August 12, 1993

The Honorable Peter Hoekstra
U.S. House of Representatives
1319 LHOB
Washington, DC 20510

Dear Congressman Hoekstra:

When we presented our testimony on revisions of the Occupational Safety and Health Act of 1970 (HR 1280) to the Labor Standards, Occupational Safety and Health Subcommittee, you asked us to prepare a model program for a small business. Specifically, you asked for a program for a small manufacturing employer with an order fulfillment department and a shipping department.

The American Industrial Hygiene Association is pleased to have this opportunity to demonstrate how a small employer can develop a program that will result in a safe and healthy workplace for all employees. The development of "programs", by which we mean that set of continuing policies and procedures which insure safety and health, is an essential skill of health and safety professionals. We look forward to working with Congress and the Administration to find new ways to apply those skills for the benefit of small employers and their employees who have not profited from advances in occupational safety and health as much as they should. At the same time, we recognize that the cost of such programs must not be a disproportionate share of the revenue of the enterprise as compared with larger establishments of a similar nature.

The attached is a draft model plan for the H and S Manufacturing Company. The company is assumed to employ 100 people and to manufacture and ship a high-tech medical monitoring device. The manufacturing processes include metal forming, welding, circuit board assembly and cabinet coating. Orders are received by operators at computers and are shipped from a warehouse where products are stored on racks and accessed with high lift fork-lifts. In the attached program, text in parentheses are comments/explanations of the program and not part of the program. At the end of the general program is a sample program for a specific hazard (forklift safety). Lastly, we have estimated the startup cost and continuing cost for the program as a whole.
We would be pleased to answer any questions you may have about this program or about our Association and our position on OSHA reform.

Very truly yours,

HARRY ETTINGER, CIH, PE
PRESIDENT

JL:jmk

Attachment
Introduction

This program covers the way the East Lansing facility of the Company provides a safe and healthy workplace for all employees. The program has been developed by the plant Health and Safety Specialist (Specialist) with the assistance of a Health and Safety Consultant (Consultant). It has been reviewed and approved by the Company Health and Safety Committee and by the Plant Manager. This is an "evergreen" program that is continuously revised by the Committee and the Specialist and adjusted as necessary to fit any change in conditions. (If this plant is an ISO 9000 type Total Quality Management (TQM) establishment, the introduction would need to discuss how this program fits into the TQM Management Systems.)

Policy

The Company is committed to maintaining a safe and healthy workplace for all employees. (The policy can be very brief or can be detailed and could also include other related areas such as product safety and environmental health.) Final responsibility for health and safety resides with management, but all employees must act in accordance with established policies.

Methods and Procedures

- The initial survey by the Consultant (Appendix A) identified the hazards present in the facility. (The initial and periodic services of a Health and Safety Consultant are necessary to get the program started, to identify new hazards or control options, to advise and help train the Health and Safety Specialist and to help verify that the program continues to be effective. The Health and Safety Consultant may be a single individual who is certified by both the American Board of Industrial Hygiene and the Board of Certified Safety Professionals or may be several people with these qualifications from a consulting organization. Some other countries have cooperative consulting organizations funded by a consortium of small businesses and providing not only health and safety consulting but also medical services [medical surveillances, periodic examinations and wellness programs] and recordkeeping [illness and injury log, exposure monitoring and medical surveillance]. The Health and Safety Specialist is typically a regular employee of the company who works at the plant and has responsibility for health and safety as part of his or her duties. Typically, this person would be a supervisor or technician who has the background and training to understand the technical issues involved in health and safety. The Specialist will probably have received several weeks training in health and safety from AIHA, NIOSH, OSHA, an Educational Resource Center or other quality training resource. In addition, the Specialist will have received on-the-job training and advice from the Consultant.)
For a plant of this type, the job should take about one quarter of the Specialist's time.)

- All employees immediately report any potential hazard to their supervisor.
- Manufacturing, procurement and engineering staff will inform the Specialist before any new material process or work practices are introduced.
- Material Safety Data Sheets (MSDS) are maintained on all materials present in the plant and are available to all employees. The Specialist, with the aid of the Consultant, reviews all MSDS.
- The Specialist performs a walkthrough inspection at least monthly and arranges for a survey by the Consultant at least annually.
- The Committee performs a walkthrough survey at least quarterly.
- All work related illnesses, injuries, and deaths are investigated. (Who does the investigating depends on the seriousness of the event. The Specialist would do minor matters while a death should be investigated by a senior committee with company representation from outside the plant with input from the Consultant.)
- Documentation of all hazards identified is maintained by the Specialist and is available to the Committee.

Hazard Evaluation:

- The Specialist maintains cognizance of all plant activities to identify planned process change and anticipate potential health and safety concerns.
- All potential health and safety hazards identified are initially evaluated by the Specialist with the advice of the Consultant. This evaluation is recorded and includes recommendations on the need for control.
- For those hazards, such as toxic chemicals, where protection against overexposure depends on a continuing control measure such as an engineering control or a work practice, an exposure monitoring program is conducted to verify that control is effective. Exposure monitoring is performed by the Specialists with regular oversight by the Consultant. Sample analyses are performed by outside contract laboratories with oversight by the Consultant. Exposure monitoring records will be maintained by the Specialist.

Hazard Control:

- The Specialist, in consultation with management, the Consultant and the Committee recommends engineering, work practice or personal protection control for all hazards.
Control recommendations are recorded. A schedule for corrective action is established. Those responsible for corrective action report to management at appropriate intervals with copies to the committee. (The "appropriate interval" depends on the action. If an exhaust fan is broken, correction should occur in hours. If a major process change or engineering control system is needed, it may take months.)

Where personal protective equipment (ear plugs/muffs, gloves, respirators, etc.) are required to achieve control of exposure, the equipment is selected by the Specialist with the aid of the Consultant. The Specialist instructs employees in the proper use and maintenance of the equipment. Employees are responsible for using the equipment when required. Management and supervisors insure that employees use the required equipment.

Occupational Health:

- All illnesses and injuries are reported immediately to the designated first aid person. (It is not necessary to let everyone do first aid in this small plant since a trained individual is only minutes away. There should be several people trained at the level of a first responder. All injuries should be reported and recorded.)

- The Lansing Rescue Service will be called for any medical emergency.

- Employees are offered physical examinations by the Lansing Industrial Health Clinic, at company expense, according to the schedule. The Consultant identifies any special medical examination requirements. (Those exposed to certain specific regulated hazards (e.g. noise and lead) should be examined as required by regulation. For all employees, there may be a "wellness program" that offers examinations, depending upon age.)

Employee Participation:

- All employees look for potential health and safety hazards and report them to their supervisors.

- Designated representatives of employees serve on the Committee and act as a conduit of Committee proceedings to all employees.

- MSDSs, Committee minutes, inspection reports, lists of identified hazards, monitoring results, and control action schedules are available to all employees. (Some of these should be posted and others available in an easily accessible file. The Committee could decide.)

Training

- All new employees receive training in the company's health and safety program and procedures as part of their initial orientation.
• Each employee receives specific training on the hazards and precautions of his or her job as part of job training. (How to do the job safely should be part of learning how to do the job. This training should also meet the requirements of the HAZCOM regulation and any other specific regulatory requirements.)

• Periodic refresher training is provided according to the training plan. (Short "tool box" talks are more effective than long sessions. Training should be frequent enough to be effective, but not so frequent as to be repetitive and boring.)

• The Committee evaluates its training needs and the effectiveness of the training provided with the aid of the Specialist and the Consultant and recommends specific courses to the Plant Manager. These may include (list here).

• A training program for the Specialist will be recommended by the Consultant for approval by management.

Responsibilities

• All employees, supervisors and managers are responsible for reporting any potential health and safety hazards they observe.

• The Specialist, with the advice and supervision of the Consultant, has the qualifications and responsibility to identify health and safety hazards.

• In an emergency such as when there is an immediate danger to life or health, corrective action can be initiated by anyone who has the skill and ability to do so.

• Non-emergency corrective action is initiated by authority of the plant manager according to the schedule described above.

• All serious incidents (e.g. fatalities) are reported to OSHA.

Contractors

• Contractors performing work at the plant are informed of worksite hazards and plant health and safety procedures. Contractors are required to train their employees and to follow the company's health and safety procedures.

References

(References include lists of manuals, SOPs, management systems and regulations which apply to the program. A sample program for a specific hazard [forklift] is attached. These programs are generic and need not be developed by each individual establishment. The set of documents that make up the whole program will probably be assembled in a looseleaf Health and Safety Manual. Each department and certain key people will have a copy of the manual.)
APPENDIX A

Health and Safety Consultant

Report of Initial Survey

(The Health and Safety Consultant's initial report would identify the hazards by department as outlined below and would recommend surveillance and control measures for each hazard.)

• Manufacturing:
  - Sheet metal shop - noise and welding fume
  - Assembly - solvents, lead solder
  - Finishing - solvents, paint spray

• Order Fulfillment:
  - Computer operators - ergonomic issues

• Shipping
  - Forklift safety
  - Material handling hazards
  - Ergonomics issues

• Maintenance
  - Solvents, coatings and other chemicals
  - Electrical hazards

• Laboratory
  - Chemicals used in QC tests

• Administration
  - Bloodborne pathogen risk to first responders
H&S MFG. CO.

HEALTH AND SAFETY PROGRAMS FOR SPECIFIC HAZARDS

A. BLOODBORNE PATHOGENS -- 1910.1030
B. CONFINED SPACE ENTRY -- 1910.146
C. ELECTRICAL SAFETY -- 1910.331-335
D. ENERGY CONTROL (LOCKOUT/TAGOUT) -- 1910.147
E. EMERGENCY RESPONSE -- 1910.38; 1910.120
F. FORKLIFT SAFETY -- 1910.179
G. HAZARD COMMUNICATION -- 1910.1200
H. LABORATORY CHEMICAL HYGIENE -- 1910.1450
I. OCCUPATIONAL INJURIES AND ILLNESSES RECORDKEEPING -- 29CFR 1904
J. RESPIRATORY PROTECTION -- 1910.134
K. NOISE -- 1910.95
HEALTH AND SAFETY PROGRAM COST ESTIMATE

A health and safety program consists of a set of procedures which create a safe and healthy workplace and a document on which those procedures are recorded. Consequently, there are several ways to look at the cost of a health and safety program.

- The procedures are not in place. The cost of establishing a safe and healthy workplace where one does not exist can be substantial but are offset by the benefit of reduction in illness and injury. However, the cost of illness and injury is distributed among good and bad employers by workers compensation insurance or is borne by the injured and by society as a whole. If all of the cost of illness and injury were internalized, the establishment of a health and safety program would clearly save money.

- The procedures are in place (partly) but are not documented. The development of a written program document for procedures that exist can be estimated as follows for the H&S Manufacturing Company:

<table>
<thead>
<tr>
<th></th>
<th>Cost Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Year</td>
</tr>
<tr>
<td>Specialist time</td>
<td>$15,000</td>
</tr>
<tr>
<td>Consultant</td>
<td>6,000</td>
</tr>
<tr>
<td>Other administration</td>
<td>3,000</td>
</tr>
<tr>
<td>(e.g. recordkeeping)</td>
<td></td>
</tr>
<tr>
<td>Equipment and supplies</td>
<td>3,000</td>
</tr>
<tr>
<td>Total</td>
<td>27,000</td>
</tr>
</tbody>
</table>

This is an estimate for a 100 employee plant with a payroll of $2,500,000 and workers compensation insurance cost of $250,000 at a rate of 10% of payroll (the range in Michigan is about 8% to 15%).

Conclusion:

The AIHA supports the provision of HR 1280 requiring a written health and safety program. While it is theoretically possible to run an effective program without documentation, it is likely that things will slip through the cracks. Documentation, while burdensome, helps assure that the program is comprehensive and is, therefore, worth the effort. Improvements to the Bill that would benefit small businesses include improved training resources for Health and Safety Specialists and means to increase the availability and affordability of consulting services.

JL:jmk
August 13, 1993
The purpose of the H&S Manufacturing Company, Forklift Safety Program is to establish minimum requirements and procedures for the health and safety of employees who operate and maintain forklift and powered hand trucks. The Occupational Safety and Health Administration (OSHA) General Industry Standard for powered industrial trucks, 29CFR 1910.178, requires that an employer establish a program that addresses selection, maintenance, and use of powered industrial trucks (e.g. forklift trucks). A copy of this standard is included in Appendix B. The following procedures are based on the requirements of the standard and the most current professional practices of the field of occupational health and safety. While there is no OSHA standard covering powered hand trucks, the National Safety Council (NSC) has published a Safety Data Sheet (I-317, Rev. 91) covering powered hand trucks. The NSC guideline will be followed and is included in Appendix C.

STRATEGY

1. This program is designed to reduce the likelihood of injury to employees by implementing specific procedures to be used during maintenance and operation of forklift equipment.

2. The primary objective is to train employees to inspect, maintain, and operate forklift trucks to prevent injury to employees and/or materials.

3. Procedures outlined in this program can be used for all types of forklift trucks used at H&S Manufacturing Company.

RESPONSIBILITIES

1. Health and Safety Specialist

The Specialist determines the atmosphere or location (hazardous or nonhazardous) where a forklift truck will be used and selects a forklift truck that is designed for safe operation in those conditions. Forklift trucks are equipped with proper safety equipment, and only authorized employees operate forklift equipment. Appendix A lists these authorized employees. These employees have been trained on forklift trucks and safe procedures. The Specialist reviews this program and the training provided on an annual basis.

2. Supervisor

Supervisors, foremen, and group leaders are responsible for assuring that all personnel under their control are completely knowledgeable of the type of forklift truck to be used in their area. They are also responsible for assuring that their subordinates comply with all parts of this forklift safety program and enforce disciplinary procedures when needed.
3. Employees

It is the responsibility of each employee to have an awareness of the Forklift Safety Program and its specific application to their work area (as explained by The Specialist). Employees are also responsible for using the appropriate forklift truck designated for their work location.

ADMINISTRATION

Name: __________________________ Signature: __________________________
Manager, Shipping Department

is responsible for overall program administration including training of the workers. Administration of the program shall also include periodic review and retraining of employees as needed.

Name: __________________________ Signature: __________________________
Health and Safety Specialist

is responsible for evaluation of the atmosphere or location of forklift trucks and the selection of forklift trucks that are approved to operate in those locations.

Name: __________________________ Signature: __________________________
Manager, Maintenance Department

is responsible for assuring that maintenance of all forklift trucks is performed on a regular basis.
PROCEDURE

I. INSPECTION OF FORKLIFT TRUCKS

The forklift operator inspects the forklift truck at least daily or at the beginning of each shift (if operated on a round-the-clock basis) to ensure that it is in safe operating condition. The inspection includes:

1. Visual inspection of the forklift's tires and wheels to make sure that all bolts or nuts are in place, tires are in good condition and free from grease or oil.

2. The forks or other load handling attachments are checked for cracks, bends or breaks and for indications of wear.

3. The hydraulic cylinder hoses are inspected for leaks around piston seals and hose connections.

4. Fluid levels of the radiator coolant, engine oil, fuel or battery electrolyte, brake fluid, hydraulic fluid and transmission oil are checked. If fluids are leaking, for source of leak must be found and fixed.

5. Safety devices such as horn, lights, and backup alarms should all work.

Any defects, needed repairs, or unsafe conditions are reported to the supervisor. Forklift trucks must be removed from service until in safe operating condition.

II. REFUELING OF FORKLIFT TRUCKS

Safe procedures are followed when refueling and when swapping out or recharging batteries. Swapping out or recharging batteries and refueling can only be performed in designated areas. Smoking is prohibited in these areas. Specific procedures for battery-powered, gasoline or diesel, or liquid propane gas (LPG) powered forklifts are listed below:

Battery-powered forklifts

1. Replace and recharge batteries only in the facility designated for that purpose. This area is equipped for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and with adequate ventilation for dispersal of gases from the batteries.

2. Position the forklift truck and apply the brake before attempting to change or charge batteries.

3. Use a conveyor, overhead hoist, or an equivalent material handling device when moving batteries from charging area to forklift.
4. Make sure the batteries are properly positioned and secured in the forklift truck.

5. Do not use metallic tools or objects on or around the top of batteries.

6. Use a carboy tilter or siphon when handling the electrolyte.

7. When charging batteries, ALWAYS pour acid into water, never water into acid. AAA means ALWAYS ADD ACID (to water).

**Gasoline and Diesel Powered Forklifts**

1. Fill gasoline and diesel fuel tanks only from proper dispensers or containers.

2. Shut the engine off before adding fuel.

3. Verify there is a firm metal-to-metal contact between the spout and the fill pipe before refueling. *Never* add fuel unless this bond exists and the equipment is properly grounded.

4. Avoid spills when filling tanks. Mop up any spilled fuel immediately and before starting the forklift truck. Dispose of cleanup materials through approved procedures.

**Liquid Propane Gas (LPG) Powered Forklifts**

1. Relieve pressure in the LPG lines before disconnecting them. Turn off the tank valve and run the engine dry to empty the lines.

2. Shut the engine off.

3. Replace the empty LPG tank with a full tank and make sure the new tank is securely fastened to the truck.

4. Avoid skin or eye contact with the LPG since it can cause frostbite.

**III. OPERATION OF FORKLIFT TRUCKS**

Forklift trucks must only be operated in the locations that they are approved for use. Never use a gasoline powered truck in an unventilated, enclosed area because high concentrations of carbon monoxide gas can accumulate. Personnel are not permitted to ride on a forklift truck unless it is equipped with a safe place for passengers.

1. Make sure that there is sufficient headroom under overhead installations (lights, pipes, sprinkler systems, etc.) for safe operation of the forklift truck.

2. Look out for sand, gravel, water, oil, ice or other material on the driving surface that could reduce traction. If traction is likely to be poor, reduce speed.

3. Always look out for other persons in the area. Never drive toward people who could be trapped and injured by the forklift.
4. Do not let anyone stand or walk under an elevated part of the truck, even if the forklift truck is not moving.

5. Never place arms or legs between the uprights of the mast or outside the forklift truck.

6. Observe the following traffic regulations when operating the forklift trucks:
   - Do not exceed reasonable speeds
   - Keep three truck lengths from other vehicles
   - Do not pass other trucks traveling in the same direction
   - Yield right of way to emergency vehicles such as ambulances, firetrucks, etc.
   - Drive slowly around blind corners or out of blind aisles
   - Sound the horn at cross aisles and blind intersections
   - Slow down for corners

7. Check the rated lift capacity of the forklift, and do not attempt to lift a heavier load than the forklift can safely handle.

8. Lift the load so it is well supported by the forks and cannot fall forward or to the side.

9. Place the load so that the heaviest part is as close as possible to the carriage or backrest.

10. Make sure that the weight of the load is centered on the truck before traveling.

11. Tilt the mast backward to stabilize the load. Never tilt the mast forward unless the load is being deposited on a stack.

12. Travel with the load as low as possible -- raised just high enough to clear curbs and ramp bottoms.

13. Make sure that the operator's view is clear. If the load blocks the view, turn around and back up.

14. Raise and lower a load only when the forklift truck is at a complete stop.

15. If the forklift truck must be used to carry a high load, drive at a slower than normal speed avoiding bumps and holes. Brake gently and steer to avoid jerky movement of any kind.

16. If the forklift truck is equipped for lifting personnel, a safety platform, approved by the Specialist, must be securely fastened to the
forks. Only one person at any one time will be lifted on the safety platform. Whenever a person is lifted, the truck operator will remain at the controls or a power control device must be available for the person on the platform to disengage power to the truck. While an employee is elevated, the truck may be moved only to make minor placement adjustments. Only authorized workers will be raised on a lift platform. These workers will be instructed by their supervisors on safe work techniques with an emphasis on maintaining a stable load on a raised platform (e.g. not leaning over the rails; do not have two workers on the same side, other than the back, of the platform).

17. When loading or unloading a semitrailer or boxcar, special precautions should be taken before entering with a forklift truck. The brakes of the highway truck must be set and wheel chocks placed under the rear wheels to prevent the truck from rolling. If the semitrailer is not attached to its tractor, fixed jacks must be installed at the front end of the trailer. To prevent railroad cars from moving during loading or unloading, wheel stops or other recognized positive protection will be used.

18. Verify that dockboards or bridgeplates are properly secured, in good condition, and able to take the weight of the loaded forklift truck before driving over.

19. Before entering an elevator with a forklift truck, check the load rating plate on the elevator to make sure it is acceptable for the weight of the forklift. Approach the elevator slowly, making sure the elevator floor is level with the outside floor before entering. Enter the elevator squarely; once inside the elevator, shut off the truck's power and set the brake.

20. When accessing ramps or inclines, always drive a loaded forklift truck with the load on the uphill side (drive up forward and back down), and drive an unloaded forklift with the forks on the downhill side (back up and drive down forward). For grades in excess of 10 percent, loaded trucks will be driven with the load upgrade. NEVER TURN A FORKLIFT SIDEWAYS ON A RAMP.

21. Cross railroad tracks diagonally wherever possible. Do not park a forklift truck closer than 8 feet from the center of railroad tracks.

22. When parking a forklift, lower the carriage all the way, place controls in neutral, shut off the power, and set the brake. If parked on an incline, wheels must be blocked. Forklift trucks must be left in this parked condition when operators are out of sight of the truck or more than 25 feet from it.

IV. Maintenance of Forklift Trucks

Maintenance of forklift trucks must take place only in an area designated for such work. Forklift trucks that are not in safe operating condition must be repaired before returning to service.
1. Report any defects or problems with the forklift truck to the maintenance department.

2. Replace a defective part of any forklift truck only with a part that is equivalent to the original.

3. Disconnect the battery prior to making repairs on the electrical system of the forklift truck.

4. Use noncombustible agents to clean forklift trucks.

POWERED HAND TRUCKS

1. Only authorized persons will be allowed to operate powered hand trucks.

2. Operators of powered hand trucks will be trained in their proper and safe use. The National Safety Council's Data Sheet I-317 (Rev. 91), found in Appendix C, will be used to train authorized employees.

3. The contents of the NSC Data Sheet are adopted as company requirements for safe operation.

(end of program)