

APPENDIX E
ACCIDENT PREVENTION PROVISIONS FOR CONTRACTORS
AND IDENTIFIED GOVERNMENT ACTIVITIES

1. Purpose. This appendix prescribes guidelines and requirements for implementing the Accident Prevention provisions for construction/service contracts and identified government activities.
2. Policy and Scope. This policy is applicable to all such activities accomplished by Government and Contractor forces within the Buffalo District. The loss prevention provisions for those identified government activities are essential to ensure that applicable safety requirements are adhered to during these operations. The loss prevention provisions for Contractor forces are as much a part of the contract as any other provision set forth in the contract for control of work. After signing the contract, it is mandatory that the Contractor vigorously comply with all pertinent safety requirements during the duration of the contract.
3. General. The administration of the Safety and Accident Prevention requirements is necessary to ensure that Government and Contractor employees doing work within the Buffalo District provide controls for the protection of life and health of their employees and the exposed public, prevention of property damage, and for the avoidance of work interruptions in the performance of their work requirements. For contracts involving construction and dismantling, demolition, or removal of improvements, attention is called to the contract clause entitled "Accident Prevention (Alternate 1)," Defense Federal Acquisition Regulation supplement (DFAR), which requires Architect/Engineer and other services contracts involving work of a long duration or of a hazardous character to comply with the applicable provisions of 29 CFR 1910 (OSHA industrial standards), 29 CFR 1926 (OSHA construction standards), and EM 385-1-1 (Safety and Health Requirements Manual). Appendix A of EM 385-1-1, 3 Sep 96, provides guidance on developing an Accident Prevention Plan.
4. Contract Specifications. In addition to EM 385-1-1, "Safety and Health Requirements Manual," the specifications for all identified government activities and contract work will include such additional requirements as are necessary to insure a high standard of physical protection and safety performance by those individuals performing these operations. Field office personnel, Construction/Operations, and Engineering Division personnel will

take cognizance of all hazards inherent in the location, terrain, or other precautionary measures.

5. Contractor's Accident Prevention Plan and Preconstruction Conference.

a. After award of a contract, the Authorized Representative of the Contracting Officer (ARCO) will forward a letter to the contractor calling his attention to the clause in the contract which requires a written proposal for carrying out the accident prevention provisions of the contract. The letter will stress the importance of the contractual safety obligations of the contract and will include as enclosures the latest edition of the Safety and Health Requirements Manual, EM 385-1-1.

b. The contractor will be informed when and where the proposed plan is to be submitted and with whom those arrangements should be made for the Preconstruction Conference. The Contractor's written Accident Prevention Plan, to include blasting and diving plans when necessary, will be carefully reviewed by the ARCO subject to comments from the S&OH Office. Following this review and prior to initiation of work, the Contractor will meet in conference with appropriate Corps personnel to discuss the Accident Prevention Plan, inherent and specific hazards of the contemplated operations, and other aspects of the contracted work as necessary. Written minutes containing the understanding reached at the Preconstruction Conference will be furnished the Contractor and a copy will be provided to the S&OH Office. The Contractor will keep a copy of said minutes on file and readily available at the work site.

c. The S&OH Office will be informed of all Preconstruction Conferences in sufficient time to permit their attendance.

d. The Preconstruction Conference agenda should be developed to meet the specific problems and unusual features of the job. Consideration should be given to any previous experience of the contractor on Corps of Engineers work. The following safety topics are suggested for the agenda where applicable.

(1) Identification and accountability of Contractor personnel responsible for accident prevention.

(2) The establishment of a mutual understanding relating to the purpose and function of an activity hazard analysis.

(3) A review and discussion of the hazards and remedies submitted by the contractor, leading to an agreement upon the methods used in recognition, evaluation, and methods to control the hazards.

(4) Purpose and advantages of the Safety Program.

(5) A review of the Accident Prevention clause of the contract and the General and Special Conditions of the specifications with special emphasis on the contractors regular safety inspections and records required by General and Special Provisions of the contract.

(6) A list of local site specific requirements which must be complied with (noise control, traffic problems, etc.).

(7) How the Contractor proposes controlling and coordinating work of his subcontractors.

(8) Discussion of overstatements, omissions, and irrelevant items in the contractors proposed plan. Where not clearly indicated in the proposed plan, the following items should be developed as a minimum:

(a) Method(s) to be implemented by the contractor to enforce safety on site.

(b) Plans for dust control.

(c) Methods that the contractor, or activity, proposes using to control and coordinate work with others having operations at the same location.

(d) Plans for layout of temporary construction buildings and facilities, including how contractor plans to control those of his subcontractors.

(e) Plans for initial indoctrination and continued safety education for all employees.

(f) Plans for traffic control and marking of hazards to cover haul roads, highways, intersections, railroads, utilities, bridges, restricted areas, etc.

(g) Plans for maintaining continued job cleanup.

(h) Plans for fire protection and dealing with emergencies (ambulance service, fires, man overboard, etc.).

(i) Arrangements for providing adequate lighting, ventilation, personal protective equipment, and medical care.

(j) Plans for inspection of the job site by competent persons including reports to be kept, results of the inspections, and corrective actions taken.

(k) Plans for prompt action by contractor to correct deficiencies reported by Government representatives.

6. Contractor Activity Hazard Analysis (AHA).

a. A supplemental activity hazard analysis will be developed at the beginning of any "major phase" of construction that previously has not been reviewed with the Contractor and been documented. The phase activity hazard analysis will be submitted to the S&OH Office for inclusion in the official contract safety file. The purpose of the activity hazard analysis will be to review the specific hazards anticipated and the specific measures planned to eliminate them

b. "Major Phase" pertains to items of work such as drilling, land clearing, excavation, tunneling, road relocations, pile driving, concrete placement, quarrying, dredging, building construction, installation of equipment, steel erection, use of hazardous materials, electrical work, installation of heating, ventilating and air conditioning, demolition, paving, use of explosives, cableway operations, quarrying, etc.

7. Activity Hazard Analysis (AHA) for Identified Government Activities.

a. A supplemental activity hazard analysis will be developed for all identified government activities. This activity hazard analysis will be submitted to the S&OH Office for monitoring in accordance with EM 385-1-1, 01.A.10. The purpose of the activity hazard analysis will be to review the specific hazards anticipated and the specific measures planned to eliminate them. Guidance for developing an AHA is given in Section 2 of this appendix.

b. "Major Phase" pertains to items of work such as drilling, land clearing, excavation, tunneling, road relocations, pile driving, concrete placement, quarrying, dredging, building construction, installation of equipment, steel erection, use of hazardous materials, electrical work, installation of heating, ventilating and air conditioning, demolition, paving, use of explosives, cableway operations, quarrying, etc.

8. Contract Safety Files.

a. Contracting Division is designated to maintain the official contract files in the District. Copies of contract files relating to Safety and the Accident Prevention Program will be maintained within the S&OH Office.

b. Safety and Accident Prevention Program documents to be maintained in the Contract Safety Files include but are not limited to notices of contract award, notice to proceed, contract changes, or modifications having implications on previously confirmed safety procedures or devices, correspondence to Contractors relating safety inadequacies or deficiencies, Contractor blasting plan submittals, and Contractor Accident Prevention Plan submittals with any changes thereto and any documents changing or accepting the submitted plan, etc.

9. Inspection and Approval of Plant and Equipment. Work shall not commence until the contractors plant and operating equipment has been inspected and tested for compliance with the "Safety and Health Requirements Manual," EM 385-1-1, and other applicable contract requirements. Safety Inspection Checklist, as appropriate, will be completed by the government Quality Assurance (QA) personnel. Prior to the QA inspection, the contractor shall submit the required inspection records and test on Section 16.A.01 of EM 385-1-1. Equipment failing to meet the requirements will not be used pending compliance therewith. Whenever defects are noted that will render the equipment unsafe, the Contractor will be promptly notified of the specific corrective action required and directed to withhold equipment operation until corrective action has been taken and the ARCO advised of the completed action.

10. Use of "Stop Work Order." If all attempts to secure voluntary compliance with safety requirements are not successful, the ARCO may issue a "Stop Work Order." It is important that the order applies only to that portion of the work that is affected by the actions of or lack of actions by the Contractor and that all of the facts of the proceedings be documented in writing;

including notation of uncorrected safety violations on the reverse side of the Daily Log of Construction, ENG Form 2538. The Contractor shall be informed in writing of the extent of the stoppage of the work, the date and hour work has stopped, the reason for the action, and the conditions under which work may proceed again. The S&OH Office will be notified immediately of such action.

11. Responsibility for Enforcement. Full and complete responsibility for enforcement of the safety provisions of all contracts rests with the ARCO. Prompt and positive action at the field level will be taken to correct deficiencies.

12. Responsibility of Inspectors in Cases of Immediate Hazard.

a. Whenever the Government inspector observes that a condition or work situation is being performed at the risk of life or limb, the inspector will immediately take the following measures:

(1) Require Contractors representative to immediately remove workers from the area of danger and refrain from the dangerous practices.

(2) If the Contractors representative is not at the location of the dangerous condition, the inspector will direct the workers to remove themselves from the dangerous location and cease the hazardous operation.

(3) The inspector will see that work is not resumed in the area of danger and the defective methods, SOPs, equipment, tools, scaffolds, etc., are not used further until recommended corrective action is taken.

b. The inspector will immediately report any of the above actions and any noncompliance with his recommendations to his immediate supervisor and also document observations on the Daily Log Construction, ENG Form 2538. The inspector must be consistent and practicable.

12. Reckless Employees. When a Contractors employee endangers his/her own well-being, or the well-being of others, by flagrant disregard of safety regulations, the Contractor will be requested to discharge the offender or to place the employee on work where his/her action will not constitute a hazard.

SECTION 1
GUIDE FOR PREPARATION OF ACCIDENT PREVENTION PLANS FOR
CONTRACTS ADMINISTERED BY BUFFALO DISTRICT CORPS
OF ENGINEERS

1. Instruction and Training. Set forth initial indoctrination and continuing training, such as "tool box" safety meetings. Such meetings to be recorded on reverse side of daily quality control report, under section headed "safety."

2. Accident Reporting.

a. Plan must state that all lost time injuries and property damage accidents (excluding on-the-road vehicle accidents) in which the property damage exceeds \$2,000 will be reported to the Area Engineer (AE) within 48 hours of the accident/incident, using ENG Form 3394. AE must also be furnished a copy of the first Report of Injury. **ALL ACCIDENTS MUST BE INVESTIGATED.**

b. Plan must also state that in the event of an employee being sent to the doctor for treatment, a release will be obtained from the doctor on the date of treatment stating either:
(1) employee not fit for duty; (2) employee fit for light duty; or (3) employee fit for duty. Copy of this release must accompany accident report.

c. The following reporting procedures apply to all contractor activities performed in the Buffalo District.

(1) In the event of an accident which results in a lost workday or \$2,000 or more in property damage, an ENG Form 3394 will be completed and submitted within five (5) workdays. Should an accident occur resulting in a fatality, \$100,000 or more in property damage, three or more persons being hospitalized, or any incident which would result in adverse publicity to the Corps of Engineers, immediate notification must be made to the Corps representative. The reporting requirement of submitting ENG Form 3394 within five (5) working days still applies.

(2) The following signature chain is to be used on the ENG Form 3394 on Construction accidents. After each signature the name must be typed or printed legibly.

(a) Item 15c. Corps Construction Representative and Contractor Representative.

(b) Item 16. Area/Resident Engineer.

(c) Item 17. Division Chief

(d) Item 18. Chief, Safety and Occupational Health
Office (SOHO)

(e) Item 19. Commander.

(3) These forms are available in Form Flow or can be requested through normal distribution channels and stocked in each office.

3. Sanitation.

a. Plan must set forth where drinking water will be obtained, type of dispenser, and provisions for receptacle for disposable cups.

b. What type of toilets, and how many will be provided. Also how will they be kept clean.

4. Medical Facilities.

a. Plan must set forth name, address, and telephone number for doctor, hospital, and ambulance service to be used. These emergency numbers must be posted on the bulletin board.

b. First aid requirements for plan should show type and number of first aid kits and set forth requirement that at least two employees on each shift and at each differing location, will be qualified to administer First Aid and CPR (Cardiopulmonary Resuscitation). Minimum qualification for these employees is current certification from American Red Cross, United States Bureau of Mines, or equivalent training that can be verified by documentary evidence.

5. Emergency Plans. Plans must set forth provisions for preparation of action in the event of severe weather, i.e., blizzard, rough water, ice, etc.

6. Personal Protective Equipment.

a. Set forth requirement for all employees to wear "T-shirt" as minimum on upper part of body. Shorts are not permitted. No tennis shoes or sandals are permitted.

b. Hard hats must meet requirements for Type A or Type B as defined by American National Standards Institute. (No metal hard hats or bump caps.) How you plan to mark HARD HAT AREAS.

c. Provisions for other protective equipment.

7. Housekeeping.

a. Daily job site cleanup required.

b. Nails must be removed from scrap lumber.

c. All stairways, passageways, gangways, and accessways must be kept free of material, supplies, and obstructions at all times.

8. Fire Prevention. Cover use of fire extinguishers, cleanup, heating devices, and flammable and combustible liquids (including safety cans and precautions to be taken with bulk gasoline storage).

9. Ropes, Slings, and Chains. Cover condition of same and usage; when slings and chains will be replaced; mouses on hooks, etc.

10. Machinery and Mechanized Equipment.

a. Before any machinery or mechanized equipment is brought onto the job it must be inspected by a qualified employee. Hoisting equipment must be inspected and tested in accordance with the manufacturer's recommendations and Section 16.K of EM 385-1-1.

b. Set forth operating rules.

c. Before any piece of equipment required by paragraph 16.B.12 of EM 385-1-1, to be equipped with Roll-Over Protective Structures (ROPS), is brought onto the job, a certificate from: (1) the manufacturer of the piece of equipment; (2) the manufacturer of the ROPS; or (3) a registered professional engineer, attesting that the ROPS and method of attachment

satisfy the requirements of paragraph 16.B.12 must be furnished to the ARCO.

11. Floor and Wall Openings. If your contract covers erection, maintenance, or alteration of buildings, then your plan must set forth precautions you will take to guard floor, wall or roof openings. These provisions are set forth in Section 24 of EM 385-1-1.

12. Noise Control. Provisions of Section 05.C in EM 385-1-1, in respect to provisions of hearing protection must be complied with.

13. Hot Substances. Set forth measures to be used with tar kettles (temperature gauges, etc.).

14. Welding, Cutting and Grounding of Machinery. Cover precautions to be used in these operations (fire extinguishers, shields, grounding of electric welders, insulation of welding leads, etc.).

15. Electrical.

a. All temporary electrical work must be done in accordance with Section 11 of EM 385-1-1 (special emphasis on weekly inspection, use of NEMA configuration on all plugs and connections, and type extension cords).

b. Portable generators must be grounded as required by the National Electric Code (NEC).

c. The use of GFCIs is required in addition to appropriate grounding.

16. Hand Tools and Power Tools. Cover condition of same and use safety lashing on pneumatic lines; and authorization for use of explosive actuated tools.

17. Compressed Gas Cylinders. Your plan must set forth the precautions you will utilize to prevent accidents from these cylinders. The precautions are set forth in Section 20.D of EM 385-1-1 include such things as:

a. Separation of different gases.

b. Protection of cylinders.

- c. Utilization of valve caps.
- d. Securing cylinders in upright position.

18. Ramps, Runways, Platforms, and Scaffolds. Include in this section of your plan those items in Sections 21 and 22 of EM 385-1-1 that apply to work under your contract. This will include, but not be limited to:

- a. Safety factors of all such devices.
- b. Use of ladders as working platforms.
- c. Method of erecting, supporting, and using scaffolding.
- d. Means of access to working surfaces--climbing of end pieces of scaffolds is prohibited.
- e. Roofing devices and practices--particular attention must be paid to Section 27.H.

19. Excavations. If there will be excavation (footings, trenches, etc.) as part of your contract, then set forth procedures you will follow. Provisions of Section 25 of EM 385-1-1 will govern. Special attention must be paid the following:

- a. Excavations over 5 feet deep must have sides sloped to an angle of repose or be shored.
- b. Excavated material must be stored at least 2 feet from side of excavation.
- c. Guardrails or barricades must be provided as required by Section 25.B of EM 385-1-1.
- d. Access facilities as required by 25.A.01 (b), 25.B.05, and 25.B.07 will be provided.

20. Access Facilities. Provisions of Section 21 of EM 385-1-1 apply to almost all contracts. Particular attention must be paid to the following:

- a. Clear accessways and guarding of the same.
- b. Physical condition of portable ladders.

c. Provision for stairways.

21. Clearing. Plan must set forth actions you will take to assure safe operation of chain saws and other clearing devices as prescribed in Section 13.F of EM 385-1-1.

22. Material Handling, Storage and Disposal. Plan should address the location of storage facilities, compatibility of materials, and disposal of materials.

23. Hazardous Materials. Plan should state method of providing workers with access to Material Safety Data Sheets, method of disposal, and compliance with federal, state, and local laws and regulations.

24. General. It is probable that all of the above areas will not apply to your contract. By the same token, there probably are other sections of EM 385-1-1 that have not been discussed in this guide that will apply to work under your contract. These can include diving, blasting, etc. No attempt has been made to cover all eventualities. This guide is intended only to serve as just that -- a guide to assist you in preparing an Accident Prevention Plan that will be acceptable for work to be performed under your contract.

SECTION 2
GUIDE FOR PREPARATION OF AN ACTIVITY HAZARD ANALYSIS (AHA)

1. Purpose. Provides guidance in preparing an Activity Hazard Analysis in accordance with EM 385-1-1.
2. Applicability. This applies to the Buffalo District.
3. References.
 - a. AR 385 series.
 - b. ER 385 series.
 - c. EM 385-1-1.
4. Policy. An Activity Hazard Analysis for each major phase of work is required by EM 385-1-1 (Safety and Health Requirements Manual). This analysis, utilized correctly, will have favorable affects on your safety record. This section provides guidance for preparing an Activity Hazard Analysis through a step-by-step procedure giving an example, explanations, and definitions. By showing this procedure, we hope to increase your understanding of how and why the analysis is used.
5. Overview.
 - a. An Activity Hazard Analysis is a procedure used to review job methods and identify hazards. These hazards may have been overlooked from the start or they may have developed after production work has started. Once the hazards are known, the best solution or control can then be developed.
 - b. The person best suited to develop the analysis is the foreman or line supervisor. The reasons being that the foreman has more than likely put in 5-10 years of doing the work that he is now supervising. He has made the mistakes, seen the hazards, and probably has the best suggestions on how to make the job safer and most beneficial. In addition, he is best qualified to break the job down into successive steps.
 - c. Once the analysis' rough draft is completed, we suggest that it be reviewed by a safety person. The safety person should review the analysis on a technical level, check to see that no hazards were overlooked, and examine the control measures to see that the most effective measures are being used.

* A safety person is intended to mean any person within your organization that has safety responsibilities within their job duties.

6. Procedures.

a. Step 1 - Selecting an activity to analyze.

(1) An activity is a sequence of separate steps that together accomplish a work goal. Some activities can be too broadly defined in general terms of what is accomplished. Making paper, building a new dorm, mining ore, are examples. Such broadly defined activities are not suitable for an activity hazard analysis. Similarly, an activity can be too narrowly defined in terms of a single action. Pulling a switch, tightening a screw, pushing a button are examples. Such narrowly defined activities are also not suitable for an AHA.

(2) Activities suitable for a hazard analysis are those assigned generally to a line supervisor and related to a particular phase of work. Erecting block walls, placing a roof and painting are good subjects for an activity hazard analysis.

(3) Once an activity or major phase has been selected we recommend completing the analysis using the format shown in Section 3 of this appendix. Note that the activity chosen for the example is Interior Demolition of the US Army Reserve Center.

b. Step 2 - Break Activity Down Into Successive Steps

(1) Now the activity is broken down into its principal steps. Usually you, the line supervisor or foreman, will rely on past experience with the type of work being analyzed. You know your work goal (end point), the beginning point, and what you have to do to accomplish the work goal (steps). You should be able to visualize a logical procession step by step.

(2) Record the steps in their natural order of occurrence. Describe what is done, but not the details of how it is done. Usually three or four words are sufficient. Number the steps consecutively.

(3) In the example, our progression of principal steps include the following: remove furniture from office; remove plumbing, electrical and HVAC duct work from partitions; demolish interior; and clean up. This shows a logical progression from

point A (an old deteriorated interior) to point B (the state of final preparation for the next activity - Creating A New Interior).

c. Step 3 - Identify Hazards and Potential Accidents

(1) Once the principal steps have been identified and logged on the form, identify the potential hazards encountered in each of the principal steps listed. Once again past experience will be relied upon heavily. Also, talking with workers about past accidents or near misses will be of help to you. Checking with first aid logs or accident investigations will also help. At this point, evaluate hazards presented by other activities working adjacent to the activity being analyzed.

(2) The following is a list of questions that will also help you identify most of the hazards:

(a) Is there danger of striking against, being struck by or otherwise making injurious contact with the object?

(b) Can the employee be caught on, in, or between the object?

(c) Can the employee slip or trip? Can the employee fall on the same level or to another level?

(d) Can the employee strain themselves by pushing, pulling or lifting?

(e) Is there a possibility of electrical, health, or fire hazards associated with that principal step?

(3) It is estimated that with these questions you should be able to uncover 90% of the potential hazards. What about the other 10%? The other 10% is what makes the activity hazard analysis so unique. This is why the so called "generic analysis" is so incomplete. Factors which are unique to an activity (elevation, terrain, weather, etc.) may add to or change the potential hazards. All this must be taken into consideration when doing the analysis.

(4) In the example, we have listed most of the hazards associated with the principal steps. These are very general due to the lack of specific project information. The purpose of this is to keep the analysis simple and easy to follow. Had a foreman or line supervisor prepared the analysis in accordance with all

the specific information available, it would be more complete and extensive.

d. Step 4 - Develop a Control for Each Hazard Identified.

(1) This is where you come up with the methods of controlling the hazards identified in Step 3 of this procedure. There may be several solutions to controlling the hazard; we want the best solution (that which is most beneficial). Ask yourself "What are the benefits to this solution?" Sometimes the solution will solve that particular problem but create a new hazard for that step or another step. Once again it is useful to ask workers for suggestions.

(2) The following are suggestions to help you come up with ideas for the best solution to your particular hazard:

(a) Change the physical conditions that create the hazard. "What change in physical condition will eliminate the hazard or prevent the accident?" A good example of this would be changing the surface in a work area to a non-slip type surface. Supplying ear muffs to a worker who must travel through an area in which noise levels exceed the standard would be another.

(b) Change the procedures of the Step. "What should the employee do or not do to eliminate the hazard or prevent this potential accident?" For example, "Is there another way for the employee to reach the work station other than going through the noisy area?" If there is, will it be more or less hazardous for the employee? You should consider work saving tools or equipment. For example, say an employee must lift and carry a heavy object to a workbench. All you need do is supply the worker with a workbench that has casters. Also, if two workers were to lift the object you would reduce the risk of back injury.

(c) Reduce the frequency that a task must be performed. Every task has some potential for an accident to occur. Therefore when you increase the times that the task is performed you increase the probability of an accident occurring.

(d) Training. If none of the previous suggestions are applicable, then the answer may be training the employees to do a task safely. Quite often we hear of accidents caused by lack of knowledge of proper safe procedures. This could mean a simple instruction from a foreman or line supervisor or could involve specialized training from an outside source. The latter is recommended for irregular work which may be unique.

(3) We have found that special attention should be given to newer employees (1 to 1 1/2 years). These employees have proven to be among the most likely to have an accident. This is why it is good practice for employers to give new employees good initial safety training.

(4) Once you have decided on a control for the hazard you must put it into a positive statement; i.e. Dust respirators will be supplied to the workmen. Electricity will be locked out by a mechanical device. In other words you will be committing yourself to perform the action you chose to control the hazard.

(5) If you now turn to the example, you will find a copy of our completed analysis. As an exercise, go back through Step 1 through Step 4. See if you can come up with anything that we left out.

7. Update as Needed. It should be noted that the completed analysis is not set in stone. We all know that field changes take place every day. With these changes a new hazard may arise. Also, a delay in a different activity could have you working next to that operation. This could add numerous hazards to your job. For an Activity Hazard Analysis to be most effective it must be updated as the activity progresses.

8. Benefits.

a. A properly completed activity hazard analysis will reap many rewards. How much does your organization spend for worker's compensation insurance premiums? What you pay in premiums largely depends on your past accident history. If you can reduce your number of accidents using the activity hazard analysis process, then you can expect to see a reduction in your worker's compensation premiums. With lower premiums follows a lower quotation or bid. This means that your organization could be more competitive for various jobs.

b. Accidents cost money. For every accident there are obvious costs (doctor, hospitals, etc.) as well as hidden costs (training a new employee, drop in morale, wages lost in reacting to the accident, etc.). By reducing the accidents you can save money, thereby increasing your profit margins on each job.

c. Safety training benefits your organization. Establishing safety contacts between line supervisor and worker (one on one) promotes good safety awareness and increases morale. This is very important for new employees.

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d. Training on the proper methods of performing certain tasks will in most cases increase productivity. An increase in productivity should turn into an increase in profits.

SECTION 3
MAJOR CONSTRUCTION ACTIVITY AND HAZARD CHECK LIST

MAJOR ACTIVITY PHASE

HAZARD

Excavation and Foundation

Equipment Operation:
Pework Checks, Machinery
Guards, Crane Load Tests,
Back-up Alarms
Traffic Controls:
Haul Road Patterns, Signs
and Signals, Flagmen and
Signalmen.
Dust Control
Barricades
Night Lighting
Explosives (covered
separately)
Shoring and Sloping
Protective Equipment:
High Visibility Vests
& Head Protection
Pile Driving

Mass Concrete Placement

Hoisting Equipment:
Pework Checks
& Load Testing
Electrical Hazards
Scaffolding:
Erection and
Inspection, Handrails
and Toeboards, Scaffold
Machines, Suspended
Scaffolds
Access Facilities:
Ramps and Runways,
Stairways, Ladders &
Manships.
Housekeeping Controls
Safety Nets
Protective Lighting
Night Lighting

Electrical Grounding
Adequacy of Forms
Vehicle Reverse Alarms
Compressed Gas Cylinders:
Storage and Use

Steel Erection

Hoisting Equipment:
Pework
Checks & Load Testing
Access:
Stairways, Ladders,
& Manships
Scaffolding:
Handrails, Toeboards,
Scaffold
Machines & Suspended
Scaffolds
Safety Nets
Protective Equipment:
Safety Belts & Lifelines
Housekeeping Controls
Welding:
Cylinder Storage
and Use, Flash Burn
Hazards & Fire Protection

Building Construction

Housekeeping Controls:
Fire Hazards & Stumbling
Hazards
Scaffolding:
Handrails, Toeboards,
Scaffold Machines,
Suspended Scaffolds &
Bracing and Stability
Access Facilities:
Stairways, Ladders,
Workman Hoists, Floor,
Roof, and Wall Openings,
Multistory Perimeter
Guarding
Material Storage:
Orderliness, Fire Hazard
Control

Heating, Ventilation, and Air
Conditioning

Electrical and Instrumentation
Work

Use of Chemicals, Caustics, Toxic
Materials, Radiation Exposures,
& Welding

Hoisting Equipment:
Prework Checks & Load
Tests
Electrical Exposures
Hand and Power Tools
Powder Actuated Tools
Lighting:
Work Areas
Access Areas

Housekeeping Controls
Scaffolds:
Handrails & Toeboards,
Rolling Scaffolds,
Bracing and Stability
Access:
Ladders, Stepladders
Material Storage:
Orderliness, Fire Hazard
Control
Protective Equipment
Electrical Grounding
Clearance Procedures:
Outages
Coordination with others,
Hot Line Work, Electrical
Grounding & Protective
Equipment

Determination of Hazard
Protective Equipment:
Masks, Respirators, Eye
Protection, Protective
Clothing, Dosimetry
Fire and Explosion Hazard
Control
Storage of Materials
Ventilation
Radiation Exposures

Floating Plant Operation

Equipment Checks
Machinery Guarding
Protective Equipment:
Work Vests, Ring Buoys,
Life Saving Skiffs,
Lighting & Lifesaving
and Rescue Drills

Land Clearing

Equipment Operations:
Prewrite Checks, Equipment
Guards, Canopies, Winch
Guards, Felling Controls,
Decking Controls, Burning
Controls & Power Tool
Operations
Protective Equipment:
Head Protection, Leg and
Knee Protection, Clearing
Rule Handbook.

Demolition

Planning Order of Work,
Housekeeping Controls,
Shoring and Bracing,
Protective Equipment,
Materials Handling, &
Material Removal

Paving

Traffic Controls: Signs,
Signals, Flagmen, Haul
Patterns, Equipment
Checks, Vehicle Reverse
Alarms & Protective
Equipment

Explosives and Blasting

Transportation, Storage,
Handling, Drilling,
Loading, Warning Plan,
Firing, Radio Frequency
Hazards, Misfire
Procedure, Static
Electricity Control,
Lightening Hazard
Control, & Public
Protection

Quarrying
Cableway Operations
Tunneling

Where necessary the
services of a staff
Safety Engineer will be
utilized to develop
Hazard controls for these
operations.