental Manual advocates the systematic review and control of noise generation in facilities and shall be followed where applicable to reduce occupational noise exposure.

10.1.3 Action

REPOWER USA shall to provide a selection of hearing protection devices along with annual training and work site reviews to employees and provide annual and pre-employment hearing audio metric testing for affected personnel.

11.0 Skin Protection

11.1 General

Exposed skin surfaces may be harmed by contact with petroleum products or other potentially irritating substances present in the work environment. Protective apparel and the use of personal skin care products can reduce the hazards of skin irritation or dermatitis.

Protective apparel has been defined in other areas of **7.1.7 RPSHSE - 7** as:

- Hard hats.
- Safety Eye wear and face shield.
- Gloves.
- Clothing.
- Footwear.
- Fall Protection.
- Hearing Conservation.
- Electrical equipment.
- Respiratory Protection.
- Bloodborne Pathogens.

Skin creams and lotions are listed on the Approved HSE Equipment List. It is recommended that each location maintain an appropriate supply of the following products.

11.2 SKIN Protection Assessment Program

11.2.1 Controls

The Bloodborne Pathogen Exposure Control Plan includes the required training and control procedures for potential exposure to infectious diseases.

11.2.2 Recommendations

REPOWER USA policy is to practice making active responses to blood and bodily fluid injuries selectively based on the decision of the individual responder.

11.2.3 Action

No additional action is necessary except for the training and Personal Protective Equipment (PPE) requirements as provided for in the **REPOWER USA** Health, Safety, and Environmental Manual, **Section III, 7.1.19 RPSHSE - 19**, Bloodborne Pathogens.

12.0 Electrical

Electrocution is the second leading cause of death among workers in general industry. Every year electrical current kills approximately 300 workers. You are responsible for your personal safety when working around electrical hazards. In order to be safe, you need to understand how electricity works.

12.1 General

Energized electrical sources are present in all of the facilities where **REPOWER USA** operates. These sources range from low voltage (6 volts) to the high voltage transmission lines (+50KV). Employees could be exposed to these sources when working in or around electrical sources.

12.2 Electrical Assessment Program

12.2.1 Controls

REPOWER USA employees are trained in accordance with OSHA Regulations concerning Lockout/Tagout, Qualified and Non-qualified Electrical training requirements and other applicable safety/skill training. These controls are intended to prevent non-qualified personnel from working on energized electrical sources. In addition **REPOWER USA Health, Safety, and Environmental Manual, Section III, 7.1.8 RPSHSE - HAZCOM, 7.1.11 RPSHSE – 11 – Hand Tools** and **7.1.5 RPSHSE - Personal Protective Equipment (PPE)** outline necessary controls to prohibit the wearing of conductive materials when working within arms reach of unguarded electrical switch gear. If Qualified Electrical personnel perform work on an energized electrical circuit then the proper electrical gloves shall be worn in addition to following safe work procedures and the use of additional Personal Protective Equipment (PPE) as necessary.

12.2.2 Recommendations

REPOWER USA injury data shows no significant or serious electrical shock history to its personnel. Current controls and training appear to be adequate and shall continue.

12.2.3 Training

Training shall continue as required by regulations and the **REPOWER USA** guidelines to employee training. Appropriate Personal Protective Equipment (PPE) will continue to be provided to appropriate personnel.

13.0 Respiratory Protection

Where it is impossible to eliminate harmful quantities of dusts, fumes, vapors or gases, **ALL REPOWER USA** employees in the area of contamination shall be protected in a manner that will ensure a supply of clean air. Approved respiratory protection equipment shall be used and then only by personnel certified to wear respiratory protection.

13.1 General

REPOWER USA employees may be exposed to varying concentrations of toxic gases or materials as well as other nuisance dusts. Normal respiratory hazards exist from various chemicals, Hydrogen Sulfide (H_2S), Natural Occurring Radioactive Materials (NORM) or radon gas, benzene, toluene, and asbestos. Additional hazards such as paints, dust from grinding, chipping or natural airborne contaminants (dust) are also present.

13.2 Respiratory Protection Assessment Program

13.2.1 Controls

Engineering controls such as using bulk tanks for chemical storage, installing Varac gauges on tanks, etc. have been greatly utilized.

Refresher training on the types of potential exposures and the controls necessary to protect employees against respiratory hazards is conducted annually. Full face (SCBA), fresh air hose line units, or full and half mask cartridge respirators have proven to be effective in protecting employees.

Regulations requiring respiratory protection for airborne contaminates and the **REPOWER USA** Respiratory Protection Plan are to be found in the **REPOWER USA** Health, Safety, and Environmental Manual, **Section III, 7.1.5 A RPSHSE – 5A**, Respiratory Protection.

In addition, operating areas have regular Industrial Hygiene surveys to determine the exposure levels for known respiratory hazards. The Industrial Hygiene surveys for existing operations have indicated no exposures above the Permissible Exposure Levels (PEL's) in force at the time. However, site-specific task such as confined space entry do present potential hazards and engineering and Personal Protective Equipment (PPE) controls shall be used to mitigate those potential hazards.

13.2.2 Recommendations

However, focus on training and safety awareness shall be done to ensure that **REPOWER USA** personnel observe steps to protect themselves beyond the established Permissible Exposure Limits (PEL).

13.2.3 Actions

REPOWER USA shall continue to provide a selection of respirators for potential or actual respiratory hazards. Training and safety awareness shall focus on the employees who wear respirators for jobs where contaminants may be present as well as those jobs where testing shows an actual hazard.

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III 7.1.5 A RPSHSE – 5 A
Respiratory Protection
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1.0 Introduction

It is in the air. You may not be able to see it but every so often people who work in it are killed or get sick. The guidelines in this program are designed to assist in reducing employee exposure or potential exposure to dust, fumes, mist, radio nuclides, gases and vapors. The **REPOWER USA** Respiratory Program sets forth accepted practices for respirator use and their care. The primary objective is to prevent excessive exposure to these contaminates. When feasible, exposure to contaminants shall be eliminated by engineering controls. When effective engineering controls are not sufficient the use of personal respiratory protective equipment may be required.

2.0 Policy

To provide, implement, and enforce a written **REPOWER USA** Respiratory Protection Program at each location where hazardous atmospheres have the potential to cause personal injury or illness.

Proper Respiratory Protective Equipment, as specified for each particular hazard, **SHALL** be provided and used when known or potentially suspect conditions warrant their use. A hazardous atmosphere is defined as any atmosphere containing a toxic substance at or above the Occupational Safety and Health Administration (OSHA) published Permissible Exposure Limit (PEL) or other published exposure limits, or when oxygen content is less than 19.5% or above 23.5 % by volume of air. All pertinent Material Safety Data Sheets (MSDS) **SHALL** be reviewed to determine if Respiratory Protection will be required.

A Job Safety Analysis (JSA) addressing Respiratory Protection **SHALL** be completed by the On-Site Competent Person, the On-Site Field Supervisor, the On-Site HSE Coordinator, or the **REPOWER USA HSE Manager** to determine if the current job will require Respiratory Protection. The **REPOWER USA HSE Manager** is the designated administrator of the **REPOWER USA** Respiratory Program. **REPOWER USA** HSE Manager shall maintain appropriate training, knowledge of the complexity of the Respiratory Program, and conduct evaluation as directed and required. **REPOWER USA** HSE Manager shall revise the Respiratory Procedure as applicable during the **REPOWER USA** HSE Manual review. **REPOWER USA** specific work-site procedures are addressed on a site-by-site basis due for potential specific requirements at that are site **ONLY** requirements.

3.0 Procedures

Respirators will be selected based on hazards to which the worker is exposed utilizing the NIOSH (National Institute for Occupational Safety and Health) Respirator Decision Logic as a guideline. Outside consultation, the manufacturers' assistance, and other recognized authorities will be consulted if there is any doubt regarding proper selection and use.

Before any employee is authorized to wear breathing apparatus, five conditions **SHALL** be met:

- Employees shall be trained on the breathing equipment.
- Training is provided to each employee at no cost to the employee.
- Employee shall be medically evaluated and certified physically capable of wearing the equipment. The medical evaluation and evaluation is provided to the employee at no cost.
- Employees shall be able to maintain a good seal between the respirator and his/her face.
- An acceptable respirator, in appropriate operating condition, shall be available to the employee. Respiratory Protection Equipment is furnished to the employees at no cost.

3.1 Employees Covered

Respirators, which are a form of Personal Protective Equipment (PPE), shall be used for protection from potential atmospheric contaminates and oxygen deficiencies. This policy applies to any **REPOWER USA** employee using a hazardous material that requires a respirator as a protective device per the Material Safety Data Sheet (MSDS) and other appropriate publications.

Situations that may require respirator usage/protection include:

- During the time required to evaluate, install, and implement feasible engineering and work practice (administrative) controls.
- In work operations for which it is established that the use of engineering or administrative controls is not feasible for compliance with either the Permissible Exposure Limit (PEL) or an 8-hour time-weighted average exposure or short-term exposure. This might be the case in some maintenance and repair activities, tank cleaning, or other operations where exposures are intermittent in nature and limited in duration, including:
  - Oxygen deficient atmospheres.
  - Emergencies where there is threat to human life, the environment and/or the property of company or the Client.
  - Where Immediately Dangerous to Life and Health (IDLH).

This HSE Policy and Procedure meets the OSHA requirement for a written program found in 29 CFR Parts 1910.123,132,134.

3.2 Potential Exposure Operations

Potential exposure may require respiratory protection in the following situations, depending on exposure level and the material encountered. **REPOWER USA** will provide the appropriate Respiratory Protection Equipment to assure **REPOWER USA** Employees are sufficiently protected during work in adverse conditions.

3.2.1 Routine Operations:

- Confined Space Entry.
- Hydrogen Sulfide (H_2S) Operations.

- Welding, cutting or grinding.
- Spray application of materials such as paint, pesticides, adhesives, solvents, herbicides, coating resins, etc.
- Tank and Vessel Work.
- Any hazardous material handling (per MSDS requirements).

3.2.2 Semi-routine Operations

- Pump overhauls.
- Stationary tank cleaning or repair.
- Fluid draining operations of equipment.
- Installation and removal of pipeline valves, etc.

3.2.3 Emergency Response Operations

- First Responder Operational Awareness spill and release response.

3.3 Medical Qualifications

REPOWER USA personnel **SHALL** not be allowed to use respirators until it has been established by **REPOWER USA** Medical Consultant, designated by the **REPOWER USA HSE Manager**, that they are medically fit to use the respiratory equipment in the assigned work-site. The **REPOWER USA** employee will complete a confidential medical questionnaire. The medical questionnaire shall be administered confidentially by the **REPOWER USA** designated **REPOWER USA** Medical Consultant. The equipment, training and Medical Examinations are provided to employees at no cost to the employee.

The **REPOWER USA** Medical Consultant shall make the final decision pertaining to an individual's ability to wear a respirator. The employee will be given the opportunity to discuss the results of the Medical Questionnaire and evaluation with the physician and/or licensed health care professional. The questionnaire results will be compared to answers from the previous year (if applicable). A medical will be required only if there are changes from the previous year.

The **REPOWER USA HSE Manager SHALL** maintain a summary sheet indicating those **REPOWER USA** personnel who are medically qualified to wear a respirator and those personnel who are not medically qualified to wear a respirator at the appropriate **REPOWER USA** Office. The **REPOWER USA HSE Manager** will provide copies to the On-Site Field Supervisor and the On-Site HSE Coordinator as work-site conditions require.

3.4 Respirator Selection

The nature of the hazard or potential hazard **SHALL** determine the type of respirator that will be required for a particular operation. Only positive pressure Self-Contained Breathing Apparatus (SCBA) or positive pressure line respirators with full emergency egress bottles **SHALL** be used when an employee is exposed to atmospheres considered Immediately Dangerous to Life and Health (IDLH) as defined by Occupational Safety and Health Administration (OSHA).

If employee exposure cannot be identified or reasonably estimated, the atmosphere **SHALL** be considered Immediately Dangerous to Life and Health (IDLH) until proven otherwise. An air-purifying respirator may be used when contaminants are present in concentrations that exceed the Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV) but are less than Immediately Dangerous to Life and Health (IDLH). They **SHALL** only be used in accordance with the manufacturer's recommendations for the contaminants they are designed to protect against. The respirator and cartridges **SHALL** also have current *NIOSH* approval numbers. Air-purifying respirators **SHALL NOT** be worn for protection against Hydrogen Sulfide (H_2S), or oxygen deficient or enriched atmospheres. In addition, when air-purifying respirators are used for gases and vapors, either End of Service Life Indicators (ESLIs) **SHALL** be used or change-out-schedules for cartridges or canisters **SHALL** be developed. **REPOWER USA** uses ONLY NIOSH approved Respirator Equipment which is appropriately fit tested prior to assignment to employee.

Filter Masks for nuisance dusts have very limited capabilities and are recommended only for floor dust, sawdust and some types of sanding. In cold weather, tasks requiring respirators **SHALL** not be attempted if the exhalation valve freezes. A nose cup **SHALL** be used with all respirators that may be operated in temperatures at or below 32° F. Self-Contained Breathing Apparatus (SCBA) that operate only in the demand mode **SHALL** be converted to pressure demand or positive pressure mode. The unit **SHALL** be clearly marked as being changed after the conversion by a tag or similar method.

To check if a unit only operates in the demand mode open the air cylinder and the main line valve on the regulator. If air **does not** flow, it **SHALL** be converted.

3.5 Respirator Effectiveness Monitoring

During the required use of Respirator Protection Equipment the On-Site Competent Person will monitor the proper use of **ALL** respiratory equipment and report all deficiencies to the On-Site Field Supervisor and the **REPOWER USA** HSE Manager immediately.

Further to this responsibility the Competent Person will:

- Have current documented training in Respiratory Protection equipment, regulations, and **REPOWER USA** Policies and Procedures.
- Remain in the area where respiratory protection is in use.
- Maintain visual contact with the entrants and or the attendant to monitor changes in the work area conditions and the degree of exposure or stress.
- Monitor and or direct the egress from the work area of employees using respiratory protection devices if any vapors or gases break through or if any changes in the breathing resistance or damage to a face piece occur.

- Instruct and monitor employees using respiratory protection to exit the area, wash their faces with soap and water, and clean the respirator face-pieces to prevent eye or face irritation.
- Monitor and replace respirators or respiratory protection devices that are defective.

4.0 Types of Respirators

4.1 Air-Purifying Respirators

Air-purifying respirators remove the contaminant from the air by filtering it or by chemically absorbing it before inhalation. The breathing action of the wearer operates this non-powered type of respirator. Never use air-purifying respirators in confined spaces or in an atmosphere that is considered oxygen deficient or Immediately Dangerous to Life and Health (IDLH).

Air-purifying (cartridge type) respirators, also referred to as negative pressure respirators, are available in two designs, half-face piece and full-face piece. Half-face piece air-purifying respirators do not provide any protection from vapors, gases, or particulates that may irritate the eyes.

Full-face piece air-purifying respirators provide protection against eye irritations in addition to protection against respiratory contamination.

The maximum contaminant concentration against which an air-purifying respirator will protect is determined by the design efficiency, the capacity of the cartridge or filter, and the face piece-to-face seal on the user. The maximum concentrations for which a particular cartridge is designed will be specified on the label of the cartridge. Always select the appropriate cartridge, which is explained below, for the particular atmosphere and condition.

4.2 Cartridge Type

4.2.1 Vapor and gas removing cartridges

- **Capabilities** – are designed to remove a single vapor or gas (i.e.: organic vapors) or a combination of two or more classes of gases or vapors (example, organic vapors and acidic gases) from air.
- **Limitations** – no protection is provided against particulate contaminants. Cartridges used with a half-face piece respirator will be limited to the manufacturer's recommendation and prohibited in atmospheres ten (10) times above the permissible exposure limit (PEL) of the air contaminant.

Full-face piece respirators of this type will be limited to the manufacturer's recommendation and prohibited in atmospheres 50 times above the permissible exposure limit (PEL) of the air contaminant.

If you sense any of the following **danger signals IMMEDIATELY GET INTO FRESH AIR**. These signals also indicate the cartridge may be used up or abnormal conditions may be creating vapor concentrations, which are beyond the limit of the respirator:

- Smell or taste chemical (breakthrough) or if your eyes, nose, or throat become irritated.
- It becomes difficult to breathe.
- The breathing air becomes uncomfortably warm.
- Become dizzy or feel like vomiting.
- Specific signs and symptoms of chemical exposure as specified in the Material Safety Data Sheet (MSDS).

Cartridges shall be replaced at the expiration of their service life or at the beginning of each shift in which they will be used, whichever comes first.

The use of vapor and gas-removing respirators is not approved in atmospheres where the contaminant lacks the adequate warning properties (such as crude oil or Hydrogen Sulfide (H_2S) where odor, taste or irritation is at a concentration at or above the PEL.

4.2.2 Particulate-removing cartridges

- **Capabilities –** filter type designs that remove a single type of particulate matter (for example, dust or asbestos) or a combination of two or more types of particulate matter (for example, dust and fumes) from air.
- **Limitations** – provides protection against nonvolatile particles only. **Does not** provide protection against vapors or gases. If it becomes difficult to breathe, i.e., a significant increase in the breathing resistance of the respirator is observed, the filters may need to be replaced.

4.2.3 Combination particulate, vapor, and gas-removing cartridge

- **Capabilities** – designed to remove particulate matter, vapors, and gases from air.
- **Limitations** – the limitations of each of the component sections of the combination cartridge, as described above, apply.

4.2.4 Air-Supplied Respirators – air-supplied respirators supply a reliable atmosphere independent of the ambient air to the wearer. There are two types of air-supplied respirators.

4.2.5 **Self-Contained Breathing Apparatus (SCBA)** – the wearer carries the supply of air. Air is supplied from a compressed air cylinder through a regulator to a full-face piece. The regulator is equipped with a bypass system that can be used in case of regulator failure to provide emergency escape. The regulator is also equipped with an alarm that signals the wearer when the pressure in the air cylinder is getting low so the wearer may evacuate the hazardous atmosphere.

4.2.6 **Cascade Hose-Line Respirator** – respirable air is supplied through a small diameter hose from a series of compressed-air cylinders. The hose is attached to the wearer by a belt, harness or other suitable means and can be detached rapidly in an emergency.

A flow control valve or orifice must be connected to a five-minute (Ska-Pak) egress cylinder that provides for emergency escape from a hazardous atmosphere in the event the primary air supply fails.

A number of workers, each with his own mask, emergency air supply and hose line can be connected to one manifold of compressed air cylinders. The airline system is designed to operate with an inlet supply of 60 -125 psig and with up to 300 feet of hose length per worker is permissible.

To prevent the inadvertent servicing of hose line respirators with something other than breathable air or oxygen, airline couplings must be incompatible with outlets for other gas systems.

Note: **NEVER** use a five-minute (Ska-Pak) egress cylinder without a connection to a primary air supply.

- **Capabilities** – air-supplied respirators provide protection against oxygen deficiency and toxic atmospheres. The breathing atmosphere is independent of the ambient atmospheric conditions. Air-supplied full-face piece respirators provide the greatest amount of respiratory protection available. Cascade Hose-Line Respirator: Compressed air cylinders manifold together and are used as a battery; they can also be exchanged without interrupting the supply of air to the wearer.
- **Limitations** – the period over which a device will provide protection is limited to the amount of air supply that is available.
    - An air-supplied respirator is the safest choice. However, an air-supplied respirator is not to be used in an area that exceeds 10% of the Lower Explosive Limit (LEL).

An air-purifying respirator is not to be used in an area that is Immediately Dangerous to Life and Health (IDLH) or in an area where its maximum use concentrations are exceeded. With the Self-Contained Breathing Apparatus (SCBA) the amount of air in the apparatus limits the length of time the device will provide protection. The chief limitations of the SCBA units are their size, weight, and bulk.

5.0 Training

REPOWER USA employees who may encounter potentially hazardous atmospheres in their day-to-day tasks **SHALL** be trained annually, at the least, or more often, as necessary.
Training will provide the employee with the opportunity to:

- Handle the respirator.
- Have it fitted properly.
- Test its face piece for face seal.
- Wear it in normal air for a long familiarity period.

Training SHALL as a minimum, include

- The need for respiratory protection.
- Operations instructions for equipment and how to ensure the equipment are in good operating condition.
- Instructions on the fit and the actual use of the equipment to familiarize employees with operating characteristics.
- The capabilities and limitations of respiratory equipment.
- The procedures for proper maintenance, cleaning, and storage.
- **HANDS ON** training exercises for both routine and emergency use.
- Review and ensure understanding of the Occupational Safety and Health Administration (OSHA) Facial Hair Policy.
- Descriptions of the nature of airborne contaminants, which may be present in the employees, work-site.
- The guarantee that each employee who wears Respirator Protection Equipment shall be instructed in the proper cleaning and inspecting of assigned respirators.

Those employees whose exposure potential is no greater than that of the public should receive their Awareness Training of potential respiratory hazards through their Hazard Communication **(HAZCOM)** Training Program.

A Respirator Protection File **SHALL** be maintained at appropriate **REPOWER USA** Office by HSE Manager with copies of pertinent information for work-site requirements retained at the work-site.

"ALL" Confidential Information Will be Maintained in the Employees Medical Files at appropriate office with Human Resource Manager. As outlined in the OSHA Regulations Medical files shall be retained for 30 years after incident.

As a minimum the files must contain the following:

- Written procedures including proper respirator cleaning and maintenance.
- Grade "D" Breathing Air Certificates.
- Employee Training Records.
- Inspection records for respirators intended for Emergency Use.
- Annual evaluations concerning respirator program effectiveness, documenting employee participation.
- A routine Respirator User List.
- List of Respirator uses and the types to be used.

Respirators shall not be worn when conditions prevent a good face seal. Such conditions may include the growth of a beard, sideburns, mustache, facial hair along the sealing area of the respirator, or temple pieces on glasses. In addition, the absence of one or both dentures can seriously affect the fit of a face piece.

The individual diligence of the work force in observing these requirements will be evaluated by periodic checks. To assure the proper protection, each time the wearer puts on the respirator he/she will check the face piece.

Follow the Original Equipment Manufacturer's (OEM) face piece fitting instructions and the following test will help determine if the fit is satisfactory:

5.1 Negative Pressure Test

- Close off the inlet of the filter/cartridge or cover the end of the breathing tubes on the Self-Contained Breathing Apparatus (SCBA) face piece with the palm of your hand.
- To make certain the face piece does not pass air inhale gently so that the face piece collapses slightly.
- Hold your breath for 10 seconds.
- If the face piece remains slightly collapsed and no inward leakage is detected, the respirator fit is satisfactory.

5.2 Positive Pressure Test

- Close off the exhalation valve
- Exhale gently into the face piece
- The fit is considered satisfactory if slightly positive pressure is built up inside the face piece without any evidence of outward leakage.

6.0 Respirator Fit Test

All tight-fitting face piece respirators (which is a respiratory inlet covering that forms a complete seal with the face), including Self-Contained Breathing Apparatus (SCBA) and Air-line Respirators, require a quantitative fit test. Annual re-fit testing is required.

The following items outline the referenced protocols

- The user **SHALL** be allowed to choose the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
- Prior to the selection process, the user **SHALL** be shown how to put on the respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror **SHALL** be available to assist the user in evaluating the fit and positioning of the respirator. This instruction **SHALL NOT** constitute the user's formal training for respirator use, because it is only a review.
- The user **SHALL** be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and, if fitted and used properly, it will provide adequate protection.
- The user **SHALL** be instructed to hold each face piece up to the face and eliminate those that obviously **do not** give an acceptable fit.
- The more acceptable face pieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn for at least five (5) minutes to assess comfort. Assistance in assessing its comfort can be given by discussing the points in the following items. If the user is not familiar with using a particular respirator, the user **SHALL** be directed to don the mask several times and to adjust the straps each time to become adept at setting the proper tension on the straps.
- The assessment of comfort **SHALL** include a review of the following points with the user and allowing the user adequate time to determine the comfort of the respirator:
  - The position of the mask on the nose.
  - Room for eye protection.
  - Room to talk.
  - The position of mask on face and cheeks.
- The assessment of the adequacy of the respirator's fit **SHALL** include a review of the following points with the user and allowing the user adequate time to determine the comfort of the respirator:
  - The chin is properly placed.
  - The fit across the nose bridge.

- Adequate strap tension, not overly tightened.
- The respirator is of proper size to span the distance from nose to chin.
- The tendency of the respirator to slip.
- Self-observation in the mirror to evaluate the respirator's fit and position.

- The user **SHALL** conduct a user seal check, either the negative or the positive seal checks described in these Policies and Procedures or those recommended by the respirator Original Equipment Manufacturer (OEM) which provide equivalent protection.
- Prior to conducting the aforementioned test procedures the user will be instructed to seat the mask on his/her face by moving the head from side-to-side and up and down slowly while taking in a few deep breaths. Another face piece **SHALL** be selected and re-tested if the user fails to secure a **good** seal check test.
- The test **SHALL NOT** be conducted if there is any hair growth between the skin and the face-piece-sealing surface, such as stubble beard growth, a beard, mustache, or sideburns, which cross the respirator sealing surface. Any type of apparel that interferes with a satisfactory fit **SHALL** be altered or removed.
- If the user exhibits difficulty in breathing during the test he/she **SHALL** be referred to a physician or other licensed health care professional, as appropriate, to determine whether the user can wear a respirator while performing her/his duties.
- If the user finds the fit of a respirator unacceptable he/she **SHALL** be given the opportunity to select a different respirator and to be re-tested.

6.1 Exercise Regimen – prior to the commencement of the fit test, the user **SHALL** be given a description of the fit test and the user's responsibilities during the test procedure. The description of the process **SHALL** include a description of the test exercises that the user will be performing. The respirator to be tested **SHALL** be worn for at least five (5) minutes before the start of the fit test.

- The fit test **SHALL** be performed while the user is wearing any applicable safety equipment that may be worn during the actual respirator use that could interfere with respirator fit.

6.2 Test Exercise - test exercises are to be performed for all fit testing methods prescribed in this section.

- Normal breathing. In a normal standing position, without talking, the user **SHALL** breathe slowly and deeply taking caution so as not to hyperventilate.
- Turning head side-to-side. Standing in place, the user **SHALL** slowly turn his/her head from side to side between the extreme positions on each side.

- The head **SHALL** be held at each extreme for a short while so the user can inhale at each side.
- Moving head up and down. Standing in place, the user **SHALL** slowly move his/her head up and down. The user **SHALL** be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- Talking. The user **SHALL** talk aloud slowly and loud enough to be heard clearly by the test conductor. The user can read from a prepared text such as the Rainbow Passage, count backward from one-hundred (100), or recite a memorized poem or song.
- Grimace. The user **SHALL** test this by smiling or frowning.
- Bending over. The user **SHALL** bend at the waist as if he/she were touching their toes.
- Each test exercise **SHALL** be performed for one (1) minute except for the Grimace Exercise, which **SHALL** be performed for fifteen (15) seconds. The user **SHALL** be questioned by the test conductor regarding the comfort of the respirator upon completion of the testing protocol.
- If it has become unacceptable the user **SHALL** try another model of respirator. The respirator **SHALL NOT** be adjusted once the fit test exercises begin. **ANY** adjustment voids the test and the fit test **SHALL** be repeated.

6.3 Quantitative Fit Test Protocol

The following Quantitative Fit Test procedure has been determined as acceptable: Quantitative Fit Testing is done by using controlled negative pressure and the appropriate instrumentation to measure the volumetric leak rate of a face piece to quantify the respirator fit.

The general guidelines outlined in the following procedures **SHALL** be used:

- **REPOWER USA SHALL** ensure that Third Party Administrators and/or the individual persons administering the Quantitative Fit Test are able to calibrate the equipment and perform the tests properly, recognize invalid tests, calculate fit factors properly and ensure that the test equipment is in proper working order.
- **REPOWER USA SHALL** ensure that Third Party Administrators and/or the individual persons administering the Quantitative Fit Test keep equipment clean and maintain and calibrate according to the manufacturer's instructions to operate at the parameters for which it was designed.

6.4 Portacount Fit Test Requirements

- Check the respirator to make sure the sampling probe and line are properly attached to the face piece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test (e.g. NIOSH 42 CFR 84 series 100, series 99 an/or series 95 particulate filter) per the Original Equipment Manufacturer's (OEM) instructions
- Instruct the user to be tested to don the respirator for five (5) minutes prior to the beginning of the fit test. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual **SHALL** already be trained on how to wear a respirator properly.
- Check the following conditions for the adequacy of the respirator fit.
  - The chin is properly placed.
  - The fit across the nose bridge.
  - Adequate strap tension, not overly tightened.
  - The respirator is of proper size to span the distance from nose to chin.
  - The tendency of the respirator to slip.
  - Self-observation in mirror to evaluate the respirator's fit and position.
- Have the user wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting face piece, try another size of the same model respirator or another model of respirator.
- Follow the manufacturer's instructions for operating the Portacount and proceed with the test.
- The user **SHALL** be instructed to perform the Test Exercises identified in the Respirator Fit Test.
- After the test exercises, the user **SHALL** be questioned by the test conductor regarding the comfort of the respirator. If it is deemed unacceptable, another model of respirator **SHALL** be tried.

6.5 Portacount Test Instrument

- The Portacount Instrument will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether the test was successful. If the test was a PASS, the fit test is over.
- Since the **PASS** or **FAIL** criterion of the Portacount is test conductor is programmable, the test conductor **SHALL** ensure that the **PASS** or **FAIL** criterion meets the requirements for minimum respirator performance in this procedure.

A record of the tests **SHALL** be kept on file at the appropriate office of the Human Resource Manager with copies of the pertinent information for work-site requirements retained at the work-site. **ALL CONDFIDENTAL INFORMATION WILL BE MAINTAINED IN THE EMPLOYEES MEDICAL FILES** at the appropriate office of the HSE Manager and the Human Resource Manager. The record **SHALL** contain the user's name; overall fit factor; make, model, style and size of respirator used, and the date tested.

6.6 Cleaning and Disinfecting Respirators

Respirators will be regularly cleaned and disinfected. Those issued for the exclusive use of one worker will be cleaned after each day's use or more often if necessary. Those used by more than one worker will be thoroughly cleaned and disinfected after each use. Each employee who wears Respirator Protection Equipment shall be instructed in the proper cleaning and inspecting of assigned respirators.

6.7 Storage and Inspection

Store in locations that are readily accessible and clearly marked. Store in a manner that protects them from dust, sunlight, heat, extreme cold, excessive moisture or chemicals. Store in a position to prevent the distortion of the rubber or other elastic parts. Do not store in lockers and toolboxes unless protected from the conditions listed above. Store clean respirator face pieces in a clean plastic bag to prevent contamination during storage. Respirators available for emergency use, such as self-contained devices, shall be thoroughly inspected at least once a month and after each use. The inspection for Self-Contained Breathing Apparatus (SCBA) breathing gas pressure will be performed weekly.

Other types of respirators should be inspected before, prior and after each use. Monthly inspections include:

- Check for the tightness of connections.
- Check the operation and condition of head harnesses valves, connecting tubes, regulators, alarms, air cylinders, filters, and cartridges.
- Make repairs as soon as any problems are identified. Send valves, regulators and alarms to the Original Equipment Manufacturer (OEM) for repair.
- Check the Carbon Monoxide monitor for a setting of 10 PPM.

For respirators maintained for emergency use keep a record of the inspection dates, the inspector's initials, and any deficiencies that were observed and corrected in a log (retention - 2 years).

Compressed breathing air cylinders **SHALL** be hydrostatically tested. Breathing air cylinders that have a star (★) or an asterisk (*) stamped into the cylinder collar following the hydro-test date are in compliance for ten (10) years from that date. Typically, the testing of most steel cylinders will be required on a five (5) year interval and lightweight aluminum composite types will be on a three (3) year rotation. **NOTE:** Oxygen is **not to be used** in compressed air units. SCBA regulators should be checked visually and functionally every 2 years by an authorized service center.

6.8 Respirator Preventative Maintenance

Respirators used routinely **SHALL** be inspected prior to and after each use to ensure they are in proper operating condition. Self-Containing Breathing apparatus (SCBA) and other air-supplied respirators for emergency use **SHALL** be inspected monthly to ensure the equipment is properly maintained and ready for use in an emergency. The Original Equipment Manufacturer's (OEM) recommendations for inspection **SHALL** be followed in detail. It is the responsibility of the On-Site Field Supervisor, the On-Site HSE Coordinator or the **REPOWER USA** Health, Safety and Environmental Manager to ensure the monthly inspections are completed and documented. Maintenance Records **SHALL** be maintained at the work-site with copies maintained at the appropriate office with the Human Resource Manager and the HSE Manager.

Note: ALL RESPIRATORY PROTECTIVE EQUIPMENT FOUND TO BE DEFECTIVE SHALL BE REMOVED FROM SERVICE, TAGGED AND REAPAIRED OR REPALCED AS SOON AS POSSIBLE.

6.9 Voluntary Use Respirators

REPOWER USA may provide a respirator at the request of the employee for voluntary use at a specific workplace, provided **REPOWER USA** does not determine that supplying these respirators within themselves create a hazard. Should **REPOWER USA** determine that voluntary respirators are permissible **REPOWER USA** will ensure that any employee using a respirator on a voluntary basis is medically able to use the respirator? **REPOWER USA DOES NOT** permit employees to use personally supplied respirators.

6.10 Facial Hair

REPOWER USA employees **SHALL** adhere to this paragraph if respirators of any type are furnished for the employee's use. This includes **routine users** and personnel who would be expected to use a respirator for emergencies. Federal and/or State laws outline requirements that the employer **SHALL** follow when their employees are required to wear respirators.

All affected individuals working in their facilities **SHALL** be able to obtain an airtight fit for supplied air apparatus or other respirators during **"normal"** work activities or should an emergency occur. In addition, employees and contractors **SHALL** not have facial hair which passes between the sealing surface of the respirator face piece and their face or which interferes with the functioning of the respirator valves. Facial hair is defined as a beard, a mustache, side burns, a low hairline, bangs, and a stubble growth of beard twenty-four (24) hours old.

7.0 Emergency Rescue Conditions

In a rescue situation, if the possibility of a respiratory hazard is suspected, each rescuer must wear an air-supplied respirator. In areas where the wearer, with the failure of the respirator, could be overcome by a toxic and/or oxygen-deficient atmosphere, at least one additional person must be present. Communications (visual, voice or signal line) must be maintained between both or all individuals present. Planning must be such that one individual will be unaffected by any likely incident and is trained in the use of the proper rescue equipment available to assist the other(s) in case of emergency. The individual **SHALL** be trained in the proper procedures to send out an alarm, calling for the assistance of individuals that are properly trained, and have the necessary equipment available. Only a rescuer using air-supplied respirators in an **"Immediate Danger to Life or Health"** (IDLH) atmosphere is approved to enter a rescue zone.

8.0 Recordkeeping

REPOWER USA shall maintain a written record of the training, medical evaluations, fit testing, safety drills, inspections, tests, and any maintenance applicable to **REPOWER USA** Respiratory Program. All Records shall be maintained in accordance with existing state and federal regulations. **REPOWER USA HSE Manager** and Human Resource Manager **SHALL** maintain these records in the appropriate required files in accordance with existing state and federal regulations. This information is available to the appropriate client and employee authorized representatives and regulatory agencies upon request.

Section III
7.1.5 RPSHSE - 5
Personal Protective Equipment (PPE)

Form 1

NO FORMS APPLICABLE

LEFT BLANK FOR FUTURE INSERTATION AS APPLICABLE

TRAINING WILL ADDRESS THIS GROUP

Section III
7.1.5 A RPSHSE – 5 A
Respiratory Protection

Form 1 – Annual Respiratory Program Evaluation Checklist

Annual Respirator Program Evaluation Checklist

In general, the respiratory program will be evaluated and documented annually. Program adjustments will be made to reflect the evaluation results. As part of the Program Evaluation **REPOWER USA** employees shall be contacted about fit, selection, proper use, maintenance and their opinions about the **REPOWER USA** Respiratory Program effectiveness.

A. Program Administration

_____ Is there a written policy that acknowledges employer responsibility for providing a safe and healthful workplace?
_____ Is there a written program that assigns program responsibility, accountability, and authority?
_____ Is program responsibility vested in one or two individuals?
_____ Is the program administrator knowledgeable about respirators and the program?
_____ Can the administrator coordinate all aspects of the program at the job site?
_____ Can realistic engineering controls or work practices eliminate the need for respirators?
_____ Are there written procedures/statements covering the various aspects of the respirator program, including:
- _____ Designation of an administrator?
- _____ Respirator selection (including purchase of MSHA/NIOSH certified equipment)?
- _____ The medical aspects of respirator usage?
- _____ The issuance of equipment, fitting, training?
- _____ The maintenance, storage and repair of respirators?
- _____ The inspection and use under special conditions?
- _____ Work area surveillance?

B. Program Operation

Respiratory Protective Equipment Selection

_____ Are work area conditions and worker exposures properly surveyed?
_____ Are respirators selected based on the actual hazards to which the worker is exposed?
_____ Are only certified respirators purchased and used?
_____ Do the respirators provide adequate protection for the specific hazard?
_____ Are the respirators effective for the concentration levels of the contaminant?
_____ Have the prospective users been medically evaluated?
_____ Did the medical evaluation of each user include the user's physical and psychological ability to wear the selected respiratory protective equipment?
_____ Have respirators been issued to the users for their exclusive use?
_____ Are there records covering the issuance of the respirators?

Respiratory Protective Equipment Fitting

_____ Is each user given the opportunity to try on several respirators to determine whether the respirator he/she will be wearing is the best fitting one?
_____ Is the fit of the respirator tested at appropriate intervals?
_____ Are those users who require corrective lenses properly fitted?
_____ Is the face piece to face seal tested in a test atmosphere?
_____ Are workers prohibited from wearing respirators in contaminated work areas if they have facial hair or other characteristics that may cause face-seal leakage?

B. Program Operation (Continued)

Respirator Use In the Work Area

_____ Are the respirators being worn correctly?

_____ Are the workers keeping the respirators on all the time while in the work area?

Cleaning and Disinfecting

_____ Are the respirators cleaned and disinfected after each use when several people use the same device?

_____ Are the respirators issued to individual users cleaned as frequently as necessary?

_____ Are the proper cleaning and disinfecting methods utilized?

Storage

_____ Are respirators stored in a manner that protects them from

- _____ Dust?
- _____ Sunlight?
- _____ Heat?
- _____ Excessive Cold?
- _____ Moisture?
- _____ Damaging Chemicals?

_____ Are the respirators stored in a storage facility in a way to prevent them from becoming deformed?

_____ Is storage in lockers or toolboxes permitted only if the respirator is in its own carrying case or carton?

Inspection

_____ Are the respirators inspected before and after each use?

_____ Are the respirators inspected during cleaning?

_____ Are qualified individuals instructed in inspection techniques?

_____ Is the respiratory protective equipment designated for emergency use inspected at least once a month?

_____ Are SCBA breathing gas containers inspected weekly for breathing gas pressure?

_____ Is a record kept of the inspection of emergency use respiratory protective equipment?

Repair

_____ Are the replacement parts used to repair respirators made by the manufacturer of the respirator?

_____ Are repairs made by that manufacturer or by manufacturer-trained technicians?

Special Use Conditions

_____ Is there a procedure for using respiratory protective equipment in atmospheres that are Immediately Dangerous to Life or Health (IDLH)?

_____ Is a procedure available for using equipment to enter into confined spaces?

Training

_____ Are users trained in proper respirator use, cleaning, and inspection?

_____ Are users trained in the basis for selecting respirators?

_____ Is a competency-based evaluation of users made before and after training?

Section III
7.1.5 A RPSHSE – 5 A
Respiratory Protection

Form 2 - Respirator Inspection Record

Respirator Inspection Record

1. Type: _____

2. Number: _____

3. Defects Found:
   - _____ Face-Piece
   - _____ Inhalation Valve
   - _____ Exhalation Valve Assembly
   - _____ Headbands
   - _____ Cartridge Holder
   - _____ Cartridge Canister
   - _____ Filter
   - _____ Harness Assembly
   - _____ Hose Assembly
   - _____ Speaking Diaphragm
   - _____ Gaskets
   - _____ Connections
   - _____ Other Defects

Section III
7.1.5 A RPSHSE – 5 A
Respiratory Protection

Form 3 – Respiratory Medical Questionnaire

Respiratory Medical Questionnaire

Section I – Part A

1. Name:_____
2. Date: _____
3. Age: _____
4. Gender: M ___ F ___ (indicate one choice)
5. Height: ___ft. ___ in.
6. Weight: _____ pounds
7. Job title: _____
8. Current Telephone Number: _____ Residence _____ Work

(This number is very important for the physician and or licensed health care professional to contacts you for review of the Respiratory Medical Questionnaire)

9. Best time to contact you at your residence phone: _ a.m. _____ p.m.

(Make note of the most appropriate time to contact you)

10. Have you been informed about how to contact the physician and or licensed health care professional who will review the questionnaire?_____ YES _____ NO
11. Check the type of respirator you will be using.

(a.) N _____ R _____ P _____ (You can check more than one category)
Disposable respirator (filter mask, non-cartridge type only).

(b.) Other:
{Other type (for example, half or full face-piece type, powered air purifying, supplied air, self-contained breathing apparatus (SCBA)}

12. Have you worn a respirator? _____ YES _____ NO

(Indicate one choice)

13. If your answer to Question #12 is "YES", what type(s): _____

Section II – Part A

1. Do you currently smoke tobacco,
   or have you smoked tobacco in the last month? YES ___ NO
2. Have you had any of the following conditions? (indicate each condition that is applicable to you)
   (a.) Seizures: _____ Y _____ N (b.) Diabetes (sugar disease): ___ Y _____ N
   (c.) Allergic reaction: _____ Y _____ N (d.) Trouble smelling odors: _____ Y _____ N
   (that interferes with your breathing) (e.) Claustrophobia _____ Y _____ N
   (Fear of closed places)
3. Have you ever had any of the following pulmonary or lung problems?
   (1.) Asbestos: _____ (2.) Asthma: _____ (3.) Chronic bronchitis: _
   (4.) Emphysema: _____ (5.) Pneumonia: _____ (6.) Tuberculosis: _____
   (7.) Silicosis: _____ (8.) Pneumothorax (collapsed lung): _____
   (9.) Lung Cancer: _____ (10.) Broken Ribs: _____
   (11.) Any chest injuries or surgeries: _____
   (12.) Any other lung problems that you have been told about: _____
4. Do you currently have any of the following symptoms of pulmonary or lung illness?
   (a.) Shortness of breath: _____ YES _____ NO (b.) Wheezing: _____ YES _____ NO
   (c.) Shortness of breath when walking fast on level ground
   or walking up a slight hill or incline: _____ YES _____ NO
   (d.) Shortness of breath when walking with other people
   at an ordinary pace on level ground: _____ YES _____ NO
   (e.) Shortness of breath when washing or dressing yourself: _____ YES _____ NO
   (f.) Shortness of breath that interferes with your job: _____ YES _____ NO
   (g.) Coughing that produces phlegm (thick sputum): _____ YES _____ NO
   (h.) Coughing that wakes you early in the morning: _____ YES _____ NO

Section II – Part A (Continued)

(i.) Coughing that occurs mostly when you are lying down: _____YES _____NO
(j.) Coughing up blood within the last month: _____YES _____NO
(k.) Wheezing that interferes with your job: _____YES _____NO
(l.) Have you stopped for breath when walking at your own pace on level ground: _____YES _____NO
(m.) Chest pains when you breathe deeply: _____YES _____NO
(n.) Any symptoms that you think may be related to lung problems: _____YES _____NO

5. Have you ever had any of the following cardiovascular or heart problems?
(a.) Heart attack: _____YES _____NO (b.) Stroke: _____YES _____NO
(c.) Angina: _____YES _____NO (d.) Heart Failure: _____YES _____NO
(e.) High blood pressure: _____YES _____NO
(f.) Swelling in your legs or feet (not caused by walking): _____YES _____NO
(g.) Heart arrhythmia (heart beating irregularly): _____YES _____NO
(i.) Any other heart problems that you've been told about: _____YES _____NO

5. Have you ever had any of the following cardiovascular or heart symptoms?
(a.) Frequent pain or tightness in your chest: _____YES _____NO
(b.) Pain or tightness in you chest during physical activity: _____YES _____NO
(c.) Pain or tightness in your chest that interferes with you job: _____YES _____NO
(d.) In the past two years, have you noticed your heart skipping: _____YES _____NO

6. Do you currently take medication for any of the following problems?
(a.) Breathing or Lung problems: _____YES _____NO (b.) Heart Trouble: _____YES _____NO
(c.) Blood Pressure: _____YES _____NO (d.) Seizures: _____YES _____NO

7. If you have used a respirator, have you ever had any of the following problems? (If you have never used a respirator, check the following spaces NO and go to question #8.)
(a.) Eye irritation: _____YES _____NO (b.) Skin allergies or rashes: _____YES _____NO
(c.) Anxiety: _____YES _____NO (d.) General weakness or fatigue: _____YES _____NO
(e.) Any other problem that interferes with your use of a respirator: _____YES _____NO

8. Would you like to talk to the physician and or the licensed health care professional who will review the medical questionnaire about your answers on this questionnaire? _____YES _____NO

9. Have you ever lost vision in either eye (temporarily or permanently): _____YES _____NO

10. Do you currently have any of the following vision problems?
(a.) Wear contact lenses: _____YES _____NO (b.) wear glasses: _____YES _____NO
(c.) Color Blind: _____YES _____NO
(d.) Any other eye or vision problems: _____YES _____NO

11. Have you ever had an injury to your ears, including a broken ear drum: _____YES _____NO

13. Do you currently have any of the following hearing problems?
(a.) Difficulty with hearing: _____YES _____NO
(b.) Wearing a hearing aid: _____YES _____NO
(c.) Any other hearing or ear problems: _____YES _____NO

14. Have you had a back injury? _____YES _____NO

15. Do you currently have any of the following musculoskeletal problems?
(a.) Weakness in any of your arms, hands, legs or feet: _____YES _____NO
(b.) Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs.: _____YES _____NO
(c.) Difficulty fully moving your arms or legs: _____YES _____NO
(d.) Pain or stiffness when you lean forward or backward at the waist: _____YES _____NO
(e.) Difficulty bending your knees: _____YES _____NO (f.) Back pain: _____YES _____NO
(g.) Difficulty fully moving your head from side to side: _____YES _____NO
(h.) Difficulty squatting to the ground: _____YES _____NO
(i.) Difficulty fully moving your head up or down: _____YES _____NO
(j.) Any other muscle or skeletal problems that interferes with using a respirator: _____YES _____NO

Section II – Part A (Continued)

16. How often are you expected to use the respirator(s)? Place and "X" in the proper bland for all items that apply to you.
    (a.) Escape only (no rescue): _____ YES _____ NO
    (b.) Emergency rescue only: _____ YES _____ NO
    (c.) Less than 5 hours per week: _____ YES _____ NO
    (d.) Less than 3 hours per day: _____ YES _____ NO
    (e.) 2 to 4 hours per day: _____ YES _____ NO
    (f.) Over 4 hours per day: _____ YES _____ NO

Section III
7.1.5 A RPSHSE – 5 A
Respiratory Protection

Form 4 – Pre-screening Questionnaire

Pre-screening Questionnaire

To be completed by Certified Spirometry Technician Prior to Testing:

Full Name: _____

(Last) (First) (Middle)

Social Security Number: ____ ____ ____

Spirometry Questionnaire

YES	NO	QUESTIONS
		1.) In the last 6 weeks have you had major surgery or been hospitalized for a heart attack? If Yes: (Do not test at this time. Reschedule for test in 6 weeks).
		2.) Are you under a physician's care for high blood pressure? (If blood pressure exceeds action level, obtain physicians clearance.)
		3.) Within the last hour have you smoked tobacco?
		4.) Within the last hour have you eaten a full meal? (If yes to either smoking or eating, wait one hour before testing.)
		5.) Have you had a respiratory infection (such as flu, pneumonia or a chest cold) in the last 3 weeks?
		6.) Have you used an inhaled bronchodilator (Primatene Mist, Ventolin, etc.) in the last 6 hours?
		7.) Have you had more than 2 cups of caffeinated coffee, tea or cola (total) in the last 6 hours? (If yes, wait 1 hour before testing) Complete the present in progress spirometry test and reschedule to retest in 6 weeks.
		8.) Are you wearing any tight or restrictive clothing?
		9.) Are you wearing Dentures?

Today is Measurements

Height: _____ **Inches (Measured by Tape)**
Weight: _____ **Pounds (Measured by scale)**
(NOTE: If measurements falls exactly on the half inch or half pound, odd numbers round down and even numbers round up respectively)

The certified spirometry technician should initial and date this form, then proceed to questionnaire and spirometry testing.

Certified Spirometry Technician's initials: _____
Date: _____

Section III
7.1.5 A RPSHSE – 5 A
Respiratory Protection

Form 5 – Respiratory Compliance Letter

Respiratory Compliance Letter

Name of Testing facility: _____
Address of Testing facility: _____
_____
_____
Contact Numbers of testing facility: _____

Name of Employer: REPOWER Systems USA
Name of Employee: _____
Date of Examination: _____

To Whom it May Concern:

This letter is in accordance with the Occupational Safety & Health Administration (OSHA) Respirator Standard (29 CFR 1910.134) which states that employees shall not be assigned to jobs which require the use of a respirator unless they have been medically cleared to use such equipment.

The cardio-pulmonary status of the employee named above has been evaluated and in my opinion,

(He: _____ She: _____), (May: _____ May Not: _____)

engage in duties where the use of respiratory equipment is required.

Sincerely:

_____
Signature of Examining Physician

_____
Date of Examination

Section III
7.1.5 A RPSHSE – 5 A
Respiratory Protection

Form 6 - Employee Physical Limitation Form

Employee Physical Limitation Form

Name of testing facility: _____
Address of testing facility: _____
_____
_____
Contact Numbers of testing facility: _____

Respiratory Compliance Letter

Name of Employer: REPOWER Systems USA
Name of Employee: _____
Date of Examination: _____

To Whom it May Concern:

This letter is in accordance with the Occupational Safety & Health Administration (OSHA) Respirator Standard (29 CFR 1910.134) which states that employees shall not be assigned to jobs which require the use of a respirator unless they have been medically cleared to use such equipment.

The physical limitation status of the employee named above has been evaluated and in my opinion,

(He: _____ She: _____), (May Not: _____)

engage in duties where the use of respiratory equipment is required due to physical limitations as listed below.

The physical limitation(s) are: _____
_____
_____

Sincerely:

_____
Signature of Examining Physician

_____
Date of Examination

REpower Systems	Section III RPSHSE 7.1.6	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.6 RPSHSE - 6 Hearing Conservation Program Occupational Noise Exposure

Contents

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1.0 Introduction

It is the policy of **REPOWER USA** to protect all employees against the effects of noise exposure when sound levels exceed the allowable exposure levels determined by OSHA, CFR 29, Part 1910.95. When the daily exposure is composed of two or more periods of noise exposure of different levels, their combined effect shall be considered, rather than the individual effect of each.

2.0 General

2.1 Program Compliance

In order to comply with the required regulations the hearing conservation program includes the following phases:

- Issuance of Personal Protective Devices
- Engineering and Administrative Controls
- Noise Monitoring
- Employee education and training
- Audiometric Testing
- Recordkeeping

2.2 Responsibility

When employees are subjected to sound levels above those listed in the table, feasible engineering or administrative controls shall be utilized.

If such controls fail to reduce the sound levels to within the acceptable perimeters, all employees working the 8-hour and 12-hour shifts shall use personal protective equipment to do so.

When it is not possible to reduce the noise levels or the duration of an employee's exposure ear protective devices will be provided and used. **Plain cotton is not an acceptable protective device.** Ear protective devices inserted into the ear shall be fitted and determined individually by competent personnel.

Each employee is ultimately responsible for protecting his/her hearing. It is important that each employee take the time and effort to know the hazards and how to protect themselves. Because hearing loss is a gradual process, it is easy to overlook or ignore the value of hearing protection.

The On-Site Field Superintendent/Supervisor and the Department/Operations Manager of each work group are responsible for the implementation of this program wherever employees are subject to the exposure of excessive noise. The **REPOWER USA** HSE Manager is designated as the program administrator.

2.3 Types of Hearing Protection Devices (HPD)

There are four categories of Hearing Protection Devices (HPD's):

- **Enclosure** - This type of device surrounds the head like a helmet. This type is unpopular due to the cost and discomfort factors.
- **Earplugs (also known as Aurals)** - Earplugs fit in the ear canal and come in 3 forms:
  - Formable (disposable after 1 use)
  - Custom-molded (molded for a specific individual)
  - Molded-inserts (Pre-molded and reusable)

Earplugs can reduce the noise reaches the ear by 25 to 30 dbA in the higher sound frequencies.

- **Canal Caps (Superaural)** - This type seals the external edge of the ear canal. These caps are made of soft rubber and are held in place by a headband. This type is good for workers who enter and leave high noise areas frequently during the workday.
- **Earmuffs (Circumaural)** - This type fits over the whole ear and usually provides the most protection.

2.4 Hearing Protection

Hearing protection devices are to be worn by all employees and casual visitors who are exposed to noise levels greater than 85 decibels over an 8-hour period. In all cases where the sound levels exceed 85 dbA over an 8-hour duration an effective site-specific hearing conservation program shall be administered. During each Job Site Safety Analysis (JSA), Hearing Protectors are evaluated for the noise environment in which they will be used.

Approved hearing protectors are provided to the employees and provided to casual visitors. Either the plug or muff type will be available. On-Site Field Superintendent/Supervisors are responsible for ensuring that hearing protection is worn in the required areas.

The **REPOWER USA** HSE Manager approves of earmuffs and disposable or reusable ear plugs (inserts). However, soiled disposable plugs are not to be reused.

2.5 Exceptions

Earmuffs or plugs are **required** in designated areas where high noise levels exist. Noise level **CAUTION** signs must be posted on the entrance doors or near these areas. The sign should state:

Caution: Ear protection is required while equipment is operating.

MUFFS or **PLUGS** are **REQUIRED** when equipment is operating in the areas listed below:

- Engine rooms.
- Turbine and pump rooms.
- Additive or mud rooms (using air pumps).
- Other locations where high noise levels may be identified or may occur, signs should be posted and hearing protection should be required and made easily accessible.

To allow for the proper usage of personal hearing protection, the placement of earmuffs or plugs should be placed outside of the designated areas such as pump rooms, turbine rooms, and engine rooms, etc.

When using other loud machinery or power tools, employees are required to wear **MUFFS** or **PLUGS.**

3.0 Monitoring and Testing

3.1 Employee Testing:

At facilities where the noise exposure equals or exceeds the average of 85 dbA or more over an 8-hour period, **REPOWER USA** is required to provide audiometric testing to all exposed employees by a certified audiologist or a trained technician. A baseline audiogram test should be established with follow-up testing at least once a year. Employees hired and/or transferred to work in exposed noise areas should be initially tested prior to starting the assignment but after no more than 60 days in the position. Audiometric testing facilities and equipment must meet OSHA standards. For accurate test results, employees to be tested must wear their ear protection muffs or plugs from the beginning of their work shift that day until tested.

The designated **RPSHSE** Medical Consultant may also evaluate the audiograms.
No employees to be tested shall be exposed to workplace noise levels unless the adequate and proper Personal Protective Equipment (PPE) is used for a period of 14 hours prior to the scheduled test. Also, the employees are to avoid high levels of noise.

Should it be determined during an employee's audiometric testing process that a Standard Threshold Shifts (STS) has occurred the following will be done:

- The **REPOWER USA** Medical Consultant will send letters of notification of any Standard Threshold Shifts (STS) directly to the affected employee within 21 days of the date the Standard Threshold Shifts (STS) are determined.

- The **REPOWER USA** Medical Consultant will forward a copy of the Standard Threshold Shifts (STS) to the **REPOWER USA** HSE Manager and the Human Resources Manager to be included in the **REPOWER USA** employee's Personnel/Medical File.
- Employees with suspected Standard Threshold Shifts (STS) will be retested within 30 days of the determination of the shift.
- It is the responsibility of the Department/Operations Manager, the **REPOWER USA** Human Resources Department and the **REPOWER USA** HSE Manager to ensure that the employees are appropriately retested.
- Any associated costs with repeat tests are the responsibility of the Company.
- Employees with a confirmed Standard Threshold Shifts (STS) shall be refitted and retrained for the hearing protector used and referred, with a completed **REPOWER USA** Medical Consultant Referral Letter, to a hearing specialist for a consultation and an opinion of the following:
  - Probable cause of the hearing loss.
  - Factors other than the potential occupational noise exposure that could contribute to the loss.
  - Is there a medical pathology in the employee(s) ears that may be aggravated by wearing hearing protectors?
  - Recommendations to improve, stabilize, or prevent further hearing loss.
  - **NOTE:** The referral should include the results of the available noise monitoring of the employee's work area and a summary of the audiometric tests including the employee's baseline(s). This should be included in the Hearing Case Study report that is attached to the **REPOWER USA** Medical Consultant's letter and mailed to the employee.

3.2 Sound Level Monitoring

Sound level surveys will be performed by the HSE Department using sound level meters meeting ANSI S1.4-1971 specifications with the meter set on the A-scale, slow response.

Facilities with recorded excessive sound levels and where engineering has not successfully reduced the noise level to the permissible levels will be tested annually. Facilities will also be surveyed with the installation of new equipment, equipment modification, or any change in the process altering the existing noise levels.

Sound level survey records must show the following:

- Make, model and serial number of the instrument used.
- Date and time of the survey.
- Location within the facility or plant (a drawing of the specific areas and the noise level readings is recommended).

- Machinery or equipment that generates noise.
- Location of the meter with respect to the machinery or equipment where the reading was taken.
- Name of the person taking the test.

4.0 Engineering and Administrative Controls

REPOWER USA recognizes the desirability of controlling the existing noise levels by engineering and/or administrative controls. Engineering controls are defined as those which reduce the sound intensity at the source of the noise or in the hearing zone of the worker.

These controls are obtained by the application of engineering principles to advance the process: dampen vibrations and reduce sound transmissions, specify the noise levels when ordering equipment, and/or isolate the noise source or the operator from the noise source. Administrative controls are defined as those which reduce the length of time employees are exposed to noise, rather than reducing the noise itself. Examples are rearranging work schedules, spreading workloads between more than one employee, or arranging to run a machine only as required, etc.

It is realistic to assume that part of the burden for reducing the noise will be the responsibility of the equipment supplier due to the complexity of some of the machinery. The supplier should always be asked to redesign his equipment, when possible, to meet the defined guidelines or at least in the noise abatement program.

5.0 Recordkeeping

REPOWER USA recognizes the need for keeping comprehensive documentation on the employee's exposure to noise levels, the audiometric test results, audiometric equipment calibrations, and the employee training programs and noise levels in audiometric test environments.

REPOWER USA shall retain all records for the period indicated in the OSHA Hearing Conservation Program.

6.0 Training

Annual training shall be given to each employee in Hearing Conservation which will include the following:

- The effects of noise on hearing.
- The purpose of hearing protectors: advantages, disadvantages. The attenuation of various types and the fitting instructions and care.
- The purpose of audiometric testing and the procedures.
- The employee's right to access the monitoring and testing results.

7.0 Definitions

- **Hearing Loss** - A temporary hearing loss can occur from short exposure to loud sounds but the hearing soon recovers when the noise stops. However, if the noise level is high enough and long enough, health problems can occur - including permanent hearing loss.
- **Sound** - Frequency and intensity measure sound. Frequency is the pitch (high or low) of a sound. High-frequency sound can be more damaging to your hearing than low-frequency sound. Intensity is the loudness of a sound. Loudness is measured in decibels (dbA), named by Alexander Graham Bell.
- **Noise Reduction Rating (NRR)** - All hearing protectors carry a label indicating the NRR; a higher number on the label means more effectiveness.

Section III:
7.1.6 RPSHSE - 6
Hearing Conservation Program Occupational Noise Exposure

Form1 – Recordkeeping Chart

Recordkeeping Chart

RECORDKEEPING

Document Retention	
Noise Exposure Measurement	2 years
Audiometric Test Results	The duration of the affected employee's employment + 30 years
Audiometric Equipment Calibration	2 years
Employee Training	2 years
Noise levels in the Audiometric Test Environment	Most recent assessment

Section III:
7.1.6 RPSHSE - 6
Hearing Conservation Program Occupational Noise Exposure

Form 2 - OSHA Permissible Exposure Levels Chart

OSHA Permissible Exposure Levels Chart

Duration Per Day, (#Hours)	Sound Level (dbA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Forms

REPOWER Systems	Section III RPSHSE 7.1.7	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Bartilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III 7.1.7 RPSHSE – 7 Permit-to-Work

Contents

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1.0 Introduction

This procedure has been developed to standardize and document the methods and responsibilities during any hot work operation. Its purpose is fire protection and prevention for any situations in plant or field operations where there are or have been hydrocarbons or other flammable liquids present.

A Permit-to-Work is **required in any classified area** before performing any function that requires the use of an open flame or where sufficient heat or sparks might be generated to serve as a source of ignition where hydrocarbons or other flammables are or have been.

A Permit-to-Work is required in all **REPOWER USA** operations for any work in a **classified area** that require the following:

- Welding
- Cutting
- Hot tapping
- Burning
- Grinding
- Blasting
- Opening energized electrical junction boxes
- Drilling (electric or air)
- Buffing (electric or air)
- Operating conventional gasoline or diesel engine-driven equipment
- Operating unapproved battery operated equipment with switches or electric motors.
- Painting and other operations around spark-producing equipment
- Portable spark producing devices including heaters, spark-ignited engines, vehicles, and electrical hand tools. (Lighting process heaters do not require a Permit-to-Work but does require compliance with safe lighting procedures, including a gas check).

NOTE: When conventional gasoline or diesel engine-driven equipment is utilized in an area that requires a Hot Work Permit, the equipment must be continuously monitored while it is in operation.

- **NOTE:** Additional Permits-to-Work may be required, such as for a Confined Space Entry. A permit for a **Confined Space Entry** is required for work in a confined space that may be hazardous due to the presence of flammable/toxic gas, lack of breathable atmosphere, etc.

2.0 Procedures

2.1 General

In normal operations, there is always a potential danger of fire or explosion due to flammable nature of many of the products handled.

The object of this procedure is to define a system of control that will allow work involving a possible source of ignition to be carried out in a safe manner. No one associated with the job shall have smoking materials (lighters, matches, cigarettes, etc.) on their person at the job site.

It is obvious that not all situations and circumstances can be covered by procedures and regulations.
Therefore, On- Site Field Superintendent/Supervisors must:

- Develop full knowledge of the situation regarding any work to be performed
- Determine what precautions are required above and beyond the minimums specified herein
- Exercise sound judgment and make conservative decisions regarding the manner in which the work will be performed.

All plant and field units must operate and control within the **Permit-to-Work Program.** This responsibility includes stocking permits, maintaining records, maintaining oxygen and gas detection devices, and acting as the final authority during the permitting process.

Employees themselves must also exercise good judgment and evaluate and question, if necessary, the precautions and conditions concerning their personal safety and that of other the personnel and the facility itself. It is the responsibility of every individual to:

- Work in a safe manner.
- Question any work tasks or procedures that he/she may not understand.
- Report any unsafe work practices or circumstances witnessed to his/her immediate supervisor.

Access to the work areas covered by the permit(s) will be limited to the members of the work party who are familiar with the hazards of the job, the work tasks required, and the precautions needed to do the work in a safe manner.

All other unauthorized personnel must vacate the work area. All members of the work team shall establish and maintain the proper communications.

A Permit-to-Work is automatically and immediately cancelled if, for any reason, the conditions upon which the permit was issued change or other factors arise that could create an unsafe environment.

2.2 Specific Precautions

It is essential, as a minimum, that the fire prevention and protection requirements detailed in OSHA CFR 1910.119(a) have been implemented prior to beginning any hot work operations. Individuals involved in the preparation of the permits and the execution of the work should familiarize themselves with the precautions detailed in this regulation.

2.3 Areas where Permits-to-Work are required

Permits are **required** in all process areas, warehouses, flammable storage buildings, storage buildings, pipe alleys, storage tank areas, laboratories, waste disposal facilities, tank truck loading and unloading racks, sewer systems, and any other areas or confined spaces where the possibility of a fire or explosion hazard may exist.

2.4 Areas where Permits-to-Work are not required

Under normal conditions, Work Permits are not required for work in maintenance shops, offices, change house, and designated burning areas. A Permit-to-Work is not required for approved fabrication areas such as established plant and field fabricating shops. The On-Site Field Superintendent/Supervisor and/or the Operations/Department Manager may designate a work area "safe" for the duration of specific jobs or projects without requiring that a Permit-to-Work be used. Such designated areas must be clearly marked or roped off.

In new area projects where no hydrocarbons are present and where all new equipment is used, a permit stating **"New Construction - No Hydrocarbons Present"** may be used.

3.0 Responsibilities

3.1 General

Requesting and initiating the Permit-to-Work should include a description of the work (the specific tasks to be done), the location of the work, the work procedures, and the required time period.

The description should be clear so that all the personnel involved and the On-Site Field Supervisor will know exactly what must be done. If there are any questions about the job, **REPOWER USA** personnel should resolve them prior to completing the permit.

The permit shall indicate the following:

Note: If the space on the form is not sufficient, write the description on a separate sheet of paper and attach it to the permit.

- The atmosphere testing, if required, of the covered area.
- The preparation of the equipment.

- The performance all required safety checks, including the inspection and placement of fire extinguishers, fresh air equipment, and other required safety equipment. The completion of the Permit, including the date and time the work is approved to start.
- The re-inspection and gas checking of the work area, as necessary.

The permit shall accomplish the following:

- Warn the other operating personnel in the vicinity not to perform any operation that is likely to change the work conditions and thus void the permit.
- Prevent other operations that may conflict with the permitted work.
- Instruct all personnel concerned to stop work if a change that could create an unsafe condition occurs.

3.2 The On-Site Field Supervisor (or designee) shall:

- Review the Permit and satisfy himself/herself that it is safe to perform the detailed work.
- Approve the Permit, including the date and time the work is approved to start.
- Ensure that all elements of the permit procedure are completed.

3.3 Operations and Maintenance will then:

- Review the completed form and verify that the permit requirements are complete before starting any work.
- Review the job and safety requirements in the presence of the work crew and ensure that all parties are knowledgeable in the work tasks to be performed and the safety precautions to be taken. Lead representatives will then sign the Permit-to-Work acknowledging the review and understanding of the job and the HSE requirements.

NOTE: Depending on the type of operation, a **REPOWER USA** function may or may not be a separate function due to job size, location, type, etc. In a combined function, the On- Site Field Superintendent/Supervisor and/or the Operations/Department Manager will be responsible for both functions.

3.4 Fire Watch

The Fire Watch is responsible for the following duties only:

- Use of fire equipment, as necessary.
- Continuously monitoring the area during hot work (open flame, grinding, cutting, or welding) and thirty (30) minutes after its completion.
- Stopping the hot work if sparks, flames, or heat is projected outside the permitted area.
- Alerting personnel entering the permitted area of hazards (arc-flashes, grinding, cutting, overhead hazards).

3.5 Contractors

Contractors must maintain a permanent record of all the welders used, showing each welder's name, social security number, identifying mark, qualification record, the date of their last certification, and the testing authority.

Ensure that the welders are fully aware of all safety regulations and the contents of this standard.

3.6 Completion of Work

Immediately after the work is completed, the work area and adjacent areas will be inspected to ensure there has been no spread of sparks or heat. The fire watch will remain at the work site for a period of thirty (30) minutes after hot work has ceased, to ensure that the area is secure.

The person(s) doing the work will return their copy of the permit to the supervisor after the job is complete and the area is secure.

6.0 Welder Qualifications

Prior to the commencement of the operation to be performed, the **REPOWER USA** On-Site Field Superintendent/Supervisor must verify that the personnel are qualified to perform the type of work to be done according to applicable regulations.

6.1 Process Piping and Vessel Welding

Vessels - Qualifications and certifications of welders welding on ASME Section I or Section IV boilers or ASME Section VIII hydrocarbon vessels must meet the ASME Boiler and Pressure Vessel Code, Section IX specifications.

Gas Plants - Qualifications and certifications of welders welding on all Gas Plant or offshore platform process piping (ANSI B31.3 piping) must meet the ASME Boiler and Pressure Vessel Code, Section IX, specifications.

Flow lines – Certifications of welders welding on field liquid transmission piping or flow lines (ANSI B 31.4 piping) or field gas transmission piping flow lines (ANSI B 31.8 piping) must meet ASME Boiler and Pressure Vessel Code, Section IX, or API 1104 specifications.

Wellheads, Casing, and Tubing - Qualifications and certifications of welders welding on wellheads, casings, and tubing must meet ANSI B 31.3 for pressure containing components. For welding on surface casing, welders must AWSDI .1 specifications.

6.2 Main Structural Welding

Certification of welders welding major structural members must meet AWS D1.1 specifications. (Examples include, deck beams, deck extensions, boat landings, and structural supports such as vent boom supports, etc.)

6.3 All Other Welding

Any burning or welding on anything other than main structural or process equipment as defined in 6.1 and 6.2 above shall be performed only by the personnel approved by the **REPOWER USA** HSE Manager.

Welders must be fully aware of all safety regulations. "Other Welding" should be limited to minor structural welding (Examples include, handrails, grating, pipe supports, fire tubes, etc.).

7.0 Permit-to-Work Limitations

The Permit-to-Work will be dated and issued for one shift only, normally 8 to 12 hours, with a maximum time limit of 12 hours. The Permit-to-Work will be terminated when changing conditions, such as gas leaks or oil spills, create a hazard. Program review will be conducted should an unauthorized entry be identified, identification of hazard not addressed in original permit, should there be any employee complaints and should any accident/incident/near miss occur during the process of the Permit.

The On-Site Field Supervisor may reinstate the Permit after the hazardous condition(s) has been corrected.

8.0 Permit Disposal

The original copy of the permit will be inserted in a clear plastic envelope and displayed at the work site. One copy **must** be forwarded to the **REPOWER USA** HSE Department. After the work has been completed, or the permit has expired, the original will be returned to the On-Site Field Supervisor.

Unless any problems occur, the original permit will be turned over to the Manager/Supervisor in Charge for disposal. Otherwise, the original will be retained temporarily and may be destroyed after one year following the annual review of the Confined Space Protocol and Permitting System. It is the On-Site Field Supervisor's responsibility to forward a copy to the **REPOWER USA** HSE Department for OSHA documentation.

9.0 Definitions

9.1 Classified Area

For purposes of this standard, classified areas are defined as the following:

- Areas within plant boundaries except in the designated areas.
- Areas within 100 feet of production facilities, pipeline connections and valves if an open flame is involved.
- Areas within 20 feet of hydrocarbon facilities when the use of portable spark producing devices (including non-DOT approved vehicles), or the opening of energized electrical junction boxes is required.
- Areas within 20 feet of tanks or vehicles that transport hydrocarbons, such as vacuum trucks or fuel tanks, or any other area deemed necessary by supervision.

9.2 Fire Watch - The person(s) and associated fire protection equipment assigned to stand by during welding, cutting, or open flame conditions. This will be the **ONLY** function of this assignment.

9.3 **Access Barrier** - The means of restricting access to a Confined Space Area.

9.4 **Atmospheric Testing** - The process of examining a space for potential atmospheric hazards. Test the space remotely at various levels and intervals from top to bottom. Test first for oxygen, then secondly for a flammable atmosphere, then for toxins, if necessary.

9.5 **Authorized Attendant** - A trained individual stationed outside a permitted Confined Space who monitors the authorized entrants and who performs all the attendants' duties as assigned in this procedure.

9.6 **Authorized Entrant** - A trained individual who is authorized by the Authorized Entry Supervisor to enter a permitted Confined Space and performs all the assigned work as outlined in the Confined Space Entry Permit.

9.7 **Authorized Entry Supervisor** - A properly trained individual designated by the **REPOWER USA HSE** Department and is responsible for determining if acceptable entry conditions are present at a Confined Space where entry is planned. The Authorized Entry Supervisor will be responsible for authorizing entry and overseeing all entry operations, and for terminating entry as required under existing situations.

9.8 **Confined Space** - A space large enough and so configured that an employee can bodily enter and perform assigned work but has limited or restricted means for entry or egress. Examples are: tanks, vessels, silos, storage bins, hoppers, vaults, and pits or spaces that may have limited means of entry and is not designed for continuous employee occupancy. The definition could also apply to a trench, bell hole, cellar, or excavation (reference 29 CFR 1926.21 (6) (ii).

9.9 **Enclosed Space** - A working space, such as a manhole, vault, tunnel, or shaft that has a limited means of egress or entry and is designed for periodic employee entry under normal operating conditions. The Enclosed Space, under normal operating conditions, does not contain a hazardous atmosphere, but may contain a hazardous atmosphere under abnormal conditions. (Reference 29 CFR 1910.269 (e).

9.10 **Entry** - The action by which a person(s) passes through an opening into a permit-required Confined Space. Entry includes work activities in that space and is considered to have occurred as soon as any part of the Authorized Entrant's body breaks the plane of the space.

9.11 **Entry Permit** - The completed written or printed document that allows and controls entry into a permitted Confined Space area.

9.12 **Hazardous Atmosphere**

An atmosphere that may expose employees to the risk of death, incapacitation the impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes:

- Atmospheric oxygen concentration below 19.5% or above 23.5% present in the Confined Space area.

- Flammable gas, vapor or mist in excess of 10% of its Lower Explosive Limit (LEL).
- Airborne combustible dust at a concentration that meets or exceeds its (LEL).
  NOTE: Withdraw from the area if vision obscured less than five feet.
- Atmospheric concentration of any substance, which could result in an employee's exposure in excess of its dose of the Permissible Exposure Limit.
- Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH) or that would interfere with an individual's ability to escape unaided from a permitted Confined Space area.
  Note: For air contaminants for which Occupational Safety & Health Administration (OSHA) has not determined a dose or permissible exposure limit, other published sources of information **SHALL** be used for guidance.

9.13 **Hazard Elimination** - Complete removal of the hazard potential by double block and bleed, blind flange, and/or the removal of a spool piece.

9.14 **Hazard Control** - Complete removal of all energy sources by Lockout/Tagout procedures. Use of ventilation to maintain a safe atmosphere.

9.15 **Hazardous Hot Work** - Any work that is conducted where a flammable atmosphere or a potential flammable condition exists.

9.16 **Hot Work** - Work, which may result in sparks; work which may generate an ~~d~~ electric arc, gas flame, or any source of ignition.

9.17 **Lower Explosive Limit (LEL)** - The minimum percentage of a vapor in air that will explode once it is ignited.

9.18 **Permissible Exposure Limit (PEL)** - Maximum safe exposure a person can be subjected to for an 8-hour period.

9.19 **Permit Required Confined Space**
A Confined Space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has ~~a~~ the potential of engulfing an ~~d~~ Authorized Entrant (example: liquids, flammable solids, etc.).
- Has an internal configuration such that an Authorized Entrant could be trapped, and/or possibly be asphyxiated?
- Contains any other recognized, uncontrollable, serious safety or health hazard,-such as:
  - Rotating Equipment
  - Electrical shock hazards
  - Fall potential

9.20 **Prohibited Condition** - Any condition in a permitted Confined Space that is not allowed by the permit during the period when entry is authorized.

9.21 **Toxic Exposure** - The exposure to a substance that has the ability to induce injury.

Section III 7.1.7 A RPSHSE – 7 A

Confined Space

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1.0 Introduction

More than 1.6 million workers enter confined spaces each year and approximately 63 of them die from asphyxiation, burns, electrocution, drowning, and other tragedies related to their hazardous jobs. More alarming is the fact that 60% of those who die are untrained rescuers who not only fail to save a co-worker but also are killed during the rescue attempt. The Occupational Safety & Health Administration (OSHA) requires that a trained, equipped rescue team be available whenever employees work in confined spaces.

2.0 Purpose

The purpose of this procedure is to establish, standardize, disseminate, and document the methods, responsibilities and other considerations related to the implementation of suitable HSE measures prior to any personnel entering into a confined space. The employee who enters a confined space may be exposed to hazards which require controls to prevent injury or death due to fire and explosion, engulfment, exposure to toxic materials, oxygen deficient atmospheres, entrapment due to internal configuration, and any other recognized serious safety or health hazard.

3.0 Procedures

3.3.1 General Precautions

The On-Site Supervisor and/or the On-Site HSE Coordinator will ascertain that:

- The confined space is prepared and the necessary precautions are taken to determine that the air has the proper oxygen content, is non-flammable, and is non-toxic.
- The confined space, including sections of the lines that could hold harmful materials between blinds and vessels, is thoroughly empty.
- The confined space is washed and/or purged, as necessary, to remove hazardous or toxic materials.
- The confined space is equipped with forced-air ventilation using either of the following to supply ambient air into the vessel:
- An air-horn or educator, motivated by plant air, to pull ambient air into the confined space.
- An approved, electrically powered blower.
- A blind list is prepared and given to the personnel responsible for the Maintenance Function for execution. The blind list should also include the following, where applicable:
- A listing of instruments where purging is not possible.
- If circumstances make it impossible to blind a line at the confined space, a spool piece may be removed and the process side of the line blinded to prevent possible spill.

- When blinding is impossible (such as with welded valves), valves may be chained and locked closed and a bleed valve upstream locked open.
- The following electrical disconnections are made:
- Electrical circuits are disconnected and locked out as specified in the
- Lockout/Tagout - Control of Hazardous Energy Procedure.
- A check (by a qualified person) that voltage is not present on the load side of the disconnected device.
- At least one audible alarm-type oxygen and combustible gas analyzer is inside the confined space while work is being performed. If the work prevents the analyzer from being kept inside the confined space, it shall be kept at the entrance and the atmosphere inside shall be checked periodically. **(Reference "Testing and Monitoring")**
- Ladders or scaffolds are provided, where they are needed, to permit safe access to the confined space openings. There are safeguards against falling and protection from falling objects and heat and harmful material contacts inside the space. Access openings are to be kept free of all obstructions.
- As applicable provisions and precautions will be in place to address necessary procedures for pedestrians, vehicles and/or barriers as necessary to ensure protection for "ALL" individuals involved in the Confined Space Permit protocol with these items identified on the Permit-to-Work permit.
- The Confined Space Entry permit is completed and signed after personally verifying that all the conditions have been met.

3.3.2 Confined Space Entry SHALL be by the "Permit-to-Work System" only:

- The permit is the written authorization and approval that specifies the locations and type of work to be done.
- It certifies that a Competent Person (CP) and the necessary protective measures have evaluated and existing hazards eliminated and precautions have been taken to insure the safety of each worker.
- This permit shall be dated and carry an expiration time that will be valid for one shift only, normally 8 to 12 hours, with maximum time of 12 hours.
- The new permit shall be issued for each shift. The permit shall be posted next to the entrance(s), with a copy on file at the facility.
- Permits are terminated when changing conditions, such as gas leaks or oil spills, create a hazard. The Field Superintendent/Supervisor is responsible for determining when a new Confined Space Entry Permit must be issued.

4.0 Responsibilities

4.1 The On-Site Supervisor:

Is responsible for the following:

- Requesting and initiating the **Confined Space Entry Permit**.
  - This includes a description of the work, the specific tasks to be done, the location(s), the work procedures, and the required time period.

Note: If the space on the form is not sufficient, write the description on a separate sheet of paper and attach it to the permit. The description shall be clearly written so all involved personnel and the On-Site Supervisor will know exactly what must be done. If there are any questions about the job, the **REPOWER USA** Operations and Maintenance personnel should resolve them prior to completing the permit.

- Ensuring the completion of the Permit-to-Work.
- Preparing the confined space area.
- Performing all required safety checks.
- Testing the atmosphere prior to entry:
  - Oxygen level.
  - Flammability and/or explosive levels.
  - Toxic substance levels.
- Testing the atmosphere while work is in progress.
- Completing the hot work permit.

NOTE: Supervision may contact **REPOWER USA** HSE Department if additional resources are needed to complete the entry permit.

4.2 The On-Site Supervisor, or his designee, must:

- Review the permit with all involved personnel and satisfy himself/herself that it is safe to perform the detailed work.
- Approve the Permit.

4.3 The On-Site Supervisor will then:

- Review the completed form and verify that the permit requirements are complete before starting the required work.
- Review the job and safety requirements in the presence of the work crew and ensure that all parties are knowledgeable in the work tasks to be performed and the safety precautions to be taken. Lead representatives are to review the permit acknowledging understanding of the job and the HSE requirements.
- Complete the isolation checklist:
  - Blinding and/or disconnecting
  - Electrical lockout
  - Mechanical lockout
  - Any other energy isolation required
  - Review the required special clothing and equipment

- Review the Personal Protective Equipment and clothing, including respiratory protection
- Safety harnesses and life lines
- Tools approved for use in accordance with the Hazardous Location Classification (NEC 1978)
- Identify Standby person(s) named on the permit and review the emergency procedures and location of first aid equipment.

  NOTE: Depending on the type of operation, the Operations and Maintenance function may be separate functions or a combined function due to job location, size, type, etc. In this situation, the On-Site Supervision shall be responsible for both functions.

4.4 HSE Department

The **REPOWER USA** HSE Department shall provide technical support for risk evaluation, monitoring, training, and Personal Protective Equipment (PPE) review and selection.

- REPOWER USA will provide appropriate training to address the various aspects of Confined Space Work.
- Training will be completed and documented for assigned Entry Supervisors, Attendants & Entrants.
- This training will be completed prior initial assignment, prior to change in assigned duties and should any new hazard be identified or should special deviations occur.
- Standard protocol for "ALL" training conducted by REPOWER USA HSE Department is identified on the written test with students name, date of training, instructors name, appropriate signatures.
- All training records are available for audit/inspection by external & internal auditors, Clients and authorized representatives for the employees and the employees.

4.5 Authorized Attendant(s)

REPOWER USA SHALL ensure that each Authorized Attendant(s):

- Is responsible for only **one** permitted Confined Space Entry and has no other duties that may distract him/her from their assigned position. Knows the hazards that may be faced during entry including the information on the mode, signs, symptoms, and consequences of potential exposure. Is aware of the possible behavioral effects of potential hazard exposure to
  - **Authorized Entrants.**
    - Continuously maintains an accurate count of the Authorized Entrant(s) in the permitted Confined Space.
    - Remains outside the permitted Confined Space until relived by another
  - **Authorized Attendant.**
    - Communicates with the Authorized Entrant(s), as necessary, to monitor the Authorized Entrant(s)' status and to alert them of need to evacuate the permitted Confined Space.

- Monitor activities inside and outside the permitted Confined Space to determine if it is safe to remain in the permitted Confined Space and directs the Authorized Entrant(s) to evacuate the permitted Confined Space immediately under any of the following conditions:
- If the Authorized Attendant detects a prohibited condition.
- If the Authorized Attendant detects any behavioral effects of a hazardous exposure in the Authorized Entrant(s).
- If the Authorized Attendant detects a situation outside the permitted Confined Space that could endanger the Authorized Entrant(s).
- If the Authorized Attendant becomes unable to effectively and safely perform all the duties required of him/her.
- Summons rescue and other emergency services as soon as the Authorized Attendant determines that the Authorized Entrant(s) may require assistance to escape from a permitted Confined Space hazard.
- Takes the following actions when unauthorized personnel approach and/or enter a permitted Confined Space while entry/work is underway:
- Warn all unauthorized personnel that they must stay away from the permitted Confined Space.
- Advise unauthorized personnel that they must exit immediately if they have entered the permitted Confined Space,.
- Inform the Authorized Entrant(s) and the Authorized Entry Supervisor if unauthorized personnel have entered the permitted Confined Space.
- Performs non-entry rescues as specified by the employer's rescue procedure.
- Performs no other duties that might interfere with the Authorized
- Attendant's primary responsibilities to monitor and protect the Authorized Entrant(s).

- **REPOWER USA** Authorized Attendants will be responsible for "ONLY" one Confined Space Entry procedure.
- Participates in the Permit-to-Work Confined Space Permit review, signing, equipment calibration, and air monitoring results.

4.6 Authorized Entrant(s)

REPOWER USA SHALL ensure that all Authorized Entrant(s):
Know the hazards that may be faced during a permitted Confined Space including information on the mode, signs and symptoms of exposure, and their consequences.

- Are properly trained.
- Use equipment properly.
- Communicate with the assigned Authorized Attendant as necessary to monitor the status of the permitted Confined Space and alert them of the need to evacuate the permitted Confined Space.

- Alert the assigned Authorized Attendant whenever an Authorized Entrant(s) recognizes any of the warning signs and symptoms of exposure to a dangerous situation or detects a prohibited condition.
- Exit from the permitted Confined Space as quickly as possible whenever:
  - Directions are given to evacuate by the assigned Authorized Attendant or the Authorized Entry Supervisor.
  - The Authorized Entrant(s) recognizes any of the warning signs or symptoms of exposure to dangerous situations.
- The Authorized Entrant(s) detects a prohibited condition.
  - An evacuation alarm is activated.
  - Participate in the Confined Space Permit review, signing, equipment calibration and air monitoring results.

4.7 Authorized Entry Supervisor

REPOWER USA SHALL ensure that each Authorized Entry Supervisor:

- Knows the hazards that may be faced during a permitted Confined Space Entry, including the information on the mode, signs or symptoms, and the consequences of potential exposure.
- Verifies that all tests specified by the Confined Space Permit have been conducted and that all procedures and equipment specified by the Confined Space Permit are in place before endorsing the permit and allowing entry to begin.
- Verifies that all personnel involved in Confined Space Entry Permit are properly trained and competent in their assigned responsibilities.
- Verifies that Rescues Services are available and that the means for summoning them are operable.
- Removes all unauthorized personnel who enter or who attempts to enter the permitted Confined Space during entry operations.
- Determines that entry conditions are maintained whenever the responsibility for a permitted Confined Space entry operation is transferred and at the intervals dictated by the hazards and operations performed within the Confined Space.
- Terminates the entry and cancels the Confined Space Entry Permit when the entry operations specified by the Confined Space Permit have been completed or when a condition not allowed under the Confined Space Permit arises in or near the permit area.

5.0 Training

5.1 Training

- No **REPOWER USA** employee **SHALL** be assigned work-requiring entry into a confined space or any activities necessary to support confined space entry unless the employee has successfully completed the required training course and a Quantitative Fit Test.
- No person will be permitted to supervise a Confined Space Entry unless the employee has successfully completed the required training course.

- Training shall be considered satisfactory when the employee has attained an acceptable degree of proficiency for entering and working in confined spaces and satisfies the respective course requirements.
- All personnel who work near confined spaces shall be made aware of the hazards associated with confined spaces during pre-entry orientation.

6.0 Testing and Monitoring

- Entry into a confined space is **prohibited** until an initial testing of the atmosphere has been done from the outside.
- The tests performed shall include those for oxygen content, flammability, and toxic materials. Additional tests will be selected and performed to the satisfaction of the qualified person. The qualified person, taking into account the hazards present and the operations being performed, shall determine the frequency of the monitoring (if unable to monitor on a continual basis).
- Air Monitoring tests will be done continuously with and without ventilation while work is in progress.
- Atmospheric monitoring shall be performed in accordance with the permit. The equipment for the continuous monitoring of gases and vapors shall be explosion proof with direct reading capability and an audible alarm danger-signaling device that will alert employees when a hazardous condition develops. Instruments used for testing the atmosphere in confined spaces shall be selected for their functional ability to measure hazardous conditions.
- Instruments shall be calibrated in accordance with the manufacturer's guidelines. Each calibration shall be recorded and maintained in accordance with existing state and federal regulations.
- The percentage of oxygen for entry in a confined space shall be no less than 19.5% or greater than 23% at the standard temperature and pressure. If tests indicate the oxygen level to be greater than 23%, entry is prohibited until ventilating techniques have reduced the oxygen level to no greater than 21%. If the percentage of oxygen falls below 19.5%, entry into a confined space shall be prohibited until ventilating techniques have increased the oxygen level to a minimum of 19.5%. Exceptions to these criteria are noted in Section E of this procedure.
- Supplied-air respiratory protection is not to be used for routine work in confined spaces unless the conditions and equipment or the task is of such complexity that the use of air-purifying respirators are not appropriate. The **REPOWER USA** HSE Department will assist the Component Person (CP) in resolving any questions that arise in this area.
- Entry into a confined space for any type of work (including hot work which requires additional permit conditions to be met) shall be prohibited when tests indicate the concentration of flammable gases in the atmosphere is greater than 10% of the lower explosive limit (LEL). It is necessary to determine the oxygen level (by the appropriate testing) prior to testing the atmosphere for flammability to make necessary corrections in the flammability measurements.

- The concentration of toxic gases, vapors, or particulates must be determined using equipment that will provide sufficient detection ability and meaningful data to the user. For example, the measurement of the total hydrocarbon concentration may not be sufficiently sensitive or specific enough.
- Ventilation **SHALL** be used and testing **SHALL** be conducted before entry and during Confined Space Entry work.
- All Authorized Personnel **SHALL** participate in the review of calibrated air monitoring data and the signing of Confined Space Permits prior to entry.

7.0 Labeling and Posting

- All warning signs shall be printed in English. Where established symbols exist, they shall be used. Workers unable to read the labels and posted signs shall be informed of the instructions printed on the signs.
- All entrances to any confined spaces shall be individually posted and the warning signs protected from heat, moisture, or other physical dangers.

Signs shall include, at a minimum, the following information:

DANGER
CONFINED SPACE
ENTRY BY PERMIT
ONLY

- Emergency procedures, including the phone numbers of the fire department and emergency medical services, shall be posted conspicuously within the immediate area of the confined space or at the telephone from which help would be summoned.

8.0 HSE Equipment and Clothing

- The entry permit shall specify the personal protective equipment to be used in the confined space as determined by the trained Qualified Person.
- Personal items such as hearing aids, prescription eyeglasses, dentures, etc. may affect the individual's ability to perform work in a confined space. It is the Qualified Person's responsibility to approve the use of such items pending the job assignment.
- Items normally used to protect against traumatic injury include safety glasses, hard hats, protective footwear, and protective clothing.
- The additional safety equipment that is necessary to protect the worker in the environment of a confined space includes:
- A full body harness with "D" rings and an attached lifeline. It shall be worn at all times.
- If the exit opening is less than 18" (45cm) in diameter, a wrist type harness shall be used.

- Other protective measures shall include:
  - Safety nets shall be used to protect employees working 6 feet above ground or grade level when other fall protection devices are impractical.
  - Life jackets shall be worn if the workers are exposed to falls into a liquid over 4-ft. (1.2 m) in depth.
  - Insulated floor mats shall be used when hot work requires the use of electrical energy.
  - When employees enter a confined space, a barricade shall be erected if inadvertent entry poses a problem. The barricade shall be a mechanism that prevents the closure of an egress and shall have signs posted warning of the dangers present or it shall be a physical barrier (fence) to keep the area clear and it shall have an adequate platform (3 feet X 3 feet, minimally) for entry and/or exit.
  - Tripods with block and tackle for safety lines and communication equipment should also be considered for added safety features when the entry plan is formulated.

8.1 Work Practices

Before entering a confined space all employees involved in the job or task shall participate in a job safety briefing and review the specific requirements for safe entry and emergency exit. These requirements shall be compiled by the Competent Person and be definitive on all the possible hazards. Employees and/or their authorized representatives may at any time request additional monitoring of the Confined Space protocol.

NOTE: The following conditions shall prohibit confined space entry. These conditions may exist when standard techniques such as isolation, purging, positive or negative pressure ventilation, etc. will not provide entry conditions satisfactory to the requirements of this procedure.

- These two conditions are:
  - Entry into a space with an atmosphere greater than 10% of the Lower Explosive Limit (LEL).
  - Entry into a space with an atmosphere that contains greater than 23.0% oxygen content by volume.

NOTE: The following conditions shall require additional evaluation prior to Confined Space entry. These conditions may exist when standard techniques such as isolation, purging, positive or negative pressure ventilation, etc. will not provide entry conditions satisfactory to the requirements of this procedure.

- These three conditions are:
  - Entry into an atmosphere Immediately Dangerous to Life or Health (IDLH).
  - Entry into an atmosphere that contains less than 19.5% oxygen by volume of air.
  - Entry into an atmosphere which contains exposure to a know carcinogen in excess of the accepted health and safety standards.

- The following procedures must be met prior to confined space entry under the above guidelines:
  - Notification is provided to the Department/Operations Manager, the On-Site HSE Coordinator, the Client Representative, and the **REPOWER USA** HSE Department.
  - The scope of the job or task and the need to enter is reviewed with the Department/Operations Manager, the **REPOWER USA** HSE Department, and the On-Site HSE Coordinator for the area of operations involved.
- Approval is given by the On-Site Supervisor, the On-Site HSE Coordinator Department/Operations Manager, the On-site Competent Person, the and Client Representative for the area of operations involved and concurs with the agreement of the **REPOWER USA** HSE Department to follow the procedures mutually specified and required for safe entry and the subsequent work.
- Ventilation and atmospheric containment must be reviewed during the job safety briefing and incorporate the following items:
- Purging and ventilating may be required prior to entry, during work being conducted, and possibly after work is completed. The method used will be determined by the potential hazards that arise due to the product stored or produced, suspected contaminants, the work to be performed, and the design of the confined space.
- When ventilating and/or purging operations are to be performed, the blower controls shall be at a safe distance from the confined space. When a ventilation system is operational, atmospheric tests shall be made before each work shift and as often as necessary to ensure that a safe environmental level is maintained.
- General ventilation may be used (with caution) for distributing contaminates from a local generation point throughout the workspace to obtain maximum dilution. However, special precautions shall be taken to include a method for providing breathable air to each worker for the time necessary for entry, work in the confined space, or when exiting. A method of maintaining communications shall also be provided.
- Local exhaust ventilation shall be provided when general ventilation is not effective due to restrictions in the confined space or when high concentrations of contaminants occur in the breathing zone of the workers. Local high concentrations of contaminants may occur during work activities such as welding, painting, and chemical cleaning. Exhaust systems shall be designed to protect workers in the surrounding area from the contaminated air.
- Respiratory protection may also be needed in addition to ventilation controls and the Qualified Person must specify the type selected.
- The first phase of the initial testing of the atmosphere shall be performed from outside the confined space before ventilation begins to determine what precautions are necessary in purging and ventilating. The second phase of initial testing shall be performed after ventilation equipment is in place to verify that no source outside of Confined Space area is contaminating the ventilation process.

- The testing of more remote regions (which may require use of extension probes) within the confined space may be performed once the immediate area within the confined space has been made safe.
- If flammable concentrations are present, all electrical equipment shall comply with the requirements of NEC (NFPA No.70) hazardous locations and the bonding requirements of Article 250 of NEC, 1978.
- Where continuous ventilation is not a part of the operating procedure, the atmosphere shall be tested until continuous acceptable levels of oxygen and contaminants are maintained for three tests at 5-minute intervals. Care shall be taken to prevent the re-circulation of contaminated air and the interaction of airborne contaminants.
- Energy isolation and lockout/tagout procedures shall be specified for each type of confined space.
- The confined space shall be completely isolated from all other systems by physical disconnection, or blinding off all lines, or double blocking and bleeding at a minimum.
- In continuous systems where complete isolation is not possible, such as sewers or utility tunnels, the specific written safety procedures that are approved and enforced by **REPOWER USA** shall be used.
- Blinds used to seal-off lines shall be capable of withstanding the maximum working pressure or load of the line (with a minimum safety factor of 4), shall be provided with a gasket on the pressure side to insure a leak proof seal, and shall be made of chemically non-reactive material.
- Shutoff valves serving the confined space shall be locked in the closed position and tagged for identification. In addition to blinding, the pumps and compressors serving these lines entering the confined space shall be locked out to prevent accidental activation.
- All blinds to be used, feed lines, drain lines, etc. shall be recorded on the entry permit. If a drain line is located within the confined space, a provision shall be made, when necessary, to tag it and leave it open.
  Special procedures shall be determined by the Qualified Person and noted on the entry permit when the confined space is of a double-wall type construction, such as a water-jacketed or similar type.
- If electrical isolation is required, circuit breakers and/or disconnects will be locked in the open (off) position with a key-type padlock. The only key is to remain with the person working inside the confined space. If more than one person is inside the confined space, each person shall place his/her own lock on the circuit breaker. In addition to the lockout systems, there must be an accompanying tag that identifies the operation and prohibits use.
- Disconnecting linkages or removing drive belts or chains can achieve the mechanical isolation of moving parts. Equipment with moving mechanical parts shall also be blocked in a manner where no accidental rotation can occur.

- Other forms of stored energy (e.g. hydraulic, pneumatics) must also be isolated or released so no accidental release can occur.
- The procedures and processes used to clean the inside of a confined space shall be reviewed and authorized by the Competent Person. If the confined space contains a flammable atmosphere above the upper explosive limit, it shall be purged with an inert gas to remove the flammable substance before ventilating with air.
- The initial cleaning shall be done from outside of the confined space if at all possible.
- Special procedures should be adopted to handle the hazards created by the cleaning process itself. For example, if the confined space is steamed, it shall be allowed to cool prior to entry.
- Ventilation shall be maintained during neutralization procedures to prevent the buildup of toxic materials.
- Steam shall not be used as a cleaning method when the product stored is a liquid with an auto-ignition temperature. The steam will generate an ignition source.
- The pipe or nozzle of steam hose shall be bonded to the tank to decrease the generation of the static electricity that could accumulate in tanks during the steaming procedures.
- Equipment and tools to be used in a confined space shall be carefully inspected and shall meet the following requirements:
- Hand tools shall be kept clean and in good repair.
- Portable electric tools, equipment, and lighting shall be approved in accordance with 29 CFR Part 1910 Sub Part S and be equipped with a ground fault circuit interrupter that meets the requirements of 29 CFR 1910.309. All grounds shall be checked before electrical equipment is used in a confined space.
- All electrical cords, tools, and equipment shall be of the heavy-duty type with heavy-duty insulation and inspected for visually detectable defects before use in a confined space.
- Air-driven power tools shall be used when flammable liquids are present. The use of air-driven power tools will reduce the risk of explosion, but not eliminate it.
- However, explosions can arise by tools overheating (drilling), sparks produced by striking (percussion), grinding, or through the discharge of accumulated electrostatic charges developed from the flow of the compressed air.

- Lighting used in confined spaces shall be of the explosion-proof design and equipped with guards. Only equipment listed by the Underwriters Laboratories for use in Division 1, atmospheres of the appropriate class and group, approved by the U.S. Bureau of Mines (Mine Safety and Health Administration), or the U.S. Coast Guard shall be used. Electric cords shall not hang lighting, unless specifically designed for that purpose. The illumination of the work area shall be sufficient to provide for safe work conditions as referenced in the ANSI standard A11-1-1965, or the revision of 1970. Under no circumstances will matches or open flames be used in a confined space for illumination.
- Cylinders of compressed gases shall never be taken into a confined space. However, the cylinders that are part of self-contained breathing apparatus, emergency egress bottles. or resuscitation equipment are exempt from this rule.
- Ladders shall be adequately secured, or of a permanent type, which provides the same degree of safety as, cited in 29 CFR part 1910 Sub Part D.
- Scaffolding and staging shall be properly designed to carry the maximum expected load (safety factor of 4), shall be equipped with traction type planking, and shall meet the requirements of 29 CFR 1910.28.
- Electrical lines, junctions, and appendages will be in accordance with the National Electrical Code (NEC) and the National Fire Code (NFC) as cited in 29 CFR 1910.309.
- Only the hose lines and the components designed especially for compressed gas and working pressure shall be used, and such systems shall have a pressure relief valve outside the confined space.
- All the equipment that may be used in a flammable atmosphere shall be approved as explosion-proof or intrinsically safe for the atmosphere involved by a recognized testing laboratory such as the Mine Safety and Health Administration (MSHA) for methane and, for all cases, by the Underwriters Laboratories.

9.0 Rescue and Emergency Procedures

The Authorized Entry Supervisor **SHALL** have the responsibility in coordination with the **REPOWER USA** HSE Department and the On-Site HSE Coordinator to determine whether **"Standby"*** or **"Available"**** Rescue Services are required for the specific Confined Space to be entered. The criteria for this determination **SHALL** be based on the known or potential hazards, the Personal Protective Equipment (PPE) used, and the ability to self-rescue.

- The following requirements apply to **REPOWER USA** employees trained to enter the permitted Confined Spaces to perform rescue services:
- The location **SHALL** ensure that each member of the Rescue Service Team is provided with, and is trained in the proper use of the Personal Protective Equipment (PPE) and rescue equipment necessary for making rescues for the permitted Confined Space Entry at no cost to employee.

- Each member of the Rescue Service Team **SHALL** be trained to perform his/her assigned rescue duties and each member **SHALL** also receive the training required of the Authorized Entrants.
- Each member of the Rescue Service Team **SHALL** practice making permitted Confined Space Entry rescues. This training **SHALL** be completed at least every 12 months, using dummies, mannequins, or the actual person(s) and using representative spaces, with respect to the configuration, opening size, and accessibility, to simulate the types of permitted Confined Spaces from which a rescue might be needed.
- Each member of the Rescue Service Team **SHALL** be trained in basic First Aid and Cardiopulmonary Resuscitation (CPR). At least one member of the Rescue Service Team **SHALL** hold a current certification in First Aid and Cardiopulmonary Resuscitation (CPR).
- The following requirements apply when **REPOWER USA** has Contracted Rescue Service Teams (example: Local Fire Departments or Emergency Services) to enter the permitted Confined Spaces to perform rescue services:
  - Provide a copy of the Confined Space Entry Permit and Procedures for review.
  - Provide adequate time for the Contracted Rescue Service Teams (example: Local Fire Departments or Emergency Services) to review the permits and procedures, examine the Confined Space Entry site, and practice Rescue Procedures.
  - Inform the Rescue Services of the known hazards or the potential hazards they may confront
  - Provide the Rescue Services with access to all the permitted Confined Spaces from which rescue may be necessary so they can develop appropriate procedures and practice rescue operations.
- The following requirements apply to **REPOWER USA** when it is determined that Client/Host Rescue Service Team Personnel will be used to enter the permitted Confined Spaces to perform rescue services:
  - Review the Client/Host Rescue Service Team on-site rescue procedures.
  - Provide time for the Client/Host Rescue Service Team to practice rescue procedures at the permitted Confined Space Entry area with employer's on-site personnel.
  - Provide the Client/Host Rescue Service Team with a copy of the employer's Confined Space Permits and Procedures.
  - Ensure, in contract language, that the Client/Host agrees that the Client/Host Rescue Service Team will be available for use during any rescue or emergency at the employer's site on the Client/Host property for Confined Space Entry.
  - To facilitate a non-entry rescue by an Authorized Attendant and an Authorized Entry Supervisor, retrieval equipment and/or systems or methods **SHALL** be provided and used, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the Authorized Entrant(s). Retrieval equipment and/or systems **SHALL** meet or exceed the following requirements:

- Each Authorized Entrant **SHALL** use a chest or full body harness with a retrieval line attached to the center of the Authorized Entrant's back, near the shoulder level, or above the head. Wristlets may be used in lieu of the full body harness if the employer can demonstrate that the use of a full body harness is unfeasible or creates a hazard and that the use of wristlets is the safest and most effective alternative.
  NOTE: Using wristlets is the least desirable method of lowering or raising Authorized Entrant(s) and should be considered only in **"extreme"** circumstances.
  The other end of the retrieval line **SHALL** be attached to a mechanical retrieval device or a fixed point outside the permitted Confined Space in such a manner that the rescue can begin as soon as the Authorized Attendant becomes aware that a rescue is necessary. A mechanical retrieval device **SHALL** be available to retrieve Authorized Entrant(s) from vertical spaces more than 5 feet deep.

9.1 First Aid and Medical Provisions

- There shall always be someone in the area of the confined space that is currently trained in Cardiopulmonary Resuscitation (CPR) and basic first-aid procedures.
- Employees shall be aware of the location of the nearest first-aid equipment and how to obtain emergency assistance and medical attention. A Material Safety Data Sheet (MSDS) **SHALL** be made available to the medical facility treating an injured Authorized Entrant(s) if he/she has been exposed to a substance that requires an MSDS be kept on-site.

10.0 Recordkeeping

REPOWER USA shall maintain a written record of Confined Space Entry training for each employee and it shall be included with all other employee-training records. All records shall be maintained in accordance with the existing state and federal regulations. Confined Space Entry exposure records will be maintained with an employee's confidential Medical Records.

10.1 Confined Space and/or Hot Work Permit Disposition

The original copy of the permit will be inserted in a clear plastic envelope and displayed at the work site. One copy **must** be submitted to the **REPOWER USA** HSE Department. After the work has been completed, or the permit has expired, the original will be returned to the On-Site Supervisor/Manager. Unless any problems occur, the original will be retained for one year but then destroyed.

It is the On-Site Supervisor's responsibility to forward a copy to the **REPOWER USA** HSE Department for OSHA documentation.

10.2 Coordinating Entry by Multi Employers

During any situation that requires Confined Space Entry into a common area by more than one employer, the following procedures with be adhered to:

- The prime employer's Confined Space Entry Permitting System and procedures will have precedent.

- Each additional employer will furnish the required Authorized Attendants to oversee and maintain control of their employees.
- Each employer's Authorized Attendant will maintain communication with each of the other Authorized Attendant(s) assigned to the permitted Confined Space Entry.
- The prime employer's Authorized Entry Supervisor will exercise control of the entire permitted Confined Space.
- The prime employer's Authorized Entry Supervisor will appoint a Senior Authorized Attendant to assist with the coordination of multi-employer Authorized Attendants.

10.3 Review and Revisions

The **REPOWER USA** HSE Department has the responsibility for the review and revisions of the Confined Space Entry Permit Program and Procedures. The on-site review is the responsibility of the On-Site Supervisor and the On-Site HSE Coordinator.

- The entry permit **SHALL** be reviewed at least annually and the program and procedures revised as necessary to protect employees from Confined Space hazards.
- Reviews and revisions **SHALL** be immediate for any of the following reasons: Any unauthorized entry of a confined space.
- Discovery of a hazard not covered by the current Confined Space Permit.
- Any employee and/or Client/Host complaint.
- Occurrence of any accidents/incidents/near misses.
- As necessary due to procedure enhancements or process changes.
- As regulations or standards change

REPOWER Systems	Section III RPSHSE 7.1.7B	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III 7.1.7 B RPSHSE – 7 B

Lockout - Tagout (LOTO)

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1.0 Introduction

The purpose of this procedure is to protect personnel from injury due to the unexpected energizing, startup, or release of the stored energy of equipment during the servicing or repair of machines and equipment. This standard establishes the minimum performance requirements for the control of such hazardous energy.

This procedure **does not** cover the minor tool changes and adjustments and the other minor servicing activities that take place during normal production operations and are routine, repetitive and integral to the use of the equipment.

Periodic inspections will be conducted at each facility to ensure that this procedure is being followed and that no new hazards have been identified or that no changes in the process require changes in the "Lockout/Tagout-Control of Hazardous Energy" Program. These reviews will be documented and retained as a part of the Job Site Safety Inspection (JSSI) and Job Safety Analysis (JSA). These inspections and reviews will be completed annually or when there has been an accident/incident/near miss, the identification of a new hazard, and/or changes in the facility process. The **REPOWER USA** Operations Manager and/or the **REPOWER USA** HSE Department will conduct these inspections in conjunction with the facility Job Site Safety Inspection (JSSI).

The enforcement of Lockout/Tagout - Control of Hazardous Energy procedures shall be the responsibility of the **REPOWER USA** Operations Managers and the **REPOWER USA** HSE Department. An on-site evaluation of employees' knowledge and the proper implementation of these procedures shall be conducted annually during training sessions, daily and pre-job safety meetings, and during the use of the Lockout/Tagout-Control of Hazardous Energy procedures.

2.0 Responsibilities

2.1 On-Site Field Supervisor

- The On-Site Field Supervisor will:
  - Be responsible for the identification of the energy sources that require control as well as the equipment and machinery, affected prior to any work, which requires testing, repair, or replacement.
  - Determine the employee(s) who are authorized to engage in lockout procedures.
  - Only these employees will be issued lockout/tagout equipment.
  - Ensure that Standard Operating Procedures (SOPs) and training in lockout/tagout requirements have been provided when:
    - Guards or safety devices are removed from equipment.
    - During the servicing of equipment or machinery.
    - When an employee must place any part of the body where it may be caught by moving machinery (cleaning or oiling parts, etc.).
    - When contact with any form of energy is possible, (electrical, hydraulic, pneumatic, chemical, thermal).

- During all confined space entries when applicable.
- Enforce the use of both locks and tags whenever energy isolation is required.
- Provide the procedures and documentation required for the release of lockout/tagout equipment including machine inspections, notification to employees, removal of lockout/tagout devices, and the testing or start-up of equipment or machines.
- Provide all affected employees the necessary information concerning the lockout/tagout system used by contractors on **REPOWER USA** project sites. The contractor's equipment and procedures may vary from those required in this procedure.
- Ensure that all affected employees have been trained in the identification of activities requiring energy control, lockout/tagout, or isolation procedures, testing, and reactivating equipment and machinery.

2.2 Operations and Maintenance (O&M)

The On-Site Field Supervisor will:

- Ensure employees use only those locks and tags authorized by Site Management. Obtain assistance from the On-Site Management or the HSE Department if uncertain about the application of a control procedure or equipment operation.

2.3 The On-Site HSE Coordinator/REPOWER USA HSE Manager and the HSE Department will:

- Assist the On-Site Management and the O&M Supervision with instructions on the control of hazardous energy sources.
- Assist in identifying the locks and tags approved for use at all **REPOWER USA** operated facilities, projects, and work sites.
- Approve, prior to use, any other type of lockout/tagout device not specified in a standard that must be utilized for employee safety (such as a specially designed valve handle cover). The On-Site Supervisor and the On-Site Client Representative may also approve the device prior to use.
- The On-Site Superintendent/Supervisor will ensure that affected employees have been informed of relevant hazards and follow the specified procedures.

2.4 Engineering and Maintenance

- Engineering and Maintenance personnel are to ensure that new equipment or overhauled equipment can accommodate locks for the subsequent application of this standard as required.

2.5 Employees

- All employees are to comply with the established procedures on controlling hazardous energy sources.
- In addition:
  - Employees are responsible for the equipment they are issued such as lock devices, keys, and tags.
  - An employee shall not attempt to operate any switch, valve, or other energy-isolating device when it is locked out or tagged out.

3.0 Equipment Requirements

- The following equipment considerations must be satisfied in order to effectively utilize this lockout/tagout procedure:
  - **Locks** will be issued by the On-Site Supervisor with one key given only to the individual responsible for application of a lockout procedure.
    NOTE: Combination locks are prohibited for use in any lockout/tagout procedure of machines or equipment.
  - **Multiple-lock hasps** will be issued when lockout procedures require more than one lock to be used for lockout at a time.
  - **Warning Tags** are to accompany the placement of each lock. An identification tag must accompany every lock or multiple-lock hasp.
    - The tag will only be removed by the employee who placed it on the machine or equipment at the completion of the work requiring the lockout procedure. This tag is not reusable.
    - Various chain (to secure locks to valve handles) lengths and dimensions may be required to enable lockout. Maintenance personnel are required to provide this as necessary.
    - Equipment to cut or break chains, locks, or hasps (lock cutters, hacksaws, etc.) must be available with the On-Site Supervisor or the On-Site HSE Coordinator if an emergency requires the removal of a lockout device and the key is not available.

4.0 General Procedures for Lockout/Tagout

4.1 General checks prior to Job Start-up:

- Any repair, adjustment, cleaning, or lubrication activities on powered equipment.
- Any decontamination, cleanup, removal or treatment activities where there is a hazard from any energized system.
- Lockout of a piece of equipment that has been found unsafe to operate to prevent its use.
- Entry into a confined space where energized equipment or systems may endanger the safety of the worker(s).
- Installation or removal of equipment that may be activated by an energy source.

4.2 The following actions will be taken prior to Job Start-up:

- Inspect the equipment and identify all isolating devices to be certain which switch, valve, or other energy isolating devices apply to the equipment to be locked or tagged out.
- Notify affected employees that a lockout will be used.
- De-energize all equipment and systems:
  - Shut off all electrical power at the source.
  - Bleed off all hydraulic/pneumatic pressure and turn off all supply valves.
  - Lower or block any moving or suspended parts (such as rams on a compactor) to prevent its travel or cycling.
  - Shut off all fuel, water, steam, or other chemical feed lines and bleed the lines as appropriate (e.g. using flange blanks).
  - After ensuring that no personnel are exposed operate the controls to make certain the equipment will not operate to check if the energy sources are isolated.

NOTE: Return operating control(s) to 'neutral' or 'off' position after the test.

- Place a lock and tag on the power source switch, valve, etc. The device or equipment must accept a locking device, a safety tag is not sufficient by itself.
- Tags must indicate:
  - The name of the person who placed it.
  - The date the tag was affixed.
  - A brief explanation for the lockout.
- If more than one employee will be working on the equipment, each employee is to affix his/her personal lock on a multi-lock hasp.
- If the power source is beyond the physical control of the employee, the appropriate steps must be taken to ensure that the system is not energized until the employee is out of danger. This may include physically disconnecting the energy source.
- When locking devices/tags will be used at a client site, the client's representative is to be advised of the intended use and the lockout/tagout program requirements are to be clearly defined and coordinated.
- When equipment or machinery is to be restored to normal operations, check the area around the machines or equipment to ensure that no one is exposed.
- After all equipment and employees are clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.
- The lock(s) and tag(s) are to be removed by reversing the procedure. Only the individual(s) who placed the devices in service are permitted to take them out of service.
- This lockout/tagout tag shall be dated and carry an expiration time that will be valid for one shift only, normally 8 to 12 hours, with a maximum time of 12 hours. A new lockout/tagout tag shall be issued for each shift. The lockout/tagout tag shall be posted with the lockout/tagout device.
- Lockout/tagout tag(s) are terminated when changing conditions, such as gas leaks or oil spills, create a hazard. The On-Site Field Supervisor is responsible for determining when a new lockout/tagout tag must be issued.

4.3 Contractors

If outside personnel are involved in lockout/tagout activities, the contractor shall be informed of the Client/**REPOWER USA** lockout/tagout requirements. The contractor can follow the Client/**REPOWER USA** Lockout/Tagout procedure or use their own Lockout/Tagout procedure with prior approval from the Client/**REPOWER USA** On-Site Supervisor personnel.

The On-Site Supervisor must ensure that all personnel understand and comply with the restrictions and prohibitions of the energy control procedures used.

4.4 Special Circumstances

- **Multiple Lock Requirements**
  - If more than one employee is required to lockout equipment, each shall place their personal lock on the energy isolating device(s).
  - When an energy-isolating device cannot accept multiple locks, a multiple lock hasp is to be used.

- If a single lock is used in place of a multiple lock hasp to lockout the machine or equipment, the key is to be placed in a lockout box or cabinet which allows the use of multiple locks to secure it.
- Each employee will then use their personal lock to secure the box or cabinet and will remove their lock in the reverse order when it is permitted to take them out of service.

- **Removal of Locks by Others**
  - If the employee who placed a lock and tag is not available to remove it, the lock may be removed under the direction of the On-Site Supervisor, the On-Site HSE Coordinator, the On-Site Client Representative, and/or the HSE Manager.
  - This procedure for the removal of the locking device shall provide equivalent safety, as would removal of the device by the employee who attached it:
  - The On-Site Supervisor must verify that the employee who attached the locking device is not at the facility.
  - After the lock is removed, the employee shall be advised, as soon as possible, that the lock has been removed before resuming work.
- **Testing or Positioning Machines and Equipment**
  - In situations where lockout or tagout devices need to be temporarily removed from the energy isolating devices and the machine or equipment is energized to test or position that machine or equipment, the following sequence of procedures must be followed:
    - Clear the machine or equipment of tools and other non-essential materials.
    - Remove employees from the machine or equipment area.
    - Remove the locks and tags.
    - Energize and proceed with the testing or positioning.
    - De-energize all systems.
    - Re-apply energy control measures.
    - Proceed as with any other lockout/tagout procedure.

4.5 Specific Procedures

4.5.1 Electrical

- The On-Site Supervisor and/or the On-Site HSE Coordinator will be responsible for lockout/tagout approval, activating the breaker and installing and removing the operations hasp, lock, and **"Danger Do Not Operate"** tag.
- Before locking out a piece of equipment, approval from the lead employee is necessary. The breaker will be opened by the O&M personnel, and the switchgear will normally be racked out by Instrument & Electrical (I&E) technician.
- The On-Site Supervisor and/or the On-Site HSE Coordinator will be responsible for placing the multiple lock hasps through the breaker arm and the placement of operation locks on the hasp. (This is to be the lock installed and the last removed.) At this time, the operator will prepare the red/white **"Danger Do Not Operate"** tag and attach it to the hasp.

- The operations or maintenance technician performing the work will place his lock on the hasp. If more than one disassociated group of technicians is working on the same equipment or process loop, each group shall place their own lock on the hasp. Each technician, placing his lock on the hasp, shall sign the **"Danger Do Not Operate"** tag attached to the hasp. While the technician observes, the lead employee shall verify power isolation at a control station by attempting a start procedure. A stop procedure shall be initiated after the start proves the equipment inoperative and the lead employee shall attach a signed **"Danger Do Not Operate"** tag at a control station visible from the motor. In the case where equipment can be started from more than one location, test each location and tag each station.
- As each technician (or group) completes his work, that lock shall be removed from the hasp. The technician shall also sign-off the **"Danger Do Not Operate"** tag at both the hasp and the control station(s).
- The last technician to remove his lock from the hasp shall notify the lead employee that the breaker is clear. The lead technician shall check to be certain that the work is complete, then remove the operations lock and hasp and the **"Danger Do Not Operate"** tags from all locations.
- As each technician completes his shift of work, he shall remove his lock from the hasp, and then reinstall his lock at the start of his next shift. This will continue until job completion.
- Only the On-Site Supervisor, in agreement with the On-Site HSE Coordinator and the Client Representative and the **REPOWER USA** HSE Manager, shall authorize overnight or prolonged lockouts. The On-Site Supervisor shall notify the involved employees of overnight lockouts.
- If the work crew requires information pertaining to the equipment locked out by the On-Site Supervisor on the off-shifts and weekends, the On-Site Supervisor shall be contacted.

4.5.2 Steam-Air-Oil-Gas-Hydraulic and Pressure Systems

- The On-Site Supervisor and/or the On-Site HSE Coordinator shall be responsible for lockout approval, activating the breaker (as applicable), and installing and removing the operations hasp, lock and **"Danger Do Not Operate"** tag.
- Steam, air, oil, gas, hydraulic, and pressure systems can be locked out by chains attached to the valves, built-in lockout devices, or by designing special attachments for the valves. In the event the valves cannot be locked out, the valve handle must be removed and the valve tagged.
- The pressure between the locked out position and the machine in pneumatic and hydraulic power systems shall be reduced to zero; this will prevent and/or reduce the possibility of the machine cycling or the accidental release of hazardous materials or pressures.
- Where welding or cutting is to take place, all flammable liquids and gases shall be isolated or eliminated to prevent ignition.

4.5.3 Confined Space Entry

- The On-Site Supervisor and/or the On-Site HSE Coordinator shall be responsible for lockout approval, activating the breaker (as applicable), and installing and removing the operations hasp, lock and **"Danger Do Not Operate"** tag.
- The Confined Space shall be completely isolated from all other systems and equipment.
- Lines connected to the tanks upstream and downstream shall be physically disconnected and blanked off. **Never** use valves as a disconnect or blank.
- Adequate measures shall be taken to purge harmful materials, solids, liquids, or gases from the vessel.
- The permit shall be dated and carry an expiration time that will be valid for one shift only, normally 8 to 12 hours, with a maximum time of 12 hours. A new permit shall be issued for each shift. The permit shall be posted next to the entrance(s) with a copy on file at the facility.
- Permits are terminated when changing conditions, such as gas leaks or oil spills, create a hazard. The On-Site Supervisor is responsible for determining when a new Confined Space Entry Permit must be issued.

4.5.4 Miscellaneous

The purpose of such tagging is to communicate with other people working on the system and to serve as a check before re-commissioning the equipment. The following list is representative of the situations where the administrative procedures above should be followed:

- Valves are not in the normal operating mode.
- Valves that should not be used under normal operating conditions are being used.
- Switches and valves used to isolate control lines or equipment are undergoing maintenance.
- Defective or leaking valves.
- Equipment, tools, etc. are unsafe to use.
- Safety or emergency equipment will not function properly and is unsafe to use.

5.0 Training

REPOWER USA will provide training on lockout/tagout for all equipment or machines. Authorized and affected employees will be trained on the following:

- Requirements of 29 CFR 1910.147 "Control of Hazardous Energy".
- The limitations of Lockout/Tagout.
- Lockout/Tagout procedures for the isolation of energy sources.
- Where and how the unexpected energizing start-up or release of stored energy could occur and cause injury.
- Procedure for removing locks and tags.

- Procedures for restoring energy.
- The training shall ensure that the purpose and function of the lockout/tagout program is understood and that the knowledge and skills required for the safe application, usage, and removal of energy controls which are locked out.
- Training should specifically encompass the recognition of hazardous energy sources, the types and magnitudes of energy in the workplace, the methods and means necessary for energy control, and the purpose and use of the Lockout/Tagout program.
- The training shall also include the rules and techniques to be used for authorization and the means that will be used for the enforcement of the program.
- It should be emphasized that the tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace. Tags are essentially warning labels affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock.
- Authorized employees will be given training prior to any initial involvement in lockout/tagout procedures. Retraining will be given whenever there is a change in the job assignment or a change in equipment or processes that could create a new hazard.

The **REPOWER USA** HSE Manager shall maintain a list of trained employees and the dates of their training which is documented and is appropriately certified and signed by employee and instructor.

REpower Systems	Section III RPSHSE 7.1.7C	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.7C RPSHSE – 7C
Safe and Hot Work Permits

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1.0 Introduction:

This **REPOWER USA** procedure has been developed to standardize and document the methods and responsibilities during any hot work operation. The purpose is fire protection and prevention for any situations in plant or field operations where there are or have been hydrocarbons or other flammable liquids present.

A Permit is **required in any classified area** before performing any function that requires the use of a open flame, or where sufficient heat or sparks might be generated to serve as a source of ignition where hydrocarbons or other flammables are or have been. Such activities include but are not necessarily limited to:

A Safety and Hot Work Permit is required in all WGHIT operations for any work in a **classified area** that requires the following:

- Welding.
- Cutting.
- Hot tapping.
- Burning.
- Grinding.
- Blasting.
- Opening energized electrical junction boxes.
- Drilling (electric or air).
- Buffing (electric or air).
- Operating conventional gasoline or diesel engine driven equipment.

NOTE: When conventional gasoline or diesel engine driven equipment is utilized in an area that requires a Hot Work Permit, the equipment must be continuously monitored while it is in operation.

- Operating unapproved battery operated equipment with switches or electric motors.
- Painting and other operations around spark-producing equipment
- Portable spark producing devices including heaters, spark ignited engines, vehicles and electrical hand tools. (Lighting process heaters does not require a Fire and Safe Work Permit, but does require compliance with safe lighting procedures including a gas check).

NOTE: Additional Safety Permits may be required, such as Confined Space Entry. A permit for **Confined Space Entry** is required for work in a confined space that may be hazardous due to the presence of flammable/toxic gas, lack of breathable atmosphere, etc. See specific Safety Standards.

2.0 Definitions:

2.1 Classified Area:

For purposes of this standard, classified areas are defined as the following:

- Areas within plant boundaries except in designated areas,
- Areas within **100** feet of production facilities, pipeline connections and valves, or wellheads if an open flame is involved.
- Areas within **20** feet of hydrocarbon facilities when the use of portable spark producing devices (including non-DOT approved vehicles), or the opening of energized electrical junction boxes is required.
- Areas within **20** feet of tanks or vehicles that transport hydrocarbons such as vacuum trucks or fuel tanks, or any other area deemed necessary by supervision.

2.2 Fire Watch:

The person(s) and associated fire protection equipment assigned to stand by during welding, cutting or open flame conditions. This will be the ***only*** function of this assignment.

3.0 PROCEDURES

3.1 General:

In normal operations, there is always a potential danger of fire or explosion due to the flammable nature of many of the products handled. The object of this procedure is to define a system of control that will allow work involving a possible source of ignition to be carried out in a safe manner. No one associated with the job shall have smoking materials (lighters, matches, cigarettes, etc.) on their persons at the job site.

It is obvious that all situations and circumstances cannot be covered by procedures and regulations. Therefore, On- Site Supervisors must:

- Develop full knowledge of the situation regarding any work to be performed,
- Determine what precautions are required above and beyond the minimums specified herein,
- Exercise sound judgment and make conservative decisions regarding the manner in which the work will be performed.

All plant and field units must operate and control the Safety, Hot Work and Entry permit system. This responsibility includes stocking permits, maintaining records, maintaining oxygen and gas detection devices, and acting as the final authority during the permitting process.

Employees themselves must also exercise good judgment and evaluate and question if necessary the precautions and conditions concerning their personal safety and that of other personnel and the facility itself. It is the responsibility of every individual to:

- Work in a safe manner.
- Question any work tasks or procedures that he/she may not understand.
- Report any unsafe work practices or circumstances witnessed to his/her immediate supervisor.

Access to the work areas covered by the permit(s) will be limited to members of the work party who are familiar with the hazards of the job, the work tasks required, and the precautions taken to do the work in a safe manner. All other unauthorized personnel must vacate the work area.

All members of the work team shall establish and maintain proper communications.

Safety Permits are automatically and immediately cancelled if, for any reason, conditions upon which the permit was issued change or other factors arise that could create an unsafe environment.

3.2 Specific Precautions:

It is essential, as a minimum, that the fire prevention and protection requirements detailed in OSHA CFR 1910.119(a) have been implemented prior to beginning any hot work operations. Individuals involved in preparation of the permits and execution of the work should familiarize themselves with the precautions detailed in this regulation.

3.3 Areas Where Permits are Required:

Permits are **required** in all process areas, warehouses, flammable storage buildings, storage buildings, pipe alleys, storage tank areas, laboratories, waste disposal facilities, tank truck loading and unloading racks, sewer systems, and any other areas or confined spaces where the possibility of fire or explosion hazard may exist.

3.4 Areas Where Permits are not Required:

Under normal conditions, Work Permits are not required for work in maintenance shops, offices, change house, and designated burning areas. Work Permits are not required for approved fabrication areas such as established plant and field fabricating shops. The On-Site Supervisor/Manager may designate a work area safe for the duration of specific jobs or projects without requiring that a permit be used. Such designated areas must be clearly marked or roped off.

New area projects where no hydrocarbons are present and all new equipment is used, a permit may used stating **"New Construction - No Hydrocarbons Present"**.

4.0 Responsibilities:

4.1 Operations and Maintenance (O&M):

Requesting and initiating the Safety Permit which includes a description of the work (specific as to what is to be done), where it is to be done, how it is to be done, and how long it will take. The description should be such that all personnel involved and the On-Site Supervisor/Manager must know exactly what is to be done. If there are any questions about the job, the O&M personnel should resolve them prior to completing the permit.

The permit shall indicate the following:
Note: If space on the form is not sufficient, write description on a separate sheet a paper and attach to the permit.

- Atmosphere testing, if required, of the covered area.
- Preparation of the equipment.
- Performing all required safety checks; Inspecting and placing fire extinguishers, fresh air equipment, and other required safety equipment.
- Completing the Permit including the date and time the work is approved to start.
- Re-inspecting and gas checking the work area as necessary.
- Warning other operating personnel in the vicinity not to perform any operation that is likely to change the conditions sufficiently to void the permit.
- Preventing other operations that may conflict with the permitted work.
- Instructing all personnel concerned to stop work if a change occurs that can create an unsafe condition.

4.2 On-Site Supervisor (or designee):

- Review the Permit and satisfy himself that it is safe to perform the detailed work.
- Approve the Permit including the date and time the work is approved to start.
- Ensure that all elements of the permit procedure are completed.

4.3 Operations and Maintenance will then:

- Review the completed form and verify that the permit requirements are complete before starting any work.
- Review the job and safety requirements in the presence of the work crew and ensure that all parties are knowledgeable in the work tasks to be performed and the safety precautions to be undertaken. Lead representatives sign the permit acknowledging review and understanding of the job and safety requirements.

NOTE: Depending on the type of operation, the O&M function may or may not be a separate function due to job size, location, type, etc. In a combined function, the On- Site Supervisor /Manager will be responsible for both functions.

4.4 Fire Watch:

The Fire Watch is responsible for no duties other than the following:

- Use of fire equipment as necessary.
- Continuously monitoring the area during and thirty (30)minutes after hot work (open flame, grinding, cutting, or welding).
- Stopping the hot work if sparks, flame or heat is projected outside the permitted area.
- Alerting personnel entering the permitted area of hazards, i.e. arc-flashes, grinding, cutting, overhead hazards, etc.

4.5 Contractors:

Must maintain a permanent record of all welders used, showing each welder's name, social security number, identifying mark, qualification record, date of last certification, and the testing authority.

Ensure that the welders are fully aware of all safety regulations and the contents of this standard.

4.6 Completion of Work:

Immediately after the work is completed, the work area and adjacent areas will be inspected to ensure there has been no spread of sparks or heat. The fire watch will remain at the work site for a period of thirty (30) minutes after hot work has ceased, to ensure that the area is secure.

The person(s) doing the work will return their copy of the permit to the supervisor after the job is complete and the area is secure.

5.0 Permit Limitations

Permits will be dated and issued for one shift only, normally 8 to 12 hours with a maximum time limit of 12 hours. Permits will be terminated when changing conditions, such as gas leaks or oil spills, create a hazard. The On-Site Supervisor/Manager may reinstate the Permit after the hazardous condition(s) has been corrected.

6.0 Permit Disposition

The original copy of the permit will be inserted in a clear plastic envelope and displayed at the work site. One copy **must** be forwarded to the QHSE Department. After the work has been completed, or the permit has expired, the original will be returned to the Supervisor/Manager in Charge. Unless any problems occur, the original permit will be turned over to the Manager/Supervisor in Charge for disposition. Otherwise, the original will be retained temporarily and may be destroyed after one week.

It is the Supervisor in Charge responsibility to forward a copy to the QHSE Department for OSHA documentation.

SAFETY AND HOT WORK PERMIT CHECKLIST

Refer to the Facility Safety Permit contained in each location's Safe Work Permit procedure. This permit shall be used for completion of any and all work requiring a Safety and Hot Work Permit as described in this standard. **Note**: The permit must be completed by the Qualified Person or the Supervisor.

Reference REPOWER USA HSE Manual Section III
RPSHSE – 7, 7A, 7B, & 7C Permit-to-Work

A Permit is required for any operation which requires welding, cutting (torching) or similar operation (such as soldering or brazing) where hydrocarbons and/or flammables are or have been present. The Permit must clearly state any special precautions which apply to the work to be done. If the Permit is used for work in confined spaces, additional permits are required.

NOTE: If Hot Work is to be done in a confined space, the Qualified Person responsible for completing the Confined Space Entry Permit shall sign the Hot Work Permit.

Section III
7.1.7 RPSHSE – 7
Permit-to-Work

Form 1 – Permit-to-Work Checklist

Permit-to-Work Check List

Refer to the Facility Permit-to-Work contained in each location's Permit-to-Work procedure. This permit shall be used for the completion of all work requiring a Permit-to-Work as described in this procedure.

NOTE: The permit must be completed by the Qualified Person or the On-Site Field Supervisor.

A Permit-to-Work is required for any operation which requires welding, cutting (torching), or some similar operation (such as soldering or brazing) where hydrocarbons and/or flammables are or have been present. The Permit-to-Work must clearly state any special precautions that apply to the work to be done. If the Permit-to-Work is used for work in confined spaces, additional permits are required.

NOTE: If Hot Work is to be done in a confined space, the Qualified Person responsible for completing the Confined Space Entry Permit shall sign the Hot Work Permit.

NOTE: Inserted Hot Work, Electrical and Mechanical Permit-to-Work Checklist are for use when **REPOWER USA** has totally responsibility for on-site Permit-to-Work procedures of established facility.

Permit-to-Work

PERMIT MUT BE POSTED AT THE LOCATION SITE
PERMIT VALID FOR ONLY 12 HOUR SHIFT

Date Issues: _____ Time: (from) _____ (a.m./p.m.) (to) _____ (a.m./p.m.)

Permit issued to: _____ Date: _____
Name (PRINT)

Permit issued to: _____ Contact Telephone: _____
Signature

Type of Work: ☐ Welding ☐ Cutting ☐ Heating ☐ General HSE Work

Location: Area: _____ Process: _____ Equipment: _____

Type of Ignition Source: _____

PRECAUTIONS

REQUIRED

☐ CLEAN AREA
Remove or cover any combustibles within 35 feet

☐ FIRE WATCH
During operation and for 30 minutes post operation

☐ FIRE EXTINGUISHER
Water pressure type within 10 feet of work

☐ TEST ENVIRONMENT FOR FLAMMABLE OR EXPLOSIVE VAPORS

☐ GAS PRESENT

☐ OTHER

OPTIONAL

☐ WET DOWN

☐ FLASH/SPARK CURTAIN

☐ FIRE BLANKET

☐ PRECENTAGE: _____

_____

APPROVAL: _____ _____
ON-SITE SUPERVISOR (REPOWER USA) PRINT NAME

APPROVAL: _____ _____
ON-SITE HSE COORDINATOR PRINT NAME

Section III
7.1.7 A RPSHSE – 7 A
Confined Space

Form 1 – Confined Space Entry Permit - Instructions

Confined Space Permit Instruction

The following instructions are to be used for the completion of the confined space entry permit in this appendix. Note that the permit must be completed and approved by a qualified person.

Qualified Person

An individual who is a full-time **REPOWER USA** Field Supervisor, or of a higher level, and has received certification as a Qualified Person by successfully completing the required training program.

Section I: Assessment of Hazards

- Complete each item by entering the information requested.
- The permit is only valid for the current shift. A new permit shall be issued for each subsequent shift.
- **Do not proceed** with completing the permit if any of the form exceptions exist which prevent routine confined space entry. Notify the **REPOWER USA** HS&E Department for further instructions.

Section II: Checklist

- Each item on this checklist must be addressed. Leave no blanks.
- Many of these checklist items can only be verified after they have been installed or inspected.

Section III: Personal Protective Equipment

- Identify the specific type of equipment to be used and provide details where additional information is to be specified.

Section IV: Emergency and Rescue Provisions

- Identify the provisions needed and the emergency phone numbers. Enter all emergency numbers clearly and legibly.

Section V: Special Safety Requirements/Emergency Procedures

- Specify any unique requirements, such as the need for nitrogen, blanketing, special ventilation, etc., and the requirements for emergencies, such as additional work force and equipment.
- Some requirements may be necessary before an entry is made, such as purging a tank or using dry ice to displace a flammable atmosphere.

Section VI: Personnel Assigned

- All personnel assigned to the entry work **MUST** print and sign their name in addition to specifying their exact duties.

Section VII: Training

- All employees participating in the entry must have completed the training requirements specified. Each item must be checked off indicating that the Qualified Person has determined each employee's eligibility to work on the project.

Section VIII: Atmospheric Testing

- In addition to oxygen percentage and flammability percentage tests prior to entry, various toxins may require evaluation. Enter the identity of the chemical and its allowable limit(s) (e.g., PEL, STEL, Ceiling, etc.).
- For each test conducted, enter the time taken and the location (depth) of the test from the point of entry.
- The Qualified Person must address results that are outside of the acceptable limits.
- Changes in conditions, work activities, or other factors may prompt continuous monitoring in addition to those samples taken at fixed locations.
- All equipment used for atmospheric testing must be maintained and calibrated properly to assure accuracy and the safety of personnel.

Section IX: Approvals

- The permit is prepared, with assistance of the Operations and Maintenance functions, and approved by the Qualified Person. The Qualified Person must sign and date the form indicating that the work and entry intended has been evaluated and the precautions necessary have been satisfied. Any emergency or situation which causes a discontinuation of work in the confined space requires a new entry permit to be completed before work can resume.

Section X: Distribution

- The Qualified Person shall distribute the permit as follows:
  - Facility/site copy: This copy is the **"original"** posted permit. It is retained after work is completed.
  - Facility/Project Manager: A copy of the permit is sent to the Facility Manager and Project Manager.
  - HS&E Department: A copy of the permit is sent to the HS&E Department.

(PERMIT REQUIRED ENTRY)

Section I. PERMIT INITIATION

Permit initiator:		Phone/pager Number	Permit Number
Date:	Start: AM PM	Expires: End of shift	AM PM
Location:		Equipment:	
Description of Work:			

Section II. ASSESSMENT OF HAZARDS

Note: The following conditions are prohibited:

- An atmosphere containing greater than (>) 23.0% oxygen.
- An atmosphere > 10% of the Lower Explosive Limit (LEL).

These conditions shall require additional evaluation prior to confined space entry:

- An atmosphere Immediately Dangerous to Life or Health (IDLH).
- An atmosphere containing less than (<) 19.5% oxygen.
- An atmosphere that contains exposure to a known carcinogen in excess of accepted health/safety standards.

Prior to entry these condition must be met.

- Notification is provided to the On-site Field Superintendent/Supervisor, the Department/Operations Manager, the On-site HSE Coordinator, the Client Representative, the and **REPOWER USA** HS&E Manager.
- The scope of the job or task and the need to enter is reviewed with the Safety Department.
- Approval must be given by the **REPOWER USA** HS&E Manager, concurrent with the Competent Person's agreement to follow the procedures mutually specified and required for safe entry and subsequent work.

Section III. CHECKLIST (check each item)	**Yes**	**No**	**N/A**
• All gas/liquid lines leading to and from the confined space have been disconnected or blinded and locked out.	☐	☐	☐
• All vessels cleaned and purged?	☐	☐	☐
• Pneumatic/hydraulic/electrical systems have been disconnected and locked out?	☐	☐	☐
• All grounding and bonding cables are in place.	☐	☐	☐
• Are non-sparking tools required and available?	☐	☐	☐
• All lighting, fittings, and extension cords are approved explosion proof equipment.	☐	☐	☐
• Ground Fault Circuit Interrupter (GFCI) checked and functioning	☐	☐	☐
• All ignition sources have been isolated.	☐	☐	☐
• Will hot work (welding, burning, etc.) be performed and has a hot work permit been issued?	☐	☐	☐
• Special warning/caution signs and entry permit posted.	☐	☐	☐
• Ventilation equipment identified and selected.	☐	☐	☐
• Breathing supply and alarms have been checked and are in the proper condition.	☐	☐	☐
• All respiratory equipment has been checked and is in the proper condition.	☐	☐	☐
• All safety harnesses and lifelines have been checked and are in the proper condition.	☐	☐	☐
• Required protective clothing has been identified and selected.	☐	☐	☐
• Noise exposure has been evaluated.	☐	☐	☐
• Are any engulfment hazards identified?	☐	☐	☐

Section IV. PERSONAL PROTECTIVE EQUIPMENT

EYES
☐Chemical Goggles
☐Face Shield
☐Safety Glasses

EXTREMITIES
☐Hard Hat
☐Gloves
☐Boots: specify_____
☐Foot Coverings, Disposable: specify
☐Safety Shoes

BODY
☐Encapsulating Suit: specify
☐Other: specify
☐Tyvek Suit(☐ White ☐ Polyethylene ☐ Saranex)
☐Work Uniform

RESPIRATORY
☐Self-Contained
☐Air Line
☐Air Line with Egress Bottle
☐Cartridge Type_____
☐Full-Face
☐Half-Face

OTHER
☐Hearing Protection
☐Full-Body Harness and Life Line (for all entry)
☐Communication Aids - Specify
☐Dosimeter: specify
☐Cooling Vest

Section V. EMERGENCY AND RESCUE PROVISIONS

☐Fire Extinguisher(s)
☐First Aid Supplies
☐Pre-entry safety meeting
☐Extraction Device(s)
☐SCBA
☐Emergency Alarm
☐External Telephone Availability

Hospital:_____
Emergency Medical Services:_____
Transportation:_____

Section VI. SPECIAL

Special HSE Requirements/Emergency Procedures:_____

_____

Section VII. PERSONNEL ASSIGNED

NAME	SIGNATURE	DUTIES
_____	_____	_____
_____	_____	_____
_____	_____	_____
Lead personnel:		
_____	_____	_____
_____	_____	_____

Section VIII. TRAINING

Supervision☐Yes ☐No **Employee**☐Yes ☐No **Site Specific**☐Yes ☐No

(PERMIT REQUIRED ENTRY)

Section IX. ATMOSPHERIC TESTING

ITEM	PERMITTED LIMITS	PRE-ENTRY CHECK	RESULT/ DEPTH	RESULT/ DEPTH	RESULT/ DEPTH	RESULT/ DEPTH
Time		AM PM	AM PM	AM PM	AM PM	AM PM
Oxygen (min.-max.)	19.5% - 23.0%					
Flammability	≤ 1% LEL					
H2S (PEL)	10 ppm					
Toxic (specify)						
Other						

Section X. APPROVALS

☐Verify Signs Posted ☐Verify Permits Posted

Permit Prepared and Approved By:

_____ _____

Qualified Person Date/Time

Work Completed: ☐Yes ☐No Time: _____

XI. DISTRIBUTION:

☐ Site Copy (original posted form)
☐ Project Management
☐**REPOWER USA** Management
☐**REPOWER USA** HSE Department

Section III
7.1.7 B RPSHSE – 7 B
Lockout - Tagout (LOTO)

Form 1 – Lockout/Tagout - Control of Hazardous Energy

Lockout/Tagout - Control of Hazardous Energy

EQUIPMENT: _____

_____

DEPARTMENT: _____ DATE: _____

SUPERVISOR: _____

_____

ENERGY SOURCES AND LOCATIONS (Electrical, Pneumatic, Hydraulic, Chemical, Thermal):

_____

_____

_____

ectri
TYPE OF LOCK OR ENERGY CONTROL DEVICE: _____
AUTHORIZED EMPLOYEES: _____

_____

_____

OTHER EMPLOYEES: _____

OTHER INFORMATION: _____

Keep this record on file for future OSHA reference.

Section III
7.1.7 B RPSHSE – 7 B
Lockout - Tagout (LOTO)

Form 2 - Inventory of Employee Lock Activities Chart

Inventory of Employee Lock Activities Chart

EMPLOYEE NAME	PADLOCK # AND/OR KEY NO.	ISSUE DATE	RETURN DATE	COMMENTS

Section III
7.1.7 A RPSHSE – 7 A
Confined Space

Form 2 – Confined Space Classification Chart

Confined Space Classification Chart

	"A" Immediately Dangerous	"B" Dangerous	"C" Potentially Dangerous
OXYGEN (Percent in Air)	0 – 15.9 % 23.6% or More -OR-	16.0 % to 19.4% 21.5 % to 23.5% -OR-	19.5 % to 21.4% -AND-
Combustible Gas/Vapor [Percent of Lower Explosive Limit (LEL)]	20% or above -OR-	10% to 19% -OR-	Less than 10% -AND-
TOXICS	Immediately Dangerous to Life or Health(IDLH)	Above Permissible Exposure Limit (PEL)	Within Permissible Exposure Limit (PEL)
Hydrogen Sulfide (H_2S)	100 ppm or greater	10 ppm to 99 ppm	Less than 10 ppm
Tetraethyl Lead	N/A	2 ug/ft^3 or greater	Less than 2 ug/ft^3
Ammonia	500 ppm or greater	25 ppm to 499 ppm	Less than 25 ppm
Benzene	1,000 ppm or greater	1.0 ppm to 999 ppm	Less than 1.0 ppm
Total Petroleum Hydrocarbons	2,000 ppm or greater	300 ppm to 1,999 ppm	Less than 300 ppm
Other Toxic Substances	Refer to Manufacturer's Material Safety Data Sheets (MSDS)		

	"A" Immediately Dangerous	"B" Dangerous	"C" Potentially Dangerous
Required Respiratory Protection	Entry denied except for Emergency Rescue while wearing an air-supplied respiratory (SCBA) and full body harness	Entry prohibited	Respirator not required. Must wear full body harness with lifeline attached or readily available. (NOTE: reference: Retrieval/Fall Protection Equipment)

Never consider any space CLASS "C" just by the appearance or because a CLASS "C" type was the last entry made. People die in a Confined Space because they enter thinking it is safe when it is not.

ALWAYS CONSIDER EVERY CONFINED SPACE TO BE CLASS "A" UNTIL IT HAS BEEN TESTED AND PROVEN OTHERWISE.

Section III:
7.1.7C RPSHSE – 7C
Safe and Hot Work Permits

Form 1

NO FORMS APPLICABLE

LEFT BLANK FOR FUTURE INSERTATION AS APPLICABLE

TRAINING WILL ADDRESS THIS GROUP

Forms

REpower Systems	Section III RPSHSE 7.1.8	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
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11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.8 RPSHSE – 8
Hazard Communication Program
"RIGHT TO KNOW"

Contents

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4.0	Multi-Employer Work Sites	4
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6.0	List of Hazardous Chemicals	6
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1.0 Introduction

REPOWER USA employees work around chemicals and hazardous materials for various lengths of time and know that HAZCOM is the short form of the Occupational Safety & Health Administration (OSHA) Hazard Communication Standard. Hazard Communication is the **REPOWER USA** employee's safety net, providing you with the information about protection that you need to work safely with and around chemicals and hazardous materials.

REPOWER USA provides HAZCOM information and training for their employee's safety. The **REPOWER USA** employee's part is an ongoing commitment to stay up-to-date on chemical safety at work. What employees need to know may change everyday. For example new substances, new procedures, and new people are added. Or maybe an employee or a co-worker took an action that had serious consequences.

Everyone knows paying attention to road signs and traffic signals can save lives. However, did you know that reading warning labels, following the Material Safety Data Sheet (MSDS) instructions, and asking your On-Site Supervisor, the On-Site HSE Coordinator, the Department/Operations Manager and/or the HSE Department for directions can also saves lives?

The Occupational Safety & Health Administration (OSHA) Hazard Communication Standard requires employers to inform their employees of the potential hazards in the workplace. As a dedicated member of the **TEAM** it is your responsibility to take a part in this training and to apply what you learn at the work site. Thus, Hazard Communication (HAZCOM) training is an ongoing process and takes continual commitment. It is the only way employers and employees can keep the safety net in place.

2.0 Policy

REPOWER USA is concerned about the increasing use of toxic and hazardous substances in the industrial processes. The best defense to counteract these concerns is to make sure that employees are given information regarding any toxic or hazardous substances they are required to use and are trained in the safe use of these substances. This Hazard Communication **"Right-to-Know"** Program is designed to provide employees with an effective tool to elevate their awareness concerning the potential hazards found in the workplace.

This program is designed to comply with the OSHA Hazard Communication Standard, Title 29 CFR 1910.1200 and 1926.59 and other applicable publications. This program applies to all the work operations where employees may be exposed to hazardous substances, whether under normal working conditions or during an emergency situation.

Employee inquiries regarding this program will evoke a prompt response from the On-Site HSE Coordinator or the HSE Manager. The **REPOWER USA** Hazard Communication Program is available upon request to employees, their designated representatives and OSHA Representatives and Clients.

This program shall inform employees of the Hazard Communications Standard, the hazardous properties of the chemicals with which they work, safe handling procedures, and measures to take for protection from these chemicals.

REPOWER USA provides access to the Hazard Communication Program to each employee by maintaining a copy of the Hazard Communications Standard at each work place and at the **REPOWER USA** Corporate Office. In some rare cases, a written copy of the **REPOWER USA** Hazard Communication Program shall be sent with those employees who travel between work sites with no primary location listed and/or without a copy of the program readily accessible.

3.0 Chemicals in the Workplace

There is an estimated 575,000 chemical products in today's industry. Chemical exposure may be the cause or contribute to many serious ailments, burns, and rashes. Some chemicals may also be safety hazards and have the potential to cause fires, and explosions and other serious accidents.

This OSHA standard is designed to make sure that the hazards of all chemicals imported into, produced, or used in U.S. workplaces are evaluated under uniform requirements, and that this information is transmitted to all affected employers and employees.

Chemical manufacturers and importers are required to convey the hazard information they learn from their evaluations to **"downstream"** employers by means of labels on the containers and the Material Safety Data Sheets (MSDS). It is the employer's responsibility to get this information to their employees.

4.0 Multi-Employer Worksite

In addition to the written Hazard Communication Program (**HAZCOM**) that is required of each employer who may have employees exposed to hazardous chemicals, there are other requirements that are applicable to a Multi-Employer Worksite (construction - maintenance) locations. Some of the requirements are, but not limited to:

- A multi-employer work-site means those establishments where employees of more than one employer are performing work and are exposed to hazardous chemicals at that specific site.

Where employees of more than one employer are exposed to a hazardous chemical, the employers **with the responsibility for creating and/or correcting the hazard SHALL** be responsible for determining the compliance with the Hazard Communication (**HAZCOM**) Standard. This shall include the methods the employer uses to make a readable copy of a Material Safety Data Sheet (MSDS) available. A list of the hazardous chemicals present at the work-site **SHALL** be compiled and maintained at there worksite. A copy of the compiled list of work-site hazardous chemicals **SHALL** be forwarded to the On-Site HSE Coordinator and the HSE Manager. The On-Site Supervisor and/or the On-Site HSE Coordinator will be responsible for obtaining all pertinent Material Safety Data Sheets (MSDS) for the applicable facility hazardous chemicals. The On-Site Supervisor and/or the On-Site HSE Coordinator with the HSE Manager shall review the Material Safety Data Sheets (MSDS) prior to commencement of each job. Material Safety Data Sheets (MSDS) will be retained as a part of any Industrial Hygiene Survey and viewed as pertinent for employee medical files.

- The HAZCOM Standard requires an employer on a multi-employer work-site to have **ALL** pertinent Material Safety Data Sheets (MSDS) readily available at a central location at the facility or work-site with a copy to the appropriate office and the HSE Manager. This requirement covers the hazardous chemicals the other employer's personnel may be exposed.
- The Material Safety Data Sheets (MSDS) access requirement pertains to **ALL** employers who introduce hazardous chemicals into the worksite. **ALL** employers and employees **SHALL** know how to retrieve the Material Safety Data Sheets (MSDS).

5.0 Hazard Evaluation

Chemical manufacturers and importers are required to review available scientific evidence concerning the hazards of the chemicals they produce or import, and to report the information they find to their employees, and to employers who distribute or use their products.

Downstream employers can rely on the evaluations performed by the chemical manufacturers or importers to establish the hazards of the chemicals they use.

Each chemical must be evaluated for its potential to cause adverse health effects and its potential to pose physical hazards such as flammability. Chemicals that are listed in one of the following sources are to be considered hazardous in all cases:

- 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA)
- Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment, American Conference of Governmental Industrial Hygienists (ACGIH).

In addition, chemicals that have been evaluated and found to be a confirmed or suspected carcinogen are listed in the following sources:

- National Toxicology Program (NTP), Annual Report on Carcinogens
- International Agency for Research on Cancer (IARC)
- As regulated by OSHA as a carcinogen

6.0 List of Hazardous Chemicals

It is the responsibility of **REPOWER USA** to compile a master list of all the hazardous chemicals used at job sites and continually update the list as necessary. A separate list should be compiled for each work area identifying the corresponding MSDS for each chemical and it should be posted and available for all employees. The HSE Manager will maintain the master list.

- **How to Identify Hazardous Chemicals**
  The responsibility for determining whether a chemical is hazardous lies with the chemical manufacturer or importer. Employers are required to rely on the evaluations received from the suppliers through container labels and MSDS.
- **How to List Chemicals in the Workplace**
  All hazardous chemicals known and used in our workplace will be listed using an identification number that appears on the MSDS and label for the chemical. The list should include common or trade names, Chemical Abstract Service (CAS) Registry numbers, and/or MSDS reference numbers, etc.

  The master list is the inventory for which a Material Safety Data Sheet must be obtained and it must be made available to employees upon request.
- **Informing Employees of Other Hazards**
  Employees **SHALL** be informed of the chemical hazards of non-routine work and the hazards associated with the chemicals in unlabeled pipes in their work areas. The primary methods to be used will include, but are not limited to:
  - Pre-job planning meetings.
  - Scheduled safety meetings.
  - Tailgate safety meetings.
  - Preparation and availability of procedures.
  - HSE bulletins or postings of the specific information.
  - Job Site Safety Analysis (JSA) and Job Site Safety Inspections (JSSI).
  - Required annual training sessions.

7.0 Labeling and Other Identification Methods

7.1 OSHA Labeling Requirements

Effective November 25, 1985, OSHA, under the Hazard Communication Standard, required manufacturers, suppliers, and importers to label all containers of chemicals.

Labels required by OSHA **must** contain the following:

- Name of the hazardous chemical as it appears on the MSDS.
- Appropriate warnings in English. Note - There are current discussions to increase the warning awareness by the use of a number rating system.
- Name and address of the manufacturer, importer, or supplier.

Any containers or materials missing the above-required information should not be in the workplace or accepted into the facility. OSHA also requires that a target organ be identified on all the labels to aid the employee in identifying the required protection.

Labels on containers should not be destroyed, removed, or defaced unless immediately replaced with another label containing the required information.

7.2 OSHA Container Requirement

OSHA requires **stationary containers** and vessels be labeled with the name of the substance and an appropriate warning. Warnings can be placed directly on the container or on a batch sheet.

7.2.1 Transfer containers - must be labeled with the name of the substance and an appropriate warning. OSHA **exempts** transfer containers from labeling if all three of the following are met:

- The employee using the substance fills the container.
- The employee is the only person to use the container.
- Each work-shift will use all substances.

7.2.2 OSHA Exceptions to Labeling

- Hazardous wastes.
- Manufactured articles.
- Wood products.
- Consumer products.
- Food and Medication.

7.2.3 Labeling Systems

There are four (4) labeling systems to used in the U.S. (Over 65 exist worldwide). These systems are used to identify hazardous materials in transport, at storage terminals, and on individual product containers. These systems will assist the emergency response personnel to quickly identify products involved in a release.

The four labeling systems include

- **NFPA** (National Fire Protection Association)
- **HMIS** (Hazardous Materials Identification System)
- **ANSI** (American National Standard Institute)
- **DOT** (U.S. Department of Transportation)

7.2.4 NFPA Labeling System (Oldest System)

This system was designed to the protect emergency response personnel from the dangers of hazardous materials stored in stationary containers.

NFPA labels contain four sections: Health Hazard, Fire Hazard, Reactivity, and Specific Hazard. The hazards of each section are rated and given numbers ranging from 0-4 with 0 being the least hazardous.

- **BLUE** = Health Hazard. Substances with a rating of 0 usually do not cause any health effects. A rating of 4 can cause death from inhalation in small amounts.
- **RED** = Fire Hazard. Substances with a 0 rating will not burn under normal conditions. A rating of 4 is for flash points below 73° F.
- **YELLOW** = Reactivity. Under NFPA, this definition is for reactivity under fire conditions. A rating of 4 is a substance that easily detonates. A chemical, such as sodium metal, that reacts explosively with water would only be rated as a 2.
- **WHITE** = Specific Hazards. These substances include water-reactive substances, corrosives, oxidizers, and radioactive substances.

7.2.5 HMIS Labeling System

HMIS is similar to NFPA in that it has the same color coding and numbering system. The HMIS label is rectangular in shape. The **WHITE** section uses codes "A" through "K", representing the types of protective equipment required for handling a substance. A code "X" signals the user to ask the supervision about the required personal protective equipment and procedures.

7.2.6 ANSI Labeling System (Most Popular System)

ANSI requires the following labeling information:

- Chemical name of the substance.
- A signal word: **DANGER, WARNING,** and **CAUTION.**
- Hazards posed by the substance (flammable, causes burns, absorbed through skin, etc.).
- Precautionary statement (harmful or fatal if swallowed, etc.).
- First-aid procedures.

7.2.7 DOT Label System (Transportation)

When chemicals are transported on public highways a DOT label is required on the container. Labels must be diamond-shaped and must measure a minimum of 4 inches on each side. DOT labels are in addition to but must not interfere with OSHA or EPA labels.

DOT Labels require the following on small packages

- 4-inch by 4-inch (minimum size) diamond-shaped label on all small container-packages up to 640 cubic feet
- The health or physical hazard is shown both by a pictogram and verbal information.
- Labels are to be color coded
- A United Nations (UN) class number is included in the bottom corner of the label
- Multiple hazards must be labeled for each substance.

7.2.8 EPA Requirements for Labeling

The Environmental Protection Agency (EPA) requires hazardous waste containers to be labeled with EPA markings in addition to the DOT requirements. The markings must be on the container and dated at the time the wastes are initially accumulated into the container.

The wastes transported out of a facility, require the generator's name, address, and the EPA identification number. Shipped waste must include the DOT shipping name, the UN hazard ID number, and the EPA waste number. The EPA number must contain the letter describing the waste's category, the three numbers describing the exact chemical waste or waste stream, the date accumulation began, and the shipping manifest document number.

7.2.9 Manufacturer's Labeling

The manufacturer's label provides the following information:

- Chemical Identity
- Hazards
- Manufacturer
- First-Aid Procedure
- Fire-fighting Information

7.2.10 Labeling (General Information):

- All chemical containers received from vendors **SHALL** be labeled and **SHALL** be delivered with a legible Material Safety Data Sheet (MSDS). The labels must be in English, legible, and prominently displayed on the container or readily available in the work area throughout each work shift. A copy of the Material Safety Data Sheet (MSDS) must be retained on location. In the event of damaged or weathered labels, replacement labels are to be obtained from the Vendor and reapplied. The On-Site Field Superintendent/Supervisor, On-Site Employee and On-Site HSE Coordinator shall check for damaged or weathered labels during daily walk-through inspections.

- Container Labeling for Bulk Purchased Chemicals – In Plant/On Platform/In Field **SHALL** be delivered with a legible Material Safety Data Sheet (MSDS).

  The labels must be in English, legible and prominently displayed on the container and readily available in the work area throughout the work shift. Labels must contain the Manufacturer Identity, Hazard Warnings, and the current Contact Information.
- In Plant Labeling - In Plant labeling systems may use alternative methods from those that require specific hazard warnings. General, physical, and health hazards may be conveyed by In-Plant Labeling Systems as long as the:
  - Name of the label must be linked to the Material Safety Data Sheet (MSDS) available for that substance.
  - Personnel have immediate access to the Material Safety Data Sheet (MSDS).
  - Personnel understands the labeling system used
  - Training program is enhanced to address the target organ effects of those chemicals.
- All storage tanks that contain substances regulated by the Standard **SHALL** be labeled.
- It is not mandatory that the process vessels be labeled as long as the products and the general hazard warnings they contain are identified via the alternate labeling provision of the OSHA Standard. Alternative methods include sings, placards, process sheets, batch tickets, and operating procedures, etc. as long as the method identifies the applicable containers, conveys the identity of the chemical, and the appropriate hazard warnings. Contact the HSE Manager or the On-Site HSE Coordinator to ensure full compliance with the alternative labeling provisions.
- Each location is required to use the available labeling systems to generate labels for secondary containers. The On-Site Field Superintendent/Supervisor will be responsible for ensuring that proper labeling is used on secondary containers. When new chemicals are purchased, Material Safety Data Sheet (MSDS) **SHALL** be maintained at the work-site with copies sent to HSE Manager and On-Site HSE Coordinator.
- The information on the labels or signs identifying the substance **SHALL** appear as stated on the Material Safety Data Sheet (MSDS). They may also correspond to a consistent numbering system which correlates to a central sign specifying what the numbers mean.

- Anything that is received and contains hazardous material and is required to be labeled per the regulations of the United States Department of Transportation (DOT) (packages, rail cars and transport vehicles) **SHALL** not have the labels or markings removed until the hazardous materials are sufficiently removed to prevent any potential hazards.

8.0 Material Safety Data Sheets (MSDS)

8.1 MSDS Categories

8.1.1 Section I: Identification

Product information such as the material/trade name, the product number, common synonyms, the emergency and non-emergency phone numbers of the manufacturer, and the date prepared.

8.1.2 Section II: Ingredients/Identity Information

Hazardous chemicals in the product, the percentage of each, the Chemical Abstract Service (CAS) numbers, and the exposure limits (TLV and PEL), etc.

- Exposure limit: the average amount of chemical exposure allowed during an 8-hour workday without adverse health effects.
- Exposure limits include the OSHA Permissible Exposure Limits (PEL) and the ACGIH Threshold Limit Values (TLV). Exposure limits are monitored to protect employees.

8.1.3 Section III: Physical Properties (specific properties)

- **Boiling Point** - the temperature at which the product will begin boiling which is significant when dealing with liquids that can generate the sufficient vapors to create an explosion.
- **Vapor Pressure** - pressure exerted by a saturated vapor above its own liquid in a closed container (measured in mm Hg).
- **Vapor Density** – the weight of the vapors of the product in comparison to air, where the air is equal to 1. With a vapor density greater than 1 the vapors will sink to the ground (e.g., chlorine gas). With a vapor density less than 1 the vapors will rest (e.g., helium, gasoline). This is significant when dealing with leaks and spills.
- **Solubility** – the tendency of one substance to blend with another. It is often compared to water. This is significant when dealing with fire-fighting, emergency situations, and disposal.
- **Appearance and Odor** – the physical state of the product (e.g., solid, liquid, gas) and odor of the product (e.g., chlorine smells like bleach). This is significant in product recognition and recognizing the potential hazards in the work area.

- **Specific Gravity** - refers to how heavy the product is in comparison to water, with water equal to 1. With a specific gravity greater than 1the product sinks (e.g., mercury). With a specific gravity less than 1the product floats (e.g., most oils, and gasoline). This is significant when dealing with fire fighting, emergency situations, and disposal.
- **Melting Point** - temperature at which a product begins to melt.
  This is significant when dealing with storage and transportation.
- **Evaporation Rate** – the rate at which a material will volatilize.
- **Volatility:** the percent of vapors emitted at a specified temperature.

8.1.4 Section IV: Fire and Explosion Hazard Data

This data is related to the likelihood that a chemical would explode or catch fire.

- **Flash Point** – the temperature at which a material will give off enough vapors to form an ignitable mixture with the air. If the flash point is less than (<) 100° F the chemical is flammable. If the flash point is at or above (>) 200° F the chemical is combustible.
- **Auto-ignition Temperature:** the temperature at which a material will ignite or catch fire without a source of ignition.
- **Flammable Limits:** the range of a vapor or gas concentration in the air that will burn or explode if an ignition source is present.
  - **Lower Flammable Limit (LFL)**, below which the propagation of a flame will not occur.
  - **Upper Flammable Limit (UFL)**, above which the propagation of a flame will not occur.

  The remaining portions of this section describe the types of firefighting media and procedures required to fight a fire involving the chemicals listed on the MSDS. For example, if water is not to be used, the MSDS will report "Do not use water" in this section.

8.1.5 Section V: Reactivity Data

Provides information on chemical stability, incompatibility, and conditions the contributing to hazardous polymerization, reactivity refers to the other chemicals that this chemical should not come in contact with.

- Bi-products – the hazardous decomposition of the products that can be more toxic than the chemicals themselves. Examples include cyanide which is created by burning urethane foam, and carbon monoxide, which is created by the gasoline burning in automobile engines.

8.1.6 Section VI: Health Hazard Data

This contains the information concerning the potential health hazards associated with the chemical.

8.1.7 Section VI: Symptoms of overexposure to hazardous chemicals Primary Routes of Exposure

- Ingestion
- Absorption (skin and eye contact)
- Inhalation

Acute Signs and Symptoms of Overexposure

These are effects that occur immediately. Examples include irritation, loss of consciousness, or death.

- **Chronic Signs and Symptoms of Overexposure** – the effects that occur from prolonged or repeated exposure to small quantities or low levels of the product over a period of days, weeks, or years. Examples include allergies, organ damage, reproductive problems, and cancer.
- **Carcinogenicity** – defined by whether the product causes cancer which publication this information can be found, and the medical conditions that can be aggravated by this chemical.
- **Emergency and First-Aid Procedures** – provides information in emergency situations when workers come in contact with the chemical (eyes, skin, inhalation, ingestion). Examples include whether or not to induce vomiting after ingestion, administer oxygen, or flush the contaminated area with water.

8.1.8 Section VII: Precautions for Safe Handling and Use

These are the appropriate actions to take during a chemical spill or its release into the air, for the disposal of the waste materials, and the handling and storing precautions. For example, some spilled chemicals can simply be absorbed with an inert absorbent and disposed of as a solidified, flammable waste. Other chemical spills, such as acids or bases, may require neutralization before any cleanup action taken.

8.1.9 Section VIII: Employee Protection Measures

These are recommendations regarding personal protective equipment: respiratory protection, protective clothing, eyes wear, gloves, etc. It also includes the type of ventilation required and work/hygiene practices.

9.0 Additional Information

- Manufacturers are required by OSHA to continually update their MSDS reflecting new product knowledge and health and safety characteristics.
- OSHA requires the MSDS to be provided by the chemical manufacturer to the purchaser with the initial shipment.
- OSHA requirements relating to MSDS information does not require a specific format. ANSI has issued a draft standard (Z400.1) that is designed to create uniformity in the format and terminology.

- All employees have the right to obtain a copy of the MSDS for the chemical or chemicals in the work area. Supervisors should be notified anytime a MSDS is required.
- **REPOWER USA** utilizes a Computer Based Material Safety Data Sheet (MSDS) Program for obtaining the current updated information. All pertinent Material Safety Data Sheet (MSDS) are maintained at each work site in a Material Safety Data Sheet (MSDS) Binder.
- All Material Safety Data Sheets (MSDS) are available for each employee and other designated personnel in 29 CFR 1910.1200 (e).
- Non-English speaking employees are furnished with the appropriate information in their own language. **REPOWER USA,** in situations where they are not the owner/operator will ensure that Non-English speaking employees are furnished with the appropriate information in their own language.

10.0 Non-Routine Tasks

When employees are required to perform hazardous non-routine tasks (e.g., cleaning tanks, entering confined spaces, etc.) on-the-job training shall be conducted regarding hazardous chemical exposure and the proper precautions to avoid exposure. The On-Site Field Superintendent/Supervisor and/or the On-Site HSE Coordinator shall perform a Job Site Safety Analysis (JSA) for non-routine tasks and discuss it with all on-site employees prior to the job's start-up.

REPOWER Systems	Section III RPSHSE 7.1.8A	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.8A RPSHSE – 8A Hazard Identification and Evaluation

Contents

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4.0	Corrective Action Follow-up	6
5.0	Management Responsibility	7

1.0 Introduction

Hazard Control begins with recognition and it ends with the implementation of a hazard control from one or more options. In the steps from recognition to control or elimination, one must apply several principles that are important. There are aids for thinking through hazard recognition and considering the use of the environment in which they occur. These aids are useful in envisioning a work place environment and other factors that contribute to an accident/incident/near miss or its severity.

A Hazard is defined as a condition or changing set of circumstances that present a potential for injury, illness, or property damage. It is the "potential or inherent characteristics of an activity, conditions or circumstances which can produce adverse or harmful consequences". **Hazard Control** is any means of elimination or reducing the risk resulting from a hazard. **Hazard recognition** is perceiving or being aware that a hazard exists.

There are many sources of hazards. Personnel introduce some. All too often hazards arise from engineering activities such as planning, design, production, operations, or maintenance. Hazards are seldom introduced deliberately; they are usually created inadvertently, unknowingly, and unintentionally. Many factors may contribute to the introduction of hazards: pressure to meet design or production schedules, job stress, poor communication, and a lack of knowledge may influence hazard recognition and control. Also important is the lack of instruction, personnel, funds, management concern, and assistance from safety and health professionals.

In planning and designing process activities engineers may create hazards in sites, buildings, facilities, equipment, operations, and work place environments. A hazard may result from a computational error, the failure to envision the work place environment, making a poor assumption, or not envisioning how things will actually operate in the work place environment.

In production and distribution, it is not always possible to construct or produce items the way they are drawn on paper. Changing fasteners or connectors because those specified are not available could weaken a structural joint. Replacing one chemical with another may introduce toxic or flammable hazards.

Poor packaging design may contribute to the introduction of hazards during handling and shipping. Inadequate packaging could result in a release of hazardous materials into the work place.

Hazards in maintenance and repair may result in the insufficient, delayed, and improper maintenance and repairs of equipment and/or facilities.

Just controlling the hazards related to normal use is not sufficient.

Many designs fail to recognize hazards during setup, maintenance, and cleaning activities. For example, poor access to service points or the need to do servicing with high levels of energy present can be dangerous even though an approved and professional Lockout/Tagout System is in use. Hazards found during or resulting from cleaning, maintenance, and/or repair, not just normal operations or use, must be recognized.

Failure to provide manual power or inching controls for powered equipment may make service and setup activities dangerous. Failure to torque bolts correctly may create a hazard. Failure to clean up a work place before, during and after servicing and/or repair can introduce hazards. Errors in maintenance procedures or poorly written procedures can cause hazards.

Inadequate, poor, and/or no communications can introduce hazards. For example, a hazard may result when changes in design, operations, and procedures are not communicated adequately to those impacted by the changes. The way information is communicated adequately and the knowledge and understanding of the receivers is important. Instructions and user manuals need the knowledge of the designer and others. Too often, instructions are descriptions of how an item works, rather than a series of actions one must take to make something work correctly. Inadequate, poor, and/or no communications lead to errors, accidents/incidents/near misses, and losses.

The components of communications are essential in hazard control. The four communication components are sender, receiver, media, and the content of the message.

2.0 Knowledge and Recognition of Hazards

No one individual can be fully knowledgeable about all hazards. Several disciplines and specialists may be needed to work together to cover a particular project.

After one has developed the knowledge of hazards, there is a need to develop the skill of recognizing and understanding hazards. One must consider the work place environment and many different contexts. Only after hazards are recognized can one identify and select suitable controls. Using a set of priorities may be a helpful method for selecting controls for hazards.

The priorities, in order of importance, are:

- **Eliminate the Hazard**
  The highest priority in hazard control is to eliminate the hazard. Hazards can be eliminated by making process or design changes or by substituting a non-hazardous material for a hazardous one. Sharp corners can be rounded or waste material removed.
- **Reduce the Hazard Level**
  If the hazard cannot be eliminated, the degree of exposure to the hazard can often be reduced. Two approaches are reducing the degree of severity or reducing the probability of occurrence. Redundancy covers the probability of error or the failure of a component within the system or operation. Redundancy means providing more than one means to accomplish something, where each means is independent of the other.
- **Provide Safety Devices**
  Safety devices can reduce hazards in many cases. Safety devices are features or controls that prevent personnel from being exposed to a hazard(s) that exists. One must always remember that safety devices do not remove the hazard(s), they only provide an automatic device that, once it is in place and working properly, requires no action on the personnel's part.
- **Provide Alerts and Warnings**
  Another way to reduce hazard(s)is to alert or warn personnel of eminent or pending danger. These alerts or warnings require personnel to take some action that will prevent them from being exposed to or injured by a hazard. Personnel must remember that alerts or warnings do not remove a hazard but depend on human action to implement protection and are only effective when humans perceive and understand them and act correctly in response to them.
- **Provide Safety Procedures**
  Additionally, a method of reducing the danger of exposure to work place hazard(s) is by using safety procedures. The HSE and Operational Procedures are actions that must be executed. Personnel must learn to use these HSE and Operational Procedures after they have been developed and published and personnel has been informed and trained. The HSE and Operational Procedures require designing to minimize danger to anyone using them. HSE and Operational Procedures should not introduce unsafe practices to personnel. Personnel training to identify hazard(s) and the development of skills in following HSE and Operational Procedures must be an integral part of the "Employee Hazard Reporting" Program.
- **Provide Personal Protective Equipment (PPE)**
  Many factors must be considered when selecting and implementing controls for hazards. Risk, cost, kind or severity of loss, practicality and not introducing additional hazards are important. For the kind of loss, the first priority is to protect people and human life. Following these is protection of property, environment, and operations/production.

3.0 Hazard Recording and Reporting

All personnel reporting any hazard(s) **SHALL** locate and describe each hazard reported. The Assigned Responsible Personnel, the Operations/Maintenance Hazard Investigation Personnel, and the **REPOWER USA** HSE Manager will use the provided written questions and the clear detailed descriptions of the hazard for investigation and evaluation of the reported hazard. This information is vitally important to clearly understand and professionally approach a correction of the hazard.

The Classification of Hazard(s) will simplify the job of hazard ranking to set priorities. Properly classifying hazards places them in the correct perspective. The significant benefit of this classification is that the potential consequences and the probability of such consequences occurring are described without the need for long narrative descriptions. From this information, management personnel should be able to understand and evaluate the problems, assign priorities, and quickly reach decisions.

Unsafe conditions or deviations from the accepted practices must be described in detail. Machines and operations must be identified by their correct names. Locations must be accurately named or numbered. Specific hazards must be described.

4.0 Corrective Action Follow-up

When the Hazard Report is written, the Hazard Action Tracking Form filled in, the Hazard Investigation completed, and the Corrective Action determined the original Hazard Report begins to return benefits. However, the information acquired and the recommendations made are without value unless corrective action is taken. Information and recommendations provide the basis for establishing priorities and implementing programs that will reduce accidents/incidents/near misses, improve conditions, raise morale, and increase the efficiency and effectiveness of the total Employee Hazard Reporting System.

Corrective Action Follow-up information can be listed in the order in which they were reported or grouped and identified by the Assigned Responsible Personnel. These Corrective Action Follow-up recommendations then processed through the proper management personnel for approval.

In most cases, a definite time limit for compliance **SHALL** be set regarding each recommendation and the information on the standard follow-up sequence.

Recommendations should include the following four guides:

- Correct the cause whenever possible. **DO NOT** merely correct the results, leaving the problem intact. Immediately correct everything possible.

- Always focus on the statement "Delays are the breeding ground of accidents/incidents/near misses".
- Report conditions beyond your area authority and suggest solutions.
- Inform management of the condition(s), the potential consequences of hazard(s) found, and any recommended solution to the situation.
- Take immediate action as needed. In any situation where permanent Corrective Action takes time, **DO NOT JUST IGNORE THE HAZARD.**
- Take any and/or all-temporary measures you can. Immediate Corrective Action examples are:
  - Securing the area
  - Implementing Lockout/Tagout Procedures
  - Post alert and/or warning signs

5.0 Management Responsibility

Management must realize that employees are keenly interested in the attention paid to correct faulty conditions and hazardous procedures. Recommendations approved by management should become part of the **REPOWER USA** HSE Program. At regular intervals, On-Site Supervisors are to report the Corrective Action progress to their Department/Operations Manager and the **REPOWER USA** H&E Manager. Post-Corrective Action Inspections report on what Corrective Actions are being made. All unsafe conditions that are not corrected are a clear indication of a breakdown in management communications and program applications.

Sometimes management will have to decide among several courses of action. Often these decisions will be based on cost effectiveness and the practical application.

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Form 1 – Material Safety Data Sheets (MSDS) Information

Material Safety Data Sheets (MSDS)

MSDS Categories

Section I: Identification

Product information such as the material/trade name, the product number, common synonyms, the emergency and non-emergency phone numbers of the manufacturer, and the date prepared.

Section II: Ingredients/Identity Information

Hazardous chemicals in the product, the percentage of each, the Chemical Abstract Service (CAS) numbers, and the exposure limits (TLV and PEL), etc.

- Exposure limit: the average amount of chemical exposure allowed during an 8-hour workday without adverse health effects.
- Exposure limits include the OSHA Permissible Exposure Limits (PEL) and the ACGIH Threshold Limit Values (TLV). Exposure limits are monitored to protect employees.

Section III: Physical Properties (specific properties)

- **Boiling Point** - the temperature at which the product will begin boiling which is significant when dealing with liquids that can generate the sufficient vapors to create an explosion.
- **Vapor Pressure** - pressure exerted by a saturated vapor above its own liquid in a closed container (measured in mm Hg).
- **Vapor Density** – the weight of the vapors of the product in comparison to air, where the air is equal to 1. With a vapor density greater than 1 the vapors will sink to the ground (e.g., chlorine gas). With a vapor density less than 1 the vapors will rest (e.g., helium, gasoline). This is significant when dealing with leaks and spills.
- **Solubility** – the tendency of one substance to blend with another. It is often compared to water. This is significant when dealing with fire-fighting, emergency situations, and disposal.
- **Appearance and Odor** – the physical state of the product (e.g., solid, liquid, gas) and odor of the product (e.g., chlorine smells like bleach). This is significant in product recognition and recognizing the potential hazards in the work area.
- **Specific Gravity** - refers to how heavy the product is in comparison to water, with water equal to 1. With a specific gravity greater than 1the product sinks (e.g., mercury). With a specific gravity less than 1the product floats (e.g., most oils, and gasoline). This is significant when dealing with fire fighting, emergency situations, and disposal.
- **Melting Point** - temperature at which a product begins to melt. This is significant when dealing with storage and transportation.
- **Evaporation Rate** – the rate at which a material will volatilize.
- **Volatility:** the percent of vapors emitted at a specified temperature.

Section IV: Fire and Explosion Hazard Data

This data is related to the likelihood that a chemical would explode or catch fire.

- **Flash Point** – the temperature at which a material will give off enough vapors to form an ignitable mixture with the air. If the flash point is less than (<) 100° F the chemical is flammable. If the flash point is at or above (>) 200° F the chemical is combustible.
- **Auto-ignition Temperature:** the temperature at which a material will ignite or catch fire without a source of ignition.

- **Flammable Limits:** the range of a vapor or gas concentration in the air that will burn or explode if an ignition source is present.
  - **Lower Flammable Limit (LFL)**, below which the propagation of a flame will not occur.
  - **Upper Flammable Limit (UFL)**, above which the propagation of a flame will not occur.

The remaining portions of this section describe the types of firefighting media and procedures required to fight a fire involving the chemicals listed on the MSDS. For example, if water is not to be used, the MSDS will report "Do not use water" in this section.

Section V: Reactivity Data

Provides information on chemical stability, incompatibility, and conditions the contributing to hazardous polymerization, reactivity refers to the other chemicals that this chemical should not come in contact with.

- Bi-products – the hazardous decomposition of the products that can be more toxic than the chemicals themselves. Examples include cyanide which is created by burning urethane foam, and carbon monoxide, which is created by the gasoline burning in automobile engines.

Section VI: Health Hazard Data

This contains the information concerning the potential health hazards associated with the chemical.

Section VI: Symptoms of overexposure to hazardous chemicals

Primary Routes of Exposure

- Ingestion
- Absorption (skin and eye contact)
- Inhalation

Acute Signs and Symptoms of Overexposure

These are effects that occur immediately. Examples include irritation, loss of consciousness, or death.

- **Chronic Signs and Symptoms of Overexposure** – the effects that occur from prolonged or repeated exposure to small quantities or low levels of the product over a period of days, weeks, or years. Examples include allergies, organ damage, reproductive problems, and cancer.
- **Carcinogenicity** – defined by whether the product causes cancer which publication this information can be found, and the medical conditions that can be aggravated by this chemical.
- **Emergency and First-Aid Procedures** – provides information in emergency situations when workers come in contact with the chemical (eyes, skin, inhalation, ingestion). Examples include whether or not to induce vomiting after ingestion, administer oxygen, or flush the contaminated area with water.

Section VII: Precautions for Safe Handling and Use

These are the appropriate actions to take during a chemical spill or its release into the air, for the disposal of the waste materials, and the handling and storing precautions. For example, some spilled chemicals can simply be absorbed with an inert absorbent and disposed of as a solidified, flammable waste. Other chemical spills, such as acids or bases, may require neutralization before any cleanup action taken.

Section VIII: Employee Protection Measures

These are recommendations regarding personal protective equipment: respiratory protection, protective clothing, eyes wear, gloves, etc. It also includes the type of ventilation required and work/hygiene practices.

Additional Information

- Manufacturers are required by OSHA to continually update their MSDS reflecting new product knowledge and health and safety characteristics.
- OSHA requires the MSDS to be provided by the chemical manufacturer to the purchaser with the initial shipment.
- OSHA requirements relating to MSDS information does not require a specific format. ANSI has issued a draft standard (Z400.1) that is designed to create uniformity in the format and terminology.
- All employees have the right to obtain a copy of the MSDS for the chemical or chemicals in the work area. Supervisors should be notified anytime a MSDS is required.
- **REPOWER USA** utilizes a Computer Based Material Safety Data Sheet (MSDS) Program for obtaining the current updated information. All pertinent Material Safety Data Sheet (MSDS) are maintained at each work site in a Material Safety Data Sheet (MSDS) Binder.
- All Material Safety Data Sheets (MSDS) are available for each employee and other designated personnel in 29 CFR 1910.1200 (e).
- Non-English speaking employees are furnished with the appropriate information in their own language. **REPOWER USA,** in situations where they are not the owner/operator will ensure that Non-English speaking employees are furnished with the appropriate information in their own language.

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Form 2 – Master Hazardous Chemical List

Master Hazardous Chemical List

(EXAMPLE LIST)

Item NO	Chemical Name	Company (OEM)	Quantity in Stock	Remarks
1	WD-40			
2	30 SAE Motor Oil	Chevron	55 GALS	
3	Diesel Fuel	Chevron	500 GALS	
4				
5				
6				
7				
8				
9				
10				

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Form 3 – Potential Hazardous Chemicals

Potential Hazardous Chemicals in the Workplace

Acids	Insecticides	Gasoline	Adhesives	Herbicides
Varnishes	Aerosols	Janitorial Supplies	Glues	Asbestos
Kerosene	Treatments	Battery Fluids	Lacquers	Greases
Benzene	Lead	Preservatives	Catalysts	Lye
Oils	Caustics	Oxalic Acid	Xylene	Paints
Inks	Coal Tar Pitch	Pesticides	Cleaning Agents	Solvents
Fungicides	Coatings	Plastics	Thinners	Fuels
Degreasers	Detergents	Strippers	Process Chemicals	
Resins	Surfactant	Dusts	Sealers	
Shellacs	Fiberglass	Solders	Flammable Liquids	

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Form 4 - Hazard Categories and Effects

Hazard Categories and Effects

Health Hazards	Physical Hazards
Toxic and Highly Toxic Chemicals	
Carcinogenic	Combustible liquids
Acute exposure	Compressed Gas
Chronically exposure	Explosive
Reproductive toxin	Flammable Chemicals
Irritant	Organic peroxides
Corrosive	Oxidizers
Sensitizer	Pyrophorics
Target Specific Chemicals	Unstable (reactive)
	Water-reactive

Target Organ Effects

Type	Effect
Hepatotoxin	Chemicals which produce liver damage. Signs and Symptoms - Jaundice; liver enlargement. Chemicals - Carbon tetrachloride; nitrosamine.
Nephrotoxins	Chemicals which produce kidney, damage. Signs and Symptoms - Edema; proteinuria. Chemicals - Halogenated hydrocarbons; uranium.
Neurotoxin	Chemicals primarily affect the nervous system. Signs and Symptoms - Narcosis; behavioral changes; decrease in motor functions. Chemicals – Mercury; carbon disulfide.
Agents which act on the blood or hematopoietic system	Decrease hemoglobin function; deprive the body tissues of oxygen. Signs and Symptoms - Cyanosis; loss of consciousness. Chemicals - Carbon monoxide; cyanide.

Target Organ Effects (continued)

Type	Effect
Agents which damage the lung	Chemicals which irritate or damage the pulmonary tissue. Signs and Symptoms - Coughing; tightness in chest, shortness of breath. Chemicals - Silica; asbestos.
Reproductive toxins	Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis). Signs and Symptoms - Birth defects; sterility. Chemicals - Lead, DBCP
Cutaneous hazards	Chemicals which affect the dermal layer of the body. Signs and Symptoms – the defatting of the skin, rashes, and irritation. Chemicals - Ketone, chlorinated compounds.
Eye hazards	Chemicals which affect the eye or visual capacity. Signs and Symptoms - Conjunctivitis; corneal damage. Chemicals - Organic solvents; acids.

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Form 5 – MSDS Information Request Form

MSDS Information Request Form

This form is to assist personnel in requesting the Material Safety Data Sheet information from the HSE Manager concerning the health and safety hazards of toxic substances found in the workplace.

PLEASE PRINT

1. Name: _____
2. Company: _____
3. Job Title/Craft: _____
4. Supervisor: _____

Briefly describe the substance you are requesting information about: _____

_____

_____

5. Trade Name: _____
6. Chemical Name or Ingredients (if known): _____
7. Manufacturer, Name & Address (if known): _____
8. Physical Form: ☐ Gas ☐ Solid ☐ Other (identify)
   ☐ Liquid ☐ Dust
9. Any other information that identifies the substance: _____
10. Circumstances surrounding your inquiry? Working with, near, etc.

Signature: _____ _____
Person requesting MSDS Date/Hour

MSDS issued: _____ _____
Date/Hour By

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Form 6 – HAZCOM Training Program

Training Program

HAZARD COMMUNICATION (HAZCOM) "RIGHT TO KNOW" PROGRAM

Training is an integral part of the Hazard Communication Program. Under the Hazard Communication Standard, effective May 23, 1988, all Companies are required to inform and train the affected employees at the time of their initial assignment to a work area where hazardous chemicals are present and whenever a new hazard is introduced into the work area.

The outline of topics presented in the training programs is the same for all employers, however, the actual information presented will be based on the specific hazard information conveyed by the labels and the MSDS for each particular workplace or work area.

REPOWER USA employees, who may be exposed to hazardous chemicals in the course of their routine responsibilities or in an emergency, **SHALL** be provided with the information and training about these potential hazards. Such information and training **SHALL** be provided at the time of the initial assignments, annually thereafter, and whenever a new hazard is introduced to the employee's work area. All trainings and new employee orientations **SHALL** be documented and maintained on file at the work-site and at the appropriate office and with the HSE Manager for retention in the employee's files.

Employees SHALL be trained in the following

- The provisions of the OSHA Hazard Communication Standard and all applicable State regulations.
- Any operations in employee work areas where hazardous chemicals are present.
- The location and availability of the **REPOWER USA** written Hazard Communication Program, including the required list(s) of hazardous chemicals and the MSDS.
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
- The physical and health hazards of chemicals in the work area.
- The measures employees can take for protection from hazards including work practices, emergency procedures and personal protective equipment.
- Details of the written Hazard Communication Program including an explanation of the labeling systems, the MSDS, and how employees can obtain and use this information.
- Upon completion of the Hazard Communication Program each employee will be given a test to determine his/her knowledge of the required program contents. The completed test will be filed with the HS&E Manager for retention and documentation.

REPOWER USA shall use the following outline for employee training

NOTE: Training will be offered to Non-English speaking employees in a manner they will be able to comprehend and demonstrate understanding.

- Provisions of the Hazard Communication Standard.
- Identification of Exposure.
- Defining Hazardous Chemicals in the workplace.
- Hazardous Chemicals Inventory List.
- Use and Interpretation of Material Safety Data Sheets.
- Interpretation and Procedures for Labeling
- Review of Existing Methods of Controlling Workplace Exposures.
- Proper use of Personal Protective Equipment (PPE).
- Signs and Symptoms of Chemical Exposure.
- Procedures for Chemical Exposure (general and site specific).
- Physical Characteristics of the Hazardous Chemicals.
- Examination of Program knowledge contents.

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Form 7 – Hazard Communication Flow Chart

Hazard Communication Flow of Information Chart

Responsible Generator of Information	Information available to Employer/Employee
Chemical Manufacturers/ Importers	Determine the hazards of each product.
Chemical Manufacturers/ Importers	Communicate the hazard information and the associated protective measures downstream to customers through labeling and the MSDS.
Employers	Identify and list the hazardous chemicals in their work place.
	Obtain from the manufacturers and distributors the MSDS and labels for each hazardous chemical.
	Develop and implement a written Hazard Communication Program based on the list of the chemicals, the MSDS, and label information.
	Communicate hazard information to employees through labeling, the MSDS, and training programs.

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Form 8 – MSDS Acronyms & Definitions

MSDS Acronyms and Definitions

The following glossary presents brief explanations of acronyms and common terms frequently used by chemical manufacturers in their MSDS's

- **ACGIH** American Conference of Governmental Industrial Hygienists if an organization of professional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH establishes recommended occupational exposure limits for chemical substances and physical agents. See TLV.
- **Acid** Any chemical that undergoes dissociation in water with the formation of hydrogen ions. Acids have a sour taste and may cause severe skin burns. Acids turn litmus paper red and have pH values of 0 to 6.
- **Acute Effect** Adverse effect on a human or animal that has severe symptoms developing rapidly and coming quickly to a crisis.
- **Acute Toxicity** Acute effects resulting from a single dose of, or exposure to, a substance. Ordinarily used to denote effects in experimental animals.
- **Adenocarcinoma** A tumor with glandular (secreting) elements.
- **Adenosis** Any disease of a gland.
- **Adhesion** A union of two surfaces that are normally separate.
- **Aerosol** A fine aerial suspension of particles sufficiently small in size to confer some degree of stability from sedimentation (e.g., smoke or fog).
- **Air-Line Respirator** A respirator that is connected to a compressed breathable air source by a hose of small inside diameter. The air is delivered continuously or intermittently in a sufficient volume to meet the wearer's breathing requirements.
- **Air-Purifying Respirator** A respirator that uses chemicals to remove specific gases and vapors from the air or that uses a mechanical filter to remove particulate matter. An air-purifying respirator must only be used when there is sufficient oxygen to sustain life and the air contaminant level is below the concentration limits of the device.
- **Alkali** Any chemical substance that forms soluble soaps with fatty acids. Alkalis are also referred to as bases. They may cause severe burns to the skin. Alkalis turn litmus paper blue and have pH values from 8 to 14.
- **Allergic Reaction** An abnormal physiological response to chemical or physical stimuli. Amenorrhea Absence of menstruation.
- **Anesthetic** A chemical that causes a total or partial loss of sensation. Overexposure to anesthetics can cause impaired judgment, dizziness, drowsiness, headache, unconsciousness, and even death. Examples include alcohol, paint remover, and degreasers.
- **ANSI** American National Standards Institute is a privately funded, voluntary membership organization that identifies industrial and public needs for national consensus standards and coordinates development of such standards.
- **Antidote** A remedy to relieve, prevent, or counteract the effects of a poison. API American Petroleum Institute is an organization of the petroleum industry.

MSDS Acronyms and Definitions

- **Appearance** A description of a substance at normal room temperature and normal atmospheric conditions. Appearance includes the color, size, and consistency of the material.
- **Aquatic Toxicity** The adverse effect to marine life that result from being exposed to a toxic substance.
- **Asphyxiant** A vapor or gas that can cause unconsciousness or death by suffocation (lack of oxygen). Most simple asphyxiants are harmful to the body only when they become so concentrated that they reduce the oxygen in the air (normally about 21 percent) to dangerous levels (18 percent or lower). Asphyxiation is one of the principle potential hazards of working in confined and enclosed spaces.
- **ASTM** American Society for Testing and Materials is the world's largest source of voluntary consensus Standards for materials, products, systems, and services. ASTM is a resource for sampling and testing methods, health and safety aspects of materials, safe performance guidelines, and the effects of physical and biological and chemical agents.
- **Asymptomatic** Showing no symptoms.
- **Atm** Atmosphere, a unit of pressure equal to 760 mmHg (mercury) at sea level.
- **Atmosphere-Supplying Respirator** A respirator that provides breathable air from a source independent of the surrounding atmosphere. There are two types: air-line and self-contained breathing apparatus.
- **Auto-Ignition Temperature** The temperature to which a closed, or nearly closed container must be heated in order that the flammable liquid, when introduced into the container, will ignite spontaneously or burn.
- **BAL** British Anti-Lewisite - A name for the drug dimecaprol-a treatment for toxic inhalations.
- **Base** A substance that (1) liberate hydroxide (OH) ions when dissolved in water, (2) receives hydrogen ions from a strong acid to form a weaker acid, and (3) neutralizes in acid. Bases react with acids to form salts and water. Bases have a pH greater than 7 and turn litmus paper blue. See Alkali.
- **BCM** Blood-clotting mechanism effects.
- **Benign** Not recurrent or not tending to progress. Not cancerous.
- **Biodegradable** Capable of being broken down into innocuous products by the action of living things.
- **Biopsy** Removal and examination of tissue from the living effects.
- **BLD** *Blood effects.*

MSDS Acronyms and Definitions

- **Boiling Points-BP** The temperature at which a liquid changes to a vapor state at a given pressure. The boiling point usually expressed in degrees Fahrenheit at sea level pressure (760 mmHg, or one atmosphere). For mixtures, the initial boiling point or the boiling range may be given.

Flammable gases with low boiling points generally present special fire hazards. Some approximate boiling points:	
Propane	-44 °F
Anhydrous Ammonia	-28 °F
Butane	31 °F
Gasoline	100 °F
Allyl Chloride	113 °F
Ethylene Glycol	387 °F

- **BOM, or BuMines** Bureau of Mines, U.S. Department of Interior.
- **Bonding** The interconnecting of two objects by means of a clamp and bare wire. Its purpose it to equalize the electrical potential between the objects to prevent a static discharge when transferring a flammable liquid from one container to another. The conductive path is provided by clamps that make contact with the charged object and a low resistance flexible cable which allows the charge to equalize. See Grounding.
- **Bulk Density** Mass of powdered or granulated solid material per unit of volume. C Centigrade, a unit of temperature.
- **Ceiling Limit (PEL or TLV)** The maximum allowable human exposure limit for an airborne substance which is not to be exceeded even momentarily. Also see PEL and TLV.
- **ca** Approximately.
- **CAA** Clean Air Act was enacted to regulate/reduce air pollution. CAA is administered by the U.S. Environmental Protection Agency.
- **Carcinogen** A substance or agent capable of causing or producing cancer in mammals, including humans. A chemical is considered to be a carcinogen if (a) It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen; or
  (b) It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or
  (c) It is regulated by OSHA as a carcinogen.
- **Carcinogenicity** The ability to produce cancer.
- **Carcinoma** A malignant tumor. A form of cancer.
- **CAS** Chemical Abstracts Service is an organization under the American Chemical Society. CAS abstracts and indexes chemical literature from all over the world in "Chemical Abstracts." "CAS Numbers" are used to identify specific chemicals or mixtures.

MSDS Acronyms and Definitions

- **Caustic** See Alkali.
- **cc** Cubic centimeter is a volume measurement in the metric system that is equal in capacity to one milliliter (ml). One quart is about 946 cubic centimeters.
- **Central Nervous System** The brain and spinal cord. These organs supervise and coordinate the activity of the entire nervous system. Sensory impulses are transmitted into the central nervous system, and motor impulses are transmitted out.
- **CERCLA** Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The Act requires that the Coast Guard National Response Center be notified in the event of a hazardous substance release. The Act also provides for a fund (the Superfund) to be used for the cleanup of abandoned hazardous waste disposal sites.
- **CFR** Code of Federal Regulations. A collection of regulations that have been promulgated under United States Law.
- **Chemical** An element (e.g., chlorine) or a compound (e.g., sodium bicarbonate) produced by chemical reaction.
- **Chemical Cartridge Respirator** A respirator that uses various chemical substances to purify inhaled air of certain gases and vapors. This type of respirator is effective for concentrations no more than ten times the TLV of the contaminant, if the contaminant has warning properties (odor or irritation) below the TLV.
- **Chemical Family** A group of single elements or compounds with a common general name. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK) are of the "Ketone" family; acrolein, furfural, and acetaldehyde are of the "aldehyde" family.
- **Chemical Name** The name given to a chemical in the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS). The scientific designation of a chemical or a name that will clearly identify the chemical for hazard evaluation purposes.
- **Chemical Pneumonitis** Inflammation of the lungs caused by accumulation of fluids due to chemical irritation.
- **CHEMTREC** Chemical Transportation Emergency Center is a national center established by the Chemical Manufacturers Association to relay pertinent emergency information concerning specific chemicals on requests from individuals. CHEMTREC has a 24-hour toll-free telephone number (800-424-9300) to help respond to chemical transportation emergencies.
- **Chronic Effect** An adverse effect on a human or animal body, with symptoms that develop slowly over a long period of time or that recur frequently. Also see Acute.
- **Chronic Exposure** Long-term contact with a substance.
- **Chronic Toxicity** Adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals.
- **Clean Air Act** See CAA
- **Clean Water Act** Federal law enacted to regulate/reduce water pollution. CWA is administered by EPA.

MSDS Acronyms and Definitions

- **CMA** Chemical Manufacturers Association. See CHEMTREC
- **CO** Carbon monoxide is a colorless, odorless, flammable, and very toxic gas produced by the incomplete combustion of carbon. It is also a by-product of many chemical processes. A chemical asphyxiant; it reduces the blood's ability to carry oxygen. Hemoglobin absorbs CO two hundred times more readily than it does oxygen.
- **$C0_2$** Carbon dioxide is a heavy, colorless gas that is produced by the combustion and decomposition of organic substances and as a by-product of many chemical processes. $C0_2$ will not burn and is relatively nontoxic (although high concentrations, especially in confined spaces, can create hazardous oxygen-deficient environments).
- **COC** Cleveland Open Cup is a flash point test method.
- **Combustible** A term used by NFPA, DOT, and others to classify certain liquids that will burn, on the basis of flash points. Both NFPA and DOT generally define "combustible liquids" as having a flash point of 100 °F (37.8 °C), but below 200 °F (93.3 °C). Also see "flammable." Non-liquid substances such as wood and paper are classified as "ordinary combustibles" by NFPA.
- **Combustible Liquid** Any liquid having a flash point at or above 100 °F (37.8 °C), but below 200 °F (93.3 °C), except any mixture having components with flashpoints of 200 °F (93.3 °C) or higher, the total volume of which makes up ninety-nine (99) percent or more of the total volume of the mixture.
- **Common Name** Any means used to identify a chemical other than its chemical name (e.g., code name, code number, trade name, brand name, or generic name). See Generic.
- **Compressed Gas:**

  (a) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70 °F (21.1 °C); or

  (b) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F (54.4 °C) regardless of the pressure at 70 °F (21.1 °C); or

  (c) A liquid having a vapor pressure exceeding 40 psi at 100 °F (37.8 °C) as determined by ASTM D-323-72.
- **Conc** See Concentration.
- **Concentration** The relative amount of a substance when combined or mixed with other substances. Examples: 2 ppm hydrogen sulfide in air, or a 50 percent caustic solution.
- **Conditions to Avoid** Conditions encountered during handling or storage that could cause a substance to become unstable.
- **Confined Space** Any area that has limited openings for entry and exit that would make escape difficult in an emergency, has a lack of ventilation, contains known and potential hazards, and is not intended nor designated for continuous human occupancy.
- **Conjunctivitis** Inflammation of the conjunctiva, the delicate membrane that lines the eyelids and covers the eyeball.
- **Container** Any bag, barrel, bottle, can, cylinder, drum, reactions a hazardous chemical. For the purposes of MSDS or HCS, pipes or piping systems are not considered to be containers.

MSDS Acronyms and Definitions

- **Corrosive** A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the DOT in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term shall not refer to action on inanimate surfaces.
- **CPSC** Consumer Products Safety Commission has responsibility for regulating hazardous materials when they appear in consumer goods. For CPSC purposes, hazards are defined in the Hazardous Substances ACT and the Poison Prevention Packaging Act of 1970.
- **Curettage** Cleansing of a diseased surface. Cutaneous Toxicity See "Dermal Toxicity."
- **CWA** Clean Water ACT was enacted to regulate/reduce water pollution. It is administered by EPA.
- **Cyst** A sac containing a liquid. Most cysts are harmless. Cytology The scientific study of cells.
- **Decomposition** Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into parts or elements or simpler compounds. Density The mass (weight) per unit volume of a substance. For example, lead is much more dense than aluminum.
- **Depressant** A substance that reduces a bodily functional activity or an instinctive desire, such as appetite.
- **Dermal** Relating to the skin.
- **Dermal Toxicity** Adverse effects resulting from skin exposure to a substance. Ordinarily used to denote effects in experimental animals.
- **DHHS** U.S. Department of Health and Human Services (replaced U.S. Department of Health, Education and Welfare). NIOSH and the Public Health Service (PHS) are part of DHHS.
- **Dike** A barrier constructed to control or confine hazardous substances and prevent them from entering sewers, ditches, streams, or other flowing waters.
- **Dilution Ventilation** Air flow designed to dilute contaminants to acceptable levels. Also see general ventilation or exhaust.
- **DOL** U.S. Department of Labor. OSHA and MSHA are part of DOL.
- **DOT** U.S. Department of Transportation regulates transportation of chemicals and other substances.
- **Dry Chemical** A powered fire-extinguishing agent usually composed of sodium bicarbonate, potassium bicarbonate, etc.
- **Dysmenorrhea** Painful menstruation.
- **Dysplasia** An abnormality of development.
- **Dyspnia** A sense of difficulty in breathing; shortness of breath.
- **Ectopic Pregnancy** The fertilized ovum becomes implanted outside of the uterus.
- **Edema** An abnormal accumulation of clear watery fluid in the tissues.
- **Endocrine Glands** Glands that regulate body activity by secreting hormones.
- **Endometrium** The mucous membrane lining the uterus.
- **Environmental Toxicity** Information obtained as a result of conducting environmental testing designed to study the effects on aquatic and plant life.

MSDS Acronyms and Definitions

- **EPA** U.S. Environmental Protection Agency.
- **Epidemiology** Science concerned with the study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as by age, sex, or occupation) which may provide information about the cause of the disease.
- **Epithelium** The covering of internal and external surfaces of the body. Estrogen Principal female sex hormone.
- **Evaporation Rate** The rate at which a material will vaporize (evaporate) when compared to the known rate of vaporization of a standard material. The evaporation rate can be useful in evaluating the health and fire hazards of a material. The designated standard material is usually normal butyl acetate (NBUAC or n-Bu-Ac), with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials are then classified as:
  - **FAST** evaporating if greater than 3.0. Examples: Methyl Ethyl Ketone = 3.8, Acetone = 5.6, Hexane = 8.3.
  - **MEDIUM** evaporating if 0.8 to 3.0. Examples: 190 proof (95%) Ethyl Alcohol = 1.4, VM&P Naphtha = 1.4, MIBK =1.6.
  - **SLOW** evaporating if less than 0.8. Examples: Xylene = 0.6, Normal Butyl Alcohol = 0.4, Water = 0.3, Mineral Spirits = 0.1.
- **Explosive** A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.
- **Exposure or Exposed** State of being open and vulnerable to a hazardous chemical by inhalation, ingestion, skin contact, absorption, or any other course; includes potential (accidental or possible) exposure.
- **Extinguishing Media** The firefighting substance to be used to control a material in the event of a fire. It is usually identified by its generic name, such as fog, foam, water, etc.
- **Eye Protection** Recommended safety glasses, chemical splash goggles, face shield, etc. to be utilized when handling a hazardous material.
- **F** Fahrenheit is a scale for measuring temperature. On the Fahrenheit scale, water boils at 212 °F and freezes at 32 °F.
- **f/cc** Fibers per cubic centimeter of air.
- **FDA** U.S. Food and Drug Administration.
- **Fetal** Pertaining to the fetus.
- **Fetus** The developing young in the uterus from the seventh week of gestation until birth.
- **Fibrosis** An abnormal thickening of fibrous connective tissue, usually in the lungs.
- **FIFRA** Federal Insecticide, Fungicide, and Rodenticide Act requires that certain useful poisons, such as chemical pesticides, sold to the public contain labels that carry health hazard warnings to protect users. It is administered by EPA.
- **First Aid** Emergency measures to be taken when a person is suffering from overexposure to a hazardous material, before regular medical help can be obtained.

MSDS Acronyms and Definitions

- **Flammable** A chemical that includes one of the following categories:
  (a) "Aerosol, flammable." An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of the valve opening;
  (b) 'Gas, flammable." (1) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less; or (2) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit;
  (c) "Liquid, flammable." Any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 0C (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture;
  (d) "Solid, flammable." A solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A substance is a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self- sustained flame at a rate greater than one-tenth of an inch per second along its major axis.
- **Flashback** Occurs when flame from a torch burns back into the tip, the torch, or the hose. It is often accompanied by a hissing or squealing sound with a smoky or sharp-pointed flame.
- **Flashpoint** The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested by the following methods:
  (a) Tagliabue Closed Tester (see American National Standard Method of Test for Flash Point by Closed Tag Tester, Z11.24-1979 [ASTM D 56-79]).
  (b) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 [ASTM D 93-79]).
  (c) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester [ASTM D 3278-78]).
- **Foreseeable Emergency** Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.
- **Formula** The scientific expression of the chemical composition of a material (e.g., water is H_2O, sulfuric acid is H_2SO_4, sulfur dioxide is SO_2).
- **Fume** A solid condensation of particle of extremely small diameter, commonly generated from molten metal as metal fume.
- **g** Gram is a metric unit of weight. One ounce U.S. (avoirdupois) is about 28.4 grams.
- **General Exhaust** A system for exhausting air containing contaminants from a general work area. Also see Local Exhaust.
- **Generic Name** A designation or identification used to identify a chemical by other than its chemical name (e.g., code name, code number, trade name, and brand name). Genetic Pertaining to or carried by genes. Hereditary.

MSDS Acronyms and Definitions

- **Gestation** The development of the fetus in the uterus from conception to birth; pregnancy.
- **g/kg** Grams per kilogram is an expression of dose used in oral and dermal toxicology testing to denote grams of a substance dosed per kilogram of animal body weight. Also see "kg" (kilogram).
- **Grounding** The procedure used to carry an electrical charge to ground through a conductive path. A typical ground may be connected directly to a conductive water pipe or to a grounding bus and ground rod. See Bonding.
- **Gynecology** The study of the reproductive organs in women.
- **Hand Protection** Specific type of gloves or other hand protection required to prevent harmful exposure to hazardous materials.
- **Hazardous Chemical** Any chemical whose presence or use is a physical hazard or a health hazard.
- **Hazard Warning** Words, pictures, symbols, or combination thereof presented on a label or other appropriate form to inform of the presence of various materials.
- **HCS** Hazardous Communication Standard is an OSHA regulation issued under 29 CFR Part 1910.1200.
- **Health Hazard** A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes.
- **Hemoglobin** An iron-containing conjugated protein or respiratory pigment occurring in the red blood cells of vertebrates.
- **Hematoma** A blood clot under the surface of the skin.
- **Hematopoietic System** The blood-forming mechanism of the human body.
- **Hematuria** The presence of blood in the urine.
- **Hepatotoxin** A substance that causes injury to the liver.
- **Highly Toxic** A chemical in any of the following categories:
  (a) A chemical with a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
  (b) A chemical with a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbit weighing between 2 and 3 kilograms each.
  (c) A chemical with a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.
- **Hormones** Act as chemical messengers to body organs.
- **Hyperplasia** Increase in volume of tissue or organ caused by the growth of new cells.
- **IARC** International Agency for Research on Cancer.
- **Ignitable** Capable of being set on fire.
- **Impervious** A material that does not allow another substance to pass through or penetrate it.

MSDS Acronyms and Definitions

- **Incompatible** Materials that could cause dangerous reactions by direct contact with one another.
- **Ingestion** Taking in by the mouth.
- **Inhal** See Inhalation.
- **Inhalation** Breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.
- **Inhibitor** A chemical added to another substance to prevent an unwanted chemical change.
- **Insol** See Insoluble.
- **Insoluble** Incapable of being dissolved in a liquid.
- **Intrauterine** Within the uterus.
- **Irritant** A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for 4 hours exposure or by other appropriate techniques, it results in an empirical score of 5 or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.
- **Irritating** As define by DOT, a property of a liquid or solid substance which, upon contact with fire or exposed to air, gives off dangerous or intensely irritating fumes (not including poisonous materials). See Poison, Class A and Poison, Class B.
- **kg** Kilogram is a metric unit of weight, about 2.2 U.S. pounds. Also see "g/kg", "g", and "mg".
- **L** Liter is a metric unit of capacity. A U.S. quart is about 9/10 of a liter.
- **Lacrimation** Secretion and discharge of tears.
- **Label** Notice attached to a container, bearing information concerning its contents.
- **Lactation** The secretion of milk by the breasts.
- **LC** Lethal concentration is the concentration of a substance being tested that will kill.
- **LCL** Lethal concentration, low, lowest concentration of a gas or vapor capable of killing a specified species over a specified time.
- **LC_{50}** The concentration of a material in air that will kill 50 percent of a group of test animals with a single exposure (usually 1 to 4 hours). The LC50 is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or as micrograms of material per liter of air (g/l) or milligrams of material per cubic meter of air (mg/m3) for dusts and mists, as well as for gases and vapors.
- **LD** Lethal dose is the quantity of a substance being tested the will kill.
- **LDL** Lethal dose low, lowest administered dose of a material capable of killing a specified test species.
- **LD_{50}** A single dose of material expected to kill 50 percent of a group of test animals. The LD_{50} dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth or applied to the skin.
- **LEL or LFL** Lower explosive limit, or lower flammable limit, of a vapor or gas; the lowest concentration (lowest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At concentrations lower than the LEL, the mixture is too "lean" to burn. Also see "UEL".
- **Lesion** Any damage to a tissue.
- **Lfm** Linear feet per minute, a unit of air velocity.

MSDS Acronyms and Definitions

- **Local Exhaust** A system for capturing and exhausting contaminants from the air at the point where the contaminants are produced (welding, grinding, sanding, other processes or operations). Also see General Exhaust.
- **M** Meter is a unit of length in the metric system. One meter is about 39 inches.
- **M^3** Cubic meter is a metric measure of volume, approximately 35.3 cubic feet or 1.3 cubic yards.
- **Malaise** A feeling of general discomfort, distress, or uneasiness, an out-of-sorts feeling.
- **Malignant** Tending to become progressively worse and to result in death.
- **Mammary** Pertaining to the breast.
- **Mechanical Exhaust** A powered device, such as a motor-driven fan or air stream venturi tube, for exhausting contaminants from a workplace, vessel, or enclosure.
- **Mechanical Filter Respirator** A respirator used to protect against airborne particulate matter like dusts, mists, metal fume, and smoke. Mechanical filter respirators do not provide protection against gases, vapors, or oxygen deficient atmospheres.
- **Melting Point** The temperature at which a solid substance changes to a liquid state.
- **Menorrhagia** Excessive menstruation.
- **Menstruation** Periodic discharge of blood from the vagina of a nonpregnant uterus.
- **Metabolism** Physical and chemical processes taking place among the ions, atoms, and molecules of the body.
- **Metastasis** The transfer of disease from one organ or part to another not directly connected with it.
- **Meter** A unit of length; equivalent to 39.37 inches.
- **mg** Milligram is a metric unit of weight that is one-thousandth of a gram.
- **mg/kg** Milligrams of a substance per kilogram of body weight is an expression of toxicological dose.
- **mg/m^3** Milligrams per cubic meter is a unit for expressing concentrations of dusts, gases, or mists in air.
- **Micron** (Micrometer) A unit of length equal to one-millionth of a meter; approximately 0.000039 of an inch.
- **Mist** Suspended liquid droplets generated by condensation from the gaseous to the liquid state, or by breaking up a liquid into a dispersed state, such as splashing, foaming or atomizing. Mist is formed when finely divided liquid is suspended in air.
- **Mixture** Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.
- **Mld** Mild.
- **ml** Milliliter is a metric unit of capacity, equal in volume to 1 cubic centimeter (cc), or approximately one-sixteenth of a cubic inch. One-thousandth of a liter.
- **mmHg** Millimeters of mercury (Hg) is a unit of measurement for low pressures or partial vacuums.
- **Molecular Weight** Weight (mass) of a molecule based on the sum of the atomic weights of the atoms that make up the molecule.
- **mppcf** Million particles per cubic foot is a unit for expressing concentration of particles of a substance suspended in air. Exposure limits for mineral dusts (silica, graphite, Portland cement, nuisance dusts, and others), formerly expressed as mppcf, are now more commonly expressed as mg/m^3.

MSDS Acronyms and Definitions

- **MSDS** Material Safety Data Sheet.
- **MSHA** Mine Safety and Health Administration, U.S. Department of Labor.
- **Mutagen** A substance or agent capable of altering the genetic material in a living cell.
- **MW** See Molecular Weight.
- N_2 Nitrogen is a colorless, odorless, and tasteless gas that will not burn and will not support combustion. The earth's atmosphere (air) is about 78 percent nitrogen. At higher concentrations, nitrogen can displace oxygen and become a lethal asphyxiant. See Asphyxiant.
- **Narcosis** A state of stupor, unconsciousness, or arrested activity produced by the influence of narcotics or other chemicals.
- **Nausea** Tendency to vomit, feeling of sickness at the stomach.
- **NCI** National Cancer Institute is that part of the National Institutes of Health that studies cancer causes and prevention as well as diagnosis, treatment, and rehabilitation of cancer patients.
- **NFPA** National Fire Protection Association is an international membership organization which promotes/improves fire protection and prevention and establishes safeguards against loss of life and property by fire. Best known on the industrial scene for the National Fire Codes - 16 volumes of codes, standards, recommended practices and manuals developed (and periodically updated) by NFPA technical committees. Among these is NFPA 704M, the code for showing hazards of materials as they might be encountered under fire or related emergency conditions, using the familiar diamond-shaped label or placard with appropriate numbers or symbols.
- **Neo** See Neoplasia.
- **Neonatal** The first four weeks alter birth.
- **Neoplasia** A condition characterized by the presence of new growths (tumors).
- **Nephrotoxin** A substance that causes injury to the kidneys.
- **Neurotoxin** A material that affects the nerve cells and may produce emotional or behavioral abnormalities.
- **Neutralize** To eliminate potential hazards by inactivating strong acids, caustics, and oxidizers. For example, acids can be neutralized by adding an appropriate amount of caustic substance to the spill.
- **ng** nanogram, one-billionth of a gram.
- **NIOSH** National Institute for Occupational Safety and Health, U.S. Public Health Service, U.S. Department of Health and Human Services (DHHS), among other activities, tests and certifies respiratory protective devices and air sampling detector tubes, recommends occupational exposure limits for various substances, and assists OSHA and MSHA in occupational safety and health investigations and research.
- **Nonflammable** Not easily ignited, or if ignited, not burning rapidly.
- **Non-Sparking Tools** Tools made from beryllium-copper or aluminum-bronze greatly reduce the possibility of igniting dusts, gases, or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids.

MSDS Acronyms and Definitions

- **NO_x** Oxides of nitrogen which are undesirable air pollutants. NO emissions are regulated by EPA under the Clean Air Act.
- **NPIRS** National Pesticide Information Retrieval System is an automated data base operated by Purdue University containing information on EPA registered pesticides, including reference file MSDS's.
- **NRC** National Response Center is a notification center that must be called when significant oil or chemical spills or other environment-related accidents occur. The toll-free number is 1-800-424-8802.
- **NTP** National Toxicology Program. The NTP publishes an Annual Report on Carcinogens. Odor A description of the smell of the substance.
- **Odor Threshold** The lowest concentration of a substance's vapor, in air, that can be smelled.
- **Olfactory** Relating to the sense of smell.
- **Oral** Used in or taken into the body through the mouth.
- **Oral Toxicity** Adverse effects resulting from taking a substance into the body by mouth. Ordinarily used to denote effects in experimental animals.
- **Organic Peroxide** An organic compound that contains the bivalent -0-0 structure and may be considered a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.
- **Organogenesis** The formation of organs during development.
- **OSHA** Occupational Safety and Health Administration, U.S. Department of Labor.
- **Ovary** The female sex gland in which ova are formed.
- **Overexposure** Exposure to a hazardous material beyond the allowable exposure limits.
- **Oxidation** In a literal sense, oxidation is a reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent. See Oxidizing Agent.
- **Oxidizing Agent** A chemical or substance that brings about an oxidation reaction. The Agent may:
  1) Provide the oxygen to the substance being oxidized (in which case the agent has to be oxygen or contain oxygen); or
  2) It may receive electrons being transferred from the substance undergoing oxidation (chlorine is a good oxidizing agent for electron-transfer purposes, even though it contains no oxygen).
- **Pathologic** Pertaining to or caused by disease. Pathology Scientific study of alterations produced by disease.
- **PEL** Permissible Exposure Limit is an occupational exposure limit established by OSHA's regulatory authority. It may be a time-weighted average (TWA) limit or a maximum concentration exposure limit.
- **Percent Volatile** Percent volatile by volume is the percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70° F (unless some other temperature is specified). Examples: butane, gasoline, and paint thinner (mineral spirits) are 100 percent volatile; their individual evaporation rates vary, but in time, each will evaporate completely.
- **pH** The symbol relating to the hydrogen ion (H^+) concentration to that of a given standard solution. A pH of 7 is neutral. Numbers increasing from 7 to 14 indicate greater alkalinity. Numbers decreasing from 7 to 0 indicate greater acidity.

MSDS Acronyms and Definitions

- **Physical Hazard** Means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.
- **Placenta** A structure that grows on the wall of the uterus during pregnancy, through which the fetus is nourished.
- **PMCC** Pensky-Martens Closed Cup. See Flashpoint.
- **Pneumoconiosis** A condition of the lung in which there is permanent disposition of particulate matter and the tissue reaction to its presence. It may range from relatively harmless forms of iron oxide deposition to destructive forms of silicosis.
- **Poison, Class A** A DOT term for extremely dangerous poisons-poisonous gases or liquids that, in very small amounts, either as gas or as vapor of the liquid, mixed with air, are dangerous to life. Examples: phosgene, cyanogen, hydrocyanic acid, nitrogen peroxide.
- **Poison, Class B** A DOT term for liquid, solid, paste or semisolid substance-other than Class A poisons or irritating materials-that are known (or presumed on the basis of animal tests) to be so toxic to humans that they are a hazard to health during transportation.
- **Polymerization** A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction that takes place at a rate that releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS usually will list conditions that could start the reaction and since the material usually contains a polymerization inhibitor-the length of time during which the inhibitor will be effective.
- **ppb** Parts per billion is the concentration of a gas or vapor in air-parts (by volume) of the gas or vapor in a billion parts of air. Usually used to express extremely low concentrations of unusually toxic gases or vapors; also the concentration of a particular substance in a liquid or solid.
- **ppm** Parts per million is the concentration of a gas or vapor in air-parts (by volume) of the gas or vapor in a million parts of air; also the concentration of a particulate in a liquid or solid.
- **Prenatal** Preceding birth.
- **psi** Pounds per square inch (for MSDS purposes) is the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig (pounds per square inch gauge) or psia (pounds per square inch absolute; that is, gauge pressure plus sea level atmospheric pressure, or psig plus approximately 14.7 pounds per square inch). Also see mmHg.
- **Pul** See Pulmonary.
- **Pulmonary** Relating to, or associated with, the lungs.
- **Pulmonary Edema** Fluid in the lungs.
- **Pyrophoric** A chemical that will ignite spontaneously in air at a temperature of 13 °F (54.4 °C) or below.
- **Reaction** A chemical transformation or change. The interaction of two or more substances to form new substances.
- **Reactive** See Unstable.

MSDS Acronyms and Definitions

- **Reactivity** Chemical reaction with the release of energy. Undesirable effects-such as pressure buildup, temperature increase, formation of noxious, toxic, or corrosive byproducts-may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or storage.
- **Reducing Agent** In a reduction reaction (which always occurs simultaneously with an oxidation reaction) the reducing agent is the chemical or substance which (1) combines with oxygen or (2) loses electrons to the reaction. See Oxidation.
- **REL** The NIOSH REL (Recommended Exposure Limit) is the highest allowable airborne concentration which is not expected to injure the workers. It may be expressed as a ceiling limit or as a time-weighted average (TWA).
- **Reproductive Toxin** Substances that affect either male or female reproductive systems and may impair the ability to have children.
- **Respiratory Protection** Devices that will protect the wearer's respiratory system from overexposure by inhalation to airborne contaminants. Respiratory protection is used when a worker must work in an area where he/she might be exposed to concentration in excess of the allowable exposure limit.
- **Respiratory System** The breathing system that includes the lungs and the air passages (trachea or windpipe, larynx, mouth, and nose) to the air outside the body, plus the associated nervous and circulatory supply.
- **Routes of Entry** The means by which material may gain access to the body, for example, inhalation, ingestion, and skin contact.
- **RCRA** Resource Conservation and Recovery Act is environmental legislation aimed at controlling the generation, treating, storage, transportation, and disposal of hazardous wastes. It is administered by EPA.
- **Sarcoma** A tumor that is often malignant.
- **Self-Contained Breathing Apparatus** A respiratory protection device that consists of a supply or a means of respirable air, oxygen, or oxygen-generating material, carried by the wearer.
- **Sensitizer** A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.
- **SETA** Setaflash Closed Tester. See Flashpoint.
- **Silicosis** A disease of the lungs (fibrosis) caused by the inhalation of silica dust.
- **Skn** Skin.
- **"Skin"** A notation (sometimes used with PEL or TLV exposure data) that indicates the stated substance may be absorbed by the skin, mucous membranes, and eyes-either airborne or by direct contact-and that this additional exposure must be considered part of the total exposure to avoid exceeding the PEL or TLV for the substance.
- **Skin Absorption** Ability of some hazardous chemicals to pass directly through the skin and enter the bloodstream.
- **Skin Sensitizer** See Sensitizer.

MSDS Acronyms and Definitions

- **Skin Toxicity** See Dermal Toxicity.
- **Solubility in Water** A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods and re-extinguishing agents and methods for materials.
- **Solvent** A substance, usually a liquid, in which other substances are dissolved. The most common solvent is water.
- **SO_2** Oxides of sulfur.
- **Species** On the MSDS's, species refers to the test animals-usually rats, mice, or rabbits-used to obtain the toxicity test data reported.
- **Specific Chemical Identity** The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any precise chemical designation of a substance.
- **Specific Gravity** The weight of a material compared to the weight of an equal volume of water is an expression of the density (or heaviness) of a material. Insoluble materials with specific gravity of less than 1.0 will float in (or on) water. Insoluble materials with specific gravity greater than 1.0 will sink in water. Most (but not all) flammable liquids have a specific gravity less than 1.0 and, if not soluble, will float on water-an important consideration for fire suppression.
- **Spill or Leak Procedures** The methods, equipment, and precautions that should be used to control or clean up a leak or spill.
- **Splash-Proof Goggles** Eye protection made of a noncorrosive material that fits snugly against the face, and has indirect ventilation ports.
- **Spontaneously Combustible** A material that ignites as a result of retained heat from processing, or that will oxidize to generate heat and ignite, or that absorbs moisture to generate heat and ignite.
- **Squamous** Scaly or plate-like.
- **Stability** The ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions that may cause instability (dangerous change) are stated; for example, temperatures above 150 °F; shock from dropping.
- **STEL** Short-Term Exposure Limit (ACGIH terminology). See TLV.
- **Stenosis** Narrowing of a body passage or opening.
- **Steroid** A complex molecule among which are the male and female sex hormones.
- **Subcutaneous** Beneath the layers of the skin.
- **Supplied-Air Respirators** Air line respirators of self-contained breathing apparatus.
- **Sys** System or systemic.
- **Systemic Poison** A poison that spreads throughout the body, affecting all body Systems and organs. Its adverse effect is not localized in one spot or area.
- **Systemic Toxicity** Adverse effects caused by a substance that affects the body in a general rather than local manner.
- **Synonym** Another name or names by which a material is known. Methyl alcohol, for example, is known as methanol or wood alcohol.

MSDS Acronyms and Definitions

➢ **Target Organ Effects** The following is a target organ categorization of effects that may occur, including examples of signs and symptoms and chemicals that have been found to cause such effects. These examplesare presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but they are not intended to be all inclusive.

(a) Hepatotoxins	Chemicals that produce liver damage.
Signs and Symptoms	Jaundice; liver enlargement.
Chemicals	Carbon tetrachloride; nitrosamines.
(b) Nephrotoxins	Chemicals that produce kidney damage.
Signs and Symptoms	Edema; proteinuria.
Chemicals	Halogenated hydrocarbons; uranium.
(c) Neurotoxins	Chemicals that produce their primary toxic effects on the nervous system.
Signs and Symptoms	Narcosis; behavioral changes; decrease in motor functions.
Chemicals	Mercury; carbon disulfide.

(d) Agents that act on blood hematopoietic system	Decrease in hemoglobin function; deprive the body tissues of oxygen.
Signs and Symptoms	Cyanosis; loss of consciousness.
Chemicals	Carbon monoxide; cyanides.
(e) Agents that damage the lung	Chemicals that irritate or damage the pulmonary tissue.
Signs and Symptoms	Cough; tightness in chest; shortness of breath.
Chemicals	Silica; asbestos.
(f) Reproductive toxins	Chemicals that adversely affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis).
Signs and Symptoms	Birth defects; sterility.
Chemicals	Lead; DBCP.
(g) Cutaneous hazards	Chemicals that affect the dermal layer of the body.
Signs and Symptoms	Defatting of the skin; rashes, irritation

Chemicals	Ketones; chlorinated compounds.
(h) Eye hazards	Chemicals that effect the eye or visual capacity.
Signs and Symptoms	Conjunctivitis; corneal damage.
Chemicals	Organic solvents; acids.

- **Target Organ Toxin** A toxic substance that attacks a specific organ of the body. For example, overexposure to carbon tetrachloride can cause liver damage.
- **TCC** Tag (Tagliabue) Closed Cup. See Flashpoint.
- **TCL** Toxic concentration low, the lowest concentration of a gas or vapor capable of producing a defined toxic effect in a specified test species over a specified time.
- **TDL** Toxic dose low, lowest administered dose of a material capable of producing a defined toxic effect in a specified test species.
- **Temp** Temperature.
- **Ter** See Teratogen.
- **Teratogen** A substance or agent, exposure to which by a pregnant female can result in malformations in the fetus.
- **Tfx** Toxic effect(s).
- **TLV** Threshold Limit Value is a term used by ACGIH to express the airborne concentration of material to which nearly all persons can be exposed day after day without adverse effects. ACGIH expresses TLV's in three different ways:

  - TLV-TWA: The allowable Time-Weighted Average concentration for a normal 8 hour workday or 80-hour workweek.
  - TLV-STEL: The Short-Term Exposure Limit, or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided the daily TLV-TWA is not exceeded).
  - TLV-C: The ceiling exposure limit-the concentration that should not be exceeded even instantaneously.

- **TOC** Tag Open Cup. See Flashpoint.

MSDS Acronyms and Definitions

- **Torr** A unit of pressure, equal to 1/760 atmosphere.
- **Toxic** A chemical falling within any of the following categories:
  (a) A chemical that has a median lethal dose (LD_{50}) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
  (b) A chemical that has a median lethal dose (LD_{50}) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
  (c) A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.
- **Toxic Substance** Any substance that can cause acute or chronic injury to the human body, or which is suspected of being able to cause diseases or injury under some conditions.
- **Toxicity** The sum of adverse effects resulting from exposure to a material, generally, by the mouth, skin, or respiratory tract.
- **Trade Name** The trademark name or commercial trade name for a material or product. transplacental An agent that causes physical defects in the developing embryo.
- **TSCA** Toxic Substances Control Act (Federal Environmental Legislation administered by EPA) regulates the manufacture, handling, and use of materials classified as "toxic substances".
- **TWA** Time-Weighted Average exposure is the airborne concentration of a material to which a person is exposed, averaged over the total exposure time-generally the total workday (8 to 12 hours). Also see TLV.
- **UEL or UFL** Upper explosive limit or upper flammable limit of a vapor or gas; the highest concentration (highest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At higher concentrations, the mixture is too "rich" to burn. Also see LEL.
- **ug** Microgram, one-millionth of a gram.
- **Unstable** Tending toward decomposition or other unwanted chemical change during normal handling or storage.
- **Unstable Reactive** A chemical that, in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shocks, pressure, or temperature.
- **USDA** U.S. Department of Agriculture.
- **Vapor** The gaseous form of a solid or liquid substance as it evaporates.

MSDS Acronyms and Definitions

- **Vapor Density** The weight of a vapor or gas compared to the weight of an equal volume of air is an expression of the density of the vapor or gas. Materials lighter than air have vapor densities less than 1.0 (examples: acetylene, methane, hydrogen). Materials heavier than air (examples: propane, hydrogen sulfide, ethane, butane, chlorine, sulfur dioxide) have vapor densities greater than 1.0. All vapors and gases will mix with air, but the lighter materials will tend to rise and dissipate (unless confined). Heavier vapors and gases are likely to concentrate in low places - along or under floors, in sumps, sewers, and manholes, in trenches and ditches - where they may create health hazards or fires.
- **Vapor Pressure** The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 100 °F, and the vapor pressure is expressed as pounds per square inch (psig or psia), but vapor pressures reported as MSDS's are in millimeters of mercury (mmHg) at 68 °F (20 °C), unless stated otherwise. Three facts are important to remember:
  1. Vapor pressure of a substance at 100 °F will always be higher than the vapor pressure of the substance at 68 °F (20 °C).
  2. Vapor pressures reported on MSDS's in mmHg are usually very low pressures; 760 mmHg is equivalent to 14.7 pounds per square inch.
  3. The lower the boiling point of a substance, the higher its vapor pressure. Ventilation See General Exhaust, Local Exhaust, and Mechanical Exhaust.
- **Vermiculite** An expanded mica (hydrated magnesium-aluminum-iron silicate) used as sorbent for spill control and cleanup.
- **Viscosity** The tendency of a fluid to resist internal flow without regard to its density. Volatility A measure of how quickly a substance forms a vapor at ordinary temperatures.
- **Water Disposal Methods** Proper disposal methods for contaminated material, recovered liquids or solids, and their containers.
- **Water Reactive** A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.
- **Work Area** A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.
- **Workplace** An establishment at one geographical location containing one or more work areas.
- **Zinc Fume Fever** A condition brought on by inhalation of zinc oxide fume characterized by flu-like symptoms with a metallic taste in the mouth, coughing, weakness, fatigue, muscular pain, and nausea, followed by fever and chills. The onset of symptoms occurs four to twelve hours after exposure.

REPOWER Systems	Section III RPSHSE 7.1.9	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

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Section III 7.1.9 WGHSE – 9
Hazardous Waste Operation (HAZWOPER)

Contents

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1.0 Introduction

In review of the **REPOWER USA** general Scope of Work, it is obvious that **REPOWER USA** employees will be involved in Hazardous Waste Operation and Emergency Response at various facilities. Therefore, this Policy and Procedure is to ensure each **REPOWER USA** employee has the appropriate level of Training knowledge to meet the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) requirements for required Training.

The following summarizes the involvement level of **REPOWER USA** employees at various Facilities.

1.1 The HAZWOPER training requirements for on-site workers who are not directly involved in cleanup activities are:

Workers, such as utility workers who must perform duties at a Hazardous Waste Site not yet characterized but where contamination is expected, fall under the scope of **29 CFR 1910.120.** These workers must work under the direction of an on-site supervisor and have a site-specific safety and health plan and must be fully trained and protected pursuant to the Occupational Safety and Health Administration (OSHA) **HAZWOPER** standard. When additional information becomes available through site characterization, which verifies that there is minimal or no risk of employee exposure to hazardous substances, a lesser degree of Personal Protective Equipment (PPE) and worker training may be acceptable.

When site characterization shows that the area to be serviced by workers is free of potential exposure or the proposed work assignments would not expose any of the work crew to hazardous substances, the activity can be carried out as a normal maintenance or construction operation.

The utility contractor is bound to provide at least the minimum number of training hours specified. On a Hazardous Waste Site that has many site-specific peculiarities the employer may need to train employees beyond the 24 to 40 hour minimum set by this policy and procedure. Employees must be provided with the training that prepares them for their job functions and responsibilities, as stated in the general requirements in **29 CFR 1910.120(e).**

2.0 General

The Hazardous Waste Operations address those operations that have been identified by OSHA or EPA as Hazardous Waste Sites. When an employer can successfully demonstrate that their operation does not involve employee exposure or the reasonable possibility for employee exposure to a HSE hazard they may fall under the identified exceptions as outlined in **29 CFR 1910 and 1926.**

All the requirements of **Part 1910 and Part 1926 of Title 29 of the Code of Federal Regulations** apply pursuant to their terms to Hazardous Waste and Emergency Response Operations whether covered by these sections or not. If there is a conflict or overlap, the provision more protective of employee HSE shall apply without regard to **29 CFR 1910.5(c)(1).**

Employers who are not required to have a permit or interim status because they are conditionally exempt small quantity generators under **40 CFR 261.5** or are generators who qualify under **40 CFR 262.34** for exemptions from regulation under **40 CFR Parts 264, 265, and 270** (excepted employers) are not covered by **29 CFR 1910.120(p)(1)** through **(p)(7).** Exempted employers who are required by the Environmental Protection Agency (EPA) or the applicable country, federal, or state agency to have their employees engage in Emergency Response or who direct their employees to engage in Emergency Response are covered by **29 CFR 1910.120 (p)(8)** and cannot be exempted by **29 CFR 1910.120 (p)(8)(i).**

3.0 Definitions

3.1 Buddy System

A system of organizing employees into work groups in such a manner that each employee of the work group is observed by at least one other employee in the work group. The purpose of the **Buddy System** is to provide rapid assistance to employees in the event of an emergency.

3.2 Clean-up Operation

An operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people and/or the environment.

3.3 Decontamination

The removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.

3.4 Emergency Response or Responding to Emergencies

A response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance.
NOTE: Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area or by maintenance personnel are not considered emergency responses within the scope of **29 CFR 1910.120.** Responses to releases of hazardous substances where there is no potential HSE hazard (i.e., fire, explosion, or chemical exposure) are also not considered emergency responses.

3.5 Facility

(a) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit pond, lagoon, impoundment, ditch, storage container, motor vehicle, rolling stock or aircraft, or **(b)** any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise came to be located.

NOTE: This does not include any consumer product in consumer use or any water-borne vessel.

3.6 Hazardous Materials Response (HAZMAT) Team

An organized group of employees, designated by the employer, who are expected to perform work to handle and control the actual or potential leaks or spills of hazardous substances and requiring possible close approach to the substance. The team members perform responses to the releases or potential releases of hazardous substances for the purpose of the control or stabilization of the incident. A **HAZMAT** team is not a fire brigade nor is a typical fire brigade a **HAZMAT** team, however, the team may be a separate component of a fire brigade or fire department.

3.7 Hazardous Substance

Any substance designated or listed under **(a)** through **(d)** of this definition, and when exposed, it results or may result in adverse effects on the health and safety or employees:

(a) Any substances defined under **Section 101 (9) of CERCLA.**

(b) Any biologic agent and other disease causing agent which, after the release into the environment and upon the exposure, ingestion, inhalation, or assimilation into an person either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be expected to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformities in such persons or their offspring.

(c) Any substance listed by the U.S. Department of Transportation (DOT) as hazardous materials under **49 CFR 172.101** and appendices.

(d) Hazardous Waste as herein defined:

Hazardous Waste

(a) A waste or combination of wastes as defined in **40 CFR 261.3**

(b) those substances defined as hazardous wastes in **49 CFR 171.8**

3.8 Hazardous Waste Operation

Any operation conducted within the scope of **29 CFR 1910.120.**

3.9 Hazardous Waste Site

Any facility or location within the scope of **29 CFR 1910.120** at which hazardous waste operations take place.

3.10 Health Hazard

Any chemical, mixture of chemicals, or a pathogen for which there is statistically significant evidence, based on at least one study conducted in accordance with the established scientific principles, that acute or chronic health effects may occur in exposed employees. The term **health hazard** includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, and/or mucous membranes. It also includes stress due to temperature extremes. Further definitions of the terms used above can be found in **Appendix A of 29 CFR 1910.1200.**

3.11 Immediately Dangerous to Life and Health (IDLH)

Any atmospheric concentration of any toxic, corrosive, or asphyxiant substance that poses an immediate threat to life or would interfere with an individual's ability to escape from a dangerous atmosphere.

3.12 Oxygen deficiency

Any concentration of oxygen, by volume, below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen, by volume, is less that 19.5% oxygen.

3.13 Permissible Exposure Level

The exposure, inhalation, or dermal permissible exposure limit specified in **29 CFR 1910, Subpart G and Z.**

3.9 Published Exposure Level

Any exposure limits published in **"NIOSH Recommendations for Occupational Health Standards"**, dated 1986, which is incorporated by reference as specified in **29 CFR 1910.6,** or if none is specified, the exposure limits published in the standards specified by the **American Conference of Governmental Industrial Hygienists** in their publication **"Threshold Limit Values and Biological Exposure Indices for 1987-88"**, dated 1987, which is incorporated by reference as specified in **29 CFR 1910.6.**

3.15 Post Emergency Response

Any portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and the clean up of the site has begun. If the post emergency response is performed by the employer's own employees who were part of the initial emergency response, it is considered to be part of the initial response and not post emergency response. However, if a group of the employer's own employees, separate from the group providing the initial response, performs the clean-up operation then the separate group of employees would be performing the post-emergency response and subject to **Paragraph (q)(11) of this section of 29 CFR 1910.120.**

3.16 Qualified Person (QP)

Any person with specific training, knowledge, and experience in the area for which the person has the responsibility and the authority to control.

3.17 Site Safety and Health Supervisor (or official)

The individual located on a hazardous waste site who is responsible to the employer and has the authority and knowledge necessary to implement the site's Safety and Health Plan and verify compliance with the applicable safety and health requirements.

3.18 Small Quantity Generator

A generator of hazardous wastes who, in any calendar month, generates no more than 1,000 kilograms (2,205 pounds) of hazardous waste in that month.

3.19 Uncontrolled Hazardous Waste Site

Any area identified as an uncontrolled hazardous waste site by a governmental body, whether Federal, State, Local, or other or where an accumulation of hazardous substances creates a threat to the health and safety of individuals or the environment or both. Some sites are found on public lands such as those created by former municipal, county, or state landfills where illegal or poorly managed waste disposal has taken place. Other sites are found on private property, often belonging to generators or former generators of hazardous substance wastes.

- **Examples**

  Are items such as, but not limited to, surface impoundments, landfills, dumps, and tank or drum farms.

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

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Section III 7.1.9A – RPSHSE – 9A
Emergency Action Plan

Contents

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1.0 Introduction

Examples of the type of situations that require emergency procedures are:

- Fires
- Explosions
- Bomb threats
- Medical emergencies
- Oil spills
- Toxic or combustible gas releases
- Floods
- Hurricanes
- Earthquakes

On-Site Supervisors are responsible for ensuring that the Emergency Procedures are available for all emergency situations that may arise within their areas of operation.

In the event of a fire or other life-endangering situation, all employees not assigned specific emergency duties are to evacuate the facility immediately.

THIS SECTION CANNOT COVER ALL THE POTENTIAL SITUATIONS THAT MAY REQUIRE EMERGENCY PROCEDURES. CHECK WITH THE HSE DEPARTMENT, THE OPERATIONS MANAGER, THE PROJECT MANAGER, REVIEW SITE SPECIFIC HSE POLICIES ANDPROCEDURES, DETERMINE THOSE POLICIES AND PROCEDURES THAT MAY BE APPLICABLE TO YOUR SPECIFIC WORK AREA.

2.0 Purpose

The purpose of an emergency action plan is to:

- Describe methods to deal with emergencies
- Define the role and actions of on-site personnel and management
- Define the responsibilities for utilizing and coordinating external resources to assist in dealing with emergencies
- Provide an orderly evacuation plan of personnel and the designated responsibilities for the notification of the police, fire authorities, emergency response teams, or other public assistance resources

3.0 Identification of an Emergency

Fires, explosions, gas releases, chemical spills, natural disasters, and other similar dangerous circumstances will be treated as emergencies. It is the responsibility of every individual on-site to immediately report any emergency that is discovered to the shift Operations Personnel.

Facilities that are not operated on a 24-hour/day basis are required to have **on-call** representatives to handle emergency situations.

Legal aspects, such as claims, should be promptly reported to the HSE Department for handling and processing.

4.0 Guidelines for Emergency Response

4.1 General

All the actions undertaken by **REPOWER USA** employees or personnel under **REPOWER USA** supervision will comply with all the pertinent Federal, State, and Local Regulations.

The priority of concern during an emergency situation is:

- HSE protection of personnel working in the emergency area
- Environment
- Facilities and Company property
- Minimum loss of production

4.2 Classification of an Emergency

The Operations Personnel will immediately notify the Management-in-Charge or the designee for an investigation of the situation and the classification of the emergency.

The recommended priority is as follows:

- **Incidental Emergency - No Assistance Required** - the On-site personnel and resources can handle this situation.
- **Incidental Emergency - Assistance Required** - the On-site staff needs additional personnel and/or resources from the outside.
- **Major Emergency** - Facility needs to be shutdown and evacuated.
- **False Alarm** - No emergency situation exists.

5.0 Emergency Response Procedures

5.1 Incidental Emergency – No Assistance Required:

- Operations Manager, Project Manager, Field Superintendent, or a designee is authorized to direct all actions
- Sound the facility **emergency alarm**

- Communicate the facts of the situation and the actions to be undertaken to all the individuals on the Emergency Notification List
- All the work in progress is to cease immediately and be secured as best possible. All the on-site personnel to are proceed to the designated emergency stations for directions
- Bring the emergency situation under control as quickly as possible
- If this cannot be done or the situation worsens, outside assistance must be obtained
- If at any time the situation gets out of control, the facility will be shutdown and evacuated as detailed below

5.2 Incidental Emergency – Assistance Required

- Operations Manager, Project Manager, On-Site Field Superintendent/Supervisor, or the designee has the authorization to direct all actions
- Sound the facility **emergency alarm**
- Communicate the facts of the situation and the actions to be undertaken to all the individuals on the Emergency Notification List
- Contact and request outside resources, as required
- All the work in progress is to cease immediately and be secured as best possible
- All the on-site personnel are to proceed to the designated emergency stations for directions
- Work to control the emergency situation as best as possible until the outside resources arrive
- Bring the emergency situation under control as quickly as possible
- If this cannot be done or the situation worsens, additional outside assistance must be obtained
- If at any time the situation gets out of control, the facility will be shutdown and evacuated as detailed below

5.3 Major Emergency

- Operations Manager, Project Manager, On-Site Field Superintendent/Supervisor, or the designee has the authorization to direct all actions
- Sound the facility **evacuation alarm** and shutdown the facility or operation
- Communicate the facts of the situation and the actions to be undertaken to all the individuals on the Emergency Notification List
- All the work in progress is to cease immediately and be secured as best possible
- All the on-site personnel are to evacuate the facility as detailed below
- **Emergency shut-down** essentially stops all facility operations and functions

- It is mandatory that all job sites have an emergency action plan and shut-down procedures
- All employees must become familiar and learn the shut-down procedures for their facilities
- It is the responsibility of all the supervisors to teach their employees the process required to shut-down their operation and function
- Refer to the On-Site Operations Manual for your facility for detailed shutdown procedures on the various systems if required
- **EXAMPLE:** Emergency plant shutdown (typical plant operation)
  - Manually pushing the ESD button on the main control panel
  - Manually pushing the ESD button at the station locations
  - Fire Detection systems
  - Combustible Gas Detection systems

5.4 False Alarm

- Operations Manager, Project Manager, On-Site Field Superintendent/Supervisor, or the designee is to note a report of the false alarm in the shift log book
- Operations Manager, Project Manager, On-Site Field Superintendent/Supervisor, or the designee is to review the investigation findings with the individual(s) who first reported the emergency situation
- Normal operation of the facility is to continue

6.0 Evacuation Guidelines

- Personnel evacuating the facility must use the most expeditious means available, as designated for their facility
- All the **non-essential** personnel must evacuate the facility immediately upon hearing the evacuation alarm and proceed to the designated safe area for staging
- All the remaining personnel will evacuate the facility and proceed to the designated safe area after the facility emergency shutdown sequence is initiated and all the non-essential personnel have been evacuated
- As soon as possible, the Manager-in-Charge or the designee will account for all the personnel on-site prior to the emergency signal and evacuation
- The Manager or designee will coordinate with any outside resources that are required and summoned to de-fuse the emergency situation
- If the facility is shutdown and evacuated, it will not be re-started until an investigation into the cause and effect of the emergency is concluded and management provides authorization

7.0 General Procedures

- As soon as possible, the Operations Manager, the Project Manager, the On-Site Supervisor, or the designee will appraise the situation to determine the cause and document any information needed to conduct a thorough investigation into the Root Cause of the emergency.
- The name and affiliation log for all personnel will be maintained on-site. This will be used to account for all personnel during and after an emergency.

NOTE: NO PERSONNEL PERMITTED ON-SITE UNLESS LOGGED-IN. THIS *INCLUDES TIME THEY ENTERED AND TIME THEY DEPARTED.*

- Any individual who is unclear about their duties and responsibilities should contact and obtain clarification from the On-Site Field Superintendent/Supervisor. The Manager-in-Charge or the designee should then be contacted if additional clarification is required.
- All reported emergencies will be investigated.

8.0 Alarm Descriptions

A typical sequence of alarms will signal emergency situations as follows:

- **Emergency Alarm** - Intermittent Siren Sound
- **Evacuation Alarm** - Continuous Siren Sound
- **All Clear Signal** - Series Two Long and Two Short Siren Sounds

LEARN ALARM SIGNALS IN YOUR AREA OF OPERATION AND WORK LOCATION.

9.0 Training

All on-site personnel must be trained in and be familiar with the Emergency Action Plan(s). This includes permanent employees, contract employees, and visitors to the facility.

The written emergency procedures are only effective if they are implemented and carried out properly. Drills are the best way to test the effectiveness of the procedures in place. Drills must be conducted and documented routinely. The results from these drills will be monitored and additional training conducted as required.

Personnel who are required and expected to respond to emergencies should receive training on a regular basis. Some personnel may require specialized training, such as OSHA's **HAZWOPER** regulations, which is required to respond to the spills or releases of hazardous substances. Consult with the HSE Department or the Department/Operations Manager for the current training requirements.

B

REPOWER Systems	Section III RPSHSE 7.1.9B	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.9B RPSHSE – 9B
Naturally Occurring Radioactive Material (NORM)

Contents

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1.0 Introduction

Radiation has always been a natural component in our environment. There are two natural radiation sources: Cosmic rays external to the earth and radiation from the **Naturally Occurring Radioactive Materials** (NORM) found in the earth's crust.

A low-level radioactive scale can be produced in the course of some oil and gas operations. This occurs when **NORM** dissolves into the reservoir water. The production of oil and gas moves **NORM** to the surface where it can accumulate at low levels in processing and transport equipment. **NORM** is not found at all locations.

Past studies indicate that the actual health risk to personnel from external exposure to low levels of NORM is essentially nil; however, precautions should always be taken, as needed, to ensure personnel cleaning or servicing production equipment is not exposed to any significant buildup of NORM.

Naturally occurring radioactive material deposits may be found in the following areas:

- Piping, tubing, tank bottoms
- Sludge pits, brine, and sand filters
- Salt water disposal injection wells and equipment
- Soils at well sites
- Pipe cleaning and storage yards
- Wellheads, headers, treater units, separators
- Pumps within natural gas processing plants, produced water vessels, and other light hydrocarbon processing facilities.

2.0 Radiation

There are three primary categories of radiation that might be encountered in a field survey: (1) alpha , (2) beta , and (3) gamma. Each of these has unique properties that must be considered in selecting an instrument for use. Alpha particles are simply energetic helium ions, i.e., atoms that have lost their electrons. Because of their large size (compared to other forms of radiation) and high charge, they will not penetrate through much matter. Beta particles are ... They will penetrate through more material than alphas but generally can be stopped by a thin piece of metal.

Gamma radiation is simply high energy light and is the most penetrating of the radiation types. Very high energy gammas can penetrate through several centimeters of lead.

There are hazards associated with the exposure of humans to radiation but if the exposure is limited to low levels that hazard is not very serious. In fact, humans are exposed to natural background radiation every day.

Naturally Occurring Radioactive Materials can be found in the soil, building materials, certain foods, and even the human body. The unit used to quantify the radiation dose received by an individual is the Roentgen Equivalent of man (REM). The average dose, due to natural background radiation and natural radioactive materials in the environment, is about 0.2 REM/year to an individual in the United States.

The actual health risk from low levels of radiation is quite small. There is no direct evidence that low doses to radiation can threaten the health of humans. All of the estimates of the health risks associated with radiation have been extrapolated from studies of people who have received doses equivalent to hundreds of **REM**. It has been assumed that very low levels of radiation would affect the body in the same way as these very high doses, only with proportionately less damage. As radiation passes through matter, it may interact and lose energy. The damage done by radiation as it interacts with the body results from the way it affects molecules essential to the normal functioning of human cells. One of four things may happen when radiation strikes a cell: (1) the radiation may pass through the cell without doing any damage , (2) the cell may be damaged but repair itself , (3) the cell may be damaged so that it not only fails to repair itself but reproduces in damaged forms over a period of years , or (4) the cell may be killed. The death of a single cell may not be harmful since the body can readily replace most cells but problems will occur if so many cells are killed that the body cannot properly function. Incompletely or imperfectly repaired cells can lead to delayed health effects such as cancer, genetic mutations, or birth defects. Again, it is important to recognize that the risks from radiation are small. For example, the statistical risk of a cancer death from 7 milli **REM** of radiation is equivalent to that associated with smoking a single cigarette.

Radiation cannot be detected by any of the human senses. We cannot taste, smell, feel, see it, or hear it. Because of this, we must rely upon instruments that respond to an interaction between the radiation and the instrument itself. Radiation is nothing more than energetic particles or photons.

As the radiation passes through matter, it interacts with the material's electrons to lose some of the energy. This energy results in either the excitation or ionization of atoms. Depending upon the type of detector, either the excitation or the ionization is sensed, quantified, and the instrument produces a response that is proportional to the total amount of radiation that is present in the area being monitored or surveyed.

Portable survey instruments are calibrated to read out in either counts per minute (CPM) or in direct units or radiation intensity, such as milli Roenten/hour (mR/hr) or micro-roentgen/hour (µR/hr).

Instruments reading out in mR/hr and μR/hr are used to measure extended radiation fields such as that experienced in the vicinity of radioactive materials storage or disposal sites. Instruments that read out in CPM are usually used to monitor for low-level surface contamination, particularly on hard non-porous surfaces.

One of the difficulties in measuring radiation is that there is always some background level of radiation present. This background will vary with location; some regions of the country will have higher backgrounds than others and brick buildings will have higher backgrounds than wooden buildings, etc. Because of this variation, when any survey instrument is used, a determination of local background must be made in an area that is not believed to contain any radioactive materials. Any reading significantly above the background (two to three times the background) is indicative of the presence of radioactive materials. Background levels throughout the United States will typically range between 5 and 9B0 μR/hr. The United States Environmental Protection Agency (EPA) limits the radiation exposure to workers to 1mR/hr above the background. This action level is contained in the EPA's Standard Operation Safety Guides.

The detectors used in most portable survey instruments are gas-filled or scintillation devices. The gas-filled detectors measure the amount of ionization in the gas that is caused by the radiation entering the detectors. This is accomplished by establishing a voltage potential across a volume of gas. When the gas is ionized, the current that flows between the electrodes producing the potential can be measured. The amount of current is directly proportional to the amount of radiation that enters the detector. Scintillation detectors depend upon the light that is produced in a crystal plastic of certain compounds when the material's atoms are excited by interactions with the radiation.

The amount of light produced is measured and converted to an easily monitored electrical signal by a photomultiplier tube. There are gas-filled and scintillation detectors designed to detect all three of the radiation types of interest in field surveys.

The most obvious difference in the detectors used for different radiation types is the manner in which radiation can enter the sensitive volume of the detector. Many gamma survey instruments will not appear to have a detector but only an electronics box. This is because the gammas can easily penetrate the metal electronics enclosure and the detector is placed inside where it is protected from damage. The Ludlum Model 19 Micro R meter is an example of such a detector. Alpha and beta detectors must have thin entrance windows so that these particles can enter the sensitive volume.

Some gas filled detectors are designed with a thick metal shield so they can discriminate between betas and gammas; with the shield open, the detector is sensitive to both betas and gammas; with it closed, it will detect only gammas, since the shield absorbs the betas before they can interact with the detector.

A good survey meter should be portable, rugged, sensitive, simple in construction, and reliable. Portability implies lightness and compactness with a suitable handle or strap for carrying. Ruggedness requires that an instrument be capable of withstanding mild shock without damage. Sensitivity demands that an instrument will respond to the type of energy level of the radiation being measured. Rarely does one find an instrument capable of measuring all types of energies of radiation that are encountered in practice. Simplicity in construction necessitates the convenient arrangement of components and simple circuitry comprised of parts that may be replaced easily. Reliability is that attribute that implies the ability to duplicate responses under similar circumstances.

2.1 Ludlum Model 19 Micro R Meter

The Ludlum Model 19 Micro R Meter is designed to monitor low-level gamma radiation. The instrument utilizes an internally mounted sodium iodide scintillator crystal. The meter face has two scales, one in black representing 0-50 μR/hr, and one in red representing 0-25 μR/hr. The meter range is controlled with a six position switch: OFF, 5000, 500, 250, 50, and 25. The full-scale reading of the meter is equal to the switch setting; the red scale corresponds to the 25 and 250 position and the black scale to the other three positions. As an example, if the switch is in the 500 position and the meter pointer is aligned with the "30" scale marking, the radiation field is 300 μR/hr.

The Ludlum Model 19 is equipped with five additional switches or buttons. One button, labeled L, lights the meter face while depressed. This allows accurate readings in poor lighting conditions. The BAT button tests the battery condition. If the batteries are good, the meter pointer will deflect to the "batt OK" portion of the scale. The audio switch controls the audible signal; in the ON position, a "beeping" signal accompanies each radiation event that is detected. The switch marked with the F and S controls the meter response; the S (slow) position is used for most applications, although in conditions where the radiation level is changing rapidly, the F (fast) position will provide a better representation of the radiation level. The remaining button resets the detector to operate at high voltage should a transient pulse cause it to be disabled.

2.2 Detector Probes

Detector probes will fall into two major categories: gas-filled detectors and scintillation detectors. These have been briefly discussed in the introduction section. This section will describe a few of the most commonly used probes.

The Geiger-Mueller (GM) pancake probe is very common and is most valuable for monitoring for surface activity on equipment, bench-top, soil surface, and personnel. The probe may be used to monitor alpha, beta, or gamma radiation. The sensitive volume of the detector is covered with a thin mica window about 1.75 inch diameter. This window allows the detection of alphas and low energy betas. The fragile window is protected by a metal screen and care must be taken to avoid puncturing it.

End-window GM probes may also be used for alpha, beta, and gamma monitoring. These tubes are generally cylindrical, about 6-8 inches long and have mica entrance windows about 1 inch in diameter. The window usually does not have a protective screen and is easily punctured. Because of its configuration, this tube is not as convenient as a pancake probe for surface monitoring. Also, because of the smaller entrance window, it is less efficient for detecting alphas and betas.

Thin walled GM probes are used for beta and gamma detection. The tube is constructed within steel walls through which betas can pass. The tube is housed in a protective cage fitted with a moveable steel shield. With the shield in place, betas are absorbed and only gammas can be detected. When the shield is moved away from the cage opening, the detector is sensitive to both betas and gammas.

Scintillation probes are available for alphas, betas, and gammas. They differ in the type of scintillator used and the detector housing. Alpha detectors are made of thin activated zinc sulfide crystals. The beta detectors generally use thin scintillation plastic crystals. Gamma probes use thick crystals of activated sodium iodide. Beta and alpha probes have entrance windows of thin aluminized mylar. This window protects the detector from light, which would be sensed by the photomultiplier as if it were a high radiation field. Care must be taken not to puncture the window.

The alpha probes often have large surface areas (50-9B0 cm^2) to allow the efficient detection of low levels of alpha contamination. The gamma detectors are usually housed in an aluminum shell. This shell is not easy to puncture and is quite rugged, although dropping it or banging it against a hard object may break the crystal or the photomultiplier.

2.3 Personnel Dosimeters

The amount of the radiation dose received by an individual working in a radiation field is measured by the use of personnel dosimeters. Two types that are frequently used are the direct reading dosimeter and the thermoluminescent dosimeter (TLD).

The direct reading dosimeter provides an immediate indication of the gamma radiation dose the wearer has received.

By checking his dosimeter periodically, the wearer can get an up-to-the-minute estimate of the total gamma dosage he/she has received. Only gamma radiation is measured. There is not way that beta radiation can penetrate the walls of the dosimeter to cause ionization.

Inside the detection chamber of the dosimeter is a stationary metal electrode with a movable quartz fiber attached to it. The dosimeter is charged so that both the electrode and the fiber are positively charged. Since both are positively charged, they repel each other, and the movable fiber moves as far away from the electrode as it can.

When gamma radiation causes ionization in the detection chamber, the negative ions move to the positively charged electrode or fiber. The action reduces the positive charge and allows the fiber to move a little closer to the stationary electrode. The movement of the fiber, then, is a measure of the amount of gamma radiation absorbed by the detector.

In direct reading pocket dosimeters, a scale is placed so that the hairline on the scale is the movable fiber. As the fiber moves, the scale indicates the total amount of gamma radiation absorbed by the dosimeter. A magnifying glass inside the dosimeter enables the scale to be read. This provides an immediate estimate of an individual's total gamma exposure.

Anyone who is instructed to wear a direct reading dosimeter should make sure that it is properly charged. When a dosimeter is properly charged, there is sufficient potential between the electrode and the fiber that the fiber is significantly displaced and the hairline on the scale reads near zero. In general, a dosimeter is adequately charged if it reads below 9BmR.

If a dosimeter is not properly charged, a charger must be used to charge it before it can be worn. The dosimeter is pushed into the charger, and the charger control is turned until the dosimeter is zeroed. The dosimeter must be checked again after it is taken out of the charger. Sometimes the hairline shifts when the dosimeter is removed from the charger and the dosimeter will have to be readjusted so that the hairline will end up at or near zero.

Since the direct reading dosimeter measures the whole-body gamma radiation dosage, it should be worn in the major trunk area. When using a dosimeter care must be taken not to bang or drop it. Rough treatment may cause the electrode to discharge completely, sending the hairline all the way upscale.

Thermoluminescent dosimeters (TLDs) are often used for beta and gamma whole-body measurements. Inside the TLD is a very small quantity of crystalline material called a detector chip that is used to measure beta and gamma exposure. A typical detector chip is approximately 1/8 inch across and 1/32 inch thick.

To understand how a detector chip measures radiation, we first need to go through a short review of electron energy levels. As we know, electrons in a solid material prefer to be in their ground energy state. This is especially true for a crystalline material. If radiation imparts enough energy to one of these electrons, the electron will jump up to a higher unstable energy level. However, since the electron prefers to be in the ground state, it will drop to the ground state and emit the extra energy in the form of heat, x-rays, or light.

In TLD material, there is an in-between state called a metastable state which acts as an electron trap. When radiation strikes the ground state electron, the electron jumps up and is trapped in the metastable state. It remains there until it gets enough energy to move it up to the unstable state. This energy is supplied when the TLD chip is heated to a high enough temperature. Then the electron will drop back down to the ground state, and, because the TLD chip is a luminiscent material, it will release its extra energy in the form of light. The total quantity of light emitted by electrons returning to the ground state is proportional to the number of electrons that were trapped in the metastable state. The number of electrons trapped in the metastable state is proportional to the amount of beta and gamma radiation that interacts with the material. This means the amount of light emitted when the TLD is heated is proportional to the total amount of beta and gamma radiation interacting with the material.

In the photomultiplier tube, electrons are produced in the photocathode, multiplied across the dynodes, and finally collected on the anode. This then produces a pulse in the circuit that is proportional to the total amount of beta and gamma radiation absorbed by the TLD material.

There are several reasons for using TLDs instead of film badges. One reason is size. TLD chips are so small that they can be taped to the fingers to measure exposure to the extremities without interfering with work. A second reason is sensitivity. The TLD is generally more sensitive than a film badge, more accurate in the low mR range, and able to provide a better overall indication of the total beta/gamma dosage received. A third reason is that the TLD chip can be reused after it is read.

As with the direct reading dosimeter, the TLD is normally worn in the major body region to give the best indication of the whole-body dosage. There are times, however, when these devices might be worn on other parts of the body. For example, a TLD might be moved to an arm or a leg if these portions of the body might receive more radiation than the trunk area. An additional device such as a finger ring might also be used to measure an extremity dose. A finger ring contains a TLD chip to measure absorbed dose from beta and gamma radiation.

3.0 Precautions

- The proper protective equipment, including respiratory or breathing air, should always be worn when entering contaminated vessels.
- Avoid direct skin contact with the radioactive scale and solids to a reasonable extent.
- Eating, drinking, smoking, and chewing should not be allowed in the work area.
- Personnel should thoroughly wash hands and face following any skin contact that occurs, prior to eating or drinking, smoking, and at the end of the work.
- The number of personnel in the work area should be kept to a minimum.
- Surface contamination should be handled in the wet state to avoid inhaling NORM contaminated scale.
- Contaminated equipment that is to be opened should be removed from service, vented, and left to stand idle for four (4) hours before work commences.
- Sludge and scale removal activities will be conducted in well-ventilated areas.
- Contaminated protective equipment and clothing should be handled in accordance with the approved waste disposal procedures.
- Contaminated equipment, pipes, etc., should be disposed of in accordance with the approved waste and surplus equipment disposal procedures.

Forms

Section III
7.1.9 WGHSE – 9
Hazardous Waste Operation (HAZWOPER)

Form 1 – Definitions - HAZWOPER

Definitions

Hazardous Material

A substance or waste is defined as hazardous if it poses and unreasonable risk to health, safety and property when transported in commerce and is thus designated **"hazardous"**

There are a number of chemical and physical characteristics that can cause a material to be dangerous or harmful to human life, the environment, or both.

These include

- Explosivity
- Flammability
- Instability/Reactivity
- Oxidizing ability
- Toxicity (poison)
- Infectiousness
- Radioactivity
- Corrosivity

Some materials may exhibit more than one of these characteristics.

To determine whether a given material is considered hazardous and must be regulated for transportation, consult the list of hazardous materials that have been compiled by US Department of Transportation (DOT).

These lists are found in the **Hazardous Materials Table** and its appendix (49 CFR 172.101).

Whether you are preparing for transport, transporting, or receiving any material you should assume that it is **"hazardous"** until it is proven otherwise.

Flash Point

The lowest temperature at which a liquid produces enough vapors to mix with the surrounding air and form an ignitable mixture.

Hazard Materials Table - Classes and Divisions

One of the most important pieces of information furnished in the DOT Hazardous Materials Table is the hazard class or division to which each listed material belongs.

Hazardous materials are organized into nine classes based on the characteristics that make them hazardous. Several of the classes are subdivided into divisions. These classes and divisions are recognized internationally and are referred to as United Nations, or UN, classes or divisions. Do not confuse the UN classes and divisions with the UN identification numbers that are assigned to individual chemicals or groups of chemicals.

Grouping materials with similar hazards together makes it easier to deal with packaging, labeling, and responding to an emergency.

Class 9

Two special categories of hazardous materials are hazardous substances and hazardous wastes.

Hazardous Substances

A hazardous substance is any material that has been designated as a hazardous substance under the **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA),** better known as **Superfund.**

Appendix to the Hazardous Materials Table

List of Hazardous Substances and Reportable Quantities.

It contains two tables of hazardous substances:

- **Table 1** - lists approximately 1,000 specific chemical elements or compounds plus and approximately 170 waste streams.
- **Table 2** - lists almost 800 radionuclides - the radioactive forms of elements.
  The table also lists the reportable quantity, or RQ, of each substance. Any spill of an amount equal to or greater than the reportable quantity of a substance must be reported to the proper authorities.

Hazardous Wastes

Hazardous Wastes are any material that is subject to the hazardous waste manifest requirements of the U.S. Environmental Protection Agency (EPA).

Federal Hazardous Wastes are divided into two groups

- Listed wastes are hazardous by virtue of the process that generated them.
- Characteristic wastes are hazardous only if they exhibit a hazardous characteristic.

HAZMAT Employer

An employer that uses one or more of its employees in connection with any of the following:

- Transporting, loading, unloading, storing or handling hazardous materials in commerce.
- Causing hazardous materials to be transported or shipped in commerce.
- Representing the marking, selling, offering, reconditioning, testing, repairing, or modifying containers, drums, or packaging as qualified for use in the transportation of hazardous materials.

HAZMAT employers include the owner-operators of the motor vehicles, water vessels, railcars, or aircraft used to transport hazardous materials in commerce.

HAZMAT Employee

A person who is employed by a **HAZMAT** employer and who, in the course of employment, directly affects the hazardous materials safe transportation. This term includes an individual, a self-employed individual, or one employed by a **HAZMAT** employer who, during the course of employment:

- Loads, unloads, or handles hazardous materials
- Test, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packaging as qualified for use in the transportation of hazardous materials
- Prepares hazardous materials for transportation
- Is responsible for safely transporting hazardous materials

- Operates a vehicle used to transport hazardous materials.

Section III
7.1.9 WGHSE – 9
Hazardous Waste Operation (HAZWOPER)

Form 2 - DOT Training Categories

DOT Training Categories

TRAINING CATEGORIES	APPLIES TO	PURPOSE
General Awareness	All **HAZMAT** employees	Familiarization with DOT regulations; Recognize and identify hazardous materials
Function Specific	All **HAZMAT** employees	Knowledge and skills to fulfill specific job requirements
Safety Training	Either or both: 1. Handle or transport hazardous packages; 2. Potential for exposure	Personal protective measures; Emergency response information. Applies to Supervisors other affected employees.
Driver Training	Drivers of motor vehicles who carry hazardous materials	Pre-trip safety inspections; Operating emergency equipment; Loading and unloading; Procedures for highway hazards - tunnels, bridges, railroads, etc.

Section III
7.1.9 WGHSE – 9
Hazardous Waste Operation (HAZWOPER)

Form 3 - Hazardous Materials Classes and Divisions

Hazardous Materials Classes and Divisions (Page 1)

DOT CLASS	DIVISIONS		COMMENTS
Class 1 EXPLOSIVES	6 Divisions	1.1 - most dangerous 1.6 - least dangerous	Classification codes consists of division No. plus upper case letter, for storage and transporting controls.
Class 2 GASES	3 Divisions	2.1 - Flammable Gas 2.2 - Non-Flammable, Non-poisonous, Compressed Gas 2.3 - Poisonous Gas	2.1 - readily ignite. 2.2 - hazardous due to high pressure, potential for human suffocation and cryogenic (freeze human tissue). 2.3 - poisonous when inhaled.
Class 3 Flammable Liquids; Combustible Liquids			Fl. Liq.- Flash point 141 degrees F or less. C. Liq.- Flash point above 141 and below 200 degrees.
Class 4 Flammable Solids; Spontaneously Combustible; Dangerous When Wet	3 Divisions	4.1- Flammable Solid 4.2- Spontaneous Combustible 4.3- Dangerous When Wet	4.1- Cause fire through friction and easily ignite or decomposition cause high heat. 4.2- Pyrophorics- ignites within 5 minutes of contact with air. Ignites below 130 degrees F; or self-heats with air causing ignition or temperature above 392 degrees F during 24-hr. period. 4.3- With water ignites or gives off flammable or toxic gas at a rate of 1 liter/kg or greater.
Class 5 OXIDIZERS	2 Divisions	5.1- Oxidizers 5.2- Organic Peroxides	Chemicals that provide excess O2 during combustion, enhancing fire or explosion. 5.1- By generating O2, enhances combustion of other materials. 5.2- Derivative of hydrogen peroxide which contains O2 and H2 fuel to burn.
Class 6 POISONOUS MATERIALS; INFECTIOUS SUBSTANCES	2 Divisions	6.1- Poisonous materials 6.2- Etiological Agents	6.1- nongaseous materials very toxic to humans if swallowed, absorbed through skin, or inhaled. 6.2- Organisms or their toxins causing severe disabling or fatal diseases.

Hazardous Materials Classes and Divisions (Page 2)

DOT CLASS	DIVISIONS		COMMENTS
Class 7 RADIOACTIVE MATERIALS			
Class 8 CORROSIVE MATERIALS		Measured on pH scale of 0 to 14; 7 being neutral. Acids - ph less than 7 Bases -pH greater than 7.	Solid or liquid causing destruction to human skin on contact; or any liquid causing severe corrosion on steel or aluminum.
Class 9 Misc. HAZARDOUS MATERIALS- 1. HAZARDOUS SUBSTANCES 2. HAZARDOUS WASTES		SEE BELOW**	Hazardous Waste materials not included in Class 1-8; any material having anesthetic, noxious, or other similar property.

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 1 – Fire Emergency Plan (EXMPLE)

Fire Emergency Plan

➢ **If you see SMOKE or FIRE, immediately do all of the following:**

- Trip the nearest fire alarm (if provided) or report the fire by telephone. immediately to the Client Fire/Security and the **WGHIT** On-Site Field Superintendent/Supervisor
- Call the Fire Department **(LOCAL FIRE DEPT NO.)** _____
- Announce it to all personnel immediately
- Follow the steps found below
- **DO NOT go to the Scene** of the fire unless specifically instructed to do so

➢ **INFORMATION to be given to the FIRE DEPARTMENT**

- What is on fire
- Physical Address
- Type of Occupancy or building
- Where the fire is located
- The telephone number
- Listen to the Fire Department or 911 Dispatcher
- **IF APPLICABLE, REMAIN ON THE TELEPHONE LINE UNTIL DISPATCHER HAS OBTAINED ALL THE CRITICAL INFORMATION**

➢ **Emergency Procedures shall be done in the following order:**

- Trip the nearest fire alarm (if provided)
- Isolate the fire by closing all the doors, if possible
- Notify the fire department
- Notify all personnel immediately
- Extinguish the fire with a fire extinguisher, if possible
- **DO NOT** fight a fire alone
- If the fire continues to grow…evacuate
- Never fight a fire without the proper training in the use of fire extinguishers and, using good sound judgement, the fire can be extinguished quickly, thus minimizing the hazard.

- **Evacuation Procedures:** If fire is detected or an announcement is made to evacuate
  - Stay Calm
  - Leave at the exit nearest to your location (Reference Evacuation Plan for your facility)
  - Close all the doors behind you as you leave the area, if possible
  - Insure the area is evacuated as you leave - check for your neighbor
  - **DO NOT** reenter the facility until receiving the clearance to do so
  - Employees should gather at the designated location for your facility Plan
  - Check-In with your manager to let them know that you are out of the building
  - Remain at the designated assembly area until notified by the authorities or until the **All Clear Signal** is sounded

- **Fire Drills**
  - Fire drills will be held and documented frequently

All incidents of this nature must be reported to the HSE Department within 24 hours.

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 2 – Medical Emergencies

Medical Emergencies

In the event of injuries, use the following procedures:

- Provide first aid for the injured to the extent that you are trained or qualified
- If there is an emergency, have another person get help for the injured
- Transport non-emergency injuries to the doctor's office
- An ambulance service is to be utilized only when the injury, due to its nature, rules out all other means of transportation
- **NOTE:** Call prior to the transport to ensure the doctor's availability and for alternate instructions in the event a hospital is recommended
- Return the operation to a safe condition (if this can be done safely) or shutdown the function or operation
- Notify your supervisor
- Secure the facility and control access to the area
- Do not discuss the incident with anyone other than your supervisor or Company safety personnel
- **DO NOT** relinquish control of the scene to anyone outside of **REPOWER USA** and/or Client personnel
- Handle the contractor or public incident accidents in the same manner, except that the Contractor's On-Site Supervisor or main office should be notified as soon as possible
- In the event of a public injury, the public law enforcement agency with jurisdiction should be notified

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 3 - Vehicle Accident

Vehicle Accidents

If you are involved in an accident, IT MUST BE REPORTED and handled according to the following guidelines:

- If you are involved in an accident, **STOP**
- If the vehicles pose additional danger for injury or damage, set out emergency reflectors or flares in order to protect yourself and others
- Get help for injured persons. Render first aid care to the extent you are trained or qualified
- Notify the police and your supervisor as soon as possible by whatever means available.
- Obtain the necessary information at the accident scene to the best of your ability. At the least, obtain:
  - Name(s) of those involved
  - Driver's license numbers
  - Vehicle license plate numbers
  - Name(s) of the law enforcement agency responding to the accident. (Names and badge numbers would be desirable.)
  - Names and phone numbers of witnesses
- Return to the office and complete the Vehicle Accident Report with your supervisor

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 4 - Oil Spills

Oil Spills

In certain areas, Spill Prevention, Containment, and Countermeasure (SPCC) plans have been developed to comply with certain environmental regulations. **BECOME FAMILIAR WITH THESE PLANS.**

If a SPCC plan or other spill control plans are not in place, the following procedure should be used:

- Observe and judge
  - Whether or not a human life, property, or the environment is in danger
  - Whether or not the spill can be readily stopped or brought under control, without an undue risk to life
- Report the spill immediately to the On-Site Field Superintendent/Supervisor and the designated Client Representative and give an assessment of the situation.
- If it is safe to do so, get information on the spilled material, control entry to the spill site, communicate the need for any additional assistance or equipment, and watch over the area until help arrives.
- Take prompt action to alleviate any danger and stop or control the spill.
- **DO NOT** attempt to clean-up spills without direction and/or training.
- If trained at the First Responder Operations Level, dike around liquid spills to prevent drainage into the water supply and contact with other materials.
- Check the Material Safety Data Sheet (MSDS) for the personal protection equipment requirements and for disposal instructions and precautions.

THE ON-SITE FIELD SUPERINTENDENT/SUPERVISOR WILL BE RESPONSIBLE FOR NOTIFYING MANAGEMENT AND REQUIRED GOVERNMENT AGENCIES.

Incidents of this nature must be reported to the HSE Department within 24 hours.

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 5 - Toxic or Combustible Gas Release

Toxic or Combustible Gas Release

Emergency procedures are required by regulation for certain toxic gases, one of the most common being hydrogen sulfide. In addition, regardless of the absence or presence of regulations, specific procedures may be developed for toxic or combustible gas releases at the discretion of management.

BECOME FAMILIAR WITH THOSE PLANS THAT ARE IN EFFECT IN YOUR WORK AREA FOR TOXIC OR COMBUSTIBLE GAS RELEASES.

In general, the following procedures should be used for toxic or combustible gas releases:

- Analyze the situation
- Determine if there is a threat to life due to the toxic gas or if there is an explosion/fire hazard due to an escape of the combustible gas or both
- Determine if the escaping gas can be stopped without undue risk
- Take prompt action to alleviate the danger to yourself and others, then property
- Stop the release (without undue risk to yourself) and evacuate the persons that could be affected
- The order of these actions should be based on your judgement of what minimizes the risk to life
- In the case of a gas release, all ignition sources, including vehicles, should be shut down
  - Account for all personnel
  - Isolate the leak area to prevent entry
  - Notify your supervisor and give an assessment of the situation. Communicate any need for extra assistance
  - Notify the local law enforcement agency if the public could be affected, such as near by residences or public highways

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 6 – Bomb Threat

Bomb Threats

In those circumstances which determined individuals plan to inflict damage or disrupt operations, regardless of the motive, it is extremely difficult to prevent them. Security plans should be drawn up to act as a deterrent, introducing obstacles and making access more difficult.

These plans should be drawn up in consideration of the available civil authorities and treated as confidential:

- Personnel should never place themselves in jeopardy to apprehend the intruders but should concentrate their efforts on containing the effects of an incident
- In the event a phone call warns of a bomb threat, the following may prove helpful
- The individual receiving the phone call should remain calm and quietly summon assistance while keeping the caller on the phone
- Keep interrupting the caller as often as possible by asking questions and asking the caller to repeat their message. This will help prevent the caller from completing the message and hanging up. Be polite and act very concerned
- Inform the caller that the detonation of a bomb could result in death or serious injury to innocent people
- Using the guideline form below in an attempt to record the details of the call

BOMB THREAT INFORMATION FORM

Time Call Received: _____ **am/pm** **Date:**_____

Exact words of caller: _____

_____

_____

Questions to ask:

1. When is the bomb going to explode?_____
2. Where is the bomb right now? _____
3. What kind of bomb is it?_____
4. What does it look like?_____

Description of caller's voice:

_____

_____

Male / Female:_____ Young /Old/Middle Age:_____

Accent:_____

Tone of Voice _____ Background Noise:_____

Is voice familiar?_____ Who did it sound like?_____

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 7 - Facility Emergency Notification Form

FACILITY EMERGENCY NOTIFICATION FORM

POSITION/ NAME	OFFICE	HOME	CELL	OTHER
REPOWER Systems USA				
Head of Service/Operation Manager				
Field Supervisor(s)				
HSE Department				
Landowner				
EMERGENCY AGENCY/ FACILITY				
Fire Department				
Sheriff/Police				
Ambulance				
Nearest Hospital				
Nearest Doctor's Office				
Electric Company				
Gas Company				
Railroad Commission/ USCG, etc.				

Section III
7.1.9A – RPSHSE – 9A
Emergency Action Plan

Form 8 – Emergency Service

ON-SITE FACILITY EMERGENCY SERVICE POSTING

EMERGENCY SERVICE

HOSPITAL:	
AMBULANCE: **FIRE DEPT.:**	

Contact the following REPOWER USA personnel immediately:

HEAD OF SERVICE/OPERATIONS MANAGER:
NAME:_____ **TELEPHONE:**_____
ON-SITE FIELD SUPERVISOR:
NAME:_____ **TELEPHONE:**_____
HSE DEPARTMENT:
NAME:_____ **TELEPHONE:**_____

Contact the following personnel immediately:

LANDOWNER:
NAME:_____ **TELEPHONE:**_____
SHERIFF DEPARTMENT:
NAME:_____ **TELEPHONE:**_____
STATE POLICE:
NAME:_____ **TELEPHONE:**_____

Section III:
7.1.9B RPSHSE – 9B
Naturally Occurring Radioactive Material (NORM)

NO FORMS APPLICABLE

LEFT BLANK FOR FUTURE INSERTATION AS APPLICABLE

TRAINING WILL ADDRESS THIS GROUP

REPOWER Systems	Section III RPSHSE 7.1.10	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.10 RPSHSE – 10 Hand and Portable Power Tools

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1.0 Introduction

REPOWER USA policy on hand tools, mechanical tools and equipment is for the protection of personnel in their widespread uses in all operations. Their misuse or abuse can result in severe injuries. Most accidents, which commonly occur each year, can be attributed to the improper or unsafe use of tools that are in bad condition. The following **REPOWER USA** HSE Policies and Procedures are designed to give HSE tips and recommendations for the safe use of hand tools and portable power tools.

2.0 Principles of Tool Safety and General Rules

2.1 Select the Right Tool for the Job

The correct tool will make a job easier and proceed faster. Locate and use the proper tool, rather than making do with what you have, and your work will be safer and more efficient.

- Hammers and mauls are striking tools
- Wrenches are torsion tools
- Screwdrivers are for turning fasteners
- Files are for removing metal
- Chisels and knives are cutting tools

2.2 Keep Tools in Good Condition

The failure of tools and mechanical equipment usually occurs when the greatest stress is being placed on it. This is especially true when the tools and equipment are in poor condition because their chances of failure increase. This is when the greatest potential for injury is present.

2.3 Use Tools and Equipment Correctly

Examples of unsafe practices are:

- Screwdrivers forcibly applied to objects held in the hand.
- Knives pulled toward the body.
- Failure to ground electrical equipment and the failure to lock out machinery or equipment when preventative maintenance or repairs are being performed.

2.4 Keep Tools in Proper Place

- Accidents happen when tools fall from overhead or are left underfoot. Sharp tools carried in pockets or left in the toolbox with the sharp edges exposed also cause accidents.
- Store tools and equipment in a centralized or specified area. This will also make it easier to conduct regular uniform inspections and maintenance. When tools are found to be in a bad condition properly mark or tag them and remove them from service until repaired.
- All employees who are issued tools are responsible for inspecting, properly storing, and maintaining them. **Unsafe tools will not be used by employees.**

2.5 General Precautions

- Never leave machine-operated tools and equipment running unattended.
- **DO NOT** the use tools and equipment which can produce sparks, slivers, flying metal or wood, noise, abrasion, or other byproducts that can cause injuries unless the appropriate personal protection equipment is worn (i.e.: goggles, gloves, shields, ear plugs, etc.).
- When using tools and equipment always be aware of other workers in the area. If necessary, alert them to prevent exposure to a hazard.
- Keep tools clean and inspect them before use.
- Never use excessive pressure or force on any hand tool.
- Tools should never be dropped or thrown from person to person.
- Tools that must be raised or lowered from one elevation to another shall be placed in a tool bucket or firmly attached to a hand line. Never lower power tools by the electrical cord.
- Wear gloves when using hammers, pliers, and wrenches to avoid hand and finger injuries.

3.0 Hand Tools

3.1 General

- Hand tools, which are not power-driven, can because injuries if improperly used. Hand tools designed for a particular purpose should only be used for that purpose. Inspect all tools regularly and keep them in a clean, safe condition.
- Never throw tools from one person to another especially from one level to another. Carry the tools or send them up or down in a suitable container or on a line after alerting other employees in the work area.
- Keep hands free from oil and grease to prevent slippage when using hand tools.
- After cleaning the tools with an approved cleaning solvent, wash your hands with water or another suitable hand cleaner.
- Do not climb ladders with tools in hand or tools sticking out of pockets.
- Be especially careful not to drop or knock tools off platforms.
- Avoid working in places where tools are being used overhead.
- When setting tools down, make certain they are in a safe place where they will not be jarred or knocked from an elevated level and where they will not create a stumbling hazard.
- Keep tools in an assigned place on a tool board or workbench so they will be readily accessible when needed.
- Regularly inspect the driving faces of hammers, chisels, drift pins, wedges, bars, and other impact tools. Keep them free from mushroomed heads, burrs, broken faces and other defects.

- Never strike a tool with a hardened surface against another such tool in combustible or flammable areas.
- Only nonferrous tools (non-sparking) are permitted:
  - Inside a confined space where the flammable vapors are above 10% of the Lower Explosive Level (LEL)
  - When removing covers from a confined space which is not known to contain an atmosphere below 10% the of Lower Explosive Level (LEL)
- Keep chisels, draw-knives, hatchets, axes, picks, saws, etc., sharp for safety as well as for efficiency.
- Take extra care when using and storing sharpened tools.
- Store crowbars, chain tongs, large wrenches, shovels, rakes, hoes, etc., in proper racks.
- Remove handles from all types of hydraulic or mechanical jacks when they are not in use.
- To prevent hand injuries, use safety holders on hammer wrenches, chisels, punches, rods, posts, and like objects when they are being struck.
- **DO NOT** use files without handles.
- Use wood handles that are solid, free of splinters, and securely wedged or fastened to the tool. Discard cracked or split handles.
- **DO NOT** use hammers to break pipe or rod connections. If the job requires breaking a pipe or rod, use caution and wear eye protection.
- Never use a screwdriver forcibly on a small object held in your hand. Never use a screwdriver in such a way that it can strike any part of the body if it slips.
- Never hold small tools, screws, nails, tacks, etc., in the mouth.
- Discard nonadjustable wrenches or other tools which become worn or sprung and no longer operate properly. Straightening or building up the jaws, mouth or socket is prohibited.
- If the replaceable jaws on adjustable wrenches become worn, replace them. If the worn jaws are not replaceable or if they are sprung, discard the tool.
- Keep the handgrip on a tool in good condition so that fingers, hands, and arms will not be injured if the tool slips or falls.
- Never use the feet to apply pressure to a wrench handle or a valve handle.
- **DO NOT** use the wrenches as extensions on valve wheels; use the valve wrenches designed for the job.
- **DO NOT** use extension handles (other than the one designed for the tool) or **"cheater bars"** unless necessary. Striking wrenches and impact tools are available for the high-torque requirements.
- Never use wrenches as hammers; strike on **"hammer wrenches"** with a hammer or maul.

- Never separate flanges with a hammer. Always use a wedge or flange spreader.
- Keep the bolts on weed cutters tight to make the blade secure.
- When work requires several employees to use shovels, picks, etc., maintain a safe working distance between personnel.

3.2 Guidelines for Using Pointed Tools

- Always cut away from the body when using a knife.
- The work material should be in a rack or holder.
- Carry a knife in a sheath. Carry the sheath over the left or right hip in the back. This is the safest place for a knife in case of a fall.
- Store pointed tools safely so that the point or cutting edges are covered.

4.0 Striking Tools

4.1 General

General information and rules for using striking tools include the following

- Always wear safety goggles or glasses.
- Striking tools, such as chisels, punches, etc., are designed to direct the force of the blows toward the center of the tool.
- Off-center blows are not directed toward the center of the tool but down the side. Instead of a cushioning action, a shearing force is achieved. This shearing effect is a hazardous condition that causes small metal chips.
- Keep the cutting edges ground and honed sharp for the best efficiency. A dull edge on a cutting tool results in reduced cutting ability and may cause you to exert extra force when using the tool. Thus possibly causing tool failure, metal pieces flying in unexpected directions, or slippage.
- Use a hammer or mallet with a striking face sufficiently larger than the struck tool. It should be, at a minimum, 3/8-inch larger than the struck face.
- Never strike a steel chisel with a nail hammer.
- Strike blows squarely and away from you.
- Redress striking tools that are chipped or have slanted points.
- Grind off mushroom heads and burrs on striking tools; the mushroom or burr can sliver off when struck.
- Always use the proper tool for the job; never use a wood chisel on concrete or masonry.
- Use only striking tools that are in good condition.
- **DO NOT** use a motorized grinder to sharpen cutting tools such as knives, hatchets, axes, wood chisels, etc. This type of grinder may destroy the edge holding ability of heat-treated steel. Use a honing stone for sharpening such tools.

4.2 Hammers

General rules for safe hammer use include:

- Always wear safety goggles or glasses when hammering or striking.
- Never use a hammer for an undesignated purpose.
- Strike blows squarely; glancing blows increase the chances of striking a finger or shearing a chip off the hammerhead.
- Never strike one hammer with another hammer; shearing and flying chips could occur.
- Always check behind you before swinging a striking tool.
- Keep eye contact with the tool or surface to be struck.
- Never use a hammer with a loose or damaged handle.

5.0 Torsion Tools

5.1 Wrenches and Pliers

General information and rules for using torsion tools include the following

- Always use the tools designated for the job.
- Avoid using cheaters to increase the advantage; use a striking wrench or an impact tool.
- Use a wrench with an opening that fits the nut exactly; use inch wrenches for inch nuts and metric wrenches for metric nuts.
- Whenever possible, pull on the wrench handle and always adjust your stance to avoid an off-balance fall.
- Box and socket wrenches are the safest types of wrenches to use.
- Exposing a wrench to excessive heat can damage the temper and weaken the tool.
- Inspect the wrenches periodically and repair or discard them as necessary.
- **DO NOT** change the shape of wrenches by grinding.
- Discard any wrench with spread, nicked, or battered jaws.
- Tools with high dielectric properties are available and thus identified. Remember that the plastic-dipped handles are meant for comfort, not electrical protection.

5.2 Torsion Tools

- Never use hand sockets on power or impact wrenches.
- Always stay within the safe torque limits when using an adapter; adapt down by using a large handle with a small socket.
- When it is necessary to repair a tool use the manufacturer's instructions and parts.
- Discard sockets with cracked walls, breaks or battered points.

5.3 Wrenches

- **DO NOT** use an open-end wrench to free **"frozen"** nuts or attempt to torque nuts. Box wrenches are stronger and safer.
- **DO NOT** use hammers on an open-end wrench.

- **DO NOT** use extensions on the handle.
- Discard wrenches when jaws are nicked, spread or battered or when the handle is bent.

5.4 Adjustable Wrenches

- For electrical work, use dielectric tools (plastic dipped handles are for comfort, not insulation).
- Adjust the jaws tightly around the nut.
- Work so that the force or torque is applied to the fixed jaw.
- **DO NOT** use an adjustable wrench on a **"frozen"** nut.
- Repair according to manufacturer's instructions.

5.5 Torque Wrenches

- Make sure the proper torque is being applied: a slipping torque wrench can be dangerous.
- Check the torque calibration periodically to avoid dangerous slips.
- Check the manufacturer's instructions for repair or replacement.

5.6 Pipe Wrenches

- Work so the force or torque is applied to the fixed jaw.
- Never use the wrench to bend, raise, or lift a pipe.
- Never use an extension or **"cheater"** on a pipe wrench handle.
- Never use a pipe wrench as a hammer.
- Inspect periodically for worn or unsafe parts and repair or discard if necessary.

5.7 Locking Wrenches ("Vise-Grip" type tools)

- **DO NOT** hammer to tighten the jaws or to cut wires or bolts.
- **DO NOT** expose them to heat from welding torches or let them be exposed to welding electrodes.
- When a wrench is exposed to severe vibration, during riveting for example, wire or tape the wrench closed.
- **DO NOT** use pipe, other **"cheaters"**, or hammering to increase the torque.
- **DO NOT** use steps or ladders to support personnel.
- Lubricate the locking wrenches frequently.
- Repairs are not recommended; discard a damaged tool.

5.8 Pliers

- Always wear safety goggles or glasses when cutting wire.
- **DO NOT** use pliers for cutting hardened wire unless they were specifically made for that purpose.
- **DO NOT** expose pliers to excessive heat.
- **DO NOT** bend stiff wire with light pliers use a sturdier tool.
- Use pliers correctly, never use them as a striking or struck tool.

5.9 Screwdrivers

- Use the right screwdriver for the job; a bit that is the wrong size or shape for the screw slot can slip and gouge the hand.
- Check the tool for a broken handle, bent blade, or damaged tip and repair or replace it as necessary.
- **DO NOT** use the screwdrivers as pries, punches, wedges or pinch bars.
- A sharp, square-edged bit will not slip as easily as a dull, rounded bit.
- Use Phillips, Allen head, etc., fasteners when possible; they are less likely to slip than slotted fasteners.
- Use a ratchet driver on large jobs; the job will go faster with less exposure to injury.
- Use only insulated tools when doing electrical work. Remember plastic-dipped handles are for comfort, not insulation.
- **DO NOT** expose blades to excessive heat. Heat will damage the temper and weaken the tool.
- Never use a screwdriver to check if an electrical circuit is live.
- **DO NOT** use pliers or a wrench on the driver for more advantage unless the driver is designed for that purpose.
- Keep handles free from grease and other slippery material.

6.0 Guarding Mechanical Equipment

One or more of the following methods must be used to properly guard all flywheels, which have any parts that are seven feet or less from floor level:

- By an enclosure of sheet, perforated or expanded metal or cyclone fencing or woven wire.
- By a guardrail placed not less than 15 inches nor more than 20 inches from the rim of the flywheel and a toe board if the flywheel extends into a pit or is within 12 inches of the floor.
- If the flywheel is less than five feet in diameter it should be protected by a smooth disc attached to the rim of the flywheel, completely enclosing the spokes, shaft and key-way.
- All guardrails must be made of materials and anchored to withstand a 200-pound load in any direction.
- The following must be protected by appropriate safety guards:
  - All gears, sprockets, couplings, clutch, exposed shafts, setscrews, key-ways, etc.
  - All V-belt drives
  - All fan blades within seven feet of the floor
- Securely fasten protective guards to the machine or to the floor.
- Before guards are removed, machines must be shut down, stopped, and locked out. If it is necessary to lubricate the machinery when it is in motion provide extension oilers and grease gun connections.

- Locate them away from the moving parts or any other hazardous areas.
- Employees involved in lubricating operations must be provided with long, flexible spout oilcans and grease guns with proper attachments. They should know how to use these tools properly.
- Never reach over or under guardrails or lean, sit, or work on the guards while the machinery or equipment is in operation.
- Paint the guards a bright yellow or mark them so employees can easily identify the potential hazards that could exist if the guards were removed. Do not use the same unique markings on other objects or structures near the guards.

7.0 Power Driven Tools

All belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains or other reciprocating, rotating or moving parts of equipment must be properly guarded.

- Keep all machine guards in good condition. Fasten the appropriate guards in place.
- Never operate tools or machines unless the guards are in place.
- Learn the whole machine and its capabilities and its limitations. Study auxiliary tools and devices carefully. Perform only the jobs a machine is supposed to do.
- Inspect machines before using them: First, do a visual inspection then a **"dry run"**.
- Shut off all the machines when the operator leaves.
- Use a brush, not compressed air, to remove chips.
- Only those persons familiar with their operation and aware of the safety hazards should use power-driven tools.
- Never perform maintenance or repair work on a machine until all the switches have been tagged and locked out.
- In addition to the electrical controls supplied by the manufacturer each machine should have an additional disconnect switch to remove the motor from the power supply.
- Provide mechanical lifting equipment for positioning heavy material on machines.
- Regardless of the work pressure, working on an **unsafe** machine or doing unsafe work on a good machine is not permitted.
- Defective equipment is to be Danger-tagged **"DO NOT USE"** or **"DO NOT OPERATE"**.
- Respect the point of operation of the machine; keep guards in place.

8.0 Electrically Driven Hand Tools

All electric portable tools must be equipped with a grounded three-conductor cord and a polarized plug and receptacle or they must be doubly insulated and approved by Underwriter's Laboratories (UL Listed).

- Never use electric cords for hoisting or lowering tools.

- Repair or replace electric cords if the terminals become loose or the insulation is cracked or broken.
- Use only explosion-proof electric tools in gas-hazardous areas.
- Equip all portable power-driven circular saws with guards above and below the base-plate or shoe. After the cut is made the lower guard automatically and instantly returns to the covering position.

9.0 Belts and Belt Driven Equipment

9.1 HSE Guidelines

- All belt guards must be securely fastened in place before a unit is put in operation.
- **DO NOT** kick the belts on or off while the machinery is in motion.
- Fan blades and belts on an engine must be guarded when the unit is running.
- Never reach, step, or lean over an unguarded belt that is in motion.

9.1.1 Static Proof Belts

There are a number of so-called static-proof or static-conductive belts on the market. The majority of these belts are termed static-proof because they are made of a rubber or neoprene material which has been impregnated with a conductor such as granulated carbon. A current path is provided to drain off an electric charge before it reaches an arc-over potential. However, the conductivity of these belts decreases with age.

As the belts age, their operation will reach a point where the static-proof qualities are no better than those of a standard belt. In addition, the static-proof qualities of this type of belt could be destroyed by the formation of an oil film or some other insulating barrier on the belt or sheave surface. Static-proof belts are not positive insurance against an ignition caused by static electricity.

- **The following recommendations are offered for the application to belt-driven equipment:**
  - Use direct and/or gear-driven equipment in hazardous locations when it is economically and mechanically practical.
  - Locate the belt-driven equipment out-of-doors in a well-ventilated area that is free from an explosive mixture of gas under normal conditions.
  - Inspect static-proof belt drives regularly and replace them when they show signs of deterioration, excessive wear, or the formation of an oil film on the sheave or belt surface. Ask the supplier to specify the normal static-proof life of the belt. Use this factor to determine the belt replacement schedule.

- If journal bearings are used, ground the shaft to the frame with a wiper or brush. In addition, all members of the drive system must be electrically bonded to each other and to a positive earthen ground either through the frame of the drive system or ground cables.

10.0 Abrasive Grinders

10.1 General

- Use abrasive wheels only on machines provided with the proper safe guards.
- The safety guard must cover the spindle end, nut, and flange projections.
  Material for guards must comply as follows:
  - Operating speed of 8,000 surface feet per minute or less and made of cast iron or malleable iron.
  - Operating speed of 8,000 surface feet per minutes and made of cast steel or structural steel.
- Work rests (tool rests) and tongue guards must be provided and designed to be adjustable. Keep the work rests adjusted to within 1/8-inch of the wheel. Adjust the tongue guards to within 1/4-inch of the wheel.
- On bench and floor-stand grinders the angular exposure of the grinding wheel periphery and the sides of the safety guards must not exceed 90-degrees or one fourth of the periphery. This exposure must begin at a point not more than 65° F above the horizontal plane of the wheel spindle.
- On cylindrical grinders the maximum angular exposure of the grinding wheel periphery and the sides of the safety guards must not exceed 180° F. This exposure must begin at a point not more than 65° F above the horizontal plane of the wheel spindle.
- On surface grinders and cut-off machines the maximum angular exposure of the grinding wheel periphery and the sides of the safety guards must not exceed 150° F. This exposure must begin at a point not less than 15° F below the horizontal plane of the wheel spindle.
- All abrasive wheels must be mounted between flanges that should be no less than one-half the diameter of the wheel.
- Blotters (compressible washers) must always be used between flanges and wheel surfaces to ensure the uniform distribution of flange pressure.
- Do not use soft materials (aluminum, etc.) on a grinding wheel. The materials cake the wheel surface and cause heat buildup in the wheel.
- To grind items smaller than l-l/2 inches, hold them with a tool, not the bare hand.
- Never use grinding wheels, cut-off wheels, circular saws, and other arbor or chuck-mounted tools in excess of their manufacturer-rated speed.

- In operating grinding tools never force work against a cold wheel. Apply it gradually, giving the wheel time to warm. Never operate a grinder on which the grinding wheel is loose on the spindle or is out of balance.

When using wire brush wheels:

- Work pieces should be held at the horizontal center of the brush.
- Let the wire tips do the work. Forcing work into the brush results in:
  - No increase in the cutting action
  - An increase in wire breakage
  - A tendency for the work to become snagged
  - Small pieces of the work should be held in a simple jig or fixture to protect the operator's hands from contacting the surface of brush.
  - A straight, heavy steel rod or bar should be used to clean wire wheels.

10.2 Inspection

- Immediately before mounting, closely inspect all wheels and perform a **"ring test"**. The wheel should have a clear bell-like ring when tapped with a nonmetallic instrument. Organic bonded wheels do not emit this metallic ring.
- Always wear a face shield and safety glasses when grinding. Never use face shields by themselves.

10.3 Storage Methods

- Construct racks, bins, or drawers so that each of the various types of wheels can be stored in an orderly and safe manner. Wheel selection should be possible with a minimum of handling.
- **DO NOT** store grinding wheels in a location that would subject them to:
  - Exposure to high humidity, water, or other liquids
  - Freezing temperature
  - Any temperature which may cause condensation on the wheels
- All grinding wheels are breakable. Exercise care in the handling and the storage to prevent damage. The following rules should always be observed.
  - Handle the wheels carefully to prevent damage.
  - **DO NOT** roll the wheels.
  - If a grinding wheel becomes wet, discard it unless it was designed to be used wet.
  - When transporting wheels that cannot be carried by hand use trucks or other suitable conveyances which provide support and protection.
  - When storing grinding wheels place them carefully on a shelf, rack, bin or other designated storage space.

- If you drop a grinding or abrasive wheel, OR suspect that one has been dropped or struck, or see chips that might indicate abuse, test the wheel for integrity (Reference **"Abrasive Grinding Wheel Inspection"** in this section) or mark the wheel with a **"DO NOT USE"** or **"DO NOT OPERATE"** tag and have the wheel tested or disposed of.

11.0 Air Driven Tools

- When it is necessary to use compressed air for cleaning, reduce the nozzle pressure to 30 PSI (< or less) or use a **"safety nozzle"**.
- Provide effective chip guarding when compressed air is used for cleaning purposes.
- When using air for cleaning, wear the proper personal protective equipment such as goggles, face shields, respirators, etc., as applicable.
- All abrasive blast cleaning nozzles must be equipped with **"dead man"** controls.
- Air hoses, connections, and air tools must be used for the service for which they are designed.
- When connecting the air hose to the tool connect the supply end first and blow the hose clear of any moisture or foreign matter before connecting the tool.
- Never point a compressed air hose nozzle or pneumatic tool at another person. Also, never use air for horseplay.
- Pneumatic power tools must be properly secured to prevent the tools from being accidentally disconnected.
- To prevent the attachments from being accidentally disconnected, securely install safety clips or retainers on pneumatic impact (percussion) tools.
- Never kink an air hose.
- Use only heavy-duty impact-type sockets on powered impact wrenches. The ordinary sockets designed for hand tools will not withstand the shock loading of the power tool.
- When using power tools the operator should be aware of any torque exerted by the tool. He should position himself to overcome the shock if the power-driven element hangs or sticks.
- Remove chisels, chippers, or the like from power tools when they are not in use.
- Never strike power tool heads such as chisels, chippers, etc., with a hand hammer or use them for anything other than their intended purposes.
- All pneumatically-driven nailers, staplers and other similar equipment provided with an automatic fastener feed and which operate at more than 100-PSI pressure must have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.
- Air hoses exceeding a 1/2-inch inside diameter must have a safety device at the source of the supply or a branch line that will reduce the pressure in case of hose failure.
- **DO NOT** use air hoses for hoisting or lowering tools.

12.0 Hydraulic Hand Tools

- All hydraulic jacks must have the rated lift legibly and permanently affixed on the jack.
- All hydraulic jacks must be thoroughly inspected at least every six months. If used at other locations they must be inspected each time they are sent out and returned.
- All hydraulic jacks must be properly maintained and lubricated.
- Fluid used in hydraulic jacks must be fire-resistant and meet the Bureau of Mines standards.
- All jacks must have a positive stop to prevent over-travel.

13.0 Fuel Powered Tools

- Never operate fuel-powered tools in a flammable atmosphere. Continuous testing for explosive gases is required if the potential for such an atmosphere exists (for example, within vessels, tanks, etc.).
- Fuel-powered tools such as chain saws, lawn mowers, edgers, etc., are only to be operated by the persons thoroughly familiar with their operation and hazards.
- Do not refuel engine-mounted fuel tanks until the engine has been stopped and allowed to cool.
- Do not perform maintenance, repairs or mechanical adjustments on fuel-powered hand tools unless the engine has been stopped.

14.0 Saws

- Always wear safety goggles or glasses.
- Install hacksaw blades with the teeth pointing forward. Avoid having the blade buckle; it could break and send pieces flying.
- Start a new cut when using a new blade in a hacksaw. A new blade could break in an old cut.
- Store saws so that the teeth will not injure anyone.

15.0 Explosive Actuated Hand Tools

- If any explosive-actuated hand tools are purchased they must meet ANSI Standard A 10.3-1970 safety requirements for Explosive Actuated Fastening Tools.
- Never use an explosive-actuated tool without the proper training in the use and in the safety hazards associated with these tools.

16.0 Small Portable Pumps

- The use of small **"engine-driven"** portable pumps is restricted to pumping liquids that are neither flammable nor combustible.

The mixture or interface of the liquid being pumped with a flammable or a combustible liquid (such as tank-bottom water) renders the use of a small engine-driven portable pump unacceptable.

- To refuel a small engine-driven portable pump shut off the engine. If recommended by the manufacturer, allow a brief cooling period. If the fuel tank and the refueling cans are both metallic take static control measures. Keep the metallic tank and can and any metallic device between them (such as a funnel or a strainer) continuously in electrical contact with one another to avoid the possibility of a spark at the fill opening.
- When such electrical contact cannot be maintained, as when a fill spout or funnel is not made of conductive materials or when physical contact of all components cannot be maintained, use a bond wire(s) between components. Special precautions for static control are not usually taken when filling fuel tanks of nonconductive materials and of **no more than a five-gallon** capacity.
- When transferring any liquid with any small portable pump/hose system, continuously staff the pumping operation. These guards against personnel safety hazards, environmental damage and risk to the equipment and facilities.
- When operating any small portable pump, do not run the pump without liquid in the pump or with total restriction to flow. This should only be done by someone adequately versed in the internal cooling and lubricating requirements of the particular pump. Air bleeding and priming maneuvers may require brief running without a full pump body and/or without flow. Only someone familiar with the manufacturer's relevant operating instructions or by someone adequately instructed in the basic safety considerations should do this. Guard against seal and/or bearing damage and the potential overheating of the pump body. Overheating could result in the auto-ignition of flammable or combustible vapors if they are present.

Forms

Section III:
7.1.10 RPSHSE – 10
Hand and Portable Power Tools

Form 1 -

NO FORMS APPLICABLE

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TRAINING WILL ADDRESS THIS GROUP

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
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4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format Evergreen QHSSE Solutions LLC	On File
11/08	Owens O'Quinn – QHSSE Consultant Evergreen QHSSE Solutions LLC	On File
11/08	Tammy Conekin – Head of Service	On File

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Section III: 7.1.11 RPSHSE – 11
Electrical Safety

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1.0 Introduction

"7.1.10 RPSHSE – 11 Electrical Safety" establishes the electrical safety and health requirements for all **REPOWER USA** employees. It also establishes the minimum standards that all facilities operated by **REPOWER USA** shall follow as the guidelines that will assist the facilities in complying with regulatory requirements.

This document describes the plans, training and record-keeping requirements that facilities shall follow to address the regulatory requirements of Federal and State Electrical Safety, and Health regulations.

"7.1.10 RPSHSE – 11 Electrical Safety" is intended to only outline the major responsibilities that are necessary to comply with the workplace safety and health regulations for the facilities operated by **REPOWER USA**. It is the responsibility of **REPOWER USA** to fully determine any additional requirements and to develop detailed programs and procedures to ensure full compliance.

It is the responsibility of all **REPOWER USA** employees to comply with all the applicable **REPOWER USA** rules and governmental regulations. If at any time an activity has occurred or could occur which results in violations then the employee shall follow **REPOWER USA** procedures for proper supervisory and agency reporting. All **REPOWER USA** employees are also responsible to help ensure that all contractors and visitors comply with the **REPOWER USA** operated facilities and governmental requirements.

It is the responsibility of the On-Site Supervisor, the On-Site HSE Coordinator, and/or the HSE Manager to remain abreast of the following:

- Current applicable regulations.
- Preparation and/or motivation of programs, plans, orders, procedures, recordkeeping, reporting and the training necessary to comply with the regulations and the **REPOWER USA** Policies and Procedures.

The **REPOWER USA** Department/Operations Manager and the HSE Manager shall be responsible for implementing and maintaining the related programs, orders, records, reports and training.

REPOWER USA is committed to providing a safe and healthy workplace for all of its employees, visitors and contractors.
This commitment encompasses not only full compliance with all the applicable laws and regulations but encourages employees to seek additional measures to provide continuous improvement and to exercise exemplary safety practices that benefit everyone. All **REPOWER USA** employees shall be trained and aware of the necessity of complying with safety polices, practices, and procedures and how to implement them.

The underlying them of this awareness is that all accidents can be avoided with the proper preparation and the proper attitude.

2.0 General Rules

The National Electric Code (NEC) is a written volume of practical safeguards for working with electricity. The NEC shall be observed in the installation and operation of electrical systems.

Electrical equipment shall be free from recognized hazards. Determine the safety of electrical equipment by checking the following:

- Suitability for the identified purpose and for the location where it is to be operated.
- Mechanical strength and durability, including the adequacy of the parts designed to enclose or protect other equipment.
- Electrical insulation.
- Heating effects under usage conditions.
- Arcing effects.
- Classification by type, size, voltage, current capacity and specific use.

The purpose of this section is to ensure that the installation and subsequent use of electrical equipment is in accordance with NEC and OSHA 29 CFR 1910.269, 1910.303 and 1910.304.

All **REPOWER USA** Qualified Electricians and their assistants authorized to work on electrical circuits shall be trained and prepared to render immediate mouth-to-mouth breathing and Cardiopulmonary Resuscitation (CPR) techniques.

- Unauthorized persons **SHALL NOT** attempt to make repairs to electrical equipment.
- Be thoroughly familiar with all emergency trip switches.
- Know the correct type of fire extinguisher to use for electrical fires
- **Never** use water on an electrical fire.
- All unsafe appliances, lines, and electrical apparatus should be immediately reported to the electrician or supervisor.
- Consider all electrical conductors energized.
- Special precautions should be taken for working with high voltage:
  - (Reference Appendix I on high-voltage procedures).
- De-energize all circuits before beginning work. Use the proper procedures to prevent electrical circuits from being inadvertently energized.
- Use the suitable protective equipment including rubber gloves, mats, and blankets to provide insulation from other elements which are energized or grounded. Personnel shall not wear rings, watches, or other similar metallic objects while working on energized electrical equipment. Hands, shoes, and clothing should be dry when any energized electrical equipment is handled.

- Insulated tools and rubber protective devices should be periodically inspected and cleaned. When their condition is in doubt, these articles should be high-potential tested.
- Touch all electrical equipment enclosures, switches, etc. with the back of your hand. **Never** use the inside of your hand. Electrical shock makes muscles contract and it could cause your hand to grasp the equipment.
- Avoid stepping on or handling live wiring, lighting units, or trouble lights found lying on the floor or ground. Eliminate such hazards by opening the circuit and restoring the items to their proper places.
- Use non-conductive ladders when working on or near electrical equipment or conductors. The use of metal ladders is prohibited.
- Proceed according to the instructions in operating electrical equipment. **Never** experiment. If equipment fails to operate properly, consult an electrician.
- Defective electrical cords for equipment and appliances **SHALL** be repaired or replaced.
- Electrical outlets should not be overloaded. All outlets **SHALL** be grounded. Outlets supplying power to portable electric tools that are either outside or in wet locations should have approved ground-fault circuit protection. **Never** increase the breaker size above the design capacity.
- The use of storage batteries must conform to Article 480 of the NEC. Adequate ventilation of battery rooms should receive particular attention so that accumulation of an explosive substance can be prevented.
- When it is mandatory to use electrical equipment in a Confined Space Entry situation **ALL** applicable items must be followed in the Confined Space Entry Permit and Hot work Permit Procedures. Additionally, appropriate protective shields, protective barriers or insulating materials shall be provided, noted on the Confined Space Entry Permit and Hot Work permit and utilized.

3.0 Cleaning Electrical Equipment:

- Methyl chloroform (1, 1, and 1-trichloroethane) is recommended for cleaning electric motors and other equipment where an oily residue (such as that left from kerosene or varsol) is undesirable. The least toxic of the inflammable volatile solvents, methyl chloroform has a Threshold Limit Value (TLV) of 350 PPM. Because methyl chloroform attacks aluminum it should not be used to clean equipment made of aluminum.
- Because of its high toxicity carbon tetrachloride **SHALL NOT** be used for cleaning.
- Water or steam shall not be used to wash the areas near electric motors or other electrical apparatus unless the power has been cut off.
- Corroded storage battery terminals shall be cleaned with a mild solution of baking soda and water. The connections shall be tightened and the terminal areas
- greased with petroleum jelly or a similar light grease.
- **ALWAYS** turn off the power before cleaning control panels or safety switches.

4.0 Construction and Repair:

- A structure **SHALL NOT** be built in the vicinity of a power line until the potential electrical hazard has been evaluated. Federal, state, and local regulations **SHALL** be checked for the restrictive distances needed between power lines and moving equipment. The rules for warning signs, guarding, and temporary clearances must be determined and strictly complied with.
- If possible, the overhead circuits that require repairing should be de-energized. Work on a hot circuit **SHALL** be performed by at least two qualified electricians. One of the electricians does the work while the other remains on the ground. The electrician on the ground shall be fully equipped and ready to rescue or assist the other if necessary.
- When using a bucket truck for the repair or construction of electrical lines on inclines or unleveled terrain, caution shall be used to ensure against tipping over.
- Approved rubber gloves **SHALL** be worn. They must be inspected before each job. Rubber insulating blankets and other insulating material appropriate for the voltage involved **SHALL** adequately cover the conductors in the work area. Work of this kind must be performed slowly and carefully.
- Where applicable, lockout procedures shall be used when the equipment being worked on has controls located away from the equipment.
- Workers repairing an overhead line **SHALL** have the line grounded with an approved grounding set in case the line should be energized accidentally.
- The location of an underground cable or conduit shall be appropriately marked. All buried electrical PVC conduits and any steel conduits with a voltage greater than 600 volts shall be set in concrete and identified by red permanent markings.
- Underground cable or conduit vaults shall be checked for toxic or flammable vapors before they are entered.
- Smoke-filled cable vaults shall not be entered without the protective fresh-air mask breathing equipment.

5.0 Enclosure of Electrical Equipment

- Doors and covers of electrical apparatus enclosures shall be kept closed except while repairs are being made.
- When the enclosure or frame of any electrical apparatus is discovered as charged an electrician shall be notified immediately to make repairs.
- The doors of outside enclosures containing electrical apparatus shall be braced or tied open while the apparatus is being repaired or adjusted.
- The flange area of explosion-proof electrical enclosures shall not be painted or sealed in any way that prevents the release of pressure or gases.
- A junction box is required between a switchboard and shall be well equipped with an electrical submersible pump.

The junction box shall be grounded and vented. The switchboard should be at least 35 feet from the junction box and 50 feet from the wellhead. Conduits shall be equipped with the proper seals to prevent vapors from entering the boxes.

6.0 Fuses

- Before replacing a fuse **always** make sure the disconnect (valve/switch) is open. Only a Competent Person (CP) shall replace the primary fuses such as transformers, disconnects, and line fuses. No person shall be authorized to replace the primary fuses unless they have been fully instructed on the approved safety procedure for this task. This procedure shall include the use of a fuse puller.
- Stand to one side when opening or closing a safety switch. Never stand in front of the switch. Open or close the switch in one quick motion.
- Remove the fuses with a fuse puller. Replace them with fuses of the same size. Make sure the fuses are in the fuse clips tightly.
- Keep fuse pullers clean and dry. Even though they are made of an insulating material if they get wet, greasy or dirty the moisture or dirt may form a conductor for electricity.
- The use of renewable element fuses below 100 amperes is prohibited.
- Substitutes for fuses, such as pennies, slugs, or other makeshift devices are prohibited.

7.0 Generators

- Electrical generators should not be installed within 150 feet of any producing well or oil tank without the approval of the local management and the appropriate state or federal regulatory body.

8.0 Grounding

- Ground wires placed for the protection of workers and equipment must not be disturbed. It is imperative that a qualified electrician properly maintain them.
- All non-current carrying enclosures or structures used in electrical apparatus or circuits **SHALL** be grounded. In a grouping of electrical apparatus, the grounds **SHALL** be interconnected. Before opening or working on such enclosures or structures use a volt-ohm meter to determine if the ground is effective.
- All electric motors shall be properly grounded according to the NEC.

9.0 Lighting Equipment

- When changing a broken light bulb, or when changing a burned out light bulb in a hazardous area, the circuit **SHALL** be de-energized and eye protection should be worn. Avoid handling broken bulb fragments. Burned out bulbs shall be properly disposed of.
- Keep the glassware clean on all industrial fixtures to ensure maximum illumination.

- Never remove protective globes from vapor-proof or explosion-proof fixtures without first de-energizing the circuit. Only remove them for the time it takes to clean or replace them.
- Safety lamps and extension cords shall be kept in good repair. They shall be checked for bad insulation and for cracked or broken protective globes. The cord shall not be used if it is defective. Care should be taken that the cord does not wrap around the arms or any other part of the body. Never stand in water while touching the cord of the lamp. Never roll up an extension cord before it is disconnected from the power source. Always apply pulling pressure to the plug, not the cord.
- Portable hand lights used in hazardous locations **SHALL** explosion proof.
- A portable hand light shall not be used unless the outside globe and guard are in place.
- Employees are not to enter spaces containing exposed energized parts without the adequate and proper illumination that provides a safe working environment.

10.0 Motors

- Always operate electric motors with the motor starter. Never use the main disconnect switch for stopping a motor except in an emergency.

11.0 Poles

11.1 General

- The sudden loading or unloading of poles, such as cutting down service wires,
- The conductors, or guys, creates potentially serious accidents and must be avoided. The conductors or guys that offset strain in the opposite direction should be slacked off gradually as they are removed. The conductors shall not be cut loose and allowed to fall. This will cause a sudden jerk on the pole that may snap it off. Even new poles are not designed to withstand such treatment.
- Handle the wires cautiously when installing or removing the service wires or other conductors on poles that have no support for the strain being altered. If the strength of the pole is in doubt, find a way to offset the strain to be added.
- All guy wires shall be electrically insulated between the pole and the ground when the phase wire and the guy wire are on the same bolt. Insulators should be placed above the height average height as identified by NEC, NFPA, and regulatory agencies. They shall be inspected periodically.
- In congested areas, pole guy wires should be marked with guy guards.
- Signs, fences, clotheslines, or other encumbrances shall not be attached to poles. Shrubs, trees, vines, or flowers should not be planted around power or telephone poles.
- Most poles have some form of markings. These markings are placed on the pole at specific distances from the butt depending on the length of the pole.

When poles are set at the proper depth these marks should be at eye level which is approximately five to six feet above the ground.

- When a pole without markings or with illegible markings is set, it should be branded with a chisel or triangle punch so that it has a pole mark five feet above ground level.
- If cutting off some of the butt has shortened a pole, the original markings shall be removed from the pole.
- No objects to facilitate climbing should be added to poles or platforms.
- Tools, insulators, and other materials should be raised or lowered by a hand-line not smaller than ½" diameter.
- Hand axes should not be used in pole or overhead work. Use hammers, saws, or chisels.
- When opening or closing the disconnect switches, avoid looking at the arcs that could cause eye injuries. Turn your head before the switch disconnects or makes contact.

11.2 Unsafe Poles

- When there is evidence that a pole may be unsafe to climb or work on, the lineman should not climb it. In many instances damage to poles can be detected by close visual inspection.

  If a pole is still suspect even without visible signs of serious damage after the examination above ground level, the following tests and checks should be made:
  - **Sounding with a hammer** - Striking with a hammer around the base and on the pole will indicate whether there is sound wood immediately under and next to the point of the blow. A pole with heart rot has a hollow sound and shall be drilled to determine the extent of the deterioration. However, below-ground or termite damage cannot always be detected by sounding.
  - **Digging around the pole base** – Digging around the base will help evaluate and verify rot or termite damage below the ground line . After the earth is removed, use an increment boring tool or prod pole to determine the condition of the wood.
- Never climb part way up a suspected pole and test it by rocking or shaking. This action tends to make a defective pole even weaker.
- Check the soundness of guy wires before climbing a pole or before modifying a system.
- If a pole is found to be unsafe to climb choose a method to make it safe on the basis of the pole's condition, location, and available facilities. One of the following methods may be used:
  - Tie off the pole with lines.

- Brace the pole with three spikes that are equally spaced from each other and from the pole.
- Tie the pole to the pole derrick on the truck.
- Set a new pole beside the old one. Tie the two poles together or work from the new pole.

12.0 Power Lines

- Construct all new power lines to conform to the National Fire Protection Association (NFPA) and NEC minimum clearance requirements: 22 feet over highways and 18 feet over lease roads. At the earliest possible time, raise existing lines that do not meet minimums.
- Unused power lines should be disconnected.
- Avoid contact with electrical power lines. Even contact with low-voltage lines, such as a 110-volt household lighting circuit can result in death.
- In all construction work all personnel shall take special notice of overhead lines and confirm that they are not energized unnecessarily. This precaution is particularly important when cranes are being used to lift materials.
- While conducting activities in the vicinity of power lines, a constant watch shall be kept to maintain proper clearance.
- When high structures or equipment are moved under electrical lines, an electrician should be present. A Competent Person (CP) shall ascertain that there is the proper clearance. Whenever possible, the circuit should be de-energized.
- Buried lines could be contacted around permanent pipe-handling and storage yards. For temporary storage, designate the areas where power lines are not likely to be contacted.
- Consider relocating power lines laterally so that operations in areas of exceptional traffic or line reworking will be safer.
- Where possible, the power lead to operating equipment should be run down the pole, buried underground to a depth of 24 inches and terminated at the equipment.

13.0 Switches

- Approved rubber mats shall be provided for persons to stand on while they operate electric multi-switch panels that contain open-type switches. The mats should be of sufficient width, thickness and length to extend across the entire front of the panels. They should also be provided in the rear of panels with open-type switches if access to the rear of the panels is possible. Mats shall be kept clean, dry, and free of oil.
- The ground area around electric switch panels should be graded so that water will not stand near the panels.
- When energizing the circuit, do not stand directly in front of an electric panel.
- Because pole-top switches and similar gang-operated switches are not operated very often a blade may become stuck or disconnected after the switch mechanism is operated.

These switches should be inspected periodically to ensure that the mechanism is in good working order and the ground circuit is intact. When operating switches of this type, rubber gloves or an insulated platform should be used.

- Equipment controlled by automatic switches shall have a sign that warns of the danger involved. Before working on such equipment, open the disconnect switch and follow the prescribed Lockout/Tagout procedures.
- Switches or circuit breakers that are open to permit work on electrical equipment shall be checked with a volt-ohm meter to ascertain that no voltage exists. Handles must be tagged and locked in the **"open"** position.

14.0 Training

REPOWER USA shall determine and comply with all the applicable regulations including the provisions for the development of formal written plans and the reporting requirements for training. These plans along with a reporting method shall be compiled in HSE training Manual.

All **REPOWER USA** employees to be trained shall meet the applicable regulations, Federal or State laws, the Best Industry HSE Practices, and the HSE Manager recommendations. The training shall provide all **REPOWER USA** employees with a thorough understanding of all written plans and procedures. Training is required initially for all employees for pre-employment or the assumption of a new assignment whenever new procedures, substances, processes, or equipment is introduced in to the workplace environment. The successful completion of a training session shall be verified by the passing of a written exam that addresses the major concepts of the topic and the demonstration of competencies in the required areas.

The proficient training documentation shall be completed and signed by the trainee and trainer in order to record that the employee, visitor, or contractor has satisfactorily completed the offered training. Each person attending the training session and understood shall sign an acknowledgment statement indicating that the information was covered.

Electrical Training shall address two categories

- **Unqualified persons**
  The **REPOWER USA** employees considered by their job classification to be an **"unqualified electrical person"** and shall be working on or near exposed energized equipment must be trained in the awareness of the potential electrical shock to which they may be exposed.
- **Qualified persons**
  The **REPOWER USA** employees considered by their job classification to be a **"qualified electrical person"** and shall be working on or near exposed energized equipment.
  must be trained in the appropriate manner to become qualified to work on electrical equipment and aware of the potential electrical shock to which they may be exposed.

This training shall include but is not be limited to

- Skills and techniques necessary to distinguish the exposed live parts of electrical equipment.
- Skills and techniques necessary to determine the nominal voltage of the exposed live parts.
- Clearance distances specified in the program and the corresponding voltages to which exposure will result in injury or death.
- Qualified persons shall also have training on the proper use of precautionary techniques, Personal Protective Equipment (PPE), insulating and shielding materials, and insulated tools when the work shall involve either direct contact or contact by means of equipment, tools or materials.
  High Voltage Procedures will be found in Appendix I. Minimum approach and clearance distances for both **"unqualified electrical person"** and **"qualified electrical person"** will be found in Appendix II.

15.0 Definitions

- **Flow of electricity**
  Similar to the flow of product through a pipe, electricity tends to flow along the path of least resistance to earth (ground).
- **Current**
  Total volume of product flowing past a certain point in a specified time period; measured in amperes.
- **Voltage**
  Like the pressure in a pipeline; measured in volts.
- **Resistance**
  Any condition which retards flow; measured in ohms.
- **Ground**
  Electrical path from a current sources the earth.
- **Electrical Injuries**
  The severity of an electric shock injury is determined by the amount of the current flowing through the victim. An alternating current of 100 milliamperes at a frequency of 60 hertz cycles per second may be fatal if it passes through vital organs. It is estimated that a value of 16 milliamperes is the average current at which he/she can still release from an object held by hand.

REpower Systems	Section III RPSHSE 7.1.11A	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
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Section III: 7.1.11A RPSHSE – 11A Conductor - Assured Equipment Grounding Program

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1.0 Introduction

OSHA requires that all **temporary** 120 volt and 15 and 20 amp breakers and wiring and electrical power tools and equipment on job sites be protected by Ground Fault Circuit Interrupters (GFCIs) or inspected in accordance with the "Conductor - Assured Equipment Grounding Program" (CAEG). ***REPOWER USA*** *complies with the OSHA requirements by using Ground Fault Circuit Interrupters on all locations and electrical applications.*

Testing under the CAEG Program shall be performed

- Before the first use of new equipment
- Before equipment is used after an incident suspected of causing damage
- Before equipment is returned to service following any repairs
- At intervals not exceeding three (3) months (exception: extension cords and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding six (6) months).

A test can be verified by placing color-coded marking tape on the equipment.

"7.1.11A RPSHSE – 11A" describes the requirements needed to assure that the installation and maintenance of equipment grounding conductors for temporary wiring on job sites is in accordance with 29 CFR 1910.304 and 29 CFR 1926.404. Ground Fault Circuit Interrupters (GFCIs) are **not** required for 120 volt, single phase, 15 and 20 ampere permanent receptacle outlets which are part of the permanent wiring of the building. However, they are intended to be used with portable Ground Fault Circuit Interrupters (GFCIs) and meet the provisions of the "Conductor - Assured Equipment Grounding Program". Also double insulated tools are not required to be grounded or tested under this program. Employees shall not use any equipment which does not meet the requirements of this program. **REPOWER USA** written program provides for applicable procedures to be available at all job sites and available for review by Contractors, Employees and Regulatory Agency personnel (i.e. Assistant Secretary & OSHA Auditors/Inspectors). This program is implemented at all **REPOWER USA** job sites.

2.0 Requirements

Equipment grounding conductors shall be installed and maintained in accordance with this instruction. It is the responsibility of the On-Site Supervisors to implement this program at their respective job locations.

2.1 Installation

Equipment grounding conductors shall be installed as follows:

- All 120 volt, single phase, and 15 and 20 ampere receptacles shall be the grounding type and their contacts shall be grounded by a connection to the equipment grounding conductor of the circuit supplying the receptacles in accordance with the applicable requirements of the National Electrical Code (NEC).

- All 120 volt cord sets (extension cords) shall have an equipment grounding conductor which shall be connected to the grounding contacts of the connector(s) on each end of the cord.
- The exposed non current-carrying metal parts of a 120 volt cord and plug-connected tools and equipment that are likely to become energized shall be grounded in accordance with the applicable requirements of the National Electrical Code.

2.2 Daily Visual Inspections

Employees will visually inspect receptacles, flexible cords sets (extension cords), electrical equipment, and electrical tools before each day's use for external defects such as deformed or missing pins, for insulation damage, and for an indication of possible internal damage. When there is evidence of damage, the item shall be taken out of service until tests and any required repairs have been made and documented.

2.3 Monthly Testing

All 120-volts, single phase, 15 and 20 ampere receptacles, 120-volt flexible cord sets, and 120-volt cord and plug connected equipment which are not a part of the permanent wiring of the building or structure are required to be grounded. They must be tested, recorded, and documented by a competent person (trained supervisor) on a monthly basis;

- All equipment-grounding conductors shall be tested for continuity and shall be electrically continuous.
- Each cord set, attachment cap, and the plug and receptacle of cord sets shall be tested for the correct attachment of the equipment grounding conductor. The equipment-grounding conductor shall be connected to its proper terminal.

A monthly inspection is required on all electrical hand tools, cord sets, drop light extension cords, and electrical welders and must be documented.

2.4 Test Record

The test shall be verified by placing color-coded marking tape on the receptacle, cord set, or equipment to identify that it has passed the test and to indicate the date (quarter) in accordance with the coding scheme.

3.0 Testing and Record Requirements

This program is required by Occupational Safety and Health Administration (OSHA), in compliance with Part 1926.404 effective October 9, 1986, where ground-fault circuit interrupters (GFCIs) are **NOT** in use and where 120-volt and 15 and 20 ampere wiring is **NOT** part of the building or facilities permanent electrical service. Employees **SHALL** only be allowed to use the equipment that meets these requirements.

3.1 They SHALL tested by the designated Competent Person(s) as follows:

3.1.1 Receptacle Tester

Plugs in to show if the terminals are correctly connected to the ground and if the wire is continuous (without breaks).

3.1.2 Continuity Tester

Checks if the ground is continuous from the metal frame (a) through the cord to the third prong (b). Also, touch the tester contact to first prong (c) then second prong to detect possible ground fault.

3.1.3 Test Record

Is maintained to verify that **COLOR CODE** method indicate appropriate month tested.

- Tests are made:
  - Before the first use
  - After any repair or after a suspected-damage incident
  - In 3 month periods (6 month periods if in a protected, fixed location).

3.1.4 Inspection

Before the day of use, the cord-supplied equipment shall be visually inspected for ground problems.

DEFECTIVE or EQUIPMENT THAT DOES NOT MEET THIS PROCDURE GUIDELINES SHALL NOT BE USED.

Forms

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Form 1 – Electrical Equipment Inspection Report

Electrical Equipment Inspection Report

FACILITY		DEPARTMENT	
LOCATION		PHONE NO.	
DATE	INSPECTOR	SUPERVISOR	
MACHINE TYPE		MODEL NO.	
MANUFACTURER		SERIAL NO.	

EQUIPMENT	OKAY	NOT OKAY	NA	COMMENTS
1. POWER CORD, PLUGS, HOSES (PNEUMATIC), WELDING CABLES				
A. Inspect for cuts, abrasions, exposed wires				
B. Inspect for oil or solvent soaked cable				
C. Inspect the cord & hose pulled out of clamp				
D. Inspect plug for bent or broken pins				
E. Inspect plug for bent or missing ground pin				
F. Inspect for splices and terminations				
G. Inspect electrode holder condition				
H. Inspect for terminal covers				
2. CASE				
A. Inspect for excessive dents				
B. Inspect for missing bolts				
C. Inspect for case ground				
D. Inspect for cracks, chips, breakage				
E. Inspect tool guard				
F. Inspect chuck or tool holder condition				
3. INTERNALS				
A. Inspect to see if the unit is full of dust, dirt, oil, etc.				
B. Inspect switch for sticking				
4. LIGHTS				
A. Inspect bulb guard				
B. Inspect bulb condition				
C. Inspect handle condition				

CONDITION CODES: [1] - DEFECTIVE/ REPLACE [2] - DEFECTIVE/ REPAIR [3] - ACCEPTABLE

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Form 2 - Minimum and Clearance Distances for Electrical Work

Minimum and Clearance Distances for Electrical Work

"Unqualified Electrical Person"

- When an **"unqualified electrical person"** shall be working in an elevated position near non-energized overhead lines or energized overhead lines the person and the longest conductive object he/she may contact shall not come closer to the unguarded energized lines than:
  - For voltage to ground 50kv or below – 10 feet.
  - For voltage to ground over 50kv – 10 feet plus 4 inches for every 10kv over 50kv.
  - **NOTE:** For voltages encountered with overhead lines, objects which do not have an insulating rating for the voltage involved are considered conductive.

"Qualified Electrical Person"

- When a "qualified electrical person" shall be working in the vicinity of energized overhead lines, the "qualified electrical person" may not approach or take any conductive object without an approved insulating handle closer to the energized parts than:
  - 300v and less – avoid contact.
  - Over 300v to 750v – 1 foot.
  - Over 750v to 2kv – 1 foot – 6 inches.
  - Over 2kv to 15kv – 2 feet.
  - Over 15kv to 37kv – 3 feet.
  - Over 37kv to 87.5kv – 3 feet – 6 inches.
  - Over 87kv to 121kv – 4 feet.
  - Over 121kv to 140kv – 4 feet – 6 inches
- **Exceptions to the above requirement is made when**
  - The **"qualified electrical person"** is insulated from the energized part with the Personal Protective Equipment (PPE) tested for the voltage involved.
  - The energized part is insulated from the person and all other conductive objects at a different potential.
  - The person is insulated from all conductive objects at a potential different from that of the energized part.

Vehicles or Mechanical equipment

- Any vehicle or mechanical equipment capable of having structure parts elevated near energized overhead lines of 50kv or less shall be operated so that a clearance of 10 feet is maintained. If voltage is greater than 50kv the clearance shall be increased 4 inches for every 10kv.
- **The following conditions may reduce these clearance requirements:**
  - If the vehicle is in transit with its structure lowered, the clearance from 50kv or less overhead lines may be reduced to 4 feet. If the voltage is greater than 50 kv clearance shall be increased 4 inches for every 10kv.
  - If adequately rated insulating barriers are installed to prevent contact with the lines and are not part of an attachment to the vehicle in its raised structure, the clearance may be reduced to a distance within the design working dimensions of the insulating barrier.
  - If the aerial lift is insulated for the voltage involved and if the work is performed by a **"qualified electrical person"** clearance may be reduced to the distances noted above (**"qualified electrical person"** clearances).
  - Approved warning technique devices that shall ensure that employee(s) on the ground cannot contact the aerial lift equipment or grounding points.

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Form 3 - Classified Area

Classified Area

Only equipment that is approved for that application shall be used in areas that have been designated as a hazardous (classified) location.

Equipment and associated wiring approved for use in an intrinsically safe shall be permitted in any classification location. The National Electrical Code (NEC) defines an intrinsically safe circuit as: a circuit in which any spark or thermal effects is incapable of causing ignition of a mixture of flammable or combustible material in air under prescribed test conditions.

Hazardous locations most likely encountered in the oil & gas industry will be

- **Class I, Division I**
  - A location where ignitable concentrations of flammable gases or vapors exist under normal operating conditions.
  - Where ignitable concentrations of gases may exist frequently due to repairs, maintenance or leakage.
  - Where breakdowns or malfunctioning equipment or processes might release ignitable concentrations of flammable gases or vapors and might also cause simultaneous failure of electrical equipment.

- **Class I, Division II**
  - A location where volatile flammable liquids or vapors are handled, processed or used. These are normally confined within closed container or systems.
  - Where positive mechanical ventilation and which it may become normally prevent ignitable concentrations of gases or vapors hazardous if this ventilation failed.
  - Where the location is adjacent to a Class I, Division I location which might communicate ignitable concentrations of flammable gases or vapors unless prevented by adequate positive pressure ventilation from a source of clean air and effective safe guards against ventilation failure are provided.
  - Hazard classed areas are also organized into groups. The group most inherent to the oil & gas industry operations will be Group "D", which includes flammable liquids, vapors and gases.
  - All electrical equipment for hazardous locations shall conform to National Electric Code specifications as well as engineering automation system for the classified area.
  - Equipment installed in classified areas shall be legibly marked by the Original Equipment Manufacturer (OEM) or testing agency indicating in what areas it is approved for use.
  - The use of pigtails or drop cords that are not appropriately rated for that hazard class shall not be used unless a hot work permit has been issued.

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Form 4 - High Voltage Procedures

High Voltage Procedures

- Prior to opening the door of a high-voltage (4160 volts or greater) energized circuit breaker or motor starter, the following safe practices must be implemented:
  - Face shield, appropriately insulated gloves and flash suit must be worn.
  - The On-Site Field Superintendent/Supervisor, the On-Site HSE Coordinator and the On-Site Senior Electrical Person shall be alerted as to the activities.
  - Work shall be performed by at least two technicians. One technician shall perform the work while the other monitors the activities, fully equipped and ready to rescue in case of an emergency.
  - The high-voltage insulating gloves must be inspected for pinhole leaks by pressurizing the gloves. Additionally, the gloves shall be cleaned using a trichloroethane solution. Cleaning shall be done using a radial motion around the arm. Gloves shall not be cleaned using an axial motion, up and down the arm, because conductive tracks may develop which could result in an arcing across the glove.
  - If high-voltage **Hot Sticks** are to be used, the same cleaning procedure discussed for the high voltage insulating gloves shall be implemented before each usage.
  - Prior to using high-voltage **Hot Sticks** or any other voltage detecting device, the device shall be tested using some known voltage to confirm its operability.
  - Portable hand-held voltmeters shall not be used to measure voltages on circuits above 600 volts unless the meters are specially approved for use on high voltage switch gear.
  - When opening or closing a high-voltage circuit breaker, the person initiating the action shall stand to the hinged side of the breaker door. Standing in front or to the right of the breaker is dangerous should the breaker explode.
  - Prior to contacting a de-energized bus for cleaning or repair, the bus shall be tied to ground with an approved ground strap. Technicians must remember, upon completing their tasks, to remove the ground strap prior to re-energizing the bus.
  - All circuit breakers used to isolate a section of a bus for cleaning or repair must be opened and fully racked-out. A tag explaining why the breaker is racked-out must be placed on the breaker cubicle door.
  - Prior to opening any electrical enclosure within a hazardous area, the area immediately around the enclosure (within 10 feet) must be checked for combustible gas. If the area around the enclosure is not adequately ventilated, portable fans must be installed and used to ventilate the area.

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Forms 5 - "Conductor – Assured Equipment Grounding Program"

"Conductor – Assured Equipment Grounding Program"

Job Site Posting Requirements

OSHA requires that all temporary 120 volt and 15 and 20 amp breakers and wiring and electrical power tools and equipment on job sites be protected by Ground Fault Circuit Interrupters (GFCIs) or inspected in accordance with the "Conductor - Assured Equipment Grounding Program" (CAEG).

Testing under the CAEG Program shall be performed

- Before first use on new equipment,
- Before equipment is used after an incident suspected of causing damage,
- At minimum of 3 month intervals.

Test verification should be by means of color-coded marking tape on the equipment. The following color coding scheme will be used:

1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.	REPAIR/ INCIDENT
WHITE	GREEN	RED	ORANGE	BROWN

PROCEDURE: INSPECT, then TEST, then COLOR CODE

Insure that all electrical apparatus has been satisfactorily tested and is color-coded prior to use. **This notice is recommended for permanent display at the job site.**

REPOWER Systems	Section III RPSHSE 7.1.12	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.12 – RPSHSE – 12
Fall Protection - Slips, Trips and Falls

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1.0 Introduction

Slips, trips, and falls are the major contributors to employee injuries and lost time accidents. Falls can even be fatal. Except for traffic accidents, falls are fatal to more people than any other type of accident. Although the entire work force is constantly trained and alerted to job site related falls there remains an average of more than 1500 deaths per year and over 300,000 injuries. Fall Protection Training which includes scaffolds, ladder and Step is complete upon initial employment with an annual refresher as a minimum.

Falls are not only more common and serious than is generally expected but they are generally the most costly of all accidents too. Nearly 80% of all workers' falls result in a lost-time accident and approximately 12% of those are hospitalized.

2.0 Purpose

Fall Prevention and Fall Protection are two terms that are frequently used interchangeably. However, they are dissimilar in nature and should be considered separately. Fall Prevention operates by completely removing any hazardous situation and therefore eliminating the chance of employee exposure to possible accidents or injuries. Fall Protection concedes that a hazardous situation exists and compromises by minimizing its effects and using the most practical Fall Arrest Equipment and procedures available.

Fall Prevention is a well-planned system of action initiated prior to the construction and design to eliminate exposure to potential fall hazards and their sources. The removal of these hazards protects our employees against potential or subsequent accidents and the resulting injuries. Fall Prevention is far more desirable than the use of Fall Arrest Equipment because it removes the potential source of a fall hazard. Preventative measures such as the use of elevated platforms, perimeter guarding, proper access (stairways and ramps), and efficient housekeeping, as well as the use of other well-planned safety measures, should be implemented to mitigate potential hazards. Disposing of the need for Fall Arrest Systems in favor of effective preventative measures should be your primary objective during the planning phase of any of your construction operations. Fall Prevention planning should involve a Job Safety Analysis of each work procedure that might involve exposure to any type of potential fall hazard.

REPOWER USA is committed to the preservation of safety on the job and the primary consideration for implementing an effective program is a pro-active approach to employee and job site safety.

Each **REPOWER USA** employee must also be committed to implementing an enforcing **REPOWER USA** Policies and Procedures and complying to the HSE regulations and rules without exception.

The benefits of a comprehensive "Fall Protection Program" include a safer working environment, better organization, increased productivity, and a reduction of accidents and injuries.

3.0 Scope and Application

This standard sets forth those workplaces and conditions for which Fall Protection shall be provided and the installation, construction, and the proper use of Fall Protection is required as follows:
REPOWER USA SHALL provide Fall Protection for, but not limited to, the following situations:

- Any time and/or place that requires employees to be potentially exposed to falls from a height of six feet or greater to a lower level. This will also include work near and around excavations and trenching.
- The provided Fall Protection will be, but is not limited to, the use of properly installed scaffolds (The requirements relating to Fall Protection for employees working on scaffolds are provided in 29 CFR Part 1926, Subpart I). Scaffolds will be used in areas where they do not produce a hazard greater than the use of another approved method of fall protection.
- The provided Fall Protection will be, but is not limited to, the use of properly installed and maintained fall protection devices where they do not produce a hazard greater than the use of another approved method of fall protection. (The requirements relating to Fall Protection for employees working on certain cranes and derricks are provided in 29 CFR Part 1926, Subpart N).
- The provided Fall Protection will be, but is not limited to, the proper use, purchase and application of Ladders and Stairways where they do not produce a hazard greater than the use of another approved method of fall protection. (The requirements relating to Fall Protection for employees working on Stairways and Ladders are provided in 29 CFR Part 1926, Subpart X).
- Properly maintained motorized man-lifts with a work basket that meets and/or exceeds the OSHA Standard will be used where they do not produce a hazard greater than the use of another approved method of fall protection.
- Under certain conditions conventional fall protection can not be used. These locations **SHALL** be identified and classified as **"Controlled Access Zones"** with the proper safety precautions in use, the personnel notified, approved methods for access, and the adequate barriers installed and marked with noticeable and legible markers.
    - The **REPOWER USA** HSE Manager has the responsibility to prepare a site-specific Fall Protection Plan which will include the identified and classified areas, the proper safety precautions to be used, the designation of a Competent Person (CP) for monitoring them, and the approved methods for access and required barriers.
- The **REPOWER USA** HSE Manager's qualifications shall be, but are not limited to, proven experience, education, and/or training for Fall Protection.

- **EXCEPTION: The provisions of this standard DO NOT apply when employees are making inspecting, investigating, or assessing workplace conditions prior to the actual start of work or after all work has been completed.**

4.0 Slips and Falls

4.1 General Precautions

Wet surfaces, spills, tripping hazards, and weather hazards can cause slips and falls. Slips are more likely to occur when you hurry or run, wear the wrong type of shoes, or do not pay attention to where you are going. **Common Sense Can Prevent Slips and Falls.** Follow the following precautions to prevent slips and falls:

- Avoid the following situations whenever possible
  - Wet floors/ decks.
  - Oily, greasy floors/ decks.
  - Highly waxed and polished floors.
  - Throw rugs at the foot or top of a stairway.
- Practice safe walking skills and habits. If you must walk on wet surfaces, take short steps to keep your center of balance under you. Point your feet slightly outward. Move slowly and pay attention to the surface you are walking on.
- Clean up spills immediately. Minor spills can be hazardous.
- Practice good housekeeping. Keep tools, cords, materials, etc. out of walkways.
- In addition to tools and materials, pay attention to tripping hazards, such as hoses, shovels, rakes, concrete bumpers in parking lots, holes in walkways and crosswalks, broken sidewalks, loose shoe laces, pants that are too long or etc.
- Never run unless the situation is life threatening. Never jump. Lower yourself carefully from docks, trucks, cranes, etc.
- Openings in decks, pits, floors, etc. should be well marked. Openings should be either:
- Constantly attended.
- Protected by barricades or standard guardrails.
- Openings which are covered (i.e.: grating or boards) shall be roped off before the holes are re-opened. Take special precautions when working in a location without handrails, barges, boats, wellheads, rooftops, machinery, etc.
- When exerting extreme force on wrenches and tools, make sure your footing is stable to prepare for wrench slips and quick releases.

5.0 Shoes and Traction

One of the best ways to prevent slip and fall injuries is to increase the friction between your shoes and the surface you are working on. The amount of traction a sole provides varies with the work surface.

Types of shoe soles include:

- **Neoprene soles**
  Can be used safely on most wet or dry work surfaces. Neoprene is not recommended for oily conditions.
- **Crepe soles**
  Are best for rough concrete, either wet or dry, but are not suggested for tile, smooth concrete, or wood surfaces.
- **Non-skid boots**
  Can be used over or in place of shoes for better traction on oil, chemicals, grease, and ice conditions. Be sure footwear matches the working conditions present on the job.

6.0 Tripping Hazards

Trips occur from poor housekeeping practices, cluttered work areas, loose footing areas, and poor lighting conditions. Trips generally occur from being in a hurry and not paying attention to where you are going. Use these safety rules to avoid tripping:

- Make sure you can see where you are going. Carry only loads that you can see over.
- Keep all work areas clean and **DO NOT** clutter aisles, stairs, and walkways. Store tools and materials in designated areas when not in use.
- Arrange furniture, tool chests, etc. so they **DO NOT** interfere with walkways and traffic.
- Extension cords and power tool cords should be taped to the floor or arranged out of the way of traffic.
- Eliminate hazards due to loose footing and flooring on stairs, steps, tiles, broken concrete, carpets, etc.
- Keep work areas well lit. Extinguished lights and burned out bulbs will interfere with the **REPOWER USA** employee's ability to identify HSE hazards and to properly perform their jobs. The use of flashlights and appropriate safety lights are required.

7.0 Walking/Working Surfaces

The most critical aspect of Fall Protection is to provide a walking surface which is clean, dry (as much as possible), and free of obstructions. Access and egress paths **SHALL** be visible (marked and well lighted). Surfaces should be built strong enough to withstand twice the anticipated load to be placed upon them. Storage areas should have labels which provide load ratings to prevent overloading. Elevated work areas (over four feet above adjacent areas) **SHALL** have guardrails to prevent personnel from falling to the next level.

Adjacent hazards should be guarded to prevent personnel from falling into moving machinery or other hazards. Guardrails **SHALL** be strong enough to withstand a minimum of two hundred (200) pounds of pressure from any direction.

Personnel are not allowed to climb on guardrails. Holes **SHALL** be covered or have guardrails to prevent personnel from falling into these hazards. Applications may exist for infrequently used openings to ladders, hatches, or chutes to have gates or removable guardrails to protect personnel from inadvertently backing and falling into those openings. Elevated work areas **SHALL** have toe-boards and possibly screening to prevent objects from falling into moving machinery or onto personnel at lower levels.

7.1 Scaffolds

Scaffold use **SHALL** comply with the Occupational Safety and Health Administration (OSHA) regulations outlined in **29 CFR 1910.28** and **29 CFR 1926 450 – 454, Subpart L.** Only trained, Competent Personnel (CP) may erect scaffolds. All scaffolds **SHALL** be reviewed for compliance prior to their first use and **SHALL** be inspected prior to each use by a Competent Person and the scaffold users.

7.1.1 General

A scaffold is an elevated working platform that is used to support workers and materials during construction and maintenance work. Scaffolds should be designed to support four (4) times the anticipated weight of the person(s) and material(s) that will be placed on it. Never exceed the safe working limit of a scaffold.

7.1.2 Precautions

- All scaffolds must be built according to OSHA standards. Properly installed scaffolds include secured decking or planks, toe-boards, guards on all exposed sides, hand rails, and mid rails (See OSHA 1910.28 for additional designs, constructions, and uses of scaffolds).
- All scaffolds MUST be tagged OUT-of-SERVICE for any defect that is identified with the scaffold placed out of service until repaired.
- Scaffolds more than one section high must be tied off.
- A safe and convenient access to the platform level of the scaffold must be provided. Cross-braces should not be used to climb the scaffold - use an access ladder or equivalent safe access.
- Planks should be laid with edges close together so there are no spaces large enough for tools, etc. to fall through. Planking must be overlapped a minimum of 12-inches or secured from movement. Planking and decking can be solidly positioned by cleating or nailing it into place. Overhangs should be a minimum of 6-inches or a maximum of 12-inches so they are secure and will not tip when stood on.
- Toe-boards should be used to prevent materials and tools from falling.
- Personnel must wear properly tied-off safety belts on the scaffold platforms not equipped with standard guardrails when the working surface is 10-feet or more above ground level.
- Never use scaffolds during high winds.
- Use containers to store tools, lines, scrap material, etc. to prevent accidents and tripping hazards.

- Always follow the Original Equipment Manufacturer's (OEM) instructions when assembling a scaffold.
- Make sure scaffolds are plumb and level at all times. Adjusting screws should not be extended to more than 12-inches of thread.
- Never use metal scaffolding in the vicinity of live electrical wires or equipment.
- Lash scaffolds at intervals of 30-feet of length and 25-feet of height.
- No alteration is permitted to any scaffold member by welding, burning, drilling, cutting, or bending.

7.1.3 Rolling Scaffolds

- Always lock caster brakes and blocks when a scaffold is in the working position.
- Never move a scaffold with anyone on it.
- The height of the working platform must be no more than four (4) times the smallest base dimension.
- Adjusting or leveling screws must not be used with scaffolds equipped with wheels.
- Have sufficient help when rolling scaffold.

7.1.4 Scaffold Training

- All Scaffold Training for REPOWER USA personnel is provided during normal training with certified OSHA, MSHA & COSS Trainers.

7.2 Stairways and Ladders

Stairways **SHALL** comply with the Occupational Safety and Health Administration (OSHA) regulations outlined in 29 CFR 1910.24 and 29 CFR 1926. 1052.

The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.24 contains the safe design and construction requirements for fixed general industrial stairs for interior and exterior stairs around machinery, tanks, and other equipment and stairs leading to and from floors, platforms, and pits.

Ladders **SHALL** comply with the Occupational Safety and Administration (OSHA) regulations outlined in 29 CFR 1910.25 for wood ladders, 29 CFR 1910.26 for portable metal ladders, 29 CFR 1910.27 for fixed ladders, and 29 CFR 1910.1053 for general ladders. The base of portable ladders **SHALL** be positioned a distance from the vertical wall equal to one-fourth (¼) the working length of the ladder. Both self-supporting and non self-supporting portable ladders **SHALL** be capable of supporting at least four (4-X) times the maximum intended load except that each extra-heavy-duty type 1-A metal or plastic ladders **SHALL** sustain at least 3.3 times the maximum intended load.

7.2.1 General Ladder Precautions

- Before any ladder is used, the employee must inspect the ladder carefully for missing cleats, cracked or missing rungs or side rails, etc.

- Ladder inspections should be done monthly on a routine basis by the supervisor. Ladder inspections must be a part of the safety inspection program.
- Tag defective ladders so they may be repaired to the Original Equipment Manufacturer's (OEM) specifications or be replaced.
- Makeshift ladders are not permitted. Specially designed ladders are acceptable only when fixed ladders cannot be used.
- Ladders shall not be placed in a horizontal position and used as a runway or a scaffold unless designed for this purpose.
- All single ladders, the lower halves of extension ladders and stepladders are to be equipped with safety shoes. Metal spikes or spurs may be used when needed.
- Place ladders so that both side rails have secure footing. Provide non-skid footing on hard surfaces or securely fasten them to prevent slipping. Solid footing on soft ground is required to prevent ladder from sinking.
- Rungs must have a uniform 12-inch rung spacing.
- Stepladders may not exceed 20 feet in height. A substantial spreader must be provided to hold the front and back sections in open position.
- All portable ladders must be type IA (extra heavy duty) or I (heavy duty) design.
- All single and extension ladders should be equipped with a 6-foot long rope a 1/2-inch in diameter, or the equivalent, to secure the top of the ladders.
- Only one employee is allowed to work from a ladder at a time. If work requires two employees, a second ladder or scaffold should be used.
- Never use metal ladders or ladders with metal sides near electrical equipment or lines.
- **DO NOT** leave ladders unattended unless properly secured.
- Safety belts with lanyards are required when working more than ten (10) feet above ground level without standard railings or other fall protection.
- Never tie safety belts off on a ladder unless the ladder is properly secured.
- The bottom section of section ladders shall be equipped with safety shoes. The top section should always be securely tied off to something substantial.
- Never reach further than an arm's length from a ladder. Move the ladder as the work progresses to prevent an accident.
- Always shut down any moving equipment and machinery before climbing a ladder that is next to or extends above such equipment.

- When using a ladder for access to roofs, etc., the ladder must extend 3-feet above the upper rest.
- Never use ladders during high winds.

7.2.2 Straight Ladders

- Never climb higher than a third rung from the top on straight or extension ladders.
- Straight ladders must be equipped with safety shoes. The base or foot of the ladder should be placed one-fourth of the ladder length away from the vertical plane of the top support.
- Reference for quick positioning, place brightly colored strips of tape (or paint) on the side rails of a straight ladder (not an extension ladder) angled parallel to any vertical object the ladder is correctly placed against.

7.2.3 Step-ladders

- Make sure a stepladder is fully open before starting to climb.
- Never stand higher than the second rung from the top of a step-ladder.
- Never work from the top step of a step ladder (This does not apply to safety platform ladders).
- When working on a step ladder 10-feet or more above the ground, the ladder must be held by at least one other person (exception- safety platform ladder).
- Never use a step-ladder as a straight ladder.

7.2.4 Carrying Ladders:

- It is recommended that two people carry a ladder that is longer than 8 feet. To prevent the dangerous projection of the ladder, each person should be close to an end.
- If the ladder is light enough to be carried by one person, the ladder should be carried with the rear of the ladder close (down) to the ground and the front-end elevated so it will be above the head of anyone ahead of the carrier.
- Be alert for unexpected personnel in your path.
- Be careful approaching doorways and corners.

7.2.5 Ascending and Descending Ladders

- Always face the ladder when ascending or descending and use both hands.
- If material(s) must be handled, pull it up with a rope after climbing the ladder and becoming secure.
- Tools, parts, or other objects should be properly attached to the employee while climbing or use a hand line.
- Never slide down a ladder.

- Never stand higher than the second rung from the top of a stepladder or the third rung of a straight or extension ladder.
- Before climbing a ladder, check your shoes for mud, grease, etc.
- The combined weight of the employee and load should not exceed the load limit for the ladder.

7.2.6 General Stairways Precautions

- When carrying tools or materials, always keep one hand free to use the handrails to ascend or descend a stairway.
- Stairs to attic areas in warehouses, etc, must be equipped with adequate railings. All stairways should be well illuminated.
- All steps and stairs must be kept free of obstructions and slippery materials such as oil and grease.
- When walkways and stairways are provided, they must be used. Do not take shortcuts.
- Tools, equipment, and materials must not be left on stairways and walkways to prevent tripping hazards.
- Standard handrails must be provided for four (4) or more steps.
- Use handrails when walking up/down stairs or steps.
- The use of colors to mark elevation changes is encouraged.
- Secure hoses and cords away from steps and stairways.

8.0 Responsibility

It is the responsibility of **REPOWER USA** to appoint, train, and fully instruct a designated Competent Person (CP) to implement the Fall Protection Plan. He is responsible for the observational HSE checks of work operations and will facilitate the enforcement of the **REPOWER USA** Policies and Procedures. **REPOWER USA** will provide Fall Protection Systems for employees in work areas where an injury from a fall to a lower level is a recognized hazard. Each On-Site Field Supervisor is also responsible to enforce **REPOWER USA** Policies and Procedures and correct any unsafe acts or conditions immediately.

It is the responsibility of each employee to follow **REPOWER USA** Policies and Procedures and bring to the On-Site Field Supervisor and the **REPOWER USA** HSE Manager's attention any unsafe or hazardous conditions or acts that may cause injury to either himself/herself or any other employees.

The **REPOWER USA** HSE Manager shall prepare the Site Specific Fall Protection Program for each specified work site. **REPOWER USA** shall make exposure determination without regards to the use of Personal Protective Equipment (PPE) when the standard methods or procedures of protection are not feasible or a greater hazard would be created by their use.

8.1 Responsibility of the On-Site Field Supervisor

NOTE: Re-training is required when the previous training is rendered obsolete or the types of Fall Protection Systems or equipment change.

- **SHALL** complete a Job Site Safety Analysis (JSA) with the On-Site HSE Coordinator and/or **REPOWER USA** HSE Manager to determine requirements for the necessary Fall Protection Equipment and discuss final equipment usage with **REPOWER USA** employees.
- When work **SHALL** be performed at a recognized unguarded elevated height, the On-Site Field Supervisor may select from the following options:
  - **Fall Prevention** - eliminate the Free Fall Hazard during all phases of the job when traveling to and from elevated work areas and during the performance of the task at the elevated work area, by means of an appropriate guarded work platform (example: motorized man-lift, scaffolds, ladders or etc.).
  - **Fall Protection Equipment** - select and install Personal Fall Protection equipment to eliminate the Free Fall Hazard when traveling to and from elevated work areas and during the performance of the task at the elevated work area.

8.2 Responsibility of the On-Site Competent Person (CP)

NOTE: Re-training is required when the previous training is rendered obsolete or the types of Fall Protection Systems or equipment change.

- Know and fully understand the Fall Hazards in the work place.
- Know and fully understand the correct procedures for erecting, maintaining, disassembling, and inspecting the Fall Protection Systems to be used at the work place.
- Know and fully understand the use and operation of guardrails, Personal Fall Arrest Equipment, safety nets, warning lines, controlled access zones and other protection to be used.
- In the event that an alternate method of Fall Protection must be implemented the On-Site Competent Person (CP) shall have the responsibility of enforcing and implementing the identified safety monitoring requirements for the
  - site-specific Fall Protection Plan.
- Be able to identify the hazards involved while working with scaffolds
- Know and fully understand the correct procedures for the handling and storage of equipment and materials and the erection of overhead projections.
- Inform employees of fall hazards and/or unsafe workmanship and conditions.
- Be on same working surface and in visual sight and able to communicate with employees.
- Have no other assignments that takes attention from monitoring the functions.

- **SHALL** maintain a current written certification of his/her qualifications and provide **REPOWER USA** with copies for the Personal Files and Training Records.

8.3 Responsibility of the Fall Protection-User:

NOTE: Re-training is required when previous training is rendered obsolete or the types of Fall Protection Systems or equipment change.

- Each employee assigned to work at elevated heights has the responsibility of thoroughly inspecting their Personal Fall Protection Equipment anchor points, connecting means (example: lanyards), and body holding devices (example: body harness) prior to using the equipment. Any equipment problems noted **SHALL** be brought to the immediate attention of the On-Site Field Supervisor, the On-Site Competent Person (CP) and the **REPOWER USA** HSE Manager, or the On-Site HSE Coordinator.
- Any questions concerning the type of Personal Fall Protection Equipment best suited for a particular job should be directed to the attention of the On-Site Field Supervisor, the On-Site Competent Person and **REPOWER USA** HSE Manager, or the On-Site HSE Coordinator.
- All Fall Protection System installation questions should be brought to the attention of On-Site Field Supervisor, On-Site Competent Person and **REPOWER USA** HSE Manager or On-Site HSE Coordinator.

9.0 Fall Protection and Retrieval Equipment

Eliminate **"free fall hazards"** during all phases of the job by selecting and installing Personal Fall Protection Equipment when traveling to and from the elevated work area and during performance of the task at the elevated work site.

9.1 Safety Nets

Safety nets **SHALL** be provided when workplaces are more than twenty-five (25') feet above the ground or water surface or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, motorized man-lifts, safety lines, or safety belts are impractical. Where safety net protection is required, operations **SHALL** not be undertaken until the net is in place and has been tested. Nets **SHALL** extend eight (8') feet beyond the edge of the work surface where employees are exposed and **SHALL** be installed as close under the work surface as possible but must not exceed more than twenty-five (25') feet below the work surface. Nets **SHALL** be hung with sufficient clearance to prevent the user's contact with the surfaces or structures below. Impact and load testing **SHALL** determine such clearances. The mesh size **SHALL** not exceed six (6") inches by six (6") inches. All new nets **SHALL** meet the accepted performance standards of 17,500 foot-pounds (minimum impact resistance as determined and certified by the manufacturers), and **SHALL** bear a label of the proof test.

Edge ropes **SHALL** provide a minimum breaking strength of five thousand (5,000) pounds. Forged steel safety hooks or shackles **SHALL** be used to fasten the net to its supports and connections between net panels **SHALL** develop the full strength of the net.

9.2 Fall Arrest Equipment

Fall Arresting, Work Positioning or Travel Restricting Equipment **SHALL** be used by the **REPOWER USA** employees working at elevated locations more than four (4' – 1.2 m) feet above the ground on poles, towers, or similar structures if other fall protection has not been provided. Purchased Fall Arrest Equipment and raw materials **SHALL** meet both ANSI and/or ASTM standard requirements.

The following requirements apply to Personal Fall Arrest Systems

- When stopping or arresting a fall, Personal Fall Arrest Systems **SHALL** limit the maximum arresting force on an employee to nine hundred (900) pounds (4-Kn) if used with a body belt.
- When stopping or arresting a fall, Personal Fall Arrest Systems **SHALL** limit the maximum arresting force on an employee to eighteen-hundred (1800) pounds (8Kn) if used with a body harness.
- Personal Fall Arrest Systems **SHALL** be rigged so that an employee can neither free fall more than six (6' – 1.8m) feet nor contact any lower level.
- If vertical lifelines or drop-lines are used, only one employee may be attached to any one lifeline.
- Snap-hooks **SHALL** not be connected to loops made in webbing-type lanyards.
- Snap-hooks **SHALL** not be connected to each other.

9.3 Guardrail Systems

The following requirements apply to Guardrail Systems

- Top edge height of top rails, or equivalent system members, **SHALL** be forty-two (42" – 1.1m) inches plus or minus (+/-) three (3" – 8cm) above the walking/working level. When conditions warrant the height of the top edge may exceed forty-five (45") inches in height, provided the guardrail system meets all other criteria.
- Guardrail systems **SHALL** be capable of withstanding, without failure, a force of at least two-hundred (200) pounds (890N) applied within two
    - (2" – 5.1cm) inches of the top edge, in any outward or downward direction, at any point along the top edge.
- Guardrail systems **SHALL** be surfaced to prevent injury to an employee from punctures or lacerations and to prevent snagging their clothing.
- Guardrails used around holes **SHALL** be erected on all unprotected sides or edges of the hole.

- Guardrails systems around holes used for the passage of materials **SHALL** not have more than two (2) sides provided with removable guardrail sections to allow the passage of materials. These removal guardrails **SHALL** be re-installed after each use.

10.0 Fall Protection/Safety Harness

- Employees must wear safety harnesses when working six (6) feet or more above the ground unless other adequate protection against falling is provided.
- Safety climbers that are installed on ladders attached to vessels or other equipment must be used. Safety climbers have safety harness attachments that allow personnel to climb without detaching their safety belts after each step.
- In offshore operations, harnesses must be worn outside protective handrails and should be worn any time personnel is six (6) feet or more above a floor level.
- The harness should fit snugly and comfortably. No more than the necessary slack in the line should be allowed (3-feet maximum).
- Harnesses must be regularly inspected for excessive wear or damage. Any harnesses worn or damaged to the extent of possible failure should be destroyed, not discarded.

11.0 Rescue and Emergency Procedures

The On-Site Field Supervisor **SHALL** have the responsibility, in coordination with the **REPOWER USA** HSE Manager and the On-Site HSE Coordinator, to determine whether **"Standby" (*) or "Available" (**) Rescue Services** are required for the specific Fall Protection and Retrieval. The criteria for this determination **SHALL** be based on the known or potential hazards, Personal Protective Equipment (PPE), and the ability to self-rescue.

The following requirements apply to employers who have employees trained in Fall Protection Rescue to perform rescue services:

- The location **SHALL** ensure that each member of the Rescue Service Team is provided with and is trained in the proper use of Personal Protective Equipment (PPE) and rescue equipment necessary for making rescues at no cost to employee.
- Each member of the Rescue Service Team **SHALL** be trained to perform his/her assigned rescue duties and each member **SHALL** also receive the training required of a Competent Person (CP).
- Each member of the Rescue Service Team **SHALL** practice making vertical Fall Protection type rescues. This training **SHALL** be completed at least once every 12 months and simulate the types of fall situations where a rescue would be needed. This will be done using dummies, mannequins, or actual person(s) and through the use of representative spaces with respect to the configuration, opening size, and accessibility.

- Each member of the Rescue Service Team **SHALL** be trained in basic First Aid and Cardiopulmonary Resuscitation (CPR). At least one member of the Rescue Service Team **SHALL** hold current certification in First Aid and Cardiopulmonary Resuscitation (CPR).

The following requirements apply to employers who have Contracted Rescue Service Teams (example: Local Fire Departments or Emergency Services) to perform Fall Type Rescue Services:

- Provide a copy of Fall Protection Policy and Procedures for review.
- Provide adequate time for the Contracted Rescue Service Teams (example: Local Fire Departments or Emergency Services) to review permits and procedures, examine Confined Space Entry site, and practice Rescue Procedures.
- Inform the Rescue Service Team of the known hazards or potential hazards that they may confront.
- Provide the Rescue Service Team with access to all possible Fall Protection Areas from which rescue may be necessary so they can develop appropriate procedures and practice rescue operations.

The following requirements apply to employers who depend on the Client/Host Rescue Service Team Personnel to perform rescue services:

- Review the Client/Host Rescue Service Team on-site rescue procedures.
- Provide time for the Client/Host Rescue Service Team to practice Fall Rescue procedures at the area with the employer's on-site personnel.
- Provide the Client/Host Rescue Service Team with copy of employer's Fall Protection Policy and Procedures.
- Ensure in contract language, that the Client/Host agrees that the Client/Host Rescue Service Team will be available for use during any rescue or emergency at the employer's site on the Client/Host property for Fall Protection Rescue requirements.

To facilitate Fall Rescue by retrieval equipment and/or systems, methods SHALL be provided and used unless the retrieval equipment would increase the overall risk of the entry or would not contribute to the rescue of the affected employee. Retrieval equipment and/or systems SHALL meet or exceed the following requirements:

- Each employee **SHALL** use a chest or full body harness with a retrieval line attached to the center of the employee's back near shoulder level or above employee's head.
    - Wristlets may be used in lieu of the full body harness if the employer can demonstrate that the use of a full body harness is unfeasible or creates a hazard and that the use of wristlets is the safest and most effective alternative.
    - **NOTE:** Using wristlets is the least desirable method of lowering or raising employees and should be considered only in **"extreme"** circumstances.
- The other end of the retrieval line **SHALL** be attached to a mechanical retrieval device or a fixed point in such a manner that a rescue can begin as soon as the Competent Person (CP) becomes aware that a rescue is necessary.

- A mechanical retrieval device **SHALL** be available to retrieve an employee from vertical spaces that are more than 5 feet deep.

12.0 First Aid and Medical Services

- There shall always be someone in the area of the work site that is currently trained in Cardiopulmonary Recitation (CPR) and basic First-Aid procedures.
- Employees shall be aware of the location of the nearest First-Aid equipment and how to obtain emergency assistance and medical attention.
- If an injured employee is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the work-site, the Material Safety Data Sheet (MSDS) **SHALL** be made available to the medical facility treating the exposed employee.

13.0 Recordkeeping

REPOWER USA shall maintain a written record of the trainings including safety drills, inspections, tests, and maintenance. All records shall be maintained in accordance with existing state and federal regulations.

14.0 Review and Revisions

The **REPOWER USA** HSE Manager has the responsibility of reviewing and revising the Fall Protection Policies and Procedures on an annual basis.

- **Reviews and Revisions SHALL be immediate for any of the following:**
  - Any unauthorized use of Fall Protection Equipment.
  - Discovery of a hazard not covered by the current Fall Protection Policies and Procedures.
  - Any employee and/or Client/Host complaint.
  - Occurrence of any injury or near misses.
  - As necessary due to procedure enhancements or process changes.
  - As regulations or standards change.

15.0 Definitions

These definitions are provided here for the benefit of **REPOWER USA** employees for training and a are ready reference to be used to ensure the clarification of information.

15.1 Anchorage

A secure point of attachment for lifelines, lanyards or deceleration devices

15.2 Body Belt (Safety Belt)

A strap with the means of securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device

15.3 Body Harness
A configuration of straps which may be secured about the employee in a manner that will distribute the Fall Arrest Forces over the thighs, pelvis, waist, chest, and shoulders with the means for attaching it to other components of a Personal Fall Arrest System.

15.4 Buckle
Any device for holding the body belt or body harness closed around the employee's body.

15.5 Competent Person
Is a person who is trained in being capable of identifying existing and predictable hazards in the surroundings or working conditions which are hazardous or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate them.

15.6 Connector
A device, used to couple (connect) parts of the Personal Fall Arrest System and Positioning Device Systems together. It may be an independent component of the system (such as a carabiner) or it may be an integral component of part of the system (such as a buckle or de-ring sewn into a body belt or body harness or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).

15.7 Controlled Access Zone (CAZ)
An area in which certain work (e.g., overhead bricklaying or etc.) may take place without the use of guardrail systems, Personal Fall Arrest Systems, or safety nets systems and access to the Zone is controlled.

15.8 Dangerous Equipment
Equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

15.9 Deceleration Device
Any mechanism (such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc.) which serves to dissipate a substantial amount of energy during a Fall Arrest or otherwise limits the energy imposed on an employee during Fall Arrest.

15.10 Deceleration distance
The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping and at which the Deceleration Device begins to operate. The deceleration distance is measured as the distance between the location of an employee's body harness attachment point at the moment of activation (at the onset of Fall Arrest Forces) of the deceleration device during a fall and the location of that attachment point after the employee comes to a full stop.

15.11 Equivalent
Alternative designs, materials or methods to protect against a hazard which the employee can demonstrate and will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

15.12 Failure
Load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

15.13 Free fall distance
The vertical displacement of the Fall Arrest attachment point on the employee's body belt or body harness between the onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance and lifeline/lanyard elongation but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and Fall Arrest Forces occur.

15.14 Friction
The resistance between surfaces (such as your shoes and the ground surface). Loss of friction results in falls (example: slips on ice when shoes can't "grip" with the surface).

15.15 Gravity
The force that pulls you to the ground once a fall is in process. The human body has automatic systems for balance – your eyes, ears and muscles working together to keep your body close to its natural center of balance. Falls occur when your center of gravity (center of balance) shifts too far and can't be restored to normal.

15.16 Guardrail System
A barrier erected to prevent employees from falling to lower levels.

15.17 Hole
A gap or void 2" (5.1 cm) or more in its least dimension in a floor, roof, or other walking/working surface.

15.18 Unfeasible
that it is impossible to perform the construction work using a conventional Fall Protection System (such as the guardrail system, safety net system or Personal Fall Arrest System) or that it is technologically impossible to use any one of these systems to provide Fall Protection.

15.19 Lanyard
A flexible line or rope, wire rope, or strap, which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline or anchorage.

15.20 Leading edge
The edge of a floor, roof or form-work for a floor or other walking/working surface (such as the decks or elevated areas) which change location as additional floor, roof, decking, or form-work sections are placed, formed or constructed. A leading edge is considered to be an **"unprotected side"** or **"edge"** during periods when it is not actively and continuously under construction.

15.21 Lifeline
A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline) or for connection to anchorage at both ends to stretch horizontally (horizontal lifeline). This serves as a means for connecting components of a Personal Fall Arrest System to the anchorage.

15.22 Low-slope roof
A roof having a slope of less than or equal to a 4 to 12 pitch.

15.23 Lower levels
Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, waters, equipment, structures or portions thereof.

15.24 Mechanical equipment
All motors or human propelled-wheeled equipment used for roofing work, except wheelbarrows and mop-carts.

15.25 Speed and size of the moving object affect momentum
Therefore, the more you weigh and the faster you are moving, the harder the fall.

15.26 Opening
A gap or void 30" (76 cm) or more high and 18" (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

15.27 Personal Fall Arrest System
A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, and a body harness and may include a lanyard, deceleration device, lifeline or suitable combinations of these. **NOTE: OSHA Regulations state that as of January 1, 1998 the use of a body belt as Fall Arrest equipment is PROHIBITED.**

15.28 Positioning device system
A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface (such as a wall and work with both hands free while leaning).

15.29 Rope grab
A deceleration device, which travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest the fall of an employee. A Rope Grab usually employs the principle of inertial locking, cam/level locking, or both.

15.30 Roof
The exterior surface on the top of a building. This does not include floors or form work, which, because a building has not been completed, temporarily become the top surface of a building.

15.31 Safety Monitoring System
A safety system in which a competent person is responsible for recognizing and warning employees of Fall Hazards.

15.32 Self-retracting lifeline/lanyard
A deceleration device containing a drum-wound line which can be slowly extracted from or retracted onto the drum under slight tension during normal employee movement and which, after the onset of a fall, automatically locks the drum and arrest the fall.

15.33 Snap-hook
A connector comprised of a hook-shaped member with a normally closed keeper, or a similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. The locking type snap-hook has a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection.

15.34 Steep roof
A roof having a slope greater than a 4 to 12 pitch.

15.35 Toe-board
A low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

15.36 Unprotected sides and edges
Any side or edge (except at entrances to points of access) of a walking/working surface (such as the floor, roof, ramp or runway where there is no wall or guardrail at least 39" (1.0 m) high).

15.37 Walking/working surface
Any surface, whether horizontal or vertical on which an employee walks or works. These include, but are not limited to, floors, roofs, ramps, bridges, runways, form-work and concrete reinforcing steel, but does not include ladders, vehicles, or trailers on which employees must be located in order to perform their job duties.

15.38 Warning line system
A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge. These Warning Line Systems designates an area in which roofing work may take place without the use of a guardrail, body belt or safety net systems to protect employees in the area.

15.39 Working area

That portion of a walking/working surface where job duties are being performed. Each Project Management and HSE Team shall determine if the walking/working surfaces on which its employees are to work have the strength and structural integrity to support the employees. Employees shall be allowed to work on the surfaces only when they have the requisite strength and structural integrity.

Section III:
7.1.12 – RPSHSE – 12
Fall Protection - Slips, Trips and Falls

Form 1 - Control Zone System

Control Zone System

A Controlled Access Zone is defined as an area designated and clearly marked, in which leading edge work may take place without the use of guardrails, system nets or fall arrest systems to protect the employees in the work area.

Control Access Zones shall comply with the following provisions:

- When using controlled access to areas where leading edge or other operations are in progress, the controlled access zone shall be defined by a control line or by other means that restricts access.
- The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
- Control lines shall be connected on each side to a guardrail system or wall.
- Control lines shall consist of ropes, wire, tapes, or equivalent materials with supporting stanchions as follows:
  - Each line shall be flagged and/or clearly marked with a highly visible material at intervals of not more than 6 feet.
  - All access to the Controlled Access Zone is restricted to "Authorized Entrants Only".
  - All **REPOWER USA** employees that are permitted into the Controlled Access Zone shall be listed in the appropriate sections of the Fall Protection Plan checklist and be visibly identifiable to the On-Site Competent Person (CP) prior to entry.
  - The On-Site Competent Person shall ensure that all-protective elements of the Controlled Access Zone be implemented prior to the start up of a job.
  - In a Controlled Access Zone if no other methods have been implemented for Fall Protection, a safety monitoring system shall be implemented.

16.0 Appendices

Section III:
7.1.12 – RPSHSE – 12
Fall Protection - Slips, Trips and Falls

Form 2 - Fall Protection Checklist "A"

Fall Protection Checklist "A"

Item No.	Description of Plan Contents	YES	NO	Remarks
1.	Statement of Company Policy			
2.	Fall Protection Systems to be used at this job site.			
3.	Implementation Plan of Fall Protection Plan			
4.	Was conventional Fall Protection considered for this job site (leading edge operations)?			
5.	What additional Fall Protection measures have been considered for this job site?			
6.	How will Site-Specific Fall Protection Plan be enforced?			
7.	Accident Investigation Documents and Profiles			
8.	Documented Site-Specific Fall Protection Plan changes.			

Section III:
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Fall Protection - Slips, Trips and Falls

Form 3 - Fall Protection Checklist "B"

Fall Protection Checklist "B" (Site Specific)

1.) Location of Job:_____
2.) Date Site-Specific Fall Protection Plan was prepared or modified:_____
3.) Name of person preparing the plan:_____
4.) Position of person preparing the plan: **REPOWER USA** HSE Manager
5.) Person/position approving the plan: **REPOWER USA** HSE Manager
6.) Position of Responsibility:
On-Site Field Supervisor and/or On-Site Competent Person (CP)
7.) Name of person supervising the plan:_____
8.) Location of the Statement of the Company Policy:_____
   - ❖ Site Specific Fall Protection Plan is a supplement to the **REPOWER USA** Fall Protection Plan.
   - ❖ Through pre-job meetings, Job Safety Analyses (JSA), Job Hazard Analyses (JHA), and training and safety meetings, **REPOWER USA** shall ensure that each exposed employee is aware of the **REPOWER USA** General Site-Specific Fall Protection Plan and HS&E provisions and requirements.

9.) Location of Site-Specific Fall Protection Plan:_____
   - ❖ Plan shall identify specific activities that require a non-conventional Site-Specific Fall Protection Plan.
     - o Leading edge work.
     - o Unprotected work edges or sides.
     - o Use and implementation of information from pre-job meetings, Job Safety Analyses (JSA), Job Hazard Analyses (JHA), training and HS&E meetings.
     - o Site-Specific activities requiring non-conventional Fall Protection.

10.) Duties of On-Site Competent Person (CP):_____
11.) Hazard Awareness Training:_____YES: _____NO:
   - ❖ **NOTE:** Fall Protection User Hazard Awareness Training shall include, but is not be limited to, the following:
     - o Recognition of fall hazards in the work place.
     - o Methods of fall hazard avoidance using established work practices that **REPOWER USA** employees have been made aware of.
     - o Recognition of unsafe practices or working conditions that could lead to a fall, such as windy conditions.
     - o Proper function, use and operation of safety monitoring systems, guardrails systems, body harnesses systems, control access zones, and additional protection to be used.
     - o Correct fall protection procedures and their completion sequence.

Section III:
7.1.12 – RPSHSE – 12
Fall Protection - Slips, Trips and Falls

Form 4 - Fall Protection Equipment Analysis Checklist

Fall Protection Equipment Analysis Checklist (Page 1)

Item No.	Description of Check Function	YES	NO	REMARKS
1.	Does the Fall Protection Harness have retractable lifelines and lanyards?			
2.	Can employees move freely?			
3.	Can the employee's lifelines become entangled?			
4.	Do contaminates present in retractable mechanism?			
5.	Can a lifeline trap the employee?			
6.	Are holes greater than 12"x12" have perimeter guards or coverings?			
7.	Can the Fall Protection anchorage be placed on equipment or structures?			
8.	Can temporary structural supports be used for anchorage?			
9.	Does the use of temporary anchorage points reduce or increase the potential for fall exposure? (Indicate YES or NO in the appropriate block and define under remarks)			
10.	Can cables be strung horizontally between two columns to use as tie-off lines?			
11.	Will using tie-off lines increase employee's exposure?			
12.	Will the employee be above the tie off line?			
13.	Will the employee become entangled with other employee's fall protection equipment?			
14.	Will the tie-off line be directly above the employee's head?			
15.	Will a sag in the horizontal tie off line cause increased acceleration during a fall?			

Fall Protection Equipment Analysis Checklist (Page 2)

Item No.	Description of Check Function	YES	NO	REMARKS
16.	In the event of a fall will the employee swing into an obstruction?			
17.	During the implementation of the Fall Protection Plan are the products and materials to be used on job site for fall protection listed?			
18.	How will listed products or equipment be used to complete the job?			
19.	How will conventional Fall Protection be considered?			
20.	What are the current conditions or factors that may effect the Site-Specific Fall Protection System?			
a.	Events causing sudden movement.			
b.	Employee error.			
c.	Unstable ground.			
d.	Mechanical failure of equipment.			
e.	Structural failure.			
21.	What are the current weather conditions?			
a.	High and gusting winds.			
b.	Snow/rain/ low visibility.			
c.	Intense cold – slows employee reactions or causes equipment mechanical problems.			
22.	Structural or Product Conditions			
a.	Lifting eye failure.			
b.	Bearing failure.			
c.	Structure shifting.			
d.	Bracing failure.			
e.	Product failure.			
23.	Human error			
a.	Use of incorrect procedures.			
b.	Misjudging of elevation, descent speed or angle.			
c.	Misunderstanding of signals.			

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
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REpower USA Corp.

Section III: 7.1.13 REPOWER USA – 13 Cranes, Lifting, Hoisting and Rigging Equipment

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1.0 Introduction

All materials that are too large or too heavy for handling safely by hand shall be handled by power-operated equipment (i.e. cranes and/or mechanical lifting and hoisting equipment). When power-operated equipment is available, it should be used on large jobs, or on the handling of small materials for extended periods of time. This practice saves time and increases safety.

All power-operated equipment, including cables, blocks, safety hooks, slings, winches, etc. must be inspected in accordance with the applicable regulations and shall be kept in good operating condition at all times.

Slings, bridles, ties, etc. must be of the proper size and strength for the load to be lifted and shall be securely fastened to the load. **NEVER** use hoisting equipment if signs of excessive wear and/or damage is present. **Destroy damaged or worn equipment, never discard it.**

If you cannot see every part of the operation to be performed clearly, have another person (a signal person) assist you. When a signalman is used, the signalman shall be in a position to see every phase of the operation and must be clearly seen by the operator. Use a standard hand signal system on all crane operations. Only one signal person should be designated. **Obey an emergency STOP signal given by anyone.** All other commands are to be given by the signal person only.

Never get under a suspended load. If it is necessary to guide a load, use guidelines of sufficient length for the complete safety of all personnel involved.

When internal combustion engines are the drivers of a particular model of crane test shall be made and area monitored to ensure that employees are not exposed to unsafe concentrations of toxic gases or deficient oxygen levels.

Any required modification and/or repair MUST be completed by the Original Equipment Manufacturer (OEM) recognized repair shop under the authority of the OEM with appropriate written approval.

2.0 Responsibilities

It is the responsibility of the Crane Operator to inspect and perform periodic operating tests to ensure the equipment is safe for use. The Crane Operator is also responsible for ensuring the rated load capacity is not exceeded and to position the crane properly with the correct boom angle for the load.

However, another key element directly related to the successful moving of heavy loads is the rigging process which involves the selection and proper use of slings, chains, ropes, etc. and which will meet the demands of the job. This rigging process will often be required before a crane can be utilized; therefore, the responsibilit for ensuring that the safe equipment and procedures are utilized will rest directly with those personnel involved.

Consider all possible tie/suspension points on overhead structures and evaluate the load bearing potential. I available, use only those structures specifically designed for lifting heavy equipment and components. Piping and unit sub-assemblies should only be used when there is **NO OTHER WAY** and it has been determined that the load can be supported **SAFELY** without causing injury to personnel and/or property damage.

3.0 Lifting Practices

3.1 General Precautions

- Safety shall be the first consideration in the handling of materials
- Know the weight of the equipment or material being lifted (load weight) and know the capacity of the lifting equipment in the method which is to be used. All rigging equipment MUST be tag with a non-removable tag showing safe working load.
- Familiarize yourself with the types of slings available for the easiest and safest lifting
- Inspect the lifting equipment before and after it is used to make certain it is in good condition
- Report any lifting equipment that appears to be unsafe
- Tag and remove damaged lifting equipment so it can not be used to make another lift
- Report all accidents causing damage to lifting equipment, operating equipment, and machinery
- Store lifting equipment in the proper racks or on the hooks provided
- Have lifting equipment inspected by competent inspectors regularly
- Make lifts gradually until the slack is completely out of lifting gear. It is possible that the weight may double because of shock loading
- Make certain the load can be lifted in a secure, stable position
- Remove all loose pieces such as pipes, wood blocks, and lifting gear from the load before it is moved. Make sure all rigging not in use is removed from work area and properly stored.
- Signal and clear the way of a traveling load. Make certain the load is high enough to clear everything in its path
- Make certain all personnel are clear of a moving load. No personnel are permitted under any suspended load. Tag lines shall be used on all lifts.
- The operator shall refuse to move a load if he/she is not satisfied with the way the load is attached
- **NEVER**
  - Neglect to put safety first
  - Lift a load any higher than is necessary to move the load safely
  - Lift or move a load over the heads of personnel
  - Ride on a headache ball, hook, or load

3.2 Lifting Calculations

- Know that as the angle of each leg of the sling increases from the vertical position, the load on that leg increases. The stress on each leg can be calculated by dividing the load weight by the cosine of the angle

- For bridle slings and basket hitches where both legs are not vertical, use Chart B for the computation of the sling arrangement rated capacity. Rated capacity = Single-leg capacity X the number of legs X the Cosine of Angle A
- Slings used in choker configurations have a safe lifting capacity of seventy (70%) percent of the rated capacity if the choke angle is 120° or greater

4.0 Cranes

4.1 General

- All overhead cranes shall meet the design specifications of the American National Standard B30.20, "Safety Code for Overhead and Gantry Cranes".
- It is REPOWER USA's practice to **ALWAYS COMPLY** Original Equipment Manufacturers (OEM)
  Stated and/or implied specifications and limitations applicable to operation of any and all Cranes and derricks. Should this information not be readily available the crane/derrick will be placed out of service until appropriate confirmation of OEM's specifications and limitations are provided and available to on-site personnel.
- **Mark plainly** on the side of the crane the rated load capacity of the crane. The load chart and boom angle chart should also be located at the operator's position
  DO NOT load the crane beyond its rated capacity
- **DO NOT** leave suspended loads unattended. The operator shall neither perform any other work nor leave the controls until the load has been safely landed
- Operators shall lock the load and boom hoists and set the crane cab lock before leaving the cab
- **DO NOT** use overhead cranes to lift or support personnel. **DO NOT** pass loads over personnel. When it is absolutely necessary to swing loads over areas where other employees are working, a warning must be given so they can move out of the way. If possible, the area should be roped off
- Heavy machinery, equipment, or the parts thereof that are suspended by slings or hoists should also be substantially blocked or cribbed before workers are permitted to work underneath or between them
- Exercise extreme caution while working near high voltage electrical wires or equipment. Maintain a minimum clearance of ten feet between the line and any part of the boom or load. The rocking motion of the boom under a varying load must be considered when maintaining a safe distance from any electrical conductor
- If the crane contacts a high voltage line and can not be disengaged by the crane movement, do not step from the crane to the ground in a way that you will touch the ground and the crane simultaneously
- When necessary, use **non-electrical conducting** tag lines to guide loads unless their use creates an unsafe condition
- Crane booms shall be lowered to the ground in the provided crane boom rest when there is danger of high wind. Cranes with raised booms left overnight must have the load line tied off to a permanent structure to prevent pivoting. Rest the crane boom in its cradle when the crane is not in operation whenever possible

- All parts of every crane, especially those subject to impact, wear, and rough usage must have the adequate strength for maximum services. Gears and other moving parts must be totally enclosed, covered by screen guards, or out of reach. Keep cranes clean, well maintained, and lubricated
- With each crane there shall be an appropriately sized 5BC or higher rating CO_2 or Dry Chemical fire extinguisher. The fire extinguisher shall be located in the crane cab or at a readily available location on the crane to provide adequate access by the Crane Operator. The Crane Operator shall be trained in the proper use of the fire extinguisher
- Cranes should be placed on a firm, level foundation and properly secured before being operated
- No one shall ride on leads, buckets, or hooks suspended from cranes
- Personnel shall always stand clear of a cable under tension
- Do not suspend the loads from cranes for extended periods of time
- Use cranes for lifting loads in the vertical direction only
- All lifting hooks should be self-closing
- ONLY approved and proper hand signals will be used as set forth within the ANSI Standards and API RP 2D.
- All mobile type cranes must meet the standard as set forth in ANSI 30.5 -1968.

4.2 Crane Operator Qualifications

- Cranes shall be operated only by the following:
  - Certified or otherwise qualified operators designated by the supervisor
  - Trainees under the direct supervision of a certified/qualified operator
  - Maintenance, test personnel, and inspectors, when necessary, in the performance of their duties
  - Must meet the required physical qualifications, pass a physical and a written examination to determine their capabilities to read load charts and calculate loads for the applicable crane types they operate.
- The On-Site Field Supervisor is responsible for ensuring that only those individuals specifically trained in the operation of cranes and authorized by the On-Site Field Supervisor are allowed to operate the crane. The On-Site Field Supervisor must ensure that employees receive instruction on the proper use, maintenance, application, and inspection of overhead hoisting equipment and material handling devices prior to use.

4.3 Inspection of Cranes

- **Daily Inspections**

The operator as the assigned competent person is responsible for the daily inspection of the crane prior to use for loose or defective gears, runways, railings, warning bells, signs, switches, cables, etc. Use Appendix III as a guideline for this inspection. Report defects to the location supervisor and take the crane out of service until repairs are made. Daily inspections have to be documented.

- **Monthly Inspections**

  Monthly inspections must be reported, using Appendix II, and documented. Exception: A crane which has been idle for a period greater than one month, but less than six months must be inspected before being placed in service or every six months, whichever is earlier.
- All modifications, extensions, replacement parts, or repairs of equipment must maintain at least the same factor of safety as the originally designed equipment.
- **NOTE: When a crane is down for repair and/or maintenance an OUT-OF-SERVICE sign will be placed where it is clearly visible to all personnel that might attempt to operate the crane. The sign will remain in place until crane is placed back in service.**

4.4 Cranes In-Transit

- The boom should always be carried "in line" with the direction of motion.
- The superstructure should be secured against rotation, except when negotiating turns, with an operator in the cab.
- The empty hook should be latched or otherwise restrained so it cannot swing freely. The block can be drawn up close to the sheaves to reduce swinging. A crane with or without a load must not travel with the boom so high that it may bounce back over the cab.
- Never drive a crane up an incline in excess of 10° off center unless the boom is trailing directly behind.
- Never drive a crane onto soft ground without the aid of planks or mats.
- When maneuvering a crane within a confined area, two ground guides must be provided while the crane is in motion.
- When a crane is out of service due to the routine maintenance or repair of a defective part a warning sign shall be posted until the repairs or routine maintenance is completed.

5.0 Hoists

5.1 General

- The rated load of each hoist shall be legibly marked on the hoist, load block or some equally visible space. This marking must be clearly legible from the ground or floor.
- Each electric or pneumatic hoist motor shall be provided with a brake arranged so that the brake will be applied when the power is cut off from the hoist. The brake must have sufficient holding power to sustain no less than 1-1/2 times the rate load.
- Each overhead electric and pneumatic hoist motor shall be equipped with an effective enclosed type limit switch. Place and arrange the switch to disconnect the motor and apply the brake in time to stop the motor before the hook passes the highest point of safe travel.
- Every hoist chain, wire rope, or fiber rope on hoisting drums shall be of the sufficient length that the hoist hook at least reaches the floor, ground, or the lowest working level.

- The operator shall not leave his position at the controls while a load is suspended from the hoist unless an emergency exit is required.
- Lift loads with hoists in the vertical direction only.
- **DO NOT** use hoists to lift or support personnel. **DO NOT** pass loads over personnel.

5.2 Inspection of Hoists

- **Daily Inspections**
  The operator is responsible for the **DAILY** inspection of the hoist and rigging equipment. Daily inspections do not have to be documented.
- **Monthly inspections** must be performed on hoist equipment and documented
  Exception: A hoist which has been idle for a period greater than one month but less than six months must be inspected before placing it in service or every six months, whichever is earlier.

All modifications, extensions, replacement parts or repairs of equipment shall maintain at least the same factor of safety as the originally designed equipment.

5.3 Types of Hoisting Equipment/Inspections

5.3.1 Ropes

- **General**
- Nylon ropes stretch appreciably when loaded, and have high elasticity when the load is released. It has a much higher working elasticity on repeated loading than any other synthetic-fiber rope or Manila, Sisal, or cotton ropes. Much of the permanent elongation at any given load occurs on the first loading and practically all of it during the first few loads. It is critical to keep in mind the elasticity and permanent stretch factors of nylon ropes. In some instances, stretch and working elasticity might be desirable, whereas, in other operations these characteristics might be undesirable or hazardous.
- **Inspections**
- Ropes should be inspected every 30 days; however, prior to each use, look for signs of deterioration, dark brown or black spots (rotting), kinks, frayed or broken fibers and abrasions. Inspect the inner fibers by untwisting the rope; they should be clean, bright, and unspotted. Be particularly critical of rope that has been used around acids or caustic materials. As a general rule, rope that has lost its pliability, stretch, or has fibers that have lost their luster and appear dry and brittle should be replaced.

5.3.2 Rope Slings

- **Inspections**
  Inspections are critical (especially when using manila rope slings), due to the high tensile strength requirement. Inspect all splices, particularly where hooks and rings are attached.

If a sling shows evidence of cuts, excessive wear, or other damage, destroy it. If the manila rope sling has been in use for six months, reduce the load by half even though there is no sign of wear.

5.3.3 Wire Rope

- **General**

  Wire ropes consist of many individual wires laid into a number of strands which are laid around a center core. The strength of the wire rope is determined by:
  - The size of the wire used
  - The number of wires in the strands
  - The number of strands
  - The type of core

  When using a wire rope for a particular job, consider the rope's:
  - Strength
  - Flexibility
  - Resistance to fatigue, abrasion, crushing, rotation, and distortion

  Refer to the manufacturer's specifications for the rated safe working load for the rope being used (tag new ropes). Avoid overloading; it causes severe stretching of the rope.

- **Inspection**

  Wire ropes should be inspected once per month; however, they should be examined prior to each use for loose clamps, broken strands, and kinks. As a general rule, wire ropes should not be subjected to a working load greater than one-eighth (1/8) it's breaking strength. Each wire rope sling should have a tag attached indicating the load capacity, the original length or reach, the date of issue, and the manufacturer. Wire rope inspections should be thorough and complete. Deciding when a wire rope has reached the limit of its safe usage and must be discarded is difficult for the inspector. It is poor economy to discard an expensive wire rope before it is necessary. Likewise, it is dangerous, and may prove more costly, to continue its use beyond its limit.

- **Replace Wire Ropes when:**
  - Six or more randomly distributed wires are broken in one rope lay
  - Three or more wires are broken in one strand in one rope lay
  - Wear of the rope exceeds 1/8th of the original diameter of the rope
  - It is stretched more than 1/2-inch in 8-feet for a 6-strand rope

- o It is stretched more than 1/2-inch in 5 feet for a 8-strand rope (mark new ropes either 5 or 8-feet, depending on the number of strands, for future measurement guides)

Estimate the rope condition at the section showing the maximum deterioration. Wire ropes requiring repair must only be repaired by the manufacturer, or, otherwise, replaced immediately. Lubricate wire ropes to prevent corrosion with thin lubricants which are fluid at normal temperatures and include rust inhibitors.

5.3.4 Chain and Chain Slings

- **General**
  Do not use chains for general rigging when wire rope is available to use. Wire rope gives more of a warning when it is about to fail. Use only alloy steel chains for lifting purposes. These chains generally have a small stamp on each link for identifying it as an alloy. **DO NOT** exceed the rated safe working load of a chain. **DO NOT** shorten chains by twisting, knotting, or inserting nuts and bolts. When wrapping chains around sharp corners, use pads to prevent damage to the links.
- **Inspections**
  Chains should be checked and certified on at least a semi-annual schedule. Chain links should be certified in gauge lengths of 1 to 3 - feet when new and their measurements recorded and tagged (see wire ropes) for future reference. Chains should be discarded if they show a stretch (including link wear) of more than five (5%) percent. Inspect the chain for small dents, peen marks, and bright polished surfaces on the links. These signs indicate that the chain has been work-hardened or fatigued. Broken chains shall not be spliced by inserting a bolt between two links or by using cold shuts to replace links. Before making a lift, the chain should be checked for cracked links, kinks, knots or twists. Cracked links, regardless of the size, indicate that a chain is unsafe and must be removed from service or sent to the manufacturer for repair.

These inspections may be more frequent but are not limited to an investigation of an accident/incident/near miss or a change in the equipment or process.

5.3.5 Chain Falls, Come-Alongs, or Block and Tackle

- **Chain Falls**
  Lifting chain wheels are low speed, geared for precision lifting, and have built-in no-slip brakes. There are two hooks; one is a swivel hook on the housing and one is at the end of the lifting chain. Chain falls are available in a variety of weight capacities ranging from a 1/4-ton to 10 tons.

Chain falls are designed primarily for vertical lifting. Make lifts truly vertically to prevent a shifting, swaying load and undue wear on the hoist.

- **Come-Alongs**
  This compact hoist offers use in close quarters, toolbox size storage, and versatility in almost any lifting and pulling situation. The come-along is more popular because of its heavy-duty construction and greater lifting ability.

  The lifting chain or cable is moved by a ratchet lever with three positions:
  - o **Forward** For lifting and pulling
  - o **Neutral** For free gear travel
  - o **Reverse** For lowering or releasing tension

  The most versatile of the hand-operated hoists, Come-Alongs can be used for vertical lifting, pulling and binding on any plane and in tugging heavy objects. Only a small amount of leverage is required to operate the equipment, even under a load. Therefore, if it takes two people to crank the hand lever, the hoist is overloaded for the job. **DO NOT** use cable-type lever hoists if the cable is frayed or damaged. Come-Alongs are available in various chain and cable lengths with capacities from a ¼-ton to 6 tons.
- **Inspection**
  This type of equipment shall be checked for cracks in the metal or wood frame work, damaged or broken sprockets or pulleys, a defective ratchet mechanism and stop/locking action, and a kinked, frayed, or mashed cable, chain or rope. The manufacturer's specifications for load capacity rate these devices. **DO NOT** exceed the specified ratings. All hoisting equipment should be inspected prior to each use and monthly for the inspection report.

5.3.6 Synthetic Web Slings

- **General**
  Synthetic web slings offer a number of advantages for rigging purposes and come in a variety of configurations. Attach a tag to new slings showing the rated capacity and the type of materials the sling is made of. Make sure you use the proper type and strength for the load in question. Use nylon slings in the presence of oils, greases, hydrocarbons, and de-greasing solutions. Use nylon slings as non-marring slings on any load that has a rounded surface or rounded corners. **DO NOT** use or store nylon slings or polypropylene web slings where fumes, vapors, sprays, mists, or acidic liquids are present. Do not use nylon slings at temperatures above 180° F. Use chain slings or wire cloth slings for higher temperatures. Inspect hoist hooks to make certain they are smooth.

DO NOT use nylon slings on hoist hooks that are gouged or nicked (there could be sharp edges that could cut the sling). Do not use nylon slings on sharp corners.

- **Inspection**
  Inspect slings each time they are used for the following:
  - Worn eyes
  - Worn or distorted fittings
  - Cuts, holes, punches, or tears
  - Frayed material
  - Broken Stitching
  - Acid, caustic, or heat burns

DO NOT attempt to repair damaged web slings. **DO NOT** attempt to inspect the inside nylon fibers of the webbing. These fibers are protected by the outside fibers and it may damage the sling.

5.3.7 Hooks

- **General**
  All hooks used for load lifting shall be made of forged alloy steel and preferably equipped with safety latches. **Hooks on hoist or crane equipment shall have safety latches.**

  Avoid these practices which lead to the spreading of the hook and decrease the capacity of the hook:
  - Overloading
  - Improper seating of the load in the hook
  - Point loading
  - Other faulty rigging practices

  Bent or otherwise deformed hooks shall be replaced or returned to the manufacturer for repairs. Never attempt to straighten hooks yourself. When making choker hitches, always face the hook opening out and away from the pull of the sling.
- **Inspection**
  Hooks used for lifting and hoisting purposes should be inspected frequently. Inspect hooks for the following:
  - Saddle region for wear
  - Neck area for cracks, corrosion, and twisting of the body. Hooks twisted more than 10° from the plane of the unbent hook should be replaced
  - Measure throat openings. Openings more than 15% from the normal throat opening should be replaced

- Check hooks for cracks. Special dye penetrant for checking steel fatigue can be used to determine fatigue cracks

5.3.8 Shackles

- Make certain the bolt in a screw pin shackle turns easily and is tightened securely
- Use safety shackles wherever possible
- Use the largest bearing surface possible on the shackle pin. This reduces the bending movement on the pin
- **DO NOT** use any screw pin shackles where the bolt is very difficult to turn. (The pin is either bent due to overload or the threads have been damaged)
- **DO NOT** use round pin shackles in preference to safety shackles or screw pin shackles
- **DO NOT** use too small a bearing surface in the center of a shackle pin

6.0 Hand Signals

It is imperative that the operator and his signalman work together as a team. The Crane Operator must pay close attention to his signalman.

Use a standard hand signal system on all crane operations. When there are several riggers, only one rigger should be designated as signalman.

The operator should never start machine movement until the signalman is within sight and hand signals are understood. **An emergency STOP signal given by anyone is to be obeyed immediately.**

Quick and understandable communication between the signalman and the operator is required for safe and efficient operation. Both the operator and the signalman are required to know all the hand signals. If other signals are necessary for a job, both men should agree on them and their meanings.

7.0 Recordkeeping

REPOWER USA shall establish and maintain an accurate record of all lifting equipment inspections and load testing, as applicable. These records shall be maintained at the facility/job site at which the equipment is being operated, maintained, and located. The HSE Department shall review these records during annual inspections. These inspections are to be performed by a competent person with verified certification from the OEM and/or a government or private agency recognized by the US Department of Labor. These inspections may be more frequent but are not limited to an investigation of an accident/incident/near miss or a change in the equipment or process. Keep inspection reports in the job location file for a period of 12 months. Send a copy of all reports to the HSE Department. Destroy the form at the end of the retention period.

Forms

Section III:
7.1.13 REPOWER USA – 13
Cranes, Lifting, Hoisting and Rigging Equipment

Form 1 - Monthly Report of Hoisting Equipment Inspections

Monthly Report of Hoisting Equipment Inspections

1. The hoist chain or hoist rope must be free from kinks or twists and must not be wrapped around the load
2. Sheave grooves and chain pockets must be smooth, clean, and free from surface defects
3. Lubrication must be provided for all running sheaves
4. The load must be attached to the load hook by means of slings or other approved devices
5. While any employee is on the load or hook, no hoisting, lowering, or traveling is permitted
6. The operator must not carry loads over other people
7. Rope clips attached with U-Bolts must have the U-Bolts on the dead or short end of the rope
8. Crane hooks with cracks, the deformation of the throat opening in excess of 15%, or twists greater than 10° from the plane of the unbent hook must be discarded
9. A crane or hoist that has been idle for as much as 6 months must be thoroughly inspected before it is placed in operation
10. A preventive maintenance program, based on the recommendations of the equipment manufacturer, must be established
11. All deficiencies listed as a result of an inspection must be carefully examined and a determination must be made as to whether they constitute a safety hazard
12. Any unsafe operation disclosed by an inspection must be corrected before the operation of the equipment is resumed.

Monthly Report of Hoisting Equipment Inspections Checklist

NOTE: 1. A separate report is required on each integral lifting apparatus; however, one report may be used for a crane having both main and auxiliary hoists.
2. Each hook must be subjected to a magnetic particle or other suitable crack-detecting inspection at least once each year.

Date of last inspection: Control: ☐ AIR ☐ ELECTRIC ☐ MANUAL

Make and Model: Type: Rated load:

Inspected by: Date:

	YES	NO	NA
1. Is the rated load plainly marked on each side of each and every hoist? Are all markings clearly visible from the floor?	☐	☐	☐
2. Do all functional mechanisms operate properly?	☐	☐	☐
3. Is there any evidence of deterioration or leakage in any part of the hydraulic or pneumatic systems?	☐	☐	☐
4. Does each hoist or crane hook have a safety latch?	☐	☐	☐
5. Do the hooks appear to have: Cracks?	☐	☐	☐
Distorted throat openings more than 15% of normal?	☐	☐	☐
A twist greater than 10 degrees from plane of unbent hook?	☐	☐	☐
6. Do the load chains or ropes show excessive: Wear?	☐	☐	☐
Twist? **SEE CFR 1910.179**	☐	☐	☐
Distortion?	☐	☐	☐
7. Are there any deformed, cracked, or corroded members of the crane, hoist, or supporting structures?	☐	☐	☐
8. Are there any loose bolts or rivets or cracked welds?	☐	☐	☐
9. Are any of the sheaves or drums cracked or worn?	☐	☐	☐
10. Are there any worn, cracked, or distorted parts such as pins, bearings, shafts, gears, rollers, or locking and clamping devices?	☐	☐	☐
11. Any signs of excessive chain stretch?	☐	☐	☐
12. Any signs of excessive wear of chain drive sprockets?	☐	☐	☐
13. Are there trolley stops at each end of the bridge?	☐	☐	☐
14. Are the bridge trucks provided with rail sweeps?	☐	☐	☐
15. Do chain slings show signs of damage or excessive wear to hooks or links?	☐	☐	☐
16. Do rope slings, including end connections, show sign of wear, broken wires, stretching, kinking, or twisting?	☐	☐	☐
17. Do synthetic webbing slings have visible signs of wear, abrasions, or cut fibers?	☐	☐	☐
18. Are all webbing slings marked to show maker, type material, and rated capacity?	☐	☐	☐

Supervisor: Location: Date:

Distribution: Original - Location
Copy – **REPOWER USA** HS&E Department

Section III:
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Cranes, Lifting, Hoisting and Rigging Equipment

Form 2 - Daily Inspection of Hoisting Equipment

Checklist – Daily Inspection of Hoisting Equipment

- ☐ Check all functional operating mechanisms for maladjustment interfering with proper operation. Visually inspect for excessive wear of the components
- ☐ Visually inspect all hooks for cracks or deformation
- ☐ Visually inspect all hoist ropes and chains, including the end connections, for excessive wear, excessive broken wires or fibers, stretching, kinking, or twisting
- ☐ Visually inspect all slings, including the end connections, for excessive wear, excessive broken wires or fibers, stretching, kinking, or twisting
- ☐ Carefully examine any deficiencies detected and determine whether they constitute a safety hazard. You must report all deficiencies to the supervisor in charge
- ☐ Any unsafe condition disclosed by inspections must be corrected before the operation of the equipment is resumed

REpower Systems	Section III RPSHSE 7.1.14	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.14 – RPSHSE – 14
Vehicle and Driver Safety

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1.0 Introduction

This **REPOWER USA** Policy and Procedure presents the minimum requirements for all employees who will be driving a **REPOWER USA** vehicle. It is the responsibility of all employees who drive any vehicle to maintain the vehicle they are assigned and/or using, abide by all state and local motor vehicle laws, and report any accidents and/or moving violations immediately. Failure to comply with this **REPOWER USA** policy could result in disciplinary action up to and including termination.

2.0 Driver Qualifications

2.1 The employee must have a valid driver's license in the state in which he/she resides. Only a valid driver's license from the state in which the driving will be done is required except with special projects or the occasional out-of-state job. The type of license depends on the type of driving designated in the employee's job duties and its requirements.

2.2 The employee must complete and sign the **Driving Record Consent Form.** A driving record will be requested for all the applicants who will be required to drive a Company vehicle. Driving a Company vehicle is contingent on a Motor Vehicle Record (MVR) check deemed satisfactory to the Company and the insurance carrier's requirements.

2.3 Employees who will drive a Company vehicle must agree to take a Defensive Driving Course* within 60 days (at the employee's expense) as a required condition of employment, if requested and deemed necessary by management.

3.0 Driver Criteria

3.1 Driving records will be checked periodically on all employees who, at any time, drive a Company vehicle. The Safety Department will maintain results.

3.2 The minimum criteria for all Company drivers includes, but may not be limited to:

- A current driver's license with a class that corresponds with the vehicle type to be driven
- Driver's license must be valid at all times
- No more than three (3) moving violations (i.e. accidents, speeding, reckless driving) within the past 36 months
- No license suspensions in the past 24 months

3.3 No convictions of Driving While Intoxicated (DWI) or Driving Under the Influence (DUI) are permitted for licensed drivers of Company vehicles.

- Alcohol and narcotics are not allowed in Company vehicles.
- **Note:** Any employee driving under the influence or in possession of alcohol or narcotics in a Company vehicle is subject to termination.

- Any employee **"on-call"** will not be allowed to drive if under the influence of alcohol or drugs and should contact their Department Manager before attempting to drive on Company business.
- No convictions of a vehicular homicide
- No more than two (2) chargeable (preventable) accidents in the past 36 months

ANY EMPLOYEE WHO DOES NOT MEET THE MINIMUM DRIVER REQUIREMENTS OR IS IDENTIFIED AS AN INSURANCE RISK MAY HAVE THEIR COMPANY DRIVING PRIVILEGES REVOKED UNTIL THEIR DRIVING RECORD IS WITHIN POLICY LIMITS. IF A NON-DRIVING POSITION IS NOT AVAILABLE, THE EMPLOYEE MAY BE TERMINATED.

4.0 Vehicle Assignments

4.1 Non-Assigned Company Vehicles

- Vehicles assigned to one or more employees **must** be used for Company business only.
- Employees must meet the qualifications and criteria for the use of a Company vehicle and be approved by the HS&E Department before being assigned the usage of any vehicle
- Vehicles are to be driven by employees only
- When vehicles are not being used for business, they will be kept on Company premises at all times

4.2 Assigned Company Vehicle

- Vehicles will be provided to the specified employees and management personnel who require a Company vehicle to carry out their duties
- Vehicles assigned to an individual are to be driven by that employee only

5.0 Maintenance and Repairs

The routine care, maintenance, and repairs are the responsibility of the employee assigned a Company vehicle. Management personnel will inspect the vehicles on a regular basis to determine care of the vehicle. Neglecting the appropriate care of an assigned vehicle could result in the loss of driving privileges and/or dismissal from the Company.

The Operation/Department Manager of each Division must approve repairs. All major repairs other than routine maintenance require manager approval in advance.

No vehicle will be driven if the condition of that vehicle could contribute to an accident.

Each driver should perform routine daily maintenance checks and make corrections, if needed, prior to operating the vehicle. The daily checks include:

- Check water, oil, and fuel
- Check for visible leaks
- Check lights--all lights including turn signals
- Check tires and the tire pressure
- Check safety equipment
- Check wipers
- Check brakes
- Check dash instruments
- Check Fire-Extinguisher (where applicable)

6.0 Expenses and Financial Reporting

Expenses will be reimbursed to the employee through normal accounting expense report procedures. A corresponding receipt must accompany all expenses.

All repairs, maintenance, and mileage should be recorded monthly to keep accurate cost records and financial records on all vehicles through normal accounting procedures.

7.0 Vehicle Accidents

7.1 At the Scene

Leaving the scene of an accident is a criminal offense. All drivers will adhere to the following procedures in case of an accident:

- **Warn Other Drivers:** Place warning flares out or get a passing motorist to guide the traffic around the wreck with a flashlight.
- **Aid The Injured:** Render aid to injured persons and control severe bleeding. Have someone call an ambulance, a doctor or both. Move the injured person(s) as little as possible to avoid further injury or hemorrhage.
- **Notify The Police:** If a vehicle is non-operable or someone has been injured, flag down a passing driver and ask him to go to the nearest phone and call law enforcement officers. The police should take charge of the accident scene when they arrive.
- **Notify the Company:** Notify the Company by telephone immediately, regardless of the severity. The Company will notify the insurance company.
- **Avoid Loose Talk:** Make no admission of fault or negligence to by-standers. Say no more than necessary and do not sign any statements or releases.

- **Report The Accident:** Report the accident to the authorities. All states and most municipalities require that all accidents, except certain types, be reported to their Department of Public Safety on the forms provided for that purpose. Be familiar with the laws on accident reporting in the state in which you drive.
- **Get The Facts:** Fill out an accident report at the scene of the accident by gathering all of the information you can. Information must include the other persons involved in the accident and their addresses the witnesses and their names and addresses, and the license numbers of the cars first to arrive if you cannot get the person's names.

7.2 Accident Reporting

- Any accident in which a **REPOWER USA** vehicle is involved must be reported to your department manager and the HS&E Department immediately.
- A **VEHICLE ACCIDENT REPORT** is imperative for processing insurance claims and must be submitted to the HS&E Department within 24 Hours
- Any insurance claims and/or accident repairs must be directed through the HS&E Department.

8.0 Vehicle Safety

8.1 General Rules

- Seat belts are to be used at all times when operating any Company motor vehicle
- Company vehicles should be driven at safe speeds in accordance with the conditions of vehicles, roads, traffic, weather, and the local laws
- All drivers of Company vehicles shall familiarize themselves with the state traffic regulations in the states in which they drive and they must be governed accordingly
- All drivers must have a required driver's or Commercial Driver's License (CDL) license for the states in which they reside
- Cars and trucks shall be kept clean and in good mechanical condition, especially lights, horns, brakes, windshields, windshield wipers, steering assemblies, and tires
- A truck driver should look around his truck before starting off after stopping for any length of time
- All tools, supplies, or equipment hauled on trucks must be firmly secured to prevent them from falling off into the path of other vehicles
- Trailers being pulled should have safety chains of the sufficient size to hold the loads if the coupling pins break or other suitable means of preventing the coupling pins from getting out of place
- Loads extending over the rear of truck must be flagged during daylight hours with red bunting. At night, a red light must be used
- No hitch hikers are allowed to be carried in a **REPOWER USA** owned and/or operated vehicle

Forms

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Vehicle and Driver Safety

Form 1 – Driving Record Consent Form

Driving Record Consent Form

I. **Information per Driver License:**
Full Name:_____
Address:_____
Date of Birth:_____ Driver's License Number:_____
Type of Driver's License:_____ Issue Date:_____ Expiration Date:_____State of Issue:_____
License Restrictions (if any; include class code):_____

II. HAVE YOU HAD A DRIVER'S LICENSE IN ANY OTHER STATE WITHIN THE LAST FIVE YEARS? ☐ **YES** ☐ **NO**
HAVE YOU HAD A DIFFERENT DRIVER'S LICENSE NUMBER WITHIN THE LAST FIVE YEARS? ☐ **YES** ☐ **NO**
If you responded "yes" to either question in Section II, please complete another Driving Record Consent Form listing that license information.

III. LIST ALL DRIVING INFRACTIONS (tickets, accidents, etc.) WHICH HAVE OCCURRED IN THE PAST FIVE YEARS:

Acknowledgement
The receipt of the Vehicle Safety Standard, governing the use and the operation of a Company vehicle, is hereby reviewed. I authorize **REPOWER USA** to have access to my Motor Vehicle Records (MVR) as required for insurance purposes. I understand employment is contingent on satisfactory MVR checks and will be checked periodically. I also understand that unsatisfactory MVR checks or the failure to comply with Company policy could result in the loss of driving privileges or termination.

Name of Driver:_____
Please Print
Signed:_____ Date: _____
(Driver)

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Vehicle and Driver Safety

Form 2 – Vehicle Accident Report

Vehicle Accident Report

This Report must be completed and sent to the **REPOWER USA** HSE Department within **24 HOURS.**

Division:

☐WIND TURBINES ☐CORPORATE
☐OPERATIONS ☐OTHER
☐WORK MANAGEMENT

Name:_____ **Driver's Age:**_____ **Date of Accident:**_____
Date of Hire:_____

☐ **Company Car No.:**_____
☐ **Personal Car:** _____
☐ **Rental/lease vehicle:** ☐ **YES** ☐ **NO** Type of vehicle:_____

Work Location:_____

Accident Type:

☐HIT OTHER IN REAR ☐INTERSECTION ☐PEDESTRIAN
☐HEAD-ON COLLISION ☐CUT IN OR OUT OR SIDESWIPED ☐BACKING
☐HIT STATIONARY OBJ. ☐PULLED FROM PARKED POSITION
☐LOADING-UNLOADING ☐CARGO FELL OUT ☐JACKKNIFE
☐UPSET ☐PARKED
☐HIT IN REAR ☐OTHER

Description of Accident (Draw Map of Accident on back, if necessary):

Accident Judged As: ☐Avoidable ☐Unavoidable

Recommended Preventive Action:_____

Driver's Acknowledgement

I have read this report and agree to follow the above suggestions. In the future I will not only operate my vehicle in the safest possible manner but will be prepared to allow for the unsafe actions of other motorists and pedestrians.

Driver's Signature_____ Date:_____

Supervisor's Signature _____ Date: _____

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Vehicle and Driver Safety

Form 3 – Property Damage Report

Property Damage Report

This Report must be completed and sent to the **REPOWER USA** HS&E Department within **24 HOURS**.

Division:
☐ WIND TURBINES
☐ OPERATIONS
☐ WORK MANAGEMENT
☐ CORPORATE
☐ OTHER

Customer:_____ **Location:**_____
Accident Date:_____ **Accident Time:**_____

All Personnel Involved:_____

_____

Equipment Damaged:_____

_____

_____

Owner/Rented From:_____

_____

Extent of Damage:_____

_____

Cause_____

_____

Estimated Downtime:_____ **Estimated Cost to Repair:**_____
Description of Accident:_____

_____

_____ _____
REPOWER USA Field Supervisor Date:

_____ _____
Representative of Damaged Equipment Date:

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.15 RPSHSE – 15 Disciplinary Action Program

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1.0 Personal Conduct

1.1 General

It is **REPOWER USA's** desire to be known for having the most capable and highest quality employees in the industry. As an Employee of **REPOWER USA**, your conduct (good or bad) is a reflection on **REPOWER USA**. Therefore, if **ANY** employee's Personal Conduct discredits, or lessens, the Client's or the general public's opinion of **REPOWER USA**, said employee will be subject to disciplinary action up to and including termination.

- Each Employee is expected to perform their assigned duties in the manner of a mature professional
- Boisterous or unruly conduct is strictly prohibited and will not be tolerated while on duty at a job site **OR** while off-duty at the lodging facilities provided by the company.

1.2 Safety Violation Disciplinary Action and Enforcement

Any non-compliance or violation of HSE rules, policies, and/or procedures observed by anyone (i.e., Witness(es) on-site, On-Site Field Supervisors, the On-Site HSE Coordinator, other **REPOWER USA** Employees, and/or the **REPOWER USA** HSE Manager) **SHALL** be reported to the On-Site Field Supervisor in charge, the On-Site HSE Coordinator, and/or the **REPOWER USA** HSE Manager immediately. If a flagrant disregard of the safe work rules/practices or a major violation has occurred, the On-Site Field Supervisor, the Operation Manager, the On-Site HSE Coordinator, and/or **REPOWER USA** HSE Manager **SHALL** take the action deemed necessary to ensure compliance including, but not limited to, the following:

- **First Offense** – A letter of reprimand shall be written to the Employee by the Operations Manager with copies sent to the Employee's personnel file and to the **REPOWER USA** HSE Manager.
- **Second Offense** – The Operations Manager may order that the Employee be suspended from work without pay for one or more days. A second letter of reprimand **SHALL** be written to the Employee with copies sent to the Employee's personnel file and to the **REPOWER USA** HSE Manager. The Operations Manager and/or the **REPOWER USA** HSE Manager **SHALL** also counsel the concerned On-Site Field Supervisor on safe work practices.
- **Third Offense** – Upon the third offense, the Employee's case will be reviewed in detail by the On-Site Field Supervisor, the Operations Manager, and the **REPOWER USA** HSE Manager as soon as possible after the commission of the offense with the review to include, but not limited to, the following:

- The Employee is **immediately** terminated from employment with **REPOWER USA**. A thorough review of the concerned On-Site Field Supervisor's safety performance history **SHALL** also be made to determine suitability for continued service in a supervisory position.

Note: If the non-compliance or violation of these HSE rules is considered serious enough, the Operations Manager and/or the REPOWER USA HSE Manager may omit the first and/or second step listed above and go to the next step.

Note: HSE rule enforcements and disciplinary actions for non-compliance or violation of **REPOWER USA** HSE Policies and Procedures are mandatory components of the **REPOWER USA** HSE Manual and are taken very seriously by **REPOWER USA** Management. An appropriate and immediate action is required in **ALL** cases of non-compliance or violation.

2.0 Vehicle Operation and Safety

REPOWER USA Management and the **REPOWER USA** HSE Manager promotes safe driving habits in employees operating motor vehicles during and after work hours as part of a preventative and pro-active safety program. **Company vehicle** refers to **REPOWER USA** owned and/or **REPOWER USA** operated, leased, and/or rented vehicles used on Company business.

2.1 Defensive Driving

All drivers involved in Company business will use techniques of Defensive Driving and will attend the **REPOWER USA** HSE Manager recommended driving course for the following reasons:

- Following any preventable accident.
- When the investigation of moving traffic violations indicates a need.

2.2 General Driving Rules

- Seats belts and the associated safety equipment **SHALL** be maintained and seat belts **SHALL** be worn by all occupants while operating a Company vehicle.
- Each driver will drive within the legal speed limit and will reduce their speed during unfavorable conditions.
- The operation of a Company vehicle while under the influence of intoxicating beverages, narcotics, or other drugs is **strictly prohibited** and the violation of this Safe Driving Rule will result in termination.
- Always be attentive to the requirements of operating a motor vehicle while the car is in motion.
- The assigned driver will walk around his/her vehicle and inspect for damage and/or possible problems and obstructions before starting the vehicle.

- Each assigned driver is required to notify their On-Site Field Supervisor, Operations Manager, and **REPOWER USA** HSE Manager of changes in their driver's license status.
- Assigned drivers are to ensure that all trailers to be towed are equipped with the proper safety equipment (i.e. safety chains of the proper size to hold the trailer if the coupling becomes unfastened).
- All vehicles are to be placed in the park position with the engine shut off prior to the assigned driver exiting the vehicle.
- All vehicles **SHALL** be parked at **REPOWER USA** work places so they will not have to back out in case of an emergency.
- The assigned driver **SHALL** not allow unauthorized persons to operate a Company vehicle

2.3 Vehicle Maintenance

All drivers of **REPOWER USA** vehicles **SHALL** be responsible for maintaining the **REPOWER USA** operated, owned, leased and/or rented vehicles in a safe operating condition and they will complete the required maintenance and reporting paperwork in a timely manner.

2.4 Accident and Citation Reporting

All drivers **SHALL** immediately report accidents/incidents and moving violations to their On-Site Field Supervisor, On-Site HSE Coordinator, Operations Manager, and **REPOWER USA** HSE Manager.

All drivers involved in an accident/incident **SHALL** complete all the required reporting forms and submit them to their On-Site Field Supervisor, On-Site HSE Coordinator, Operations Manager, and **REPOWER USA** HSE Manager within twenty-four hours (24 hrs.) of the accident/incident.

2.5 Responsibility

Each assigned driver operating a **REPOWER USA** owned or a **REPOWER USA** operated, owned vehicle **SHALL** be directly responsible for adhering to all motor vehicle operation rules and regulations

2.6 Rules and Regulations Violation

A violation of Rules and Regulations resulting from, but not limited to, the following will warrant disciplinary action:

- Repeated or serious rule/regulation violations and the involvement in a preventable accident/incident that is clearly the fault of the employee, such as:
  - Gross negligence
  - Hit and run
  - Driving while under the influence of alcohol or narcotics
  - Excessive speeds
  - Reckless operation of a motor vehicle

2.7 Motor Vehicle Violation Disciplinary Action and Enforcement

An accident/incident involving a company owned, leased or rented, and/or client owned-company operated motor vehicle that is preventable, but clearly the fault of the employee resulting from a violation of **REPOWER USA** Rules and Regulations, **SHALL** result in but not limited to, the following disciplinary action. These disciplinary actions will depend on the severity of the accident/incident:

- **First Offense**
  - Written reprimand and/or two days off without pay.
  - Immediate Discharge.
- **Second Offense**
  - Immediate Discharge

3.0 Safety Policies and Procedures

The **REPOWER USA** Policies and Procedures are developed by **REPOWER USA** by using the appropriate Federal, State, and/or Local Regulations as the basis for this manual. These Policies and Procedures are to be used and adhered to by all **REPOWER USA** Employees and contractors, as applicable, in the performance of their jobs. These Policies and Procedures are **NOT** intended to supercede any Federal, State, and/or Local Regulations but are to provide guidance and structure to all **REPOWER USA** Employees and contractors in the safe execution of their jobs.

In the unlikely event any of these Policies and Procedures differ from the associated regulation, the **regulation shall prevail** and supercede the policy or procedure. Anyone noticing any discrepancies in the policies and procedures **SHALL** notify their On-Site Field Supervisor and/or On-Site HSE Coordinator immediately, who then **SHALL** notify the **REPOWER USA** HSE Manager at the appropriate **REPOWER USA** office.

4.0 Disciplinary Action Forms Procedures

4.1 Cited REPOWER USA Employee's Report of Incident:

This form is to be filled in by the affected **REPOWER USA** Employee at the time of the notification of pending action for being cited on a non-compliance or violation of policies, procedures, and best industry work practices. The non-compliance and/or violation of the **REPOWER USA** HSE Policies and Procedures will constitute the reason for the notification and the pending action under the "**REPOWER USA** Progressive Disciplinary" Program.

The affected **REPOWER USA** Employee is to fill in the form by following the instructions on the form. The form is to then be forwarded to their immediate On-Site Field Supervisor and/or On-Site HSE Coordinator.

4.2 Witness Incident Report

One copy of this form is to be filled in by each individual Witness to the non-compliance and/or violation after the notification of the On-Site Field Supervisor and/or On-Site HSE Coordinator. The non-compliance and/or violation of the **REPOWER USA**/Client HSE Policies and Procedures will constitute the reason for the notification and the pending action under the "**REPOWER USA** Progressive Disciplinary" Program.

The affected Witness is to fill in the form by following the instructions on the form. The form is to then be forwarded, it they are an employee of **REPOWER USA**, to their immediate On-Site Field Supervisor with copies to the Operations Manager, the On-Site HSE Coordinator, and the **REPOWER USA** HSE Manager.

4.3 On-Site Field Supervisor Incident Investigation Report

The form is to be filled in by On-Site Field Supervisor at the location of the non-compliance and/or violation after the notification of the Operations Manager, the On-Site HSE Coordinator, and/or the **REPOWER USA** HSE Manager.

The non-compliance and/or violation of the **REPOWER USA**/Client Policies and Procedures will constitute the reason for the notification and the pending action under the "**REPOWER USA** Progressive Disciplinary" Program.

The On-Site Field Supervisor is to fill in the form by following the instructions on the form. The form is to then be forwarded to their immediate Operations Manager with copies to the On-Site HSE Coordinator and **REPOWER USA** HSE Manager.

4.4 On-Site HSE Coordinator Incident Investigation Report

The form is to be filled in by the On-Site HSE Coordinator at the location of the non-compliance and/or violation after the notification of the Operations Manager and the **REPOWER USA** HSE Manager. The non-compliance and/or violation of the **REPOWER USA** Policies and Procedures will constitute the reason for the notification and the pending action under the "**REPOWER USA** Progressive Disciplinary" Program.

The On-Site HSE Coordinator is to fill in the form by following the instructions on the form. The form is to then be forwarded to the **REPOWER USA** HSE Manager with a copy to the Operations Manager responsible for the location at which the cited incident occurred.

4.5 Operations Manager Incident Investigation Report

The form is to be filled in by the Operations Manager responsible for the location at which the non-compliance and/or violation occurred after the notification of the **REPOWER USA** President and the **REPOWER USA** HSE Manager. The non-compliance and/or violation of the **REPOWER USA** Policies and Procedures will constitute the reason for the notification and the pending action under the "**REPOWER USA** Progressive Disciplinary" Program.

The Operations Manager **will** make every effort to visit the site where the non-compliance and/or violation occurred within a reasonable time period and/or send a competent delegate to investigate the reported situation.
The Operations Manager is to fill in the form by following the instructions on the form. The form is to then be forwarded to the **REPOWER USA** President and the **REPOWER USA** HSE Manager.

4.6 REPOWER USA HSE Manager Incident Investigation Report

The form is to be filled in by the **REPOWER USA** HSE Manager after the location investigation of the situation at the location where the non-compliance and/or violation occurred following the notification of the **REPOWER USA** Manager of Administration/Finance and the **REPOWER USA** President. The non-compliance and/or violation of the **REPOWER USA** Policies and Procedures will constitute the reason for the notification and the pending action under the "**REPOWER USA** Progressive Disciplinary" Program.

The **REPOWER USA** HSE Manager **will** make every effort to visit the site where the non-compliance and/or violation occurred within a reasonable time frame and/or send a competent delegate to investigate the reported situation. The **REPOWER USA** HSE Managers are to fill in the form by following the instructions on the form. The form is to then be forwarded to the **REPOWER USA** President and the **REPOWER USA** HSE Manager.

4.7 Final Disposition and Notification of Results of Investigation to Employee

The form is to be filled in by Operations Manager responsible for the location at which the non-compliance and/or violation after notifying the **REPOWER USA** President and the **REPOWER USA** HSE Manager of the final concurrent decision and action to be taken

The Operations Manager responsible for the location is to fill in the form by following the instruction on the form. The form is to then be forwarded to the **REPOWER USA** President and the **REPOWER USA** HSE Manager for the concurring signatures. The **REPOWER USA** Employee that has been cited will be notified verbally of the final decision with a written copy of this notification forwarded to the **REPOWER USA** Employee, one copy to the Operations Manager, and one copy to the **REPOWER USA** HSE Manager for filing in the cited Employees' Personnel File.

4.8 Accident/Injury/Illness Reporting Forms

Forms for properly reporting Accident/Injury/Illness can be found in the **REPOWER USA** HSE Manual.

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Disciplinary Action Program

Form 1 - Employee Incident Report Form

Employee Incident Report Form

1. Date of the Incident:_____
2. Time of the Incident:_____
3. REPOWER USA Employee being cited:_____
4. Length of employment, at the current location, of the Cited REPOWER USA Employee:_____
5. Length of employment at REPOWER USA of the Cited REPOWER USA Employee:_____
6. Current Position of the Cited REPOWER USA Employee:_____
7. Cited REPOWER USA Employee's Report of Incident:_____
8. Signature of the REPOWER USA Employee:_____
9. Date signed:_____
10. Name of the REPOWER USA Employee the report was submitted to:_____
11. Position of the REPOWER USA Employee the report was submitted to:_____
12. Date the Incident Report was submitted:_____

Instructions

1. Fill in the date the cited incident occurred.
2. Fill in the time the cited incident occurred.
3. Fill in the name of the REPOWER USA Employee being cited.
4. Fill in the total time that the cited Employee has been at the current location.
5. Fill in the total time that the cited Employee has been employed by REPOWER USA.
6. Fill in the current position of the REPOWER USA Employee being cited.
7. The REPOWER USA Employee being cited is to give a full report of what, where, when, why, and how the incident occurred for which they are being cited.
8. The Signature of REPOWER USA Employee completing the Incident Report.
9. Fill in the date the completed REPOWER USA Employee Incident Report was signed.
10. Fill in the Name of the REPOWER USA Employee the report was submitted to.
11. Fill in the position of the REPOWER USA Employee r the report was submitted to.
12. Fill in the date Incident Report was submitted.

Original to the On-Site Field Supervisor

One Copy to the Department/Operations Manager

One Copy to the REPOWER USA HSE Manager
One Copy to the REPOWER USA Employee being cited
NOTE: Use additional paper to report the incident fully.

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Disciplinary Action Program

Form 2 - Witness Incident Report Form

Witness Incident Report Form

1. Date of the Incident:_____
2. Time of the Incident:_____
3. Witness reporting the Incident:_____
4. Length of employment of the Witness at the current location:_____
5. Is the Witness a REPOWER USA Employee? Yes:_____ No:_____
6. By Whom is the Witness employed?_____
7. Witness's Report of Incident: _____
8. Signature of the Witness:_____
9. Date signed: _____
10. Name of the REPOWER USA Employee the report was submitted to:_____
11. Position of the REPOWER USA Employee the report was submitted to:_____
12. Date the Incident Report was submitted:_____

Instructions

1. Fill in the date the cited incident occurred.
2. Fill in the time the cited incident occurred.
3. Fill in the name of the Witness reporting the incident.
4. Fill in the total time that the Witness has been at the current location.
5. Is the Witness employed by REPOWER USA.
6. By whom is the Witness employed if not a REPOWER USA Employee.
7. The Witness reporting the incident is to give a full report of what, where, when, why, and how the incident occurred for which they are reporting.
8. The Signature of Witness completing the Incident Report.
9. Fill in the date the completed Witness Incident Report was signed.
10. Fill in the Name of the REPOWER USA Employee the report was submitted to.
11. Fill in the position of the REPOWER USA Employee the report was submitted to.
12. Fill in the date the Incident Report was submitted.

Original to the On-Site Field Superintendent/Supervisor

One Copy to the Department/Operations Manager
One Copy to the REPOWER USA HS&E Manager
One Copy to the REPOWER USA Employee being cited
NOTE: Use additional paper to report the incident fully.

Section III:

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Disciplinary Action Program

Form 3 - On-Site Field Supervisor Incident Report Form

On-Site Field Supervisor Incident Report Form

1. Date of the Incident:_____
2. Time of the Incident:_____
3. Name of the REPOWER USA Employee being cited:_____
4. Witness to the reported Incident:_____
5. Location at which the incident occurred:_____
6. Is the Witness a REPOWER USA Employee? Yes:_____ No:_____
7. By Whom is the Witness employed?_____
8. On-Site Field Supervisor's Report of Incident: _____
9. The Signature of On-Site Field Supervisor_____
10. Date signed: _____
11. Name of the REPOWER USA Employee the report was submitted to:_____
12. Position of the REPOWER USA Employee the report was submitted to:_____
13. Date the Incident Report was submitted:_____

Instructions

1. Fill in the date the cited incident occurred.
2. Fill in the time the cited incident occurred.
3. Fill in the name of the REPOWER USA Employee being cited.
4. Fill in the name of the Witness reporting the incident.
5. Location at which the cited incident occurred.
6. Is the Witness employed by REPOWER USA (Yes or No)?
7. By whom is, the Witness employed if not an REPOWER USA Employee.
8. The On-Site Field Supervisor investigating incident is to give a full report of what, where, when, why, and how the incident occurred for which they are investigating. Include the interview with the REPOWER USA Employee being cited and the Witness.
9. Signature of the On-Site Field Supervisor completing the Incident Report.
10. Fill in the date the completed On-Site Field Supervisor Incident Report was signed.
11. Fill in the Name of the REPOWER USA Employee the report was submitted to.
12. Fill in the position of the REPOWER USA Employee the report was submitted to.
13. Fill in the date the Incident Report was submitted.

Original to the On-Site Field Supervisor

One Copy to the Head of Service/Operations Manager
One Copy to the REPOWER USA HSE Manager
One Copy to the REPOWER USA Employee being cited
NOTE: Use additional paper to report the incident fully.

Section III:

7.1.15 RPSHSE – 15

Disciplinary Action Program

Form 4 – HSE Coordinator Incident Report Form

On-Site HSE Coordinator Incident Report Form:

1. Date of the Incident:_____
2. Time of the Incident:_____
3. Name of the REPOWER USA Employee being cited:_____
4. Witness to the reported Incident:_____
5. Location at which incident occurred:_____
6. Is the Witness a REPOWER USA Employee? Yes:_____ No:_____
7. By Whom is the Witness employed?_____
8. On-Site HS&E Coordinator's Report of Incident: _____
9. Signature of the On-Site HSE Coordinator:_____
10. Date signed: _____
11. Name of the REPOWER USA Employee the report was submitted to:_____
12. Position of the REPOWER USA Employee the report was submitted to:_____
13. Date the Incident Report was submitted:_____

Instructions

1. Fill in the date the cited incident occurred.
2. Fill in the time the cited incident occurred.
3. Fill in the name of the REPOWER USA Employee being cited.
4. Fill in the name of Witness reporting the incident.
5. Location at which the cited incident occurred.
6. Is the Witness employed by REPOWER USA (Yes or No)?
7. By whom is the Witness employed if not an REPOWER USA Employee.
8. The On-Site HSE Coordinator investigating incident is to give a full report of what, where, when, why, and how the incident occurred for which they are investigating. Include the interview with the REPOWER USA Employee being cited and the Witness.
9. Signature of the On-Site Field Supervisor completing the Incident Report.
10. Fill in the date the completed On-Site Field Supervisor Incident Report was signed.
11. Fill in the Name of the REPOWER USA Employee the report was submitted to.
12. Fill in the position of the REPOWER USA Employee the report was submitted to.
13. Fill in the date the Incident Report was submitted.

Original to the On-Site Field Supervisor
One Copy to the Head of Service/Operations Manager
One Copy to the REPOWER USA HSE Manager
One Copy to the REPOWER USA Employee being cited
NOTE: Use additional paper to report the incident fully.

Section III:

7.1.15 RPSHSE – 15

Disciplinary Action Program

Form 5 - Head of Service/Operations/HSE Manager Incident Report Form

Head of Service/Operations/HSE Manager Incident Report Form

1. Date of the Incident:_____
2. Time of the Incident:_____
3. Name of the REPOWER USA Employee cited:_____
4. Witness to the reported Incident:_____
5. Location at which incident occurred: _____
6. Is the Witness a REPOWER USA Employee? Yes:_____ No:_____
7. By Whom is the Witness employed:_____
8. Department/Operations Manager's Report of Incident: _____
9. Signature of Date of the Incident:_____
10. Date signed: _____
11. Name of the REPOWER USA Employee the report was submitted to:_____
12. Position of the REPOWER USA Employee the report was submitted to:_____
13. Date the Incident Report was submitted:_____

Instructions

1. Fill in the date the cited incident occurred.
2. Fill in the time the cited incident occurred.
3. Fill in the name of the REPOWER USA Employee being cited.
4. Fill in the name of Witness reporting the incident.
5. Location at which the cited incident occurred.
6. Is the Witness employed by REPOWER USA (Yes or No)?
7. By whom is the Witness employed if not an REPOWER USA Employee.
8. The On-Site HSE Coordinator investigating incident is to give a full report of what, where, when, why, and how the incident occurred for which they are investigating Include the interview with the REPOWER USA Employee being cited and the Witness.
9. Signature of the On-Site Field Supervisor completing the Incident Report.
10. Fill in the date the completed On-Site Field Supervisor Incident Report was signed.
11. Fill in the Name of the REPOWER USA Employee the report was submitted to.
12. Fill in the position of the REPOWER USA Employee the report was submitted to.
13. Fill in the date the Incident Report was submitted.

Original to the On-Site Field Supervisor

One Copy to the Head of Service/Operations Manager
One Copy to the REPOWER USA HS&E Manager
One Copy to the REPOWER USA Employee being cited
NOTE: Use additional paper to report the incident fully.

REPOWER Systems	Section III RPSHSE 7.1.16	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.16 RPSHSE – 16
First Aid and Cardiopulmonary Resuscitation (CPR)

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1.0 Introduction

Injuries are one of the most serious public health problems. Injuries are the leading cause of death and disability in children and young adults. They destroy the health, lives and livelihoods of millions of people.

- Each year more than 140,000 Americans die from injuries (including accidents, Suicides, and homicides), and one person in three suffer a nonfatal injury.
- Preceded by heart disease, cancer, and strokes, injuries are the fourth leading cause of death.
- An injured patient occupies one of every eight hospital beds.
- Every year more than 80,000 Americans suffer, unnecessarily, permanently disabling injuries of the brain or spinal cord.
- Injuries are the leading reason for physician contacts. In addition, more than 25% of hospital emergency room visits are for the treatment of injuries.

Because of the size and magnitude of the injury problem, everyone must expect to eventually be present when an injury or sudden illness strikes. The outcome of such misfortune frequently depends not only on the severity of the injury or illness but also on the first aid rendered.

First aid is the immediate care given to an injured or suddenly ill person. Remember that first aid does not take the place of proper medical treatment. It consists only of furnishing temporary assistance until competent medical care, if needed, is obtained or until the chance for recovery without medical care is assured.

Properly applied, first aid may mean the difference between life and death and rapid recovery and long-term hospitalization or temporary disability and permanent injury.

2.0 General

The American Red Cross defines first aid as "the immediate and temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained." Effective first aid consists primarily of common sense and a few simple rules.

The following conditions require that basic life support procedures be used immediately:

- **Severe bleeding-** If a large blood vessel is severed, enough blood can be lost in one or two minutes to cause death.
- **No breathing/circulation-** Death or brain damage can occur in four to six minutes if breathing or circulation is not restored.
- **Poisoning-** Every second counts in preventing further injury.

The **REPOWER USA** HS&E Manual on First Aid includes the Medic First Aid documents that will be the **REPOWER USA** primary Policies and Procedures for First Aid and training. Keep a copy of these booklets, along with this information, at each work location.
Certified Medic First Aid instructors will administer all training.

- Immediately report all accidents, injuries, or illnesses to your Supervisor. Minor injuries should be properly treated and not neglected.
- Never move a badly injured person without assistance from a qualified medical attendant or first aid representative, unless it is to protect him/her from further injury.
- **The primary objective in first aid is to sustain life by utilizing basic life support techniques to:**
  - Maintain an airway
  - Maintain breathing
  - Maintain circulation
  - Control bleeding
  - Treat for shock
  - Get medical care for the victim
- **Our goal with First Aid treatment is to:**
  - Prevent death
  - Prevent further injury
  - Relieve pain
  - Prevent or Reduce Shock
- First Aid training is required for **ALL** field employees (except the office staff) and
- employees who are involved in confined space activities. Department Managers are urged to provide the opportunity for office staff employee training.
- The First Aid provider must avoid panic, offer reassurance, inspire confidence, and do no more than necessary until medical help arrives.
- If there is no dispensary, clinic, or hospital in near proximity of the worksite to treat employees, one or more of the employees must be adequately trained to render First Aid. First Aid supplies approved by the HS&E Department
- First Aid kits will be kept on-site at every job location. The HS&E Department recommends that the contents of the first aid kits be limited to the basic supplies of bandages and compresses and that the minimal oral medication (non-emergency) be included in the kits. However, for employees that may be sensitive to insect bites and/or stings, Benadryl should be included as the only oral medication necessary for the First Aid kit. Individuals who are hypersensitive to insect stings should carry their own personal physician prescribed kit at all times.
- Oxygen equipment should be kept at field sites for use in the event of a heart attack or exposure to noxious fumes.

It should be the type that delivers oxygen on demand. The pressure-demand resuscitator should only be used when the site is extremely remote and individuals are present who have received advanced first aid training and know how to properly use resuscitators. A resuscitator in the hands of an untrained person can further complicate the victim's condition.

3.0 Severe Bleeding

Severe bleeding results from wounds to large vessels. Bleeding must be controlled quickly. Immediately apply direct pressure over the wound. The following procedures should be used in the event of severe bleeding:

- Apply pressure directly over the wound. Place a clean pad, handkerchief, or cloth over
- the wound and press firmly with your fingers or palm of hand. If you do not have a pad or bandage, close the wound with your hand or fingers.
- Hold the pad firmly in place with a bandage, necktie, cloth strip, etc.
- Raise the bleeding part higher than the rest of the body unless bones have been broken.
- Keep the victims lying down.
- Keep the victim warm. Cover the victim with blankets or coats and put something under the victim when lying on a cold or damp surface.
- If the victim is conscious and can swallow, and if abdominal injury is not suspected, give plenty of liquids (such as water, tea, or coffee). Get medical help.
- A tourniquet should only be used to treat severe, life-threatening bleeding that cannot be controlled by other means (usually an amputated, mangled, or crushed arm or leg or when bleeding involves several arteries).

The procedure for applying a tourniquet is as follows:

- Use only a strong, wide piece of cloth. Never use wire, rope, twine, or other narrow materials.
- Place the tourniquet immediately above the wound, between the body and the edge of the wound. Some normal skin should be left between the tourniquet and the wound. If the wound is near a joint, place the tourniquet at the closest possible point above the joint
- Make sure the tourniquet is just tight enough to stop the bleeding. If possible, attach a card to the victim showing the time and place the tourniquet was applied.
- Once the tourniquet has been applied, the victim should be taken to a medical facility immediately. Only a physician or medical personnel should remove the tourniquet as they are prepared to control the bleeding.

4.0 No Breathing and/or No Circulation

A person whose breathing and circulation has stopped will die or suffer brain damage if these functions are not restored in four to six minutes. The initial evaluation of a victim should follow the procedures developed by the American Red Cross for basic life support, called the **ABC evaluation.**

- **Airway** -After assuring yourself that the victim is unconscious, open the airway by tilting the head back. Look into the mouth and remove anything that is blocking or could potentially block the airway. This includes gum, partial plates, and chewing tobacco.
- **Breathing** -Determine whether the victim has stopped breathing or if there is no circulation. Do this by placing your cheek next to the victim's nose and mouth to feel an exchange of air and, at the same time, watch for any chest movement.
- **Circulation** –Initially, place the tips of two fingers on the larynx (voice box) and slide them gently into the groove between the voice box and the large muscle of the neck. This is the location of the carotid artery where you can feel if the heart is circulating blood.

If breathing has ceased, begin mouth-to-mouth or mouth-to-nose resuscitation. If circulation has stopped, begin external cardiac massage. When combined, these procedures are known as Cardiopulmonary Resuscitation (CPR). To perform Cardiopulmonary Resuscitation (CPR) effectively, these techniques must be learned in a certified course. Although the procedures will be briefly discussed in this section, the discussion is not intended to replace an official course.

A single rescuer should perform the following CPR procedures after an evaluation indicates that breathing and circulation have stopped:

- Deliver four quick breaths using mouth-to-mouth or mouth-to-nose breathing. Do this in a way the victim does not have a chance to completely exhale.
- Place the heel of one hand over the lower half of the sternum (breastbone) and place the other hand on top of the first hand. Keeping the arms straight, deliver a quick, downward, piston-like thrust to compress the victim's chest 1-1/2 to 2 inches. This procedure compresses the heart between the sternum (breastbone) and the backbone, forcing it to circulate blood. Deliver this thrust 15 times at the rate of approximately 80 times per minute.
- After 15 compressions, immediately tilt the victim's head back and deliver two quick breaths mouth-to-mouth.
- Repeat the cycle of delivering 15 compressions and two breaths until medical help arrives.
- Once every minute, check the carotid artery for a pulse. Do this between the compressions and the two breaths.

- If you feel a pulse, deliver one breath every five seconds while ensuring that circulation is still present. If breathing and circulation return, keep a close watch over the victim in case these processes stop again.

The following CPR procedures are used if a situation involves two rescuers:

- One person does the **ABC evaluation** while the other rescuer prepares to deliver external cardiac massage.
- The rescuer who has done the evaluation and found no breathing or circulation delivers four quick breaths by mouth-to-mouth resuscitation.
- When the four breaths are completed, the other rescuer starts delivering compressions at the rate of 60 times per minute.
- After every fifth compression, the first rescuer delivers one breath mouth-to-mouth. The ratio then becomes five compressions to one breath until help arrives or a pulse is restored.
- **NEVER** practice CPR procedures on real people. These violent maneuvers may injure a person if improperly executed. These procedures are learned in a formal CPR course in which life-size mannequins are used for practice.

The following conditions can cause the breathing and/or circulation to stop:

- Electric shock
- Inhalation of a gas such as H_2S
- Inhalation of smoke and the lack of oxygen
- Heart attack, drowning, or a hard blow to the chest

For victims of any of these conditions, do the Airway, Breathing, and Circulation **(ABC)** evaluation and support the life process that has ceased by using CPR procedures.

5.0 Heart Attack

For heart attack victims, use the following procedures:

- Perform the **ABC evaluation.**
- Begin CPR if breathing and circulation have ceased.
- Continue CPR until the vital signs have been restored.
- If breathing and circulation are present, keep calm and reassure the victim.
- Loosen the clothing and help the victim get into a comfortable position (usually halfway between lying and sitting).
- **DO NOT** carry or lift the victim more than necessary. Have someone call for medical help.
- **DO NOT** give the victim any liquids without a doctor's advice.

6.0 Choking

DO NOT interfere with a choking victim who can speak, cough, or breathe. However, if the choking continues without lessening, call for medical help.

If the victim cannot speak, cough, or breathe take the following actions until medical help arrives:

6.1 For a Conscious Victim

- Stand just behind and to the side of the victim, who can be standing or sitting. Support the victim with one hand on the chest. The victim's head should be lowered. Deliver four sharp blows between the shoulder blades.
- If that technique does not less choking, stand behind the victim, who can be standing or sitting. Wrap your arms around the victim's middle just above the navel. Clasp your hands together in a doubled fist and press in and up in quick thrusts. Repeat this maneuver several times. If choking continues, repeat a cycle of four back blows and four quick thrusts until the victim is no longer choking or becomes unconscious.

6.2 For an Unconscious Victim

- Place the victim on the ground and deliver rescue breathing. If the victim does not start breathing and if it appears that your air is not going into the airway. Roll the victim onto one side, facing you, with the chest against your knee. Then, deliver four sharp blows between the shoulder blades.
- If the victim still does not respond, roll the victim face-up and deliver one or more manual thrusts. To deliver the thrusts, place one hand on top of the other, with the heel of the bottom hand in the middle of the abdomen, slightly above the navel and below the rib cage. Press into the victim's abdomen with quick upward thrust. **DO NOT** press to either side.
- Clear the airway.
- Hold the victim's mouth open with one hand, using your thumb to depress the tongue.
- Use the middle finger of your hand as a hook , and, in a gentle sweeping motion, reach into the victim's throat and feel for a foreign object that may be blocking the air passage. Repeat the following procedure until the air passage is clear:
    - Administer four back blows, four abdominal thrusts, probe in the mouth, and try to inflate the lungs.
- If the object has not been retrieved, but the victim suddenly recover, take the victim to the hospital anyway. This is particularly important if the swallowed object is a fish bone, chicken bone, or other jagged object that could cause internal damage as it passes through the victim's digestive system.

7.0 Inhalation of Toxic Gas or Smoke

Remove the victim from the contaminated area. **DO NOT** enter the contaminated area without respiratory protection. Never try to rescue a person by holding your breath and entering the contaminated area.

Even with the proper respiratory protection, it is dangerous to enter a contaminated area alone or without standby help. **DO NOT** attempt rescue by yourself if you can obtain assistance quickly. **As soon as you have the victim in a safe area, perform the following procedure:**

- Perform the Airway, Breathing, and Circulation (**ABC**) evaluation.
- If the breathing and or circulation has stopped, begin CPR.
- If breathing and circulation are present, keep the victim lying down until medical help arrives.

8.0 Electric Shock:

For a victim of electric shock, perform the following procedure:

- Throw the switch to turn off the current or use a dry board or stick to remove the electric contact from the victim.
- Perform the **ABC evaluation** and begin CPR if breathing and/or circulation have ceased,
- If breathing and circulation are present, remain with the victim until medical help arrives. It is important that a physician evaluate an individual who has suffered an electric shock, as electric shock can severely injure many parts of the body.

9.0 Burns

Burns can result from extreme temperatures (thermal burn) or from chemicals (chemical burn). Burns are very painful and can be complicated by shock, contamination, and dehydration.

9.1 Extensive Thermal Burns

For victims of extensive thermal burns, use the following procedures:

- Wet the victim's remaining clothing with cool or cold water as quickly as possible to reduce burning.
- Place the cleanest available cloth over all burned areas to keep air away from the burn. Wet the burn with cool or cold water to reduce heat.
- Make the victim lie down.
- Place the victim 's head and chest a little lower than the rest of the body and raise the legs, if possible.

- If the victim is conscious and can swallow, give them plenty of nonalcoholic liquids to drink (water, tea, soft drink, etc.).
- Obtain the services of a physician as soon as possible.

9.2 Small Thermal Burns

Use the following procedures on victims of small thermal burns:

- Soak a sterile gauze pad or clean cloth in cool or cold water, preferably water with ice in it. Place the cold pad over the burn.
- **DO NOT** disturb or open blisters.
- If the skin is not broken, immerse the skin in clean, cold water or apply clean ice to relieve the pain.

9.3 Liquefied Petroleum Gas (LPG) or Cold Burn

Liquefied Petroleum Gas (LPG) is composed of ethane, propane, butane, and their isomers. These gases are colorless and flammable. They are low in toxicity, slightly anesthetic, and have a mild odor ranging from aromatic to slightly disagreeable. LPG produces injuries by freezing, as does dry ice. Flushing the skin with water should treat simple burns on the skin. The burn may be either bandaged or left open. A doctor should examine extensive burns. LPG is most destructive when it gets into the eye, therefore, flush the eye with large amounts of water and refer the victim to a physician as soon as possible.

9.4 Chemical Burns of the Skin

Use the following procedures for victims of chemical burns :

- Immediately flush the burn with water. Speed helps reduce the extent of the injury.
- Apply a stream of water to the burn while removing the victim's clothes.
- Place the cleanest available material over the burned area.
- If the burn area is extensive, make the victim lie down. Place the head and chest a little lower than the rest of the body and raise the legs, if possible. A doctor should examine extensive burns.

9.5 Chemical Burns of the Eyes

Check the victim's eyes for contact lenses. Remove them if they are present. Wash the eyes by plunging the head into a vessel of clean water and having the victim blink rapidly or by allowing water from a drinking fountain or hose to flow into and flush the eyes. If neither of these procedures can be done immediately, pour clean water into the victim's eyes from a drinking cup.

It is a good practice to keep an eyewash bottle filled with clean water available for emergency use. If the victim's eyelids will not remain open, get another person to hold the lids open, and wash the eyes for 15 minutes.

Use only water to wash chemical burns. Never use another chemical to flush the burns because this can increase the extent of the injury.

10.0 Exposure to Crude Products (oil, gas or condensate)

An individual overcome by vapors must be removed from exposure immediately. A physician should be called. If the breathing is irregular or stopped, administer artificial respiration. If a liquid petroleum product is swallowed, do not induce vomiting. Call a physician promptly. For skin contact, remove the contaminated clothing and wash the skin with soap and water. If the petroleum liquids splash into eyes, wash the eyes with clear water for 15 minutes.

11.0 Shock

Whenever someone suffers from trauma or emotional upset, shock may be present. Shock must be considered as a possible complication of every injury and severe illness. Shock occurs when the circulation to the vital organs of the body (especially the brain) slows down. This condition is severe and can be life threatening if it is not corrected.

The symptoms of shock include the following:

- Cold, clammy skin
- Shallow breathing
- Rapid pulse
- Victim feels cold; may even be shaking
- Weakness
- Confusion or disorientation

Shock should be treated as follows:

- Make the victim lie down.
- Keep the airway open. If the victim vomits, turn the head to the side so the neck is arched with the chin pointing down.
- If the victim complains of being cold, use a blanket or coat for a cover.
- Increase circulation to the brain by elevating the victim's legs so that the head is lower than the body.
- Reassure the victim.
- If the victim is conscious and can swallow, administer fluids (water, tea, soft drink, etc.).
- Never give the victim alcoholic beverages.
- **DO NOT** give the victim fluids if you think the abdomen may be injured.

12.0 Heat Exhaustion

The symptoms of heat exhaustion include the following:

- Pale, cold, clammy skin

- Rapid, weak pulse
- Weakness, headache, or nausea
- Cramps in abdomen or limbs
- Excessive perspiration
- **Heat exhaustion should be treated as follows:**
- Move the victim to a cool place in the shade
- Make the victim lie down so the head is lower than the rest of the body
- Give the victim water to drink and, if available, stir one-quarter teaspoon of salt into the water
- Get medical help

13.0 Heat Stroke

Heat stroke is life threatening and immediate measures must be taken to cool down the victim and get medical care.

The symptoms of Heat Stroke include the following:

- Flushed, dry, hot skin
- Rapid, strong pulse
- Temperature is well above normal and skin feels hot to the touch
- Headache, dizziness, nausea
- Often, the victim is unconscious

Heat Stroke should be treated as follows:

- Move the victim to a cool place
- Treat for shock
- Cover the entire body with cold water using either a sponge or a hose
- Cover the victim with ice, if it is available
- Obtain medical help immediately
- If the victim is fully conscious and can swallow, administer water and, if available, one-quarter teaspoon of salt stirred into a glass of water
- **DO NOT** give the victim alcoholic beverages

14.0 Hypothermia

Hypothermia is a reduction in body temperature caused by the insufficient generation of heat. Hypothermia may occur at temperatures both above and below freezing and it is especially common in wet environments. Wind combined with cold weather makes the body temperature drop faster than calm, cold weather does. Wind chill increases the risk of hypothermia. If hypothermia is not recognized and treated quickly, it may result in death.

The following precautions help prevent hypothermia:

- Before going outside, rest and eat properly
- Continue food intake once outside
- Make sure clothing and outerwear are windproof and waterproof
- Carry emergency survival equipment
- Before beginning an outdoor task, think about what you will do if you must remain at the location overnight
- Make sure you have the shelter to carry out that encampment
- When working in a cold environment, reduce sweating by removing clothing layers and then putting them back on when you rest
- Exercise (isometric) to help the body produce heat

The symptoms of hypothermia include the following:

- The signs observed by others are poor coordination, slowness, stumbling, thickness of speech, amnesia, irrationality, poor judgment, hallucinations, bluish or puffy skin, dilated pupils, decreased heart and respiratory rates, weak or irregular pulse, and stupor.
- The symptoms noticed by the victim include intense shivering, muscle tenseness, fatigue, numbness or coldness, poor coordination, stumbling, poor articulation, disorientation, a decrease in shivering followed by muscles going rigid, bluish or puffy skin, and slow, irregular, or weak pulse.

Hypothermia should be treated as follows:

- Reduce heat loss by sheltering the victim from wind and weather
- Isolate the victim from the ground
- Replace wet clothing with windproof, waterproof clothing and have the victim increase the exercise level if possible
- Administer heat by giving the victim hot drinks. Do not give the victim alcohol beverages
- Place the victim in a sleeping bag with another person
- Make the victim huddle with others for body heat
- If you are in a permanent location, immerse the victim in water heated to 100° - 108° F

15.0 Immersion Hypothermia

Immersion in near-freezing water for only a few minutes while inadequately dressed causes rapid and total body cooling. If immediate action is not taken, death may result.

The following precautions help prevent immersion hypothermia:

- Wear an insulated life vest, or preferably, a float coat. The device must be zipped and hooked properly in order to insulate and keep a person afloat.
- Stay alert and out of the water.

- If you should fall into cold water, move as little as possible. Keep your head out of the water, your legs drawn up to your chest, and your arms crossed over your chest. This position conserves body heat and improves your chance of survival.
- The symptoms of immersion hypothermia are identical to those of hypothermia. Victims of immersion hypothermia should be treated gently and warmed immediately.
- Gently remove wet clothing and place the victim in a warm sleeping bag. If the victim is very cold, it may be necessary for one or two other people to remove their clothing and climb into the bag, using body heat to re-warm the victim.
- Do not allow the victim to exercise or move because activity increases the flow of cold blood from the extremities to the heart.
- Warm liquids are only appropriate for immersion victims with a body temperature above 90° F.

16.0 Poison Plants

Skin poisoning can result from contact with poison ivy, poison oak, or poison sumac

- Symptoms include itching, redness, or blisters on the skin after contact with poison plants.

To treat contact with poison plants, take the following steps:

- Remove the victim's clothing from the affected area.
- Be careful not to let the clothing drag across unaffected skin.
- It may be necessary to cut the clothing away from the affected areas.
- Wash the exposed area with mild soap and water. Lather and rinse several times.
- Sponge the affected area gently with rubbing alcohol, if some is available.
- If blisters appear on the skin, call a physician.

17.0 Swallowed Poisons

It is impossible to cover the hundreds of kinds of poisons and their respective guidelines for treatment. Professional advice should be obtained as soon as possible. Ask the telephone operator to connect you with the nearest Poison Control Center. Some Poison Control Centers remain open around-the-clock.

The following guidelines for treatment apply in most cases:

- Try to identify the substance ingested
- Induce vomiting by a putting finger down the victim's throat, unless the substance swallowed is a hydrocarbon
- In that case, do not induce vomiting, as this may aggravate the condition
- Call a physician, emergency room, or poison control center for advice
- If you cannot identify the poison, have the victim drink milk or a solution of milk and raw eggs to coagulate the material

- Try again to induce vomiting by forcing the victim to gag

18.0 Inhalation of Hydrogen Sulfide (H_2S)

The toxicity limits for hydrogen sulfide (H_2S) are as follows:

- Up to 10 PPM (1/1,000 of 1%) - This amount can be smelled and is safe for 8 hours of exposure
- Up to 150 PPM (1/150 of 1%) -This amount may sting the eyes and throat. It kills the sense of smell in 3 -15 minutes
- 500 PPM (5/100 of 1%) - This amount can cause a loss of balance. It may cause respiratory paralysis in 30 -40 minutes. It may require artificial respiration
- 1,000 PPM (1/10 of 1%) - This amount may cause instantaneous unconsciousness. It can cause death or permanent brain damage as a result of oxygen deficiency

H_2S inhalation should be treated as follows:

- First, be sure the rescuers have the proper respiration protection before they enter a contaminated area
- Carry the victim into fresh air immediately. If the victim is breathing, you may not need to do anything else
- Perform an Airway, Breathing, and Circulation **(ABC) evaluation.** If the victim is not breathing, begin mouth-to-mouth resuscitation. If circulation has stopped, commence external cardiac massage.

19.0 Insect Sting

- To prevent insect stings, the work area where these insects make nests should be inspected and sprayed frequently with an approved insecticide.
- A person who is stung by a wasp, bee, yellow jacket, ant, fire ant, or other stinging insect will suffer pain and mild swelling.
- To treat insect stings, the stinger should be removed if it can be done easily and ice should be applied to the area. Normally, nothing more needs to be done.
- Some people are hypersensitive to insect stings. These people react to stings with great swelling or they develop hives beyond the area of the sting. Some hypersensitive people have difficulty breathing or collapse entirely. Usually, these people are aware that they react more severely to each new bite.
- A hypersensitive person should obtain a kit to carry at all times, to be used in the event of a sting. Associates and the person's supervisor should be told the person is hypersensitive to insect stings.

20.0 Venomous Snakebites

The snake belt for venomous snakes lies mainly in the South and Southwest, but all states, with the exceptions of Alaska, Hawaii, and Maine have poisonous snakes.

Venomous snakes in the United States include the rattlesnake, copperhead, cottonmouth (water moccasin), and coral snake. The first three snakes are all members of the pit viper family. The most prevalent of these is the rattlesnake, which accounts for almost 60 percent of all bites and virtually all fatalities. The fangs of the pit viper leave puncture wounds, usually two. (**NOTE:** All non-poisonous reptiles leave a row of teeth marks when they bite.) The other venomous snake is the coral snake, which is small, multicolored and highly toxic. Fortunately, this snake is not aggressive and has a small mouth, therefore, harder for the reptile to inflict a wound.

Basic first aid for the pit vipers (rattlesnake, copperhead, and cottonmouth) consists of the following:

- **DO NOT** elevate the bite because this hastens the spread of the venom. Keep the bite at the level of the heart.
- Assure the victim that everything will be all right.
- Keep the victim warm but do not apply heat to the wound.
- Keep the victim calm and quiet.
- Transport the victim to a medical facility as soon as possible.
- Attempt to identify the snake by a method that will not expose anyone to additional danger. Kill it if possible.

The following procedure should be performed if less than 15 minutes have elapsed since the victim was bitten and if it would require more than one hour to reach a medical facility:

- Place a constricting band (not a tourniquet) two to three inches above the bite. This band is not intended to restrict the flow of blood and you should be able to insert at least one finger between the band and the skin.
- Make two incisions with a sharp knife, razor blade, or blade from a snakebite kit, one through each fang mark. **DO NOT** make an **X**. The incisions should be 1/4 inch long and 1/8 inch deep, just deep enough for blood to start oozing.
- Apply suction to the wound using the rubber suction cup from the snakebite kit. If nothing else is available, use mouth suction. **DO NOT** use mouth suction if you have open sores in your mouth.

To treat the bite of the coral snake, use the following procedure:

- Wash the area promptly with clear water, if some is available.
- Transfer the victim to a medical facility as soon as possible. (Suction and a constricting band are ineffective for coral snakes.)

Additional points that should be remembered include the following:

- Remain calm. Very few people actually die from snakebites.
- If you have a radio or telephone, notify someone of your exact location.
- **DO NOT** elevate the bite because this hastens the spread of the venom. Keep the bite at the level of the heart.
- **DO NOT** apply ice or a cold pack to the bite. In order to get human tissue cold enough to stop the spread of venom, it must be frozen, and the tissue would therefore be destroyed.
- **DO NOT** give the victim alcoholic beverages.
- **DO NOT** sacrifice safety for speed on the way to the medical facility
- **DO NOT** allow the victim to run because this will speed up circulation and hasten spread of the venom.

21.0 Spider Bites

There are over 1,000 species of spiders, the majority of which produce venom. However, very few spiders can penetrate human skin to inject venom. Two that can, and whose venom may be as poisonous as the venom of snakes, are the black widow and the brown recluse (fiddleback). The black widow spider is usually found in dark, moist places. It is usually jet black in color and has a red, hourglass mark on its abdomen. The bite of this spider immediately causes severe pain at the bite site.

The brown recluse (fiddleback) is normally found in sheds, houses, closets, and under leaves. It has a violin-shaped mark on its back. The bite of this spider causes little or no immediate pain. Many times, the victim is not aware of the insect bite until several hours have passed and a crusted wound surrounded by a black bulls-eye appears at the bite site. This wound is an indication that tissue damage caused by the venom has occurred. This may cause tremendous disability to the victim as the venom literally destroys all the tissue it encounters.

One or all of the following symptoms can occur from either spider bite or a venomous snakebite:

- Swelling and pain at bite site
- Headache
- Nausea or vomiting
- Joint pain
- Muscle cramps

To treat a spider bite, use the following procedures:

- Make the victim lie down.

- Constrictive bands and incision-suction are not effective for a spider bite. Take the victim to a medical facility as soon as possible.
- If the pain is severe, an ice cube can be massaged on the bite site. This will help relieve the pain.
- **DO NOT** apply ice or cold packs to the wound for a prolonged period of time.
- **DO NOT** allow the victim to walk.
- **DO NOT** give the victim alcoholic beverages.

Forms

Section III:
7.1.16 RPSHSE – 16
First Aid and Cardiopulmonary Resuscitation (CPR)

Form 1 – Approved First Aid Kits Content

Contents of Approved First Aid Kits

This First Aid Kit shall consist of the appropriate listed items and stored in a weatherproof container with each item individually packaged and sealed. MSA, North and ZEE First Aid Kits are on the **REPOWER USA** approved list. The **REPOWER USA** HSE Manager and/or their designee are responsible for checking and maintaining office and field First Aid Kits. Each kit is to be checked weekly and again prior to and post job assignment (as applicable).

Approved for Onshore/Offshore Operations

Item No.	Quantity	Product Description
1	One Unit	0.5 cc Zephiran Chloride Swab
2	One Unit	4" Compress Bandages
3	One Unit	3" Compress Bandages
4	Two Units	2" Compress Bandages
5	Two Units	1" Plastic Adhesive Bandages
6	One Unit	Ammonia Inhalants
7	One Unit	Stingfoe Swabs
8	Four Units	Triangular Bandages
9	Two Units	Plain Sterile Gauze Pads
10	Two Units	Foille Ointment
11	One Unit	Eye Dressing Packet
12	One Unit	Knuckle Bandages
13	Two Units	Polyethylene Disposable Gloves - Medium
14	One Unit	Safe Airway Mask (SAM) Resuscitator **(Bloodborne Pathogen)**
15	One Unit	24" x 2 yards Gauze
16	One Unit	Eye Irrigation Bottle
17	One Unit	Emergency Blanket
18	One Unit	First Aid Material Instruction Booklet
19	One Unit	Rescue Breather
20	One Box	Polyethylene Disposable Gloves - Large
21	One Unit	3" Slanted Tweezers Kit
22	One Unit	4" Scissors Kit
23	One Unit	Fingertip Bandages
24	One Unit	Eye Dressing
25	One Unit	Small Ice Pak (4" x 2 3/8")
26	One Unit	Adhesive Tape 1" x 10 yards
27	Two Units	Elastic Strips (7/8" x 3")
28	One Unit	Antiseptic Swabs
29	One Unit	Eye Wash (1/2 oz.)
30	One Unit	Extra Large Compress Dressing
31	One Unit	Inflatable Splint Kit
32		

Approved First Responder Kit

Item No.	Quantity	Product Description
1	One Unit	4" Compress Bandages
2	One Unit	Knuckle Bandages
3	One Unit	Fingertip Bandages
4	One Unit	Burn Relief Spray
5	Four Units	Triangle Bandages
6	One Unit	Gauze Pads (2" x 2")
7	One Unit	Eye Wash
8	One Unit	Ammonia Inhalants
9	One Unit	Adhesive Tape (1/2" x 2 ½ yards)
10	Two Units	Sterile Kling
11	One Unit	Tweezers
12	One Unit	Antiseptic Towelettes (Bloodborne Pathogens)
13	Two Units	Elastic Strip Bandages
14	Two Units	Alcohol Prep (package of 5)
15	One Unit	Rescue Breather
16	One Unit	Polyethylene Disposable Gloves
17	One Unit	Inflatable Splints Kit

Approved for Office

Item No.	Quantity	Product Description
1	One Unit	0.5 cc Zephiran Chloride Swab
2	One Unit	4" Compress Bandages
3	One Unit	3" Compress Bandages
4	Two Units	2" Compress Bandages
5	Two Units	1" Plastic Adhesive Bandages
6	One Unit	Ammonia Inhalants
7	One Unit	Stingfoe Swabs
8	Four Units	Triangular Bandages
9	Two Units	Plain Sterile Gauze Pads
10	Two Units	Foille Ointment
11	One Unit	Eye Dressing Packet
12	One Unit	Knuckle Bandages
13	Two Units	Polyethylene Disposable Gloves - Medium
14	One Unit	Kling – Sterile (3" x 5')
15	One Unit	24" x 2 yards Gauze
16	One Unit	Eye Irrigation Bottle
17	One Unit	Emergency Blanket
18	One Unit	First Aid Material Instruction Booklet
19	One Unit	Rescue Breather
20	One Box	Polyethylene Disposable Gloves - Large
21	One Unit	3" Slanted Tweezers Kit
22	One Unit	4" Scissors Kit
23	One Unit	Fingertip Bandages
24	One Unit	Eye Dressing
25	One Unit	Small Ice Pak (4" x 2 3/8")
26	One Unit	Adhesive Tape 1" x 10 yards
27	Two Units	Elastic Strips (7/8" x 3")
28	One Unit	Antiseptic Swabs
29	One Unit	Eye Wash (1/2 oz.)
30	One Unit	Extra Large Compress Dressing
31	One Unit	Safe Airway Mask (SAM) Resuscitator
32	One Unit	Cotton Tip Applicator
33	One Unit	Large Patch Bandages
34	One Unit	Small Patch Bandages
35	One Unit	Vaseline Gauze (3" x 18")
36	One Unit	Clean Wipes
37	One Unit	Tincture of Green Soap (8 oz.)
38	One Unit	Antiseptic Aerosol (3 oz.)
39	One Unit	Burn Septic (3 oz.)
40	One Unit	Inflatable Splints Kit

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
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Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.17 – RPSHSE – 17
Bloodborne Pathogens Exposure Control Program

Contents

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1.0 Introduction

In the past, you could aid or rescue a co-worker without much thought for your own safety. However, today it is not that easy. Deadly diseases can stand between you and your response to a co-worker who has been injured. Such diseases include Hepatitis "B" Virus (HBV) and the Human Immunodeficiency Virus (HIV), which causes AIDS. Although there are many other diseases carried by blood, it's especially important to know about these two.

2.0 Regulatory Background

The proposed standard is designed to reduce the occupational exposure to human blood and certain body fluids and tissues that are potentially infectious for HBV, HIV, and other Bloodborne Pathogens. Blood is the major source of exposure for employees in the workplace.

The Federal Occupational Safety and Health Administration's (OSHA) Final Rule Governing Occupational Exposure to Bloodborne Pathogens (29 CFR 1910.1030, December 6, 1991) affects health care facilities, including the health units in industry, as well as non-volunteer fire and rescue squads and first aid responders.

The Center for Disease Control (CDC), under the authority of Public Law 100-607, the Health Omnibus Programs Extension Act of 1988, Title II, and Programs with Respect to Acquired Immune Deficiency Syndrome (**"AIDS Amendments of 1988"**), has issued **"Guidelines for Prevention and Transmission of HIV and HBV to Health-Care and Public Safety Workers"** which is used to ensure exposure control.

3.0 Policy

Since it is possible to become infected with diseases such as Acquired Immunodeficiency Syndrome (AIDS), malaria, syphilis, brucellosis, and hepatitis B (HBV) through a single exposure, only trained and qualified personnel shall administer emergency and/or first aid medical care.

All human blood and the body fluids contaminated with blood should be considered infectious for Hepatitis B Virus (HBV), AIDS or HIV , and other Bloodborne Pathogens. Unprotected contact with blood and other potentially infectious material shall be avoided. Engineering controls will be used, whenever possible, to eliminate the potential exposure.

All regulated waste shall be disposed of in the appropriate containers and removed by a state-approved medical waste disposal company.

This Exposure Control Plan applies to all employees who, as a part of their job duties, can reasonably anticipate a potential exposure to Bloodborne Pathogens and it sets forth the minimum requirements for those who may be exposed or come in contact with blood or other potentially infectious materials to the skin, eyes, and mucous membranes.

Examples:

- You forget to put gloves on before taking care of a bleeding co-worker and you have a cut on your hand.
- Blood splashes into your eyes.
- You have a cut on your upper arm (above your gloved hand) and blood gets on this area.

All **REPOWER USA** Employees shall have access to the **REPOWER USA** Exposure Control Plan through training classes, on-site copies of the Exposure Control Plan provided in the **REPOWER USA** HS&E Manual, and upon request, as set forth in 29 CFR 1910.1020 (e).

4.0 Key Requirements

4.1 Exposure Determination

The exposure determinations in this procedure shall be made without regard to the use of Personal Protective Equipment (PPE), as identified in 29 CFR 1910.1030 (c)(2)(C)(ii).

- Personnel whose duties require emergency response and rendering first aid have been identified as the employees with potential exposure.
- Blood from open wounds or other body fluids contaminated with blood would be the major area of concern for exposure to Bloodborne Pathogens.
- The potential routes of exposure would be through hand contact while treating minor wounds or mouth contact while performing CPR.
- All human blood and other potentially infectious materials are to be treated as if they are infectious.

4.2 Personal Protective Equipment (PPE)

- **Gloves** - Gloves shall be worn when an employee has the potential for their hands to have direct skin contact with blood, other potentially infectious materials, mucous membranes, non-intact skin, and when handling items or surfaces soiled with blood or other potentially infectious materials. Gloves shall be replaced as soon as possible when visibly soiled, torn, punctured, or when their ability to function as a barrier is compromised. Disposable gloves shall not be re-used.
- **Masks, Eye Protection, and Face Shields** - Masks and eye protection or chin-length face shields shall be worn whenever there is a potential for eye, nose, or mouth contamination due to splashing, spraying, spattering, etc.

- **Gowns, Aprons and Other Protective Body Clothing** - The appropriate protective clothing shall be worn if there is a potential for the employee's clothing to be soiled with blood or other potentially infectious materials.
- **Surgical Caps or Hoods** - Caps or hoods shall be worn where there is a potential of infectious materials getting on the head.
- **Mouthpieces and Resuscitation Bags** - These items shall be utilized, where practical, for the administration of cardiopulmonary resuscitation (CPR).

4.3 Engineering/Environmental Controls

The elimination of workplace Bloodborne Pathogens and the associated hazards shall be approached through the application of Engineering and Work Practices utilized at the work place, with these applied controls and workplace practices being utilized to minimize employee exposure. After the appropriate engineering and work practices have been applied, the remaining hazards shall be identified and the appropriate Personal Protective Equipment (PPE) shall also be used.

The engineering controls and Workplace Practices shall be examined, maintained, and/or replaced on a regular basis to provide the maximum effectiveness for the protection of employees.

A pro-active approach to Employee Safety is our first line of defense in the elimination of the hazards at their source(s).

They may include, but are not limited to, the following:

- Biological safety cabinets
- Waste containers for contaminated sharps

If an area becomes contaminated, the fluid shall be absorbed with an absorbent disposal material and placed in a biohazard bag. The area should then be cleaned **IMMEDIATELY** with an EPA-approved disinfectant. Gloves shall be worn when cleaning any bloodstained areas. If the area cannot be cleaned up immediately, a biohazard sign must be affixed to the area until it is disinfected. Bloodstained carpeting shall be replaced if adequate decontamination is not possible.

4.4 Work Practices

Workplace Work Practices shall be utilized to minimize employee exposure to workplace hazards. Employee and management participation in the **REPOWER USA** provided HS&E Training, the Job Site Safety Inspections (JSSIs), the Job Safety Analyses (JSAs), the daily, weekly, and monthly work site HS&E meetings, the equipment preventative maintenance methods, and the Hazard Identification and Evaluation Reporting will identify safeguards against and eliminate the potential hazards.

Affected Employees shall follow these specific procedures to reduce their exposures to pathogens:

- Certain process procedures for handling blood or other infectious materials in a manner that minimizes splashing, spraying, etc. **Example :** Covering the stopper with gauze before removing it can minimize the spattering of blood or serum that occurs when rubber stoppers are pulled out of specimen tubes.
- Employees shall wash their hands immediately, or as soon as possible, after the removal of gloves and after any hand contact with potentially infectious materials.
- **REPOWER USA** shall provide accessible hand-washing facilities to the employees In the event that hand-washing facilities are not feasible, due to remote locations, etc., **REPOWER USA** shall furnish an appropriate antiseptic hand cleaner in addition to clean cloth towels and/or towelettes. Through information and training, **REPOWER USA** shall keep employees informed of the necessity for immediate hand washing with soap and water following the contact of body areas with blood or other potentially infectious materials.
- Personal protective equipment shall be worn while inside the work area and removed when the employee leaves the work area. In other words, employees shall not be wandering the halls or any other area while wearing protective clothing.
- The first aid facility or lab shall be a restricted area only accessed by the authorized personnel. Doors leading to the work area shall be closed whenever activities are in progress and the universal biohazard warning sign shall be posted on all such access doors.
- Used needles and other sharps shall not be sheared, bent, broken, recapped, or re-sheathed by hand. Used needles shall not be removed from disposable syringes. Discarded needles shall be placed in an approved sharps container. The container shall be placed or mounted so that the employee can see the top of the container and any other discarded sharps in it to prevent an accidental stabbing from a discarded needle.
- Broken glassware shall not be picked up by hand. Instead, it shall be collected with tongs or swept up with a dustpan and brush.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in the work areas where there is a potential for occupational exposure.
- Food and drink shall not be stored in the refrigerators, freezers, or cabinets where blood or other potentially infectious materials are stored or in other areas of possible contamination.
- Mouth pipette suctioning is prohibited.

- All equipment, environments, and working surfaces shall be properly cleaned and disinfected after contact with blood or other potentially infectious materials.
- The work site shall be maintained in a clean and sanitary condition at all times.
- Specimens of blood, urine, or other potentially infectious materials shall be placed in a closable, leak-proof container labeled or color-coded prior to being stored or transported. If outside contamination of the primary container is likely, then a second leak-proof container that is labeled or color-coded shall be placed over the outside of the first and closed to prevent leakage during handling, storage, or transporting.
- All infectious wastes destined for disposal shall be placed in closable, leak-proof containers or bags that are labeled or color-coded.
- Contaminated laundry shall be handled with as little agitation as possible and placed in labeled bags at the location where it is used. Leak-proof bags shall be used to transport wet laundry.
- When any potential occupational exposure is present for **REPOWER USA** personnel "ALL" necessary and appropriate Personal Protective Equipment will be provided to affected employees at no cost to the employees. So the employee elect to use provided PPE it will be documented and placed in appropriate medical files.

4.5 Hepatitis "B" Vaccination

The Hepatitis "B" vaccine is made available to employees under these three circumstances:

- If they are exposed to potentially infectious material at least once a month
- Following any exposure incident
- When traveling outside the United States in areas that have a potential of exposing employees to the Hepatitis "B" Virus
- **REPOWER USA** employees are provided Hepatitis "B" Virus vaccine at no cost to the employee.

4.6 Signs and Labels

The precautionary signs and labels required by 29 CFR 1910.1030 (e)(1)(ii)(iii), other statues, regulations or ordinances, and/or in combination with other signs and labels that are required shall be used. It shall be ensured by **REPOWER USA** that other signs and/or labels that could distract employees from the purpose of the required signs and/or labels shall not be placed near the required signs and/or labels.

REPOWER USA shall, through HS&E work practices, maintain the signs and labels to ensure that the information and legends are readily visible.

- Warning labels shall be affixed to containers of infectious waste, refrigerators and freezers containing blood and other potentially infectious materials, and other containers used to store or transport blood or other infectious materials.

- The labels shall display the universal biohazard symbol and include the word "**Biohazard.**" They must be fluorescent orange or orange-red in color with the lettering and symbols in a contrasting color.
- Red bags or red containers may be substituted for the labels on containers of infectious waste.

4.7 Information and Training

REPOWER USA will ensure that each employee with the potential of an occupational exposure participates in the **REPOWER USA** Training Program provided to each employee at no cost. The **REPOWER USA** Training Program provides training during pre-employment HS&E Orientation and annually thereafter.

The **REPOWER USA** Training Manual is reviewed on an annual basis, upon the notification of the recognition of a potential hazard through the **REPOWER USA** Hazard Identification and Evaluation Reporting System or when new information or regulations are placed in effect.

The provided training shall cover, but is not be limited to, the following items

- An explanation of the contents of the Bloodborne Pathogen standard
- A general explanation of the epidemiology and symptoms of bloodborne diseases
- The modes by which bloodborne diseases are transmitted
- An explanation of the Exposure Control Plan
- Recognition of exposure situations
- Practices to prevent exposure
- Selection and handling of personal protective equipment
- Information on the HBV vaccine
- Emergency procedures
- Explanation of the appropriate disposal procedures of personal protective equipment
- Procedures for reporting an exposure incident and the medical follow-up that would be required
- Signs and labels

4.8 Recordkeeping

REPOWER USA will establish and maintain an accurate record for each employee with occupational exposure in compliance with 29 CFR 1910.1020. These records will be made available upon the request of the employee for examination and copying and by furnishing a copy to the employee's representative and to OSHA, in accordance with 29 CFR 1910.1020.

- All information will be kept confidential and will not released to anyone within or outside the company, unless required by law, without written permission from the employee.

- **Medical Records include:**
  - The name and social security number of the employee
  - A copy of the employee's Hepatitis B vaccination records and the medical records relative to the employee's ability to receive the vaccination or the circumstances of an exposure incident
  - A copy of all medical results
  - A copy of the physician's written opinion
- The portion of the medical record required under this standard will be made available, upon request, to the subject employee, to anyone having written consent of the subject employee, and to OSHA, in accordance with 29 CFR 1910.1020, for examination and copying.
- The medical records shall be maintained for the duration of employment plus 30 years.
- **Training Records** - All training records will be kept in the **REPOWER USA** Training Files at least 3 years. These records shall include, but are not limited to:
  - The dates of the training sessions
  - The contents or a summary of the training sessions
  - The names of the persons conducting the training
  - The names of all the persons attending the training session and their Social Security Numbers and/or other appropriate identification methods

5.0 Definitions

5.1 Blood - Human blood, human blood components, and products made from human blood.

5.2 Bloodborne Pathogens - Pathogenic microorganisms that are present in human blood and can cause disease in humans.

5.3 Contaminated - The presence or the reasonably anticipated presence of blood or other potentially infectious materials or materials that might contain sharps.

5.4 Engineering Controls - Controls that isolate or remove the hazard from the workplace.

5.5 Exposure Incident – Any time blood or infectious body fluids come in contact with non-intact skin (skin that has a cut or scrape on it) or the mucous membrane (lips, mouth, nose) or the eyes.

5.6 Exposure Incident Investigation - If an exposure incident occurs, each location shall follow their normal process for investigating occupational injuries. The HS&E Department will be available for consultation, as needed, during the investigation.

5.7 Hand-washing Facility - A facility providing an adequate supply of running potable water, soap, and single use towels or hot air-drying machines. An alternative method is the use of antiseptic cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes.

5.8 **Occupational Exposure** - Reasonably anticipated skin, eye, mucous membrane, or parental contact with blood or other potentially infectious materials that might result from the performance of an employee's duties.

5.9 **Other Potentially Infectious Materials**

- HIV or HBV containing cell or tissue cultures
- Organ cultures, culture media, or similar solutions
- Blood, organs, and tissues from experimental animals infected with HIV or HBV
- Unfixed tissues other than intact skin
- Any other body fluids that become contaminated with blood

5.10 **Parental** - Piercing mucous membranes or the skin barrier through such events as needle-sticks, human bites, cuts, and abrasions

5.11 **Sharps** - Any object that can penetrate the skin

5.12 **Source Individual** - Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee

5.13 **Sterilize** - The use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores

5.14 **Universal Precautions** - An approach to infection control

5.15 **Work Practice Controls** - Controls that reduce the likelihood of exposure by altering the manner in which a task is performed

Section III:
7.1.17 – RPSHSE – 17
Bloodborne Pathogens Exposure Control Program

Form 1 - Hepatitis "B" Vaccination Declination Form

Hepatitis "B" Vaccination Declination Form

Date:_____

I, the undersigned, fully understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring the **Hepatitis "B" Virus (HBV)** infection. I have been given the opportunity to be vaccinated with the **Hepatitis "B" Virus (HBV)** vaccine, at no charge to myself. However, I decline the **Hepatitis "B" Virus (HBV)** vaccination at this time. I fully understand that by declining this vaccine, I continue to be at risk of acquiring the **Hepatitis "B" Virus (HBV),** a serious disease. If in the future, if I continue to have an occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with the **Hepatitis "B" Virus (HBV)** vaccine, I can receive the vaccination series at no charge to me.

Employee:_____
Print full name in block letters
Employee Social Security Number:_____
Employee Signature:_____

Date entered into the Employee Personal Medical File: _____
Person who entered it into the Employee Personal Medical File: _____

REPOWER Systems	Section III RPSHSE 7.1.18	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Contents

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INTRODUCTION

REPOWER USA COMMITMENT TO SAFETY AND HEALTH

Safety and Health Policy

REPOWER USA is firmly committed to maintaining a safe and healthful working environment. To achieve this goal, **REPOWER USA** has implemented this comprehensive Injury and Illness Prevention Program. This program is designed to prevent workplace accidents, injuries, and illnesses. A complete copy of the program is maintained in the Human Resource Department and is available for your review.

Objectives of the Injury and Illness Prevention Program

REPOWER USA's Injury and Illness Prevention Program is designed to reduce the number of accidents to an absolute minimum, create an attitude of safety consciousness in general management, field, shop supervision, employees, provide a safety program consistent with good construction practices.

Safety Responsibility for and Health

All employees of **REPOWER USA** are responsible for working safely and maintaining a safe and healthful work environment.

1.0 PERSONS WITH RESPONSIBILITY AND AUTHORITY FOR IMPLEMENTING THE PROGRAM.

1.1 Program Administrators

The Program Administrator is **REPOWER USA** HSE Manager. The **REPOWER USA** HSE Manager is responsible for overall implementation and maintenance of **REPOWER USA** Injury and Illness Prevention Program.

Of course, all employees, supervisors, and managers are responsible for assisting in this safety effort. If anyone is aware of an unsafe or hazardous condition, he should bring it to the attention of his supervisor or other management personnel immediately. Only through a team effort by all employees can we make this a safe work environment.

1.2 Management

The ultimate responsibility for implementing and administering an injury and illness prevention program for the **REPOWER USA's** employees rests with management. Their specific areas of responsibilities are as follows:

- Development and implementation of a safety program.

- Assignment of appropriate persons to administer and enforce the program.
- Periodic review and evaluation of accident records for **REPOWER USA** employees.
- Periodic shop/field inspection to note safety conditions.
- Periodic participation in safety meetings.
- Set policy for the hiring and training of new employees.

1.3 HSE Manager

- Assist Management in establishing and maintaining an effective safety program as set forth below:
  - Development of techniques, ideas, and topics for presentation of
  - safety program to employees at all levels.
  - Maintain liaison with field and shop supervisors, regulatory agencies
  - and Workers' Compensation Insurance carrier.
  - See that accidents are reported and investigated promptly and that
  - corrective action is taken.
  - Provide agenda topics for safety meetings.
- Provide training and guidance to supervisors in enforcement of the safety program.
- Be available for consultation on all matters relating to safety.
- Assist in new employment selection, training and safety indoctrination.
- Maintain safety records and reporting requirements.
- Provide a program for disciplinary action for violations of safe work practices/safety policies (Warning Notice).

1.4 On-site Field Supervisors

They, more than any other persons, carry the burden of implementing, maintaining, and enforcing the safety program at the jobsite and in the shop. Their attitude toward safety will determine the accident record of the REPOWER USA.
All of the supervisors are expected to reflect a positive attitude regarding accident prevention. They are the "Key Individuals" in the safety program. Their responsibilities include:

- Training and safety orientation of employees as to:
  - Understanding requirements of the job.
    - Mental (knowledge)
    - Physical
  - Proper clothing.
  - Proper personal protective equipment.
  - First Aid and doctor's treatment.
  - Encourage safety suggestions from workmen. Ask them to report
  - unsafe practices, conditions, or equipment.
  - Injury and Illness Prevention Program.
  - Safety policy rules card - signed.

- Conduct "tailgate" or "tool box" safety meetings. It is directed that each
- On-Site Field Supervisor/Supervisor hold a safety meeting once a week, or more often if circumstances warrant.*
- Being alert to recognize possible accident-producing conditions in work practice and equipment operation and maintenance.
- Inspection of the work place each day to see that safe conditions and safe working methods are being used.
- Follow up on compliance with safety recommendations made by
- Management, HSE Manager, or Insurance Safety Representative.
- Accident investigation and reporting.

1.5 Worker's Responsibility

- To observe the "Code of Safe Practices."
- To set a good example for fellow workmen.
- To cooperate with supervisors in preventing accidents.
- To make safety suggestions to his supervisor.
- To take good care of REPOWER USA equipment and report unsafe or defective equipment to his supervisor.
- To help keep the jobsite and shop areas clean.
- To report all injuries promptly to his supervisor.

1.6 Subcontractors working for this REPOWER USA are responsible for:

- Observing the safety rules established by the REPOWER USA.
- Safety orientation and training of their employees.
- Providing safety and personal protective equipment for their employees.
- Taking immediate corrective action when notified of a safety problem.
- Accident reporting.

2.0 REPOWER USA SYSTEM FOR ENSURING THAT EMPLOYEES COMPLY WITH SAFE AND HEALTHY WORK PRACTICES.

2.1 Orientation.

REPOWER USA hires and employs union employees who have completed their apprentice training program.
All apprentices will work directly under the On-Site Supervisor in charge.

New employees are trained in the Code of Safe Practices as identified within the **REPOWER USA** HSE Manual and site-specific safety procedures by the HSE Manager or their immediate supervisor. Documentation of receipt of and training in the Code of Safe Practices is to be completed by each employee on the form included in the Employee Safety Orientation Handbook.

2.2 Code of Safe Practices.

The **REPOWER USA** has developed a Code of Safe Practices which sets forth general and specific safety rules and procedures for all employees. A copy of the Code of Safe Practices is given to each employee, and it is posted on the employee bulletin board.

2.3 Retraining.

The Code of Safe Practices and the safety procedures are reviewed during periodic safety meetings for employees and supervisors. Documentation of safety meeting is to be completed by the supervisor or manager conducting the meeting.

A safety meeting at least every five (5) working days shall be held by the department supervisor or jobsite On-Site Field Supervisor, which is designed to:

- Provide an opportunity for employees to bring forward concerns and ideas about safety issues.
- Act as an occupational safety and health training program having as its objective to instill safe and healthy work practices.
- Provide specific instruction with respect to hazards specific to each employee's job assignment.
- Warn employees that they must comply with safe and healthy work practices as instructed, or face disciplinary action.
- Reassure employees that they are encouraged to inform their employer or his designees of hazards at the work site without fear of reprisal.
- Instill a constant sense of safety-consciousness among the supervisor and his or her employee group.
- The HSE Manager shall hold special training programs for all supervisors and employees, in order to give them a framework of safety-consciousness, as well as to acquaint them with new substances, processes, procedures, or equipment that may be introduced into the workplace jobsite, especially when the employer becomes aware of or receives notification of a new or previously unrecognized hazard.

2.4 Discipline

The **REPOWER USA** requires that all employees and supervisors strictly adhere to the safety rules set forth in the Code of Safe Practices.

If anyone violates a safety rule, he or she will be disciplined in accordance with the severity of the infraction. The discipline imposed will be in the sole discretion of the **REPOWER USA** (limited only by contractual or other legal restrictions), and may range from a warning, to a disciplinary suspension without pay, up to and including discharge. The supervisor or manager imposing the discipline will be responsible for documenting it on the form included in RPSHSE 7.1.15 – Progressive Disciplinary Program forms. A copy of the forms should be sent to the HSE Manager.

3.0 SYSTEM FOR COMMUNICATING AND ENCOURAGING EMPLOYEES TO INFORM EMPLOYER OF HAZARDS

3.1 Encouragement of Employee Reporting

REPOWER USA encourages and, indeed, requires all employees to inform management (supervisors, On-Site Field Supervisors, other management personnel, or the HSE Manager) of any unsafe or hazardous condition that could impact personnel.

3.2 No Discrimination for Employee Reporting

No employee shall be disciplined or discriminated against for reporting an unsafe condition to management or for correcting an unsafe condition. Employees should report all unsafe conditions to their supervisors or the management personnel.

If an employee sees an employee or supervisor violating the **REPOWER USA's** Code of Safe Practices as identified within the **REPOWER USA** HSE Manual, he should report this to upper management or the HSE Manager.

3.3 Employee Safety Report Forms

Employees may report unsafe conditions or violation of safety rules anonymously on the Employee Safety Report Forms. Forms will be available in the personnel office and on employee bulletin boards. The forms will also be disseminated at employee safety and training meetings, and employees will be encouraged to use the forms at these meetings.

4.0 SYSTEM FOR IDENTIFYING, EVALUATING, AND PRESENTING WORKPLACE HAZARDS.

4.1 System for Identifying, Evaluating and Preventing Workplace Hazards

REPOWER USA has established a system for identifying, evaluating, and preventing workplace hazards. This system includes the following:

- **REPOWER USA** investigates and records all accidents, injuries, and illnesses that take place during work or on its premises as identified within the **REPOWER USA** HSE Manual.
- **REPOWER USA** makes periodic inspections of the general work areas and specific work stations, and records the results of those inspections as identified within the **REPOWER USA** HSE Manual.

- **REPOWER USA** evaluates information provided by employees on safety and health matters. To this end, the **REPOWER USA** encourages employees to report concerns regarding unsafe or hazardous conditions, and near miss, and has provided a written reporting system as identified within the **REPOWER USA** HSE Manual.
- Based on the foregoing, the **REPOWER USA** has promulgated a Code of Safe Practices as identified within the **REPOWER USA** HSE Manual which is posted and given to each employee. The Code of Safe Practices is reviewed periodically at employee and supervisory safety meetings as identified within the **REPOWER USA** HSE Manual.

5.0 ACCIDENT REPORTING REQUIREMENTS

5.1 Accident/Incident Reporting Guidelines

A written report is to be made promptly for any accident. If an accident occurs in the field, Management must be notified immediately and a copy of the "Supervisor's Report of Injury" will be given to the HSE Manager within 24 hours. Reference RPSHSE 7.1.1 Accident/Injury/Near Miss Incident Investigation and Reporting.

After the occurrence of an accident which is fatal to one or more employees, and/or results in the hospitalization of any employee, a report shall be made to Management immediately. In addition, in the event of a fatality or hospitalization of one or more employees for more than 24 hours, a report to the CAL/OSHA Regional Office must be made within 24 hours.

- **Automobile Accidents**

  REPOWER USA employees who may be involved in a motor vehicle accident are required to accumulate pertinent information and to supply this information to **REPOWER USA** Safe Records Clerk who will complete an accident report to be transmitted to **REPOWER USA** Insurance carrier. For all accidents that occur in the office, yard, or warehouse, the Supervisor will immediately report it to the HSE Manager or Management.

5.2 Time Frames for Filing Reports.

- The Workers' Compensation Reform Act of 1989 requires employers to furnish, within one working day, the form "Employee's Claim for Workers' Compensation Benefits."
- This form must be given to the injured employee (or his dependent) by his Supervisor. A completed copy of this form is mailed to the insurance **REPOWER USA** within three (3) days.
- **REPOWER USA** HSE Manager is responsible for obtaining all necessary information to complete the form "Employer's Report of Occupational Injury or Illness." California law requires an employer to file this report within five (5) days of every industrial injury.

5.3 Conclusion.

1. After an accident has been reported to the HSE Manager, he will then follow up with the On-Site Field Supervisor/Supervisor to further investigate the cause of the accident and correct the problem, if possible, to prevent recurrence. The HSE Manager and/or Supervisor could then use all of the known facts surrounding that accident as an example when discussing safety in training meetings.

6.0 ACCIDENT INVESTIGATION

6.1 General

All accidents must be investigated by the On-Site Field Supervisor, Safety Coordinator or HSE Manager. A Superviors Accident Report form must be filled out, signed by the On-Site Field Supervisor and sent to the Safety Coordinator and HSE Manager for each and every accident. **REPOWER USA** requires that **"ALL"** each accident/incident/near miss be investigated. The main purpose of the investigation is not to determine who was at fault, but to understand what occured and how to prevent it from happening again.

A sample copy of the Supervisors Accident Investigation Report has been included in RPSHSE 7.1.1 Accident/Injury/Near Miss Incident Investigation and Reporting Forms. Additional copies are available from the HSE Manager or the Main Office.

6.2 Accident Investigation Procedure

- **Purpose**
  - The purpose of accident investigation is to identify those unsafe conditions and acts which contribute to injuries in order that solutions for accident prevention may be proposed.
  - Accident investigation is an invaluable tool in controlling losses.
  - Each accident must be considered a total loss unless its true cause is objectively determined and all contributing deficiencies are corrected. Thorough investigation, reporting, recording and corrective follow-up of each incident/accident can be time consuming. However, putting forth necessary time and effort to prevent the reoccurance of each accident is an invaluable investment that will pay compounded benefits to employees and management as the number of accidents decrease.
- **Employee Accidents**
  - All accidents regardless of whether or not they result in injury should be thoroughly investigated by the employee's immediate On-Site Field Supervisor and reported to the HSE Manager within 24 hours. This should include "near miss" accidents. The investigation should be extensive enough to allow the On-Site Field Supervisor to suggest practical corrective action.

- A written report should be made which includes:
  - Injured employee's statement concerning the accident.
  - Statements from other witnesses.
  - Complete description of the accident including the type or work in which the employee was involved.
  - Evaluation of unsafe conditions and acts.
  - Recommendations for action to prevent similar accidents.

- **Definitions**
  - Industrial Injury: An injury arising out of an in the course of employement with the **REPOWER USA.**
  - Occupational Illness: A disease caused by specific hazardous conditions or materials when there is a direct relationship between the conditions under which the work is performed and the occupational disease.

6.3 Procedures for investigating an Accident/Loss

- **Check the Scene**
  - Begin where the accident occurred. The first step is to carefully examine where the injury occurred.
  - Reconstruct as much as possible the chain of events leading up to the injury, and attempt to determine the single event that caused the injury. Have the employee tell you what happened. If necessary, have him/her show you up to the point where the injury occurred. DO NOT let them do the part of the incident that resulted in the injury.
- **White it Down**
  - Make notes on all facts that may relate to the cause of the injury. As an example: employee had complained of dizziness or employee had not used proper equipment, etc.
  - Write down any procedure used; that is, unsafe act, etc.
  - Write down any unsafe conditions in work area, i.e. defective tools or faulty equipment noted.
  - Write down such other items as: the time of your investigation, the lighting conditions, the weather conditions, if pertinent, a description or supplementary evidence, and conversations having a bearing on the case.
- **Collect the Evidence**

  If an injury or near miss occurs when machine parts or structures fail, it is essential to determine what failed and why. This can frequently be done without laboratory analysis and corrective action can be initiated without great expense. If, however, a detailed study is determined to be essential, then all components shall be collected and submitted for study immediately if the cost of analysis is reconimcally feasible.

- **Interview Witness**

  It is important to interview witnesses at the scene or as soon thereafter as possible. Use **REPOWER USA** Witness Interview utilize RPSHSE 7.1.1 Accident/Injury/Near Miss Incident Investigation and Reporting Forms for gathering information.
- **Interview the Victim**
  - Timing is important. If the injury is minor, the interview should be made as soon as the investigation of the scene and a review of the medical report is complete.
  - If the injury is serious, selecting the right time is a judgment factor. Too soon afterward and the victim may be confused and inaccurate; waiting too long may cause them to be cautious and evasive. Let the employee tell the story as they wish without actual interrogation, but a complete picture should be encouraged. The interview must be complete, and it may be necessary to question the employee or witnesses several times in order to verify information and stories.
- **Weigh the Evidence**
  - It is essential to eliminate any inconsistencies in the testimony of the injured or witnesses even if further questioning is required.
  - When assembled, all facts should be reviewed for completeness before submission of the "Accident Investigation Report" form to the On-Site Field Supervisor or HSE Manager.

7.0 SAFETY INSPECTIONS, INVESTIGATIONS AND CORRECTION OF UNSAFE OR UNHEALTHY CONDITIONS.

7.1 General Inspections

As set forth above, the **REPOWER USA** makes periodic inspections of the general work areas and specific work stations. General inspections are the responsibility of the HSE Manager or jobsite On-Site Field Supervisor. Safety inspections are documented on the Safety Audit Form (See Form #6) or other equipment inspection forms kept by **REPOWER USA** HSE Department.

7.2 Supervisory Inspections

Supervisors are responsible for making daily inspections of the work areas, machinery, equipment, work practices, and job sites of the employees under their authority. All non-compliance with the **REPOWER USA's** Code of Safe Practices and CAL/OSHA is to be corrected immediately as identified within the **REPOWER USA** HSE Manual.

Any unsafe or hazardous machinery, equipment, or area will be "red-tagged" (shut down or evacuated) immediately. In the case of hazardous machinery equipment, maintenance should be called. The machine shall remain shut down until it has been cleared for use by maintenance. Employees who violate the Code of Safe Practices as identified within the **REPOWER USA** HSE Manual RPSHSE 7.1.15 Progressive Disciplinary Program shall be disciplined, and a record of the warning notice or other disciplinary action shall be maintained on the RPSHSE 7.1.15 Progressive Disciplinary Program forms included.

7.3 Employee Inspections and Reports

Employees are responsible for inspecting their work areas and machinery for unsafe or hazardous conditions. Employees should immediately correct all unsafe conditions and report them to their supervisor, On-Site Field Supervisor, or other management personnel. If the supervisor fails to act upon a safety complaint, the employee should bring the matter to the attention of upper management or the HSE Manager. Employees reporting an unsafe condition may also use the Hazard Report Form included in RPSHSE 7.1.8A Identification and Evaluation of Hazards. Employees may make anonymous reports. No employee shall be disciplined or otherwise discriminated against for reporting or correcting an unsafe condition.

7.4 Maintenance Inspections

Maintenance employees will, as a matter of course, be vigilant to the safety considerations of any machine or equipment they are called upon to repair, whether "red-tagged" or not. Maintenance employees shall not sign off on the completion of any machine repairs unless they are certain that the repaired machine has been properly inspected and/or tested for safe and hazard-free operation.

7.5 Special Inspections

In the event of an accident, illness, or injury during work or at the **REPOWER USA's** premises, the HSE Manager, jobsite On-Site Field Supervisor, or other management representative shall make a complete investigation of the incident and inspect the area or equipment involved. A report of the investigation and inspection shall be made on the forms included in RPSHSE 7.1.2 Job Site HSE Inspection – Job HSE Analysis.

8.0 TRAINING AND INSTRUCTION

8.1 New Employee Training

New employees are trained in the Code of Safe Practices as identified within the **REPOWER USA** HSE Manual and site-specific safety procedures by the HSE Manager or their immediate On-Site Field Supervisor. Documentation of receipt of and training in the Code of Safe Practices as identified within the **REPOWER USA** HSE Manual is to be completed by each employee on the form included in the Employee Safety Orientation Handbook.

- Training and safety orientation of employees as to:
- Understanding requirements of the job.
    - Mental (knowledge)
    - Physical
- Proper clothing.
- Proper personal protective equipment.
- First Aid and doctor's treatment.
- Encourage safety suggestions from workmen. Ask them to report
- unsafe practices, conditions, or equipment.
- Injury and Illness Prevention Program.
- Safety policy rules card - signed.

8.2 Code of Safe Practices

The **REPOWER USA** has developed a Code of Safe Practices as identified within the **REPOWER USA** HSE Manual which sets forth general and specific safety rules and procedures for all employees. A copy of the Code of Safe Practices is given to each employee, and it is posted on the employee bulletin board.

8.3 Retraining

The Code of Safe Practices as identified within the **REPOWER USA** HSE Manual and the safety procedures are reviewed during periodic safety meetings for employees and On-Site Field Supervisors. Documentation of safety meeting is to be completed by the On-Site Field Supervisor or manager conducting the meeting. A safety meeting at least every five (5) working days shall be held by the department On-Site Field Supervisor or jobsite On-Site Field Supervisor, which is designed to:

- Provide an opportunity for employees to bring forward concerns and ideas about safety issues.
- Act as an occupational safety and health training program having as its objective to instill safe and healthy work practices.
- Provide specific instruction with respect to hazards specific to each employee's job assignment.
- Warn employees that they must comply with safe and healthy work practices as instructed, or face disciplinary action.
- Reassure employees that they are encouraged to inform their employer or his designees of hazards at the work site without fear of reprisal.
- Instill a constant sense of safety-consciousness among the On-Site Field Supervisor and his or her employee group.

The HSE Manager shall hold special training programs for all On-Site Field Supervisors and employees, in order to give them a framework of safety-consciousness, as well as to acquaint them with new substances, processes, procedures, or equipment that may be introduced into the workplace jobsite, especially when the employer becomes aware of or receives notification of a new or previously unrecognized hazard. On-Site Field Supervisors are to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed.

8.4 Discipline

The REPOWER USA requires that all employees and On-Site Field Supervisors strictly adhere to the safety rules set forth in the Code of Safe Practices as identified within the **REPOWER USA** HSE Manual. If anyone violates a safety rule, he or she will be disciplined in accordance with the severity of the infraction.

The discipline imposed will be in the sole discretion of the **REPOWER USA** (limited only by contractual or other legal restrictions), and may range from a warning, to a disciplinary suspension without pay, up to and including discharge. The On-Site Field Supervisor or manager imposing the discipline will be responsible for documenting it on the forms included in RPSHSE 7.1.15 Progressive Disciplianary Program Forms. A copy of the forms should be sent to the HSE Manager.

9.0 RECORD KEEPING

The HSE Manager shall maintain the following records. These records shall be available for inspection at all times.

9.1 California OSHA Reporting Guidelines

REPOWER USA will follow the five (5) important steps required by the CAL/OSHA record keeping system:

- Obtain a report on every injury or illness requiring medical treatment.
- Record each injury or illness on the CAL/OSHA Log and Summary of Occupational Injuries and Illnesses.
- Prepare a supplementary record of occupational injuries and illnesses on recordable cases on OSHA Form No. 101 or Workers' Compensation Reports (Form 5020, etc.), giving the same information.
- Every year, prepare the summary CAL/OSHA Form No. 200, post it no later than February 1st, and keep it posted where employees can see it until March 1st.
- Maintain the last five (5) years of these records.

10. CAL/OSHA POSTINGS

10.1 Postings Calafornia OSHA

REPOWER USA's Main Office will have all the required postings posted 24 hours a day on the employee bulletin board. On all temporary jobsites, it is required that the CAL/OSHA postings are available for employee review. Posting will be located in all **REPOWER USA** Foremen's trucks. Emergency numbers are required to be posted at all times on all temporary jobsites.

Forms

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 1 – Unsafe Condition or Hazard Report Form

FORM OF UNSAFE CONDITION OR HAZARD

Optional: Employee may submit this form anonymously.

Employee's Name: _____

Job Title: _____

Location of Condition Believed to be Unsafe or Hazardous: _____

Date and Time Condition or Hazard Observed: _____

Description of Unsafe Condition or Hazard: _____

What Changes Would you Recommend to Correct the Condition of Hazard? _____

Optional:

Signature of Employee: _____ Date _____

REPOWER USA Response:

Name of Person Investigating Report: _____

Results of Investigation (What was found? Was condition unsafe or a hazard?) (attach additional sheets if necessary): _____

Action Taken to Correct Hazard or Unsafe Condition. If Appropriate (or Alternatively, Information Provided to Employees as to Why Condition Was Not Unsafe or Hazardous)(attach additional sheets if necessary): _____

Signature of Person Investigating Report: _____

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 2 – Employee Disciplinary Warning Notice

EMPLOYEE DISCIPLINARY WARNING NOTICE

Name of Employee: _____

Date of Warning: _____ 1st Notice: _____

2nd Notice: _____ 3rd Notice: _____

Date of Violation: _____ Place: _____

TYPE OF VIOLATION

( ) Conduct of the Job ( ) Safety

( ) Ignoring directions or warnings ( ) Other

EXPLANATION OF THE INFRACTION: _____

_____

_____

_____

_____

_____

On-Site Field Supervisor: _____ Employee: _____
(signature) (signature)

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 3 – Request for Corrective Action

REQUEST FOR CORRECTIVE ACTION

Request # _____ Date: _____ Time: _____

Requested By: _____ Title: _____

To: _____ Title: _____

Upon receipt of this request you are asked to complete this form indicating the corrective action taken, if necessary on the problem stated below:

Problem:

_____
_____
_____
_____
_____
_____

Notice of corrective action must be furnished within 10 days to the **REPOWER USA** HSE Manager or a member of executive management.

ANALYSIS OF PROBLEM

Causes:

_____
_____
_____
_____
_____

Analysis:

_____
_____
_____
_____
_____

Corrective Action (to prevent recurrence):

_____
_____
_____
_____

Signed: _____ Effective Date: _____

Copies To: **REPOWER USA** Office (Original)
REPOWER USA HSE Manager
Job On-Site Field Supervisor

Name: _____

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 3 – Request for Corrective Action

REQUEST FOR CORRECTIVE ACTION

Request # _____ Date: _____ Time: _____

Requested By: _____ Title: _____

To: _____ Title: _____

Upon receipt of this request you are asked to complete this form indicating the corrective action taken, if necessary, on the problem stated below:

Problem:

_____

_____

_____

_____

_____

_____

Notice of corrective action must be furnished within 10 days to the **REPOWER USA** HSE Manager or a member of executive management.

ANALYSIS OF PROBLEM

Causes:

_____

_____

_____

_____

_____

Analysis:

_____

_____

_____

_____

_____

Corrective Action (to prevent recurrence):

_____

_____

_____

_____

Signed: _____ Effective Date: _____

Copies To: **REPOWER USA** Office (Original)
REPOWER USA HSE Manager
Job On-Site Field Supervisor

Name: _____

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 4 – REPOWER USA On-Site Field Supervisor's Accident/Injury/Near Miss/Property Damage/Fires/Spills

REPOWER USAON-SITE FIELD SUPERVISOR'S ACCIDENT/INJURY REPORT NEAR MISS/PROPERTY DAMAGE/FIRES/SPILLS

Location: ________________ ________________ ________________

Address City State Zip Code

~~Client (if applicable)~~

DATE:________ Time:____AM ____PM TYPE OF INCIDENT: LOSS SEVERITY POTENTIAL: (check one)

~~ACCIDENT ☐ NEAR MISS ☐ MAJOR ☐ SERIOUS ☐ MINOR~~

Weather:______________ ☐☐ Property Damage ☐ Fires/Spills ☐ Fatality ☐ OSHA Recordable ☐ Owner Cause

PROBABILITY OF RECURRENCE: (CIRCLE ONE) ☐☐☐ FREQUENT ☐☐☐ OCCASIONAL ☐☐ SELDOM

INJURED EMPLOYEE'S NAME:______________________ D.O.B.:____________

DATE OF INJURY/ILLNESS:______________ TIME:____________

OCCUPATION/CLASSIFICATION:______________ TIME WITH REPOWER USA:__________

CAUSE OF INJURY/ILLNESS:______________________________

WAS CLIENT NOTIFIED YES_____ NO_____ N/A_____ IF YES, WHO______________

WAS FIRST AID ADMINISTERED: YES_____ NO_____

WAS EMPLOYEE SENT TO HOSPITAL: YES_____ NO_____ Was Drug Test Administered: _____Yes _____No

IF YES, WHICH HOSPITAL NAME:______________________________

ADDRESS:______________________________

DESCRIPTION (DESCRIBE FULLY HOW THE INCIDENT HAPPENED, ATTACH ADDITIONAL PAGES OF NARRATIVE IF NECESSARY) Use a camera or sketch the scene on the back of this page.

____

____

____

____

____

WITNESS NAME: HOME PHONE: BUSINESS PHONE: DATE REPORTED:

NAME OF LAW ENFORCEMENT OR REGULATORY AGENCY TO WHOM REPORTED______________

REPORT #______________ PHONE #______________ ADDRESS______________

For Vehicle Accidents, use camera and outlines or sketch the scene of your accident, writing in street or highway names or numbers, attach police report if available

1. Number each vehicle, show REPOWER USA vehicle as No. 1 other vehicles as 2, 3, etc.
2. Show direction of travel by arrow use solid line to show path before accident
3. Show Pedestrian
4. Show Railroad
5. Show distance and direction to landmark, identify landmarks by name or number

REPOWER USA HSE MUST BE NOTIFIED AS SOON AS PRACTICABLE (OVER)

What could have been done to prevent this accident.

_____

_____

_____

What is being done to prevent further accidents of this type. Date that corrective action will be completed

_____

_____

_____

On-Site Field On-Site Field Supervisor's Name Signature Date

Report accepted and approved by Field Manager.

_____Yes _____No _____Send back for following corrections

_____

_____

Field Manager_____ Signature_____ Date_____

Report accepted and approved Safety Department.

_____Yes _____No _____Send back for following corrections

_____

_____ HSE Manager_____

Signature_____ Date_____:

Recommendations from the HSE Department

_____

_____

_____

_____

Safety Department: Name of person accepting report (Print) Signature Date

Report accepted and approved by: Office Manager

_____Yes _____No Send back for following corrections

_____

_____

_____

Name of Approving Officer Signature of Approving Officer Date

TO INJURED EMPLOYEE:

Here is your **EMPLOYEE'S CLAIM FOR WORKERS COMPENSATION BENEFITS**. These DWC-1 forms, as they are called, are now required by California State law and serve you as your written proof that you have reported a work-related injury/illness to your employer.

The first thing you must do is fill out the top section of the DWC-1 (the EMPLOYEE PORTION), keep the top copy for your records, and return the remainder of the form to the office as soon as possible. Press hard when completing the form so that all copies are legible.

Remember, these forms are important to YOU! The insurance **REPOWER USA** is not obligated to acknowledge a claim without this form. Please complete it an return it as soon as possible.

Receipt of DWC-1 Form

I hereby certify that I have received form DWC-1 from my employer, **REPOWER USA** Corp. I understand it must be completed for this work-related injury/illness.

_____ _____

Employee Signature Date

_____ _____

Witness Date

_____

Print Employee Name

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 5 – REPOWER Systems USA Acknowledgement of Receipt of Employee HSE Orientation Handbook

ACKNOWLEDGEMENT OF THE RECEIPT OF THE REPOWER SYSTEMS USA

EMPLOYEE HSE ORIENTATION HANDBOOK

I, _____, acknowledge receipt of REPOWER USA Corporation's Employee HSE Orientation Handbook. I have read and agree to abide by these safety rules, and I understand that my failure to follow these safety procedures will result in discipline up to and including discharge. I further understand that it is my responsibility to report all unsafe conditions or violations of the Code of Safe Practices to my On-Site Field Supervisor or other management personnel.

I have received HSE training in the following:

1) Safety Policy Statement ( )
2) Safety Responsibilities ( )
3) Injury/Illness Prevention Program ( )
4) Code of Safe Practices ( )
5) REPOWER System USA Safety Rules ( )
6) Chemical Safety: My Right to Know ( )
7) Location of First Aid ( )
8) Location of Fire Extinguishers ( )
9) Protective Equipment Requirements ( )

Date: _____ _____

Employee Signature

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 6 – REPOWER Systems USA HSE Field Audit

REPOWER SYSTEMS USA

HSE AUDIT

Job: _____ Date: _____

Auditor: _____ Time: _____

On-Site Field Supervisor: _____ Location: _____

		Yes/No	Comments
1.	Are proper permits on the job site?	____	_____
2.	Is Fire Watch/Standby alert and on duty?	____	_____
3.	All provisions of permit satisfied?	____	_____
4.	Is there a first aid kit available?	____	_____
5.	PPE worn where required?	____	_____
6.	General good housekeeping on site?	____	_____
7.	Evacuation area designated?	____	_____
8.	Are people working underneath suspended loads?	____	_____
9.	Is a tag line being used?	____	_____
10.	Is the swing radius on the crane barricaded?	____	_____
11.	Is scaffold properly erected?	____	_____
12.	All overhead workers tied off?	____	_____
13.	Are compressed gas cylinders properly stored?	____	_____
14.	Are proper fuel containers being used?	____	_____
15.	Means of egress identified and provided?	____	_____
16.	Are ladders properly used?	____	_____
17.	Sufficient illumination for work?	____	_____
18.	Do all power tools have proper guards?	____	_____
19.	All necessary blinds installed?	____	_____
20.	Is equipment properly tagged out?	____	_____
21.	Is respiratory protection being used where required?	____	_____
22.	Are hoses pinned at the connections?	____	_____

Comments: _____

_____

_____

Section III:
7.1.18 – RPSHSE – 18
Illness and Injury Prevention Program (CAL/OSHA)

Form 7 – Accident Investigation Witness Interview Form

ACCIDENT INVESTIGATION WITNESS INTERVIEW FORM

Witness' Name_____ **REPOWER USA**_____

Injured Person_____ Date of Accident_____

Investigator's Name_____ Time_____

Describe the incident (by Witness) _____

_____

_____

Describe specific facility location of the accident_____

_____

How did it happen?_____

_____

Were there any other witnesses? Yes_____ No_____

If so, who?_____

In your opinion, why did it happen? _____

_____

Can you tell me anything else about it?_____

_____

Safety Information

Were proper safety precautions being taken? Yes_____ No_____ Not sure_____

Was employee following safe procedures? Yes_____ No_____ Not sure_____

How do you think the accident could have been prevented?_____

_____

Miscellaneous comments_____

_____

_____

_____ _____ _____ _____

Witness' Signature Investigator's Signature Date Time

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REpower USA Corp.

Section III: 7.1.19 RPSHSE – 19 Contractor Management

Contents

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2.0	Policy	3
3.0	Responsibilities	3

1.0 Introduction

REPOWER USA procedures for establishing, standardizing, disseminating and documentation of methods, responsibilities, and other considerations relating to managing Contractor work within scope of the **REPOWER USA** HSE Manual, HSE Plan and Training. **REPOWER USA** bases its approach to Contractor HSE principles that contractor employees will be guided and protected to the same extent as **REPOWER USA** employees. HSE performance is a prime consideration in the selection of job-site contractors. **REPOWER USA** has the responsibility to select and use contractors who have established HSE cultures to continue the reduction, frequency, and severity of job-site accidents/injuries/illnesses/near misses.

2.0 Policy

These guidelines apply to **"ALL"** contractors performing maintenance, repair, turnaround, major renovation, or specialty work on a **REPOWER USA** job-site. It does not apply to contractors providing incidental services (such as delivery of parts and supplies) which do not influence the integrity of **REPOWER USA** HSE Manual, HSE Plan and Training established protocol.

3.0 Responsibilities

3.1 REPOWER USA Responsibilities

- **REPOWER USA** when selecting contractors **SHALL** obtain and evaluate information regarding the contractor's HSE performance and applicable programs.
- **REPOWER USA SHALL** inform contractor of known potential fire, explosion, or toxic release of hazardous materials related to the contractor's work within the process and appropriate emergency action plan.
- **REPOWER USA SHALL** fully explain to contractor employees the applicable provisions of the Emergency Response Plan (ERP) for specific job-site.
- **REPOWER USA SHALL** develop and implement HSE work practices consistent within the Site specific HSE Plan to control the entrance, presence and exit of contractor's and their employees while at the job-site. The basis for this HSE Plan will be the **REPOWER USA** HSE Manual, HSE Plan, and Client requirements.
- **REPOWER USA SHALL** periodically evaluate the performance of contractors and their employees integration and compliance with **REPOWER USA** HSE Manual, HSE Plan, and Client requirements.
- **REPOWER USA SHALL** maintain appropriate Contractor employees accident/injury/illness reports as related to the specific job-site.
- **REPOWER USA SHALL** provide to each contractor employee a copy of the **REPOWER USA** Project Employee Handbook with appropriate acknowledgement signature documentation.

3.2 Contractor Responsibilities

- Contractor **SHALL** provide to **REPOWER USA** appropriately trained employees within the guidelines and requirements of **REPOWER USA** and Client HSE training.
- Contractor **SHALL** provide appropriate documentation (such as Trade Craft Cards, Safety Council Cards or approved in-house Company Training) for each employee on a **REPOWER USA** job-site.
- Contractor **SHALL** provide a document which contains the identity of each employee, the date of training, and the methods used to verify employee's competence.
- Contractor **SHALL** assure that each employee is instructed in the known potential fire, explosion, or toxic release of hazardous materials related to the contractor's work within the process and appropriate emergency action plan.
- Contractor **SHALL** provide documented assurance (such as training, awards, etc.) that their employees have an established culture of involvement as **TEAM MEMBERS** in applicable HSE programs as outlined by **REPOWER USA** and Client for specific job-site.
- Contractor **SHALL** provide documentation to **REPOWER USA** of any unique hazards presented by the contractor's employees projected work.

Forms

Section III:
7.1.19 RPSHSE – 19
Contractor Management

Form 1 - REPOWER USA Contractor HSE Questionnaire

REPOWER USA Contractor HSE Questionnaire

Company Name:_____

Company Address:_____

_____

_____

Telephone Numbers:(direct) _____ **(fax)** _____

Submission date:_____

Person Completing Questionnaire:_____

Name

_____

Signature

Contact telephone numbers: (direct) _____ **(fax)** _____

HS&E Representative:_____

Name

_____

Signature

Contact telephone numbers: (direct) _____ **(fax)** _____

1.) List your Worker's Compensation experience modification rates (EMR) for the current previous three years.

Reporting Year	EMR	Comment
Current Year		

If your EMR is exactly 1.0 for any reporting year, is it because your firm is, or was, too new or too small to have an EMR calculated?

☐ YES ☐ NO

Provide documentation for the following:

- ❖ Furnish a letter from your insurance agent, carrier, or state fund (on their letterhead) verifying the EMR data listed above.
- ❖ Provide a copy of the last three years "Experience Rating Calculation Sheets" which your insurance carrier forwards to you annually.
- ❖ Provide a copy of the page of your last three years' insurance policies that show experience modification rate and coverage period.

2.) List you company's OSHA incident rates for the previous three years.
Use your OSHA Form 300 to calculate Incident Rate using the formula below.

$$\frac{\text{Number of incidents X 200,000 hours}}{\text{Number of hours worked}} = \text{Incident Rate}$$

Categories	Current Year	_____	_____	_____
Fatalities				
Injuries and Illnesses with lost workdays				
Injuries and illnesses with restricted workdays				

3.) Does you company have a written HSE Program? ☐ **YES** ☐ **NO**
If "YES" provide an electronic copy of HSE Program.
If "NO" provide reasons for not having a HSE Program.

_____

_____

_____

4.) Does your company have one or more full time designated:

Physicians? ☐ **YES** ☐ **NO**

HSE Professional? ☐ **YES** ☐ **NO**

Industrial Hygienist? ☐ **YES** ☐ **NO**

Other Care Providers? ☐ **YES** ☐ **NO**

If "NO" provide reasons.

_____

_____

_____

5.) Can you provide a list of employees hired in the previous year?

☐ **YES** ☐ **NO**

Do you have a new employee orientation program? ☐ **YES** ☐ **NO**

Does your company "new employee" orientation include the following:

Category	Y	N	Category	Y	N
Company HS&E Policy			Fire Protection		
Company HS&E Rules			Housekeeping		
HS&E Meeting Attendance			Electrical Safety		
Hazard Identification			Fall Protection		
Hazard Reporting			First Aid/CPR		
Accident/Injury/Near Miss Reporting			Vehicle Safety		
Personal Protective Equipment (PPE)			Respiratory Protection		
Hearing Conservation			Hazard Communication (HAZCOM)		

6.) Does your company's training program include newly hired employees promoted to first line supervisor's ☐ YES ☐ NO

Does it include instructions in the following:

Category	Y	N	Category	Y	N
Hazard Identification & Reporting			First Aid/CPR		
Emergency Response Procedures			HSE Work Practices		
Accident/Injury/Near Miss Reporting			New employee orientation		
Tailgate/toolbox HS&E meetings			Supervision of Employees		
Other					

NOTE: In accordance with OSHA 29 CFR 1910.119 contractor to provide appropriate documentation to verify employees training and competence.

Attach appropriate documentation to completed questionnaire.

7.) Does your company hold periodic HSE meeting for your employees?

☐ YES ☐ NO

Weekly ☐ YES ☐ NO Bi-weekly ☐ YES ☐ NO

Monthly ☐ YES ☐ NO

Less often (as needed ☐ YES ☐ NO

8.) Does your company conduct field HSE audits/inspection of jobs in progress?

☐ YES ☐ NO

If "YES", who conduct these audits/inspections?_____

How often?_____

9.) Does company utilize methods to notify "ALL" employees of accidents and the precautions related to accidents/injuries/illnesses/near misses?

☐ YES ☐ NO

How is the notification accomplished?_____

Safety meetings? ☐ YES ☐ NO

If yes, how soon after the event?_____

Written notification? ☐ YES ☐ NO

If "YES", is this notification posted at the job-site where the incident occurred?

☐ YES ☐ NO

10.) Is a HS&E Behavior Based Safety criteria used in employee performance evaluation?

Managers ☐ YES ☐ NO

Field Supervisors ☐ YES ☐ NO

Employees ☐ **YES** ☐ **NO**

11.) Does your company use "toolbox" and "tailgate" HSE meetings? ☐ YES ☐ NO

If "YES" how often?

Weekly ☐ YES ☐ NO Bi-weekly ☐ YES ☐ NO

Monthly ☐ YES ☐ NO

Less often (as needed ☐ YES ☐ NO

12.) Does your company have a Alcohol & Drug Program? ☐ YES ☐ NO
If "YES" attach a electronic copy of the written program.

13.) Does your company conduct Environmental Training? ☐ YES ☐ NO

14.) Does your company have a Hazard Communication Program (**HAZCOM**)? ☐ YES ☐ NO

List components of the program._____

_____

_____

15.) Does your company require pre-employment physicals? ☐ YES ☐ NO

Section III:
7.1.19 RPSHSE – 19
Contractor Management

Form 2 - Contractor HSE Questionnaire Evaluation

REPOWER USA Contractor HSE Questionnaire Evaluation

Company Name:_____
Company Address:_____

_____

_____

Telephone Numbers: (direct)_____ **(fax)**_____
Submission date:_____
Person Completing Questionnaire:_____
Name

_____
Signature

Contact telephone numbers: (direct)_____ **(fax)**_____
NOTE: This Contractor Evaluation Document is confidential and SHALL NOT be given to Prospective contractors.

1.) Prospective Contractor's average Worker's Compensation Modification Rate (EMR) is:

1.0 _____ ☐ **YES** ☐ **NO (average)**

Less than 1.0 _____ ☐ **YES** ☐ **NO (better than average)**

More than 1.2 requires further investigation:_____

_____

_____

2.) Answers of "YES" to all questions indicates the presence of an ideal prospective contractor.

_____

An answer of "NO" require additional evaluation of question with the non indication.

_____

_____

3.) Recommendation:
Evaluation completed by:_____
Name

_____
Signature

Check one of the following:

☐ Information submitted by prospective contractor indicates acceptable performance as experienced and qualified. Basic HS&E programs appear to be in place.

☐ Information submitted by prospective contactor has unacceptable HS&E performance or does not appear to have basic HS&E programs in place.

Prospective Contractor: ☐ Approved ☐ Disapproved
Business Manager:_____ Date:_____

Section III:
7.1.19 RPSHSE – 19
Contractor Management

Form 3 - HSE Work Practice Training Acknowledgement

HSE Work Practice Training Acknowledgement

I _____

(Employee's name)

Acknowledge that I have received and understand such training in Work Practices necessary to safely perform my job at _____ (current job-site). I further acknowledge that my understanding of the training was verified through one of the following:

☐ Verbal ☐ Written testing

☐ Other methods (explain)_____

_____ _____

Employee Signature Date

==========

_____

Contractor's Name

Hereby acknowledges that the above name employee of Contractor was tested as stated above and to the best of the Contractor's knowledge is adequately trained to safely perform his/her assigned tasks at _____ (current job-site).

_____ _____

Contractor Representative's name (please print) Date

_____ _____

Contractor's Representative's signature Position

1.) **DO NOT** sign unless you believe you have been sufficiently instructed to perform your duties.
2.) Discuss any part of the training that you **DO NOT** understand with your Supervisor prior to signing.
3.) Return the signed sheet to your supervisor. Contractor **SHALL** provide copies of all signed forms to Job-site Supervisor prior to commencement of work.

Section III:
7.1.19 RPSHSE – 19
Contractor Management

Form 4 - Contractor Sign In/Out Sheet

Contractor Sign In/Out Sheet

Date:_____ **Job No.:**_____

Facility:_____

Client:_____

Time In (initial)	Time Out (initial)	Name (Print)	Signature	Company

REPOWER Systems	Section III RPSHSE 7.1.20	Valid from: November 2008

Revision Profile

Rev.	Date	Name	Approval Signature	Remarks
0	11/08	Owens O'Quinn QHSSE Consultant	On File	ORIGINAL
0	11/08	Tammy Conekin	On File	ORIGINAL
1				
2				
3				
4				
5				

Original Review Progress

Date	Reviewer	Signature
11/08	J.K. Barrilleaux – Grammar/Technical Format *Evergreen QHSSE Solutions LLC*	On File
11/08	Owens O'Quinn – QHSSE Consultant *Evergreen QHSSE Solutions LLC*	On File
11/08	Tammy Conekin – Head of Service	On File

REPOWER USA Corp.

Section III: 7.1.20 – RPSHSE – 20
Drug & Alcohol Program

Contents

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General Drug and Alcohol Policy

1.0 Purpose and Scope

The use, possession, distribution, transfer or storage of prohibited drugs, inhalants or alcoholic beverages in or on Company property or being under the influence of drugs, inhalants or alcohol while acting within the scope of employment is prohibited, as is the misuse of legitimately prescribed drugs.

The Management of **REPOWER USA** Corporation is committed to providing a safe environment for its employees, protecting Company property and prohibiting influences in the workplace which have a detrimental effect on job performance. The presence of drugs or alcohol in the workplace has been determined by **REPOWER USA** Corporation Management to present a threat to those goals.

Except as superceded by applicable state law, this Program will comply with the applicable provisions of Title 49 CFR Part 382 (Controlled Substance and Alcohol Testing). All testing under this program will be administered in accordance with Title 49 CFR Part 40.

2.0 Policy

The use, possession, distribution, transfer or storage of prohibited drugs, inhalants or alcoholic beverages in or on Company property or being under the influence of drugs, inhalants or alcohol while acting within the scope of employment is prohibited, as is the misuse of legitimately prescribed drugs.

3.0 General Responsibilities

Senior Management is charged with the responsibility for implementing and enforcing this Policy.

Senior Management shall designate a member of Management to be responsible for the administration and implementation of the Prohibited Drug and Alcohol Policy.

The HSE Coordinator will provide appropriate training to employees for effective application of the policy.

4.0 Application of Policy

This policy shall apply to all employees of **REPOWER USA**.

Contractors and subcontractors will be advised of the Policy's application to them.

5.0 Available Treatment Programs

The Company sponsors an Employee Assistance Program designed to assist employees with personal problems, including, but not limited to alcohol or drug abuse. It is Management's desire that employees voluntarily seek assistance under this program. However, participation in the program will not exempt any employee from the provisions of this policy. Participation in this program will exempt employees only if they are in treatment for drug or alcohol abuse and are free of drugs and alcohol.

6.0 Training

It shall be the responsibility of the Corporate HSE Officer to develop and administer a Company wide drug training and education program for all Management and personnel with emphasis on the following:

- Prohibited drugs and alcohol as they relate to safety in the workplace.
- Recognition of prohibited drugs and drug paraphernalia.
- Recognition of the symptoms associated with taking prohibited drugs or alcohol or the misuse of prescribed medicines.
- Appropriate action to be taken.

7.0 Administration of Policy

The Company shall exhibit permanent posted signs, clearly readable, at prominent locations on Company property. In addition, the senior member of Management will cause to be posted bulletin board notices informing employees of the Prohibited Drug and Alcohol Policy and its search, enforcement and disciplinary provisions.

The appropriate personnel will conduct safety meetings periodically for the purpose of informing all employees of the Prohibited Drug and Alcohol Policy and its related search, enforcement and disciplinary provisions. Attendees shall be requested to sign and return an acknowledgment form.

8.0 Enforcement

Types of Tests Performed

- **Pre-Employment** - All pre-employment physical examinations will include medical analysis for the detection of prohibited drugs and alcohol. The individual so tested will be informed of such test prior to the physical exam. Employment will be denied to any individual whose medical analysis is positive for prohibited drugs or alcohol.
- **Post Accident** - In the event of any significant accident involving injury to persons or property of the Company, employees involved may, at the discretion of Company Management, be required to provide a specimen for analysis within two hours of said accident. Failure to comply may be grounds for termination. If testing is deemed necessary, Management will make arrangements with a local facility for the performance of all such tests.

- **Random** - Covered employees will be tested for alcohol at an annual rate of ten percent (10%), and for drugs at an annual rate of twenty-five percent (25%) of the total number of covered positions at the beginning of the calendar year, or at such annual rates as otherwise modified / established in response to significant changes in the total number of active employees.

  Random selection shall be performed independently by the Companies Consortium / Third Party Administrator (C/TPA) utilizing a computer-based scientifically valid method of selection. The selection process will give each covered employee an equal chance of being selected each time a selection is made.

  The Company will conduct a minimum of four (4) selections annually and the dates for administering random tests will be spread reasonably throughout the calendar year. Each covered employee selected for testing will be tested within the selection period.

  Random testing of covered employees will be unannounced (i.e., no advance notice to the employee). Upon notification of selection for random drug and / or alcohol testing, each covered employee must proceed immediately to the designated testing site.
- **Reasonable Cause** – The Company will require a covered employee to submit to an alcohol and/or drug test(s) when it has reasonable cause to believe the employee has violated the provisions of this policy and engaged in prohibited alcohol/drug-related conduct.

  A Supervisor's determination that reasonable cause exists to require an alcohol or drug test(s) must be based on specific observations concerning the appearance, behavior, speech or body odors of the employee. Observations may include indications of the chronic and withdrawal effects of controlled substances.

  Where practicable, the reasonable cause determination should be based on the observation of the covered employee by two persons in supervisory positions. At least two of the employee's supervisors, one of whom is trained in the detection of the symptoms of possible drug/alcohol use, shall substantiate and concur in the decision to test an employee who is reasonably suspected of drug/alcohol use.
- **Return to duty** - The Company shall ensure that before an employee returns to duty after engaging in prohibited conduct concerning alcohol, the employee shall undergo a return-to-duty alcohol test with a result indicating an alcohol concentration of less than 0.02.

  The Company shall ensure that before an employee returns to duty after engaging in prohibited conduct concerning controlled substances, the employee shall undergo a return-to-duty drug test with a result indicating a verified negative result for drug use.

The covered employee must comply with the education and/or treatment recommendations prescribed by the SAP in order to be considered eligible to return-to-duty and prior to taking the required return-to-duty test(s).

- **Testing required by Customer contract** – Numerous Customers of **REPOWER USA** Corporation require that Drug and Alcohol testing be performed as a condition of entry and work on a Customer's site. In the event that the **REPOWER USA** Corporation Anti Drug and alcohol program does not meet the requirements of the Customer, then any and all relevant Employees (full time and contract employees) will be subject to the requirements and testing procedures of the Customer's Program.

9.0 Coordination with Law Enforcement Officials

As required, contact with law enforcement officials shall be made to define law enforcement's role in the following:

- Chemical analysis of any substances suspected of being a prohibited drug or alcohol or item used as drug paraphernalia. Any independent analysis of suspected substances will be undertaken only with the consent and knowledge of law enforcement officials.
- The disposition of any suspected prohibited drug or alcohol or drug paraphernalia.
- The reporting of any suspected criminal activities.

When contact with law enforcement officials is necessary, an investigation report will be prepared by a designated member of Management for each incident and retained in a permanent file. Included in such reports will be a copy of a letter confirming the understanding reached with enforcement officials regarding the incident in question.

9.1 Searches

- **General** - **REPOWER USA** Corporation Senior Management shall have the authority to order a general search of Company and/or employee personal property located on Company premises. Such searches shall be conducted in the presence of at least two representatives of Management, including one Company Supervisor. Specially trained canine search teams may additionally be utilized as required.
- **Random** - With the consent of **REPOWER USA** Corporation Management, random searches of Company premises and personal property of employees will be conducted in the presence of at least two representatives of Management, including one Supervisor.
- **Personal** - Should a **REPOWER USA** Supervisor or other member of Management determine that reasonable cause exists to believe a violation of the Prohibited Drug and Alcohol Policy has been committed so as to justify a personal search of an Employee, he shall:
  - Confront the employee and request an explanation.
  - If the explanation is not satisfactory, the Supervisor will ask the employee to accompany him to a designated location for the purpose of a personal search. Any refusal to submit to such search should be witnessed where possible by another representative of Management.

- If the employee's person is to be searched, his consent must first be obtained in Consent to Search.
- A personal search shall be conducted in the presence of two **REPOWER USA** Corporation Management representatives, including one Company Supervisor and an additional witness, if the employee so chooses. Only other females or witnesses shall search female employees.
- Should the search result in the discovery of suspected prohibited drugs or alcohol, or drug paraphernalia, such contraband will be confiscated and the employee will be given a receipt and suspended without pay pending completion of the investigation.
- Should the employee refuse to submit to the personal search, he/she shall be suspended without pay pending completion of an investigation.

In the administration of these procedures, it is essential that the personal privacy of the employee is given maximum consideration.

10.0 Consequences of Violations of the Policy

Any employee suspected to be in violation of the Prohibited Drug and Alcohol Policy shall be immediately suspended without pay pending completion of an investigation. During the course of the investigation, the suspected employee shall have the opportunity to make an explanation.

A determination shall be made by appropriate **REPOWER USA** Corporation Management as to whether or not the employee violated the Prohibited Drug and Alcohol Policy. Should the determination be made that no violation occurred, the employee will be reinstated without penalty.

Any employee who is known to have engaged in prohibited conduct with regard to alcohol misuse (measured breath alcohol level of .04 or greater) or use of controlled substances, is subject to the following consequences.

The employee shall be immediately removed from his/her position, and shall be advised by the Company of the resources available to them in evaluating and resolving problems associated with the misuse of alcohol or use of controlled substances.

The employee will be evaluated by a substance abuse professional (SAP) who shall determine what intervention or assistance is required for the employee associated with alcohol misuse and/or controlled substances use. In addition, the employee must be re-evaluated by a SAP to determine that the covered employee has followed the rehabilitation program prescribed.

Before returning to duty, the employee shall undergo a return-to-duty alcohol test with a result indicating a breath alcohol level of less than 0.02 if the conduct involved alcohol, or a drug test with a verified negative result if the conduct involved drug use.

It must be the start of the employee's next regularly scheduled duty period, but not less than eight (8) hours following the administration of a test, before an employee may be returned to duty after an alcohol test result indicating a breath alcohol level of 0.02 or greater but less than 0.04. The Company will not take any action against a covered employee based solely on test results showing an alcohol concentration of less than 0.04.

In addition, each employee must be re-evaluated by a SAP to determine that the employee has followed the rehabilitation program prescribed.

The employee shall also be subject to unannounced follow-up drug and / or alcohol testing, as prescribed by the SAP.

11.0 Contractors and Sub-Contractors

All contractors and subcontractors shall be notified of the **REPOWER USA** Corporation safety rule concerning the Prohibited Drug and Alcohol Policy by means of a Letter to the contractor. Should any employee of a contractor or subcontractor violate the safety rule, his or her employer shall be promptly notified and such individual shall be barred from Company premises and from further performance of contract work.

12.0 Guidelines Concerning use of Legally Prescribed Drugs

Legally prescribed drugs are permitted in the workplace provided the supply does not exceed two days.

Each prescription should be recorded with the employee's immediate supervisor along with the prescribed dosage.

Supervisors should observe those employees on prescribed medication and be alert for any indication that suggests abuse or effect the medication has that presents a safety hazard to the employee and/or his or her co-workers.

Prescription drugs must be kept in the original container as issued by the pharmacist. Employees are not to mix different prescription drugs into the same container.

Employees can only be in possession of their own prescription. They cannot have their spouse's or anyone else's prescription.

No one, unless licensed, is allowed to dispense medication. For example, a wife is not allowed to giver her husband (our employee) her diet pills. If the husband is overweight, he needs to get a prescription in his own name from his physician.

Drugs and medication that can be obtained over-the-counter should also be kept in its proper container. Doing this will prevent confusion.

13.0 Definitions

- **Drug** - A drug is a chemical substance that produces physical, mental, emotional or behavioral change in the user.
- **Prohibited Drug** - A prohibited drug is any drug which the use, possession, transfer or storage thereof is illegal or any other drug, including, but not limited to, a prescription drug(s), used for any reason other than a legitimate medical purpose.
- **Paraphernalia** - Paraphernalia is any item, which can be used for the administering, transferring or storing of a prohibited drug.

  These items include, but are not limited to:

  - Blenders, bowls, containers, spoons, mixing device used or intended for use in compounding controlled substances.
  - Capsules, balloons, envelopes and other containers used or intended for use or concealing in packaging small quantities of controlled substances.
  - Hypodermic syringes, needles or other objects designed or intended for injecting controlled substances into the human body.

Objects used or intended for use or designed for use in ingesting, inhaling or otherwise introducing marijuana, cocaine, hashish, hashish oil, etc. into the human body, such as metal, wooden, acrylic, glass, stone, plastic or ceramic pipes with or without screens, permanent screens, hashish heads or punctured metal bowls, water pipes, carburetion tubes and devices, smoking and carburetion masks, roach clips or other objects used to hold smoking materials such as a marijuana cigarette that has become too small or too short to be held by hand, chamber pipes, electric pipes, air driven pipes, chillums, bongs, ice pipes, or rolling paper (Zigzag, E-Z Wider, Bamba, Job, Joker, etc.) not associated specifically with tobacco products.

Section III – Forms & Information
Form 3 – Drug and Alcohol Policy

Purpose and Scope
The use, possession, distribution, transfer or storage of prohibited drugs, inhalants or alcoholic beverages in or on Company property or being under the influence of drugs, inhalants or alcohol while acting within the scope of employment is prohibited, as is the misuse of legitimately prescribed drugs.

The Management of **REPOWER USA** is committed to providing a safe environment for its employees, protecting Company property and prohibiting influences in the workplace which have a detrimental effect on job performance. The presence of drugs or alcohol in the workplace has been determined by **REPOWER USA** Management to present a threat to those goals.

Except as superceded by any applicable state laws, this Program will comply with the applicable provisions of Title 49 CFR Part 382 (Controlled Substance and Alcohol Testing). All testing under this program will be administered in accordance with Title 49 CFR Part 40.

Policy
The use, possession, distribution, transfer or storage of prohibited drugs, inhalants or alcoholic beverages in or on Company property or being under the influence of drugs, inhalants or alcohol while acting within the scope of employment is prohibited, as is the misuse of legitimately prescribed drugs.

General Responsibilities
Senior Management is charged with the responsibility for implementing and enforcing this Policy.

Senior Management shall designate a member of Management to be responsible for the administration and implementation of the Prohibited Drug and Alcohol Policy.

The HSE Coordinator will provide appropriate training to employees for effective application of the policy.

Application of Policy
This policy shall apply to <u>all</u> employees of **REPOWER USA.**

Contractors and subcontractors will be advised of the Policy's application to them.

Available Treatment Programs

The Company sponsors an Employee Assistance Program designed to assist employees with personal problems, including, but not limited to alcohol or drug abuse. It is Management's desire that employees voluntarily seek assistance under this program. However, participation in the program will not exempt any employee from the provisions of this policy. Participation in this program will exempt employees only if they are in treatment for drug or alcohol abuse and are free of drugs and alcohol.

Training

It shall be the responsibility of the Corporate HSE Officer to develop and administer a Company wide drug training and education program for all Management and personnel with emphasis on the following:

- Prohibited drugs and alcohol as they relate to safety in the workplace.
- Recognition of prohibited drugs and drug paraphernalia.
- Recognition of the symptoms associated with taking prohibited drugs or alcohol or the misuse of prescribed medicines.
- Appropriate action to be taken.

Administration of Policy

The Company shall exhibit permanent posted signs, clearly readable, at prominent locations on Company property. In addition, the senior member of Management will cause to be posted bulletin board notices informing employees of the Prohibited Drug and Alcohol Policy and its search, enforcement and disciplinary provisions.

The appropriate personnel will conduct safety meetings periodically for the purpose of informing all employees of the Prohibited Drug and Alcohol Policy and its related search, enforcement and disciplinary provisions. Attendees shall be requested to sign and return an acknowledgment form.

Enforcement

Types of Tests Performed

- **Pre-Employment** - All pre-employment physical examinations will include medical analysis for the detection of prohibited drugs and alcohol. The individual so tested will be informed of such test prior to the physical exam. Employment will be denied to any individual whose medical analysis is positive for prohibited drugs or alcohol.
- **Post Accident** - In the event of any significant accident involving injury to persons or property of the Company, employees involved may, at the discretion of Company Management, be required to provide a specimen for analysis within two hours of said accident. Failure to comply may be grounds for termination. If testing is deemed necessary, Management will make arrangements with a local facility for the performance of all such tests.

- **Random** - Covered employees will be tested for alcohol at an annual rate of ten percent (10%), and for drugs at an annual rate of twenty-five percent (25%) of the total number of covered positions at the beginning of the calendar year, or at such annual rates as otherwise modified / established in response to significant changes in the total number of active employees.

  Random selection shall be performed independently by the Companies Consortium / Third Party Administrator (C/TPA) utilizing a computer-based scientifically valid method of selection. The selection process will give each covered employee an equal chance of being selected each time a selection is made.

  The Company will conduct a minimum of four (4) selections annually and the dates for administering random tests will be spread reasonably throughout the calendar year. Each covered employee selected for testing will be tested within the selection period.

  Random testing of covered employees will be unannounced (i.e., no advance notice to the employee). Upon notification of selection for random drug and / or alcohol testing, each covered employee must proceed immediately to the designated testing site.
- **Reasonable Cause** – The Company will require a covered employee to submit to an alcohol and/or drug test(s) when it has reasonable cause to believe the employee has violated the provisions of this policy and engaged in prohibited alcohol/drug-related conduct.

  A Supervisor's determination that reasonable cause exists to require an alcohol or drug test(s) must be based on specific observations concerning the appearance, behavior, speech or body odors of the employee. Observations may include indications of the chronic and withdrawal effects of controlled substances.

  Where practicable, the reasonable cause determination should be based on the observation of the covered employee by two persons in supervisory positions. At least two of the employee's supervisors, one of whom is trained in the detection of the symptoms of possible drug/alcohol use, shall substantiate and concur in the decision to test an employee who is reasonably suspected of drug/alcohol use.
- **Return to duty** - The Company shall ensure that before an employee returns to duty after engaging in prohibited conduct concerning alcohol, the employee shall undergo a return-to-duty alcohol test with a result indicating an alcohol concentration of less than 0.02.

  The Company shall ensure that before an employee returns to duty after engaging in prohibited conduct concerning controlled substances, the employee shall undergo a return-to-duty drug test with a result indicating a verified negative result for drug use.

The covered employee must comply with the education and/or treatment recommendations prescribed by the SAP in order to be considered eligible to return-to-duty and prior to taking the required return-to-duty test(s).

- **Testing required by Customer contract** – Numerous Customers of **REPOWER USA** require that Drug and Alcohol testing be performed as a condition of entry and work on a Customer's site. In the event that the **REPOWER USA** Anti Drug and alcohol program does not meet the requirements of the Customer, then any and all relevant Employees (full time and contract employees) will be subject to the requirements and testing procedures of the Customer's Program.

Coordination with Law Enforcement Officials

As required, contact with law enforcement officials shall be made to define law enforcement's role in the following:

- Chemical analysis of any substances suspected of being a prohibited drug or alcohol or item used as drug paraphernalia. Any independent analysis of suspected substances will be undertaken only with the consent and knowledge of law enforcement officials.
- The disposition of any suspected prohibited drug or alcohol or drug paraphernalia.
- The reporting of any suspected criminal activities.

When contact with law enforcement officials is necessary, an investigation report will be prepared by a designated member of Management for each incident and retained in a permanent file. Included in such reports will be a copy of a letter confirming the understanding reached with enforcement officials regarding the incident in question.

Searches

- **General** - Senior Management shall have the authority to order a general search of Company and/or employee personal property located on Company premises. Such searches shall be conducted in the presence of at least two representatives of Management, including one Company Supervisor. Specially trained canine search teams may additionally be utilized as required.
- **Random** - With the consent of Management, random searches of Company premises and personal property of employees will be conducted in the presence of at least two representatives of Management, including one Supervisor.
- **Personal** - Should a Supervisor or other member of Management determine that reasonable cause exists to believe a violation of the Prohibited Drug and Alcohol Policy has been committed so as to justify a personal search of an Employee, he shall:
  - Confront the employee and request an explanation.
  - If the explanation is not satisfactory, the Supervisor will ask the employee to accompany him to a designated location for the purpose of a personal search. Any refusal to submit to such search should be witnessed where possible by another representative of Management.

- If the employee's person is to be searched, his consent must first be obtained in Consent to Search.
- A personal search shall be conducted in the presence of two Management representatives, including one Company Supervisor and an additional witness, if the employee so chooses. Only other females or witnesses shall search female employees.
- Should the search result in the discovery of suspected prohibited drugs or alcohol, or drug paraphernalia, such contraband will be confiscated and the employee will be given a receipt and suspended without pay pending completion of the investigation.
- Should the employee refuse to submit to the personal search, he/she shall be suspended without pay pending completion of an investigation.

In the administration of these procedures, it is essential that the personal privacy of the employee is given maximum consideration.

Consequences of Violations of the Policy

Any employee suspected to be in violation of the Prohibited Drug and Alcohol Policy shall be immediately suspended without pay pending completion of an investigation. During the course of the investigation, the suspected employee shall have the opportunity to make an explanation.

A determination shall be made by appropriate Management as to whether or not the employee violated the Prohibited Drug and Alcohol Policy. Should the determination be made that no violation occurred, the employee will be reinstated without penalty.

Any employee who is known to have engaged in prohibited conduct with regard to alcohol misuse (measured breath alcohol level of .04 or greater) or use of controlled substances, is subject to the following consequences.

The employee shall be immediately removed from his/her position, and shall be advised by the Company of the resources available to them in evaluating and resolving problems associated with the misuse of alcohol or use of controlled substances.

The employee will be evaluated by a substance abuse professional (SAP) who shall determine what intervention or assistance is required for the employee associated with alcohol misuse and/or controlled substances use. In addition, the employee must be re-evaluated by a SAP to determine that the covered employee has followed the rehabilitation program prescribed.

Before returning to duty, the employee shall undergo a return-to-duty alcohol test with a result indicating a breath alcohol level of less than 0.02 if the conduct involved alcohol, or a drug test with a verified negative result if the conduct involved drug use.

It must be the start of the employee's next regularly scheduled duty period, but not less than eight (8) hours following the administration of a test, before an employee may be returned to duty after an alcohol test result indicating a breath alcohol level of 0.02 or greater but less than 0.04. The Company will not take any action against a covered employee based solely on test results showing an alcohol concentration of less than 0.04.

In addition, each employee must be re-evaluated by a SAP to determine that the employee has followed the rehabilitation program prescribed.

The employee shall also be subject to unannounced follow-up drug and / or alcohol testing, as prescribed by the SAP.

Contractors and Sub-Contractors

All contractors and subcontractors shall be notified of the REPOWERUSA safety rule concerning the Prohibited Drug and Alcohol Policy by means of a Letter to the contractor. Should any employee of a contractor or subcontractor violate the safety rule, his or her employer shall be promptly notified and such individual shall be barred from Company premises and from further performance of contract work.

Guidelines Concerning use of Legally Prescribed Drugs

Legally prescribed drugs are permitted in the workplace provided the supply does not exceed two days.

Each prescription should be recorded with the employee's immediate supervisor along with the prescribed dosage.

Supervisors should observe those employees on prescribed medication and be alert for any indication that suggests abuse or effect the medication has that presents a safety hazard to the employee and/or his or her co-workers.

Prescription drugs must be kept in the original container as issued by the pharmacist. Employees are not to mix different prescription drugs into the same container.

Employees can only be in possession of their own prescription. They cannot have their spouse's or anyone else's prescription.

No one, unless licensed, is allowed to dispense medication. For example, a wife is not allowed to giver her husband (our employee) her diet pills. If the husband is overweight, he needs to get a prescription in his own name from his physician.

Drugs and medication that can be obtained over-the-counter should also be kept in its proper container. Doing this will prevent confusion.

Definitions

- **Drug** - A drug is a chemical substance that produces physical, mental, emotional or behavioral change in the user.
- **Prohibited Drug** - A prohibited drug is any drug which the use, possession, transfer or storage thereof is illegal or any other drug, including, but not limited to, a prescription drug(s), used for any reason other than a legitimate medical purpose.
- **Paraphernalia** - Paraphernalia is any item, which can be used for the administering, transferring or storing of a prohibited drug.

  These items include, but are not limited to:

  - Blenders, bowls, containers, spoons, mixing device used or intended for use in compounding controlled substances.
  - Capsules, balloons, envelopes and other containers used or intended for use or concealing in packaging small quantities of controlled substances.
  - Hypodermic syringes, needles or other objects designed or intended for injecting controlled substances into the human body.

Objects used or intended for use or designed for use in ingesting, inhaling or otherwise introducing marijuana, cocaine, hashish, hashish oil, etc. into the human body, such as metal, wooden, acrylic, glass, stone, plastic or ceramic pipes with or without screens, permanent screens, hashish heads or punctured metal bowls, water pipes, carburetion tubes and devices, smoking and carburetion masks, roach clips or other objects used to hold smoking materials such as a marijuana cigarette that has become too small or too short to be held by hand, chamber pipes, electric pipes, air driven pipes, chillums, bongs, ice pipes, or rolling paper (Zigzag, E-Z Wider, Bamba, Job, Joker, etc.) not associated specifically with tobacco products.