SAFETY AND LOSS PREVENTION MANUAL FOR CONTRACTORS

THE DOW CHEMICAL COMPANY

ENGINEERING & CONSTRUCTION SERVICES

NOVEMBER 1973

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"It is the objective of Engineering and Construction Services to establish and maintain an active, successful accident prevention program that will ultimately result in top safety performance by contractors doing work for The Dow Chemical Company."

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This manual supersedes Safety and Loss Prevention Manual for Contractors dated February, 1970.

SAFETY MANUAL FOR CONTRACTORS

INDEX

INTRODUCTION

This safety manual contains the minimum safety rules and procedures for performance of work by contractors and their subcontractors as required by Engineering and Construction Services, The Dow Chemical Company, for any division, subsidiary or affiliate, hereinafter referred to as "owner." This manual will apply at all Engineering and Construction Services project locations unless the owner has an existing set of safety rules specifically for contractors. Exceptions to this manual, or any part thereof, will be agreed upon prior to starting any field work. The owner will be represented on construction as defined in the contract and hereinafter referred to as "owner's representative."

Contractor assumes and has the full responsibility and liability for the safety of its agents, servants and employees and for the compliance of its subcontractors and anything contained herein does not relieve the contractor of such responsibility or liability.

Safety rules and procedures are an integral part of each contract and must be carried out fully, as any other specification for the job. The contractor will be held responsible for his subcontractors conforming with these safety rules and procedures. Any exception to the rules set forth herein, during the course of any project, must have prior written authorization from the owner's representative.

Contractors and contractor supervision unable or unwilling to secure personnel performance in keeping with these rules will not be acceptable as supervisors. Contractor employees who exhibit a poor attitude toward safe work and safety procedures will not be acceptable. Employees leaving a job due to safety violations will not be allowed to return to any owner's work without proper authorization from the owner. The contractor's safety record will be one criteria used to judge his qualifications for bidding.

In addition to the rules set forth herein, contractors working in or near an existing operating facility must be cognizant of and conform to owner's safety rules for that area and any federal, state or local laws governing.

Should any procedure set forth herein conflict with applicable federal, state or local laws, the latter will apply.

1.0 GENERAL SAFETY RULES

1.1 The contractor shall actively and adequately promote safe working performances on the part of his employees. He shall participate in activities to this end, such as safety organizations, incentive award programs, contractor-owner programs, etc. It is expected that each contractor will conduct his own safety programs to best suit his particular needs.

1.1.1 American Standards Association, Z-16.1 Standard, "Recording and Measuring Work Injury Experience," shall be used as a guide to classify contractor injuries.

1.2 Prior to starting any field work on each job, the owner's representative will conduct a prejob safety conference with an authorized representative of the contractor, a manufacturing representative, when available, available subcontractor's representatives and owner's Safety Department representative, when available. At this time, the nature of any chemical hazards or special safety rules for the area will be reviewed with the manufacturing representative and the contractor will be provided with printed copies of area rules where applicable. The "Prejob Safety Check Sheet" form (see sample) will be prepared by the owner's representative and a copy furnished to the contractor.

1.3 An effective system of indoctrination and education of employees in safety and loss prevention shall be provided by each contractor. Contractors shall inform all their employees of all safety rules and all safety procedures before working in an owner's plant.

1.3.1 Contractors shall inform all of their employees of the location and the use of nearest safety shower, eye bath and emergency equipment such as gas masks, fire extinguishers, and fire blankets.

1.4 Contractors shall use a regular system of work inspection to detect and correct hazardous conditions, safety rule violations and unsafe working conditions. These safety inspections shall be reported to owner's representative in writing each week.

1.4.1 Orderliness is a basic requirement for all jobs and must be maintained at all times. Special attention must be given to maintaining clear walkways and roadways, removal of trash, removal of slipping and tripping hazards and proper storage of materials. Contractors must make every effort to keep mud, slush or other slippery substances off of plant roads. In cases where this cannot be avoided, contractors must clean the roadways immediately.

1.5 Temporary buildings and material storage areas shall be set up as neatly as possible to present an orderly appearance.

1.5.1 Temporary building shall be sheeted with noncombustible material, such as transite or metal siding and roof, and each must be identified with the contractor's name.

1.5.2 Metal buildings served with electricity must have the skin of the building properly grounded as well as the service entrance switch.

DOW

CONSTRUCTION
PRE-JOB SAFETY CHECK SHEET

DATE: _____

JOB: _____ BLOCK: _____

JOB or C O NUMBER _____ CONTRACTOR _____

1. Standard Emergency signals fully understood?	Yes ☐	N.A. ☐
2. Contractor responsibility in time of emergency understood?	Yes ☐	N.A. ☐
3. Fire and ambulance telephone numbers known?	Yes ☐	N.A. ☐
4. Location of available medical facilities known?	Yes ☐	N.A. ☐
5. Areas for possible evacuation designated?	Yes ☐	N.A. ☐
6. Fire protection requirements known and plans made for provision of adequate equipment?	Yes ☐	N.A. ☐
7. Special safety rules and signals for this area known? (Owner will provide written special rules where applicable.)	Yes ☐	N.A. ☐
8. Nature of chemical or special hazards for area reviewed with Manufacturing Representative?	Yes ☐	N.A. ☐
9. Special safety equipment for this area known?	Yes ☐	N.A. ☐
10. Safety Showers and Eye Wash locations known?	Yes ☐	N.A. ☐
11. Safe work permit understood? (Designated place(s) to obtain known?)	Yes ☐	N.A. ☐
12. Name of individual(s) to issue safe work permit _____	Yes ☐	N.A. ☐
13. Red Tag rule understood?	Yes ☐	N.A. ☐
14. Smoking area designated?	Yes ☐	N.A. ☐
15. Contractor scaffold rules known?	Yes ☐	N.A. ☐
16. Crane inspection and critical lift procedure understood?	Yes ☐	N.A. ☐
17. Unfired pressure vessel test procedure understood?	Yes ☐	N.A. ☐
18. Do you have a copy of and understand "Safety & Loss Prevention Manual for Contractors"?	Yes ☐	N.A. ☐
19. Contractor assumes responsibility for and control of their vendors entering the plant for compliance with plant safety rules and regulations?	Yes ☐	N.A. ☐
20. Are your subcontractors aware of rules and procedures?	Yes ☐	N.A. ☐

REMARKS: _____

DOW 01789

Contractor Representative	Date	Subcontractor	Date
Owner's Representative	Date	Subcontractor	Date
Manufacturing Representative	Date	Subcontractor	Date
Owner's Safety Representative	Date	Subcontractor	Date

1.6 Contractors must furnish trash containers made of metal, each with metal covers kept in place.

1.7 Contractors must report to the owner's representative, by name, those employees discharged for safety rule infractions.

1.8 Contractors shall maintain continuous safety planning to cover jobs where circumstances have changed and new hazards require new controls.

2.0 EMERGENCY PROCEDURES

2.1 Contractors must inform their employees of existing plant procedures for first aid and ambulance calls. If none exist, the contractor shall submit to the owner's representative prior to starting work, an outline of the procedure to be followed.

2.2 In the event of an explosion or fire, contractor personnel working in the area affected must observe the following rules.

2.2.1 Shut down all equipment in operation and leave the area at once.

2.2.2 Report to your company field office immediately, in person or by phone.

2.2.3 DO NOT re-enter the area until authorized by the owner's representative.

2.2.4 The contractor shall notify the owner's representative in person or by telephone as soon as possible that all employees in the area are accounted for or that specific employees cannot be accounted for.

2.3 If operating a motor vehicle in an affected area, turn off engine, get out of the vehicle, and be prepared to leave the area if necessary. Motor vehicles, other than emergency units, must not be driven into an area downwind of a gas release. Barricades across plant roads must be honored by all vehicles at all times.

2.4 Contractors shall inform their employees of pertinent emergency signals and procedures for the area in which they work. If none exist, the contractor shall outline and inform employees of steps to be taken in the event of disaster emergencies that could arise.

3.0 FIRST AID - INJURIES - REPORTS

3.1 The owner's representative shall be notified immediately in the event of any death, occupational disease, disabling injury or potentially significant injury to a contractor employee (whether or not it is determined that "lost time" will be involved) while at work on the owner's job.

3.1.1 The contractor must thoroughly investigate, determine and report all details of an accident and cooperate with the owner's inspection teams.

3.1.2 A written report must be submitted on every injury requiring medical treatment of any kind, to the owner's representative on the job, no later than 10:00 a.m. of the day following the injury. Also any near miss, potentially serious or hazardous condition that occurs, must be reported in the same manner, although no injury to personnel may be involved. Forms for these reports, "Notice of Contractor Accident and Property Loss" are available through the owner's representative (see sample).

3.1.3 All fires must be reported regardless of duration or extent.

3.2 Employees must report any injury to their immediate supervisor even though it may be considered slight.

3.2.1 The contractor will assure that all injured personnel report to a recognized medical facility.

3.2.2 In the event of any serious injury, an ambulance MUST be called.

3.2.3 In the event of accidents, ambulance run, etc., contractors must exert all possible effort to keep onlookers from the scene. The only personnel required in such areas are those directly engaged in assisting in the emergency.

3.3 Employees must not attempt to remove foreign material from the eyes, except by washing with water. If foreign materials get in the eye, the eye must be washed immediately with running water, preferably at an eyewash station and the washing continued uninterrupted for at least fifteen minutes. It is vital that the injured employee and others who are able to help him make sure that thorough and complete washing of the eye is accomplished.

3.4 If chemicals come in contact with the body, the affected parts must be washed with running water for at least fifteen minutes. To make sure that adequate washing is accomplished, shoes and clothing covering affected parts must be removed. The owner's representative must be consulted before reuse of clothing and shoes that may have been contaminated.

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NOTICE OF CONTRACTOR ACCIDENT OR PROPERTY LOSS

THIS NOTICE TO BE SUBMITTED BY CONTRACTOR TO THE OWNER REPRESENTATIVE AS SOON AS POSSIBLE, BUT NOT LATER THAN 10:00 A.M. THE DAY AFTER ANY INJURY REQUIRING MEDICAL TREATMENT OF ANY KIND, OR FOR ANY POTENTIALLY SERIOUS INCIDENT OR HAZARDOUS CONDITION OCCURRING, ALTHOUGH NO INJURY WAS INVOLVED.

CONTRACTOR _____ SUB CONTRACTOR _____

P. O. # _____ DATE _____ TIME _____ A.M. P.M. LOCATION _____

NAME OF INJURED _____ AGE _____

CRAFT _____ CLOCK NUMBER _____

EXTENT OF INJURY _____

_____

WHERE TREATED _____

IS THIS A DISABLING INJURY _____ YES ( ) NO ( ) INDEFINITE ( )

ST0028274

WHAT HAPPENED _____

_____

_____

_____

_____

CAUSE _____

_____

_____

CORRECTIVE ACTION TAKEN _____

_____

SAFETY INVESTIGATION MADE BY _____ DOW 01793

_____ DATE _____ _____ DATE _____

FOREMAN OWNER REPRESENTATIVE

_____ DATE _____ _____ DATE _____

GENERAL FOREMAN DOW CONSTRUCTION SUPT.

_____ DATE _____ _____ DATE _____

PRIME CONTRACTOR SUPT.

4.0 INDIVIDUAL ACTION

4.1 Horseplay in any form is not allowed.

4.2 Running in the job site must be avoided except in case of an emergency.

4.3 Personnel must not climb through, under, over, or between railroad cars of a train except in the performance of assigned duties.

4.4 Personnel must not make inoperative or operate safety devices such as relief valves, deluge valves, gate valves, electrical and mechanical interlocks, guards, electrical switches, etc.

4.4.1 Any accidental interruption of lines or equipment in service or any irregularities observed must be reported to the owner's representative immediately.

4.5 Unsafe shortcuts, such as walking pipelines, sliding down pipe or stanchions and cutting corners to save a few steps, must be avoided.

4.6 Tools, materials or equipment must not be intentionally dropped or thrown from one level to another unless adequate precautions have been taken to assure that no injury to persons or damage to equipment will occur.

4.7 Personnel must not ride a load being handled by a crane. Slings, hooks, etc., must not be ridden, except where a crane basket or a bosuns' chair and safety belt are used.

4.8 Personnel must not walk, drop or jump onto a transite roof. Care should be exercised while erecting new transite roofs.

5.0 VEHICLES AND TRAFFIC

5.1 Personnel will comply with all safety rules and signs regarding traffic and vehicles at all times.

5.2 The maximum speed limit on open roads in the plant is 25 miles per hour and 10 miles per hour within work areas, unless otherwise designated by signs.

5.3 Vehicles stopped on plant roadways for the purpose of loading or discharging passengers must not be passed in either direction except, after coming to a complete stop, the vehicle may be passed at no more than 10 miles per hour provided the way is clear.

5.4 Fuel tanks on motorized equipment must not be filled while the engine is running or when welding or other hot work is being done nearby. Smoking will not be allowed during fueling operations.

5.5 Equipment such as welding machines, pumps, etc., shall not be transported with the engine running.

5.6 All equipment must be in safe mechanical working condition at all times. In addition to complying with state requirements as to brakes, lights, signals, horns, mufflers, etc., vehicles must be periodically inspected by a representative of the contractor. Necessary repairs and adjustments must be made prior to their use on owner's property.

5.7 The use of winch trucks, flatbeds, stakebeds, etc., as transportation for personnel will not be permitted unless adequate safety provisions are made and the vehicle is adapted for that purpose. In any case, the number of personnel must not cause overcrowding.

5.8 Riding of "Cherry Pickers" or cranes is permitted only when adequate safety provisions such as seats, platforms, rails, etc., are provided for passengers.

5.9 The maximum number of people who may ride in a pickup truck is three in the cab and six seated on the floor of the bed, or on approved "built-in" seats.

5.10 Personnel must be sitting down at all times when the vehicle they are riding is in motion and must not have any part of their body over the sides.

5.11 Pedestrian paths and walkways must be used whenever provided. In their absence, personnel using streets and roadways must walk facing approaching traffic, on left-hand side of road.

5.12 The following rules must be observed in the operation of cranes, cherry pickers, winch trucks and other equipment having booms or extended loads which extend 15 feet or more in front of or to the rear of the equipment.

5.12.1 Stop at all stop signs.

5.12.2 At intersections, when the equipment is to proceed straight across a thoroughfare or turn either way, the equipment must stop; the flagman must get off the equipment, clear all traffic, then flag the equipment through the intersection or around the corner.

5.12.3 Before entering any thoroughfare, street, road, etc., from a work area, the flagman must clear the traffic and flag the equipment onto the road.

5.12.4 All booms or loads extending more than 15 feet must be marked or flagged with high visibility material when moving on plant roads.

5.12.5 A flagman must be provided and swinging must be controlled with a tag line when moving in a congested area or where there is personnel.

5.12.6 Hauled material that overhangs the sides or ends of a truck must be red flagged at the extent of the overhang. Loads must not be hauled from a single suspension cable that allows free swinging beyond the sides of the vehicle. Loads or vehicles that extend out of the normal road lanes require flagman or escorts.

5.12.7 Contractors must check vertical clearances on the route to be used prior to moving equipment or high loads.

5.13 Contractors must determine from the owner's representative when and which roads are to be used, prior to moving extremely heavy loads such as large rubber-mounted equipment and low-boy loads.

6.0 PROTECTIVE EQUIPMENT AND CLOTHING

6.1 The contractor and his employees shall recognize the importance and the use of special protective equipment and clothing.

6.1.1 The contractor shall be responsible for knowing and enforcing special owner area or job rules requiring special personnel protection.

6.1.2 Contractors shall provide their employees with the proper protective equipment required.

6.2 Approved safety glasses shall be a minimum requirement on all jobs at all times. Safety glasses with side shields are required when grinding, chipping or performing any job where side shields would afford protection from flying particles.

6.2.1 Approved safety glasses must fulfill federal requirements (GGG-G-513) for drop ball testing and safety code for polarized "Strain" pattern.

6.2.2 Employees wearing contact lens must wear chemical goggles.

6.3 Chemical goggles, approved prior to their use, are required for working in or entering certain chemical areas which are posted with signs, or while doing chipping or power tool cleaning work on pressurized lines or equipment which contains hazardous chemicals.

6.3.1 All employees working in the vicinity of hazardous chemicals must know where the nearest safety shower and eye bath facilities are located.

6.3.2 When chemical type goggles are in use, the headband must be around the back of the head, not around the safety hat.

6.4 Approved safety hats are required for all contractor work. Metal hats must not be used where electrical hazards exist.

6.4.1 Approved safety hats must fulfill requirements in Federal Specification GGG-11-142b. The major requirement in this specification says, "The specimen must withstand the drop of an 8-pound spherical weight, approximately 3.8 inches in diameter, from a distance of 5 feet, without breaking the hat, bottoming out or breaking suspension." Most skull caps, scalp guards, bump helmets, etc., will not meet this test. Safety hats shall not be drilled or punched for ventilation holes, or edges trimmed off hats.

6.5 All personnel shall wear air hoods, or equivalent, supplied with filtered air, when sandblasting or applying volatile or toxic material inside tanks, rooms or any other area not adequately ventilated.

6.6 Safety belts or harnesses, with lifelines attached, are to be worn by employees when performing work in elevated positions where the use of scaffolds or ladders is impractical and where a slip might result in a serious fall.

6.7 Personnel must wear owner approved life jackets or otherwise be protected by handrails or lifelines when working over water wherein a drowning hazard exists.

6.8 Personnel shall wear personal clothing that is safe and proper for their job. Wearing of canvas shoes, sneakers or houseshoes and working in an undershirt, shorts or stripped to the waist, is prohibited. Safety shoes are strongly recommended.

6.9 Fixed blade knives used as tools of the trade must be carried in sheaths while not in use.

7.0 FIRE PROTECTION

7.1 Accumulation of trash, oily rags, combustible materials and similar fire hazards of any nature will not be permitted.

7.2 The area around welding operations must be kept free of hoses and flammable material of all kind.

7.2.1 There must be a fire ext inguisher or water hose easily accessible for each welding, cutting, burning or other such operations, located in close proximity to the operation. It is the contractor's responsibility to obtain the required fire extinguishers for his welding operations.

7.2.2 Special care must be taken during overhead welding operations to safeguard personnel and prevent falling sparks from starting a fire.

7.3 All tarpaulins shall be fire-retardant and identified as such by stenciling: "FR-treated (date)" with a minimum of two-inch letters in diagonal corners. In lieu of this treatment, fireproof blankets such as fiberglass or asbestos are acceptable.

7.3.1 Contractors must inspect and test all tarpaulins at least once each six months to be sure that they are still fire-retardant. Tarpaulins needing it must be retreated or removed from the plant immediately. At this time the tarpaulins must be restenciled in the same manner as in 7.3 above.

7.4 Fire plugs, extinguishers, hose racks and other emergency equipment, shall not be covered or blocked and fire equipment lanes must always be kept clear.

7.5 All heating units for offices, shops, work areas, change rooms, etc., must be in good working order and periodically inspected. Gas units must be provided with "flame-out" protective devices and electrical units must be grounded. All heating units must be turned off at the end of each work day.

7.6 Flammable or explosive type material such as fuel, oil, cleaning agents, etc., must be properly contained, clearly identified, separately stored and kept clear of work areas. Appropriate signs must be provided in storage areas.

7.7 All cans used for transporting or transferring gasoline or fuel must be labeled by Underwriters' Laboratories or Factory Mutual Laboratories.

7.8 Fuel storage tanks, filler hoses and the dispersing vehicle or containers must be properly grounded.

7.8.1 A quick shut-off valve is required on the dispensing end of fuel hoses.

7.8.2 Equipment fuel tanks must not be filled while the engine is running.

7.8.3 Smoking, welding or any spark- or flame-producing operation must be stopped in the immediate area during refueling operations.

7.9 Welding rod cabinets presenting a fire or safety hazard will not be permitted. Cabinets of fireproof materials equipped with strip heaters are recommended. If light bulbs are used, they must be securely guarded with adequate spacing in regard to the cabinet and to stored material. Metal

cabinets must be grounded in an approved manner.

7.10 Volatile materials must not be applied near an open flame. If such material is to be applied in a vessel, or other poorly ventilated, confined area, only explosion-proof lights and connections will be used. The contractor must designate such areas as "No Smoking."

7.11 Heating equipment for freeze protection of concrete must be approved by the owner's representative prior to use.

7.12 Welding or cutting torches and hoses must not be connected to cylinders when stored in any enclosure or building. When work is shut down and equipment is unattended, close all valves at the gas and oxygen cylinders, bleed lines and check five minutes later for pressure build-up. If there is no build-up, bleed hoses at the torch, remove hoses from cylinders and store. No smoking will be permitted during this shutdown procedure.

7.13 Gas and oxygen cylinders must be handled with care, properly supported in an upright position away from any source of heat or flame and securely tied off. All cylinders not in use must have their caps in place and stored as above.

7.13.1 Oxygen cylinders in storage and not in use must be separated from gas cylinders by a fire retardant partition or a minimum distance of 10 feet.

7.13.2 When gas and oxygen cylinders are lifted by hoisting equipment, a basket, a cradle, or similar handling device must be used. Cylinders must not be lifted by the valve protection caps.

7.14 All "No Smoking" restrictions must be strictly observed. Smoking is not permitted in vehicles in designated "No Smoking" areas.

7.15 Compressed gases must not be used for cleaning of clothes, the body or work areas. Oxygen must not be used for pressure testing purposes.

7.16 Adequate ventilation must be provided when cleaning agents are used.

7.17 Contractors must not dump flammable or toxic materials into sanitary sewers or waste water system without prior clearance of the owner's representative.

8.0 MACHINERY, TOOLS AND EQUIPMENT

8.1 The safe designed capacity of any tool or piece of equipment must not be exceeded. Tools and equipment must not be modified in any manner that reduces the original safety capacity.

8.2 All contractor owned, leased or rented equipment must be in safe mechanical working condition to render safe service at all times.

8.2.1 Equipment must be inspected by contractor supervision prior to its use on a job and periodically thereafter to insure that it is in safe working order. Crane inspection must be submitted in writing to owner's representative using the owner's "Hoisting Equipment Inspection" form. (See Sample.) Special attention must be given to such items as cables, guards, booms, blocks, hooks, grounds, electrical cords and safety devices. Equipment must be shut down before repairs or adjustments are made.

8.2.2 Defective tools and equipment must be removed from the job immediately and if repairable, must be properly repaired before reuse on owner's job.

8.2.3 Machinery, tools and equipment must not be operated without all guards and safety devices in place and functioning properly.

8.2.4 The contractor has the complete responsibility for a safe operation when using hoisting equipment to make lifts. The contractor shall verify weights of loads to be lifted. No load shall be lifted which exceeds the manufacturer's rated capacity of the crane. When one of the following conditions prevail, the contractor must submit in writing, using the owner's "Check List for Critical Lifts" (see sample), an outline of the safety planning for the lift to the owner's representative prior to starting the lift.

a. The load exceeds 80 percent of rated load charts for crane.

b. The load exceeds 50 percent of rated load chart for crane, and possible failure would endanger existing facilities.

c. Two booms are required to make the lift.

d. Poles or derricks have been erected for this specific lift.

8.2.5 If burning of lugs or other such flame-producing operations may be required during crane hoisting operations, arrangements for proper safe work permits must be made before the lifting operations begin.

8.3 Equipment with exposed gears, belts, couplings, etc., must be provided with proper guards.

8.4 Electrical tools and equipment operating at more than 32 volts must be properly grounded. Certain test equipment such as oscilloscopes, vacuum tube voltmeters and signal generators, as well as certain areas where exposed d-c equipment is used, do not require grounding and proper operational procedures must be ascertained from the owner's representative.

8.5 Only 32-volt, or less electrical service is to be used in connection with drop lights when working inside metallic vessels, unless 115-volt service is essential for the operation of equipment.

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DOW

HOISTING EQUIPMENT INSPECTION REPORT

(Use Hydraulic Crane Inspection Form for Hydraulic Cranes)

DATE _____

OWNER _____ EQUIPMENT NO. _____

MANUFACTURER/MODEL _____

MAXIMUM CAPACITY _____

SERIAL NO. _____

DATE OF MANUFACTURE _____

COUNTERWEIGHT FOR NORMAL USE _____

BOOM LENGTH FOR NORMAL USE _____

COUNTERWEIGHT FOR CAPACITY LIFT _____

BOOM LENGTH FOR CAPACITY LIFT _____

CAPACITY CHART POSTED IN CAB ( ) YES ( ) NO

	CONDITION
1. Identification and high visibility markings	
2. Hooks (pins-swivels)	
3. Boom sheaves and blocks (straps)	
4. Traveling block (pins-grease fittings)	
5. Cable drums (facing and becket)	
6. Hoist lock (catch on brakes)	
7. Clutches (bands-pins-cotter pins)	
8. Whip line (condition of cable, age)	
9. Load line (condition of cable, age)	
. Boom line (condition of cable, sockets, age)	
11. Boom and jib pendants (condition of cable, sockets, age)	
12. Main boom (structural members - pins)	
13. Jib (structural members - pins)	
14. Gantry (A-frame) - (pins-sheaves-straps)	
15. Swing lock	
16. Hydraulic or air system	
17. Lighting system	
18. Painting	
19. Drive chains (tension)	
20. Tires (air pressure-damage)	
21. Steering mechanism	
22. Counterweights (adequate or not)	
23. Cab, platforms, handrailing, steps, glass, etc. (access)	
24. Fire extinguisher	
25. Boom hoist safety device	
26. Power lowering - whip line	
27. Power lowering - load line	
28. Boom base pins	
29. Housekeeping	

ST0020283

OVERALL EVALUATION OF CONDITION

( ) Good, Safe ( ) Fair, Safe ( ) Unsafe

DOW 01802

Inspector (Owner) _____

Audited by (Dow) _____

Tag No. _____ Date _____

503-174

DOW

CHECK LIST FOR CRITICAL LIFTS

1. ACC. #/W. O. # _____

2. JOB DESCRIPTION _____

_____

3. LOCATION _____

4. DOW REPRESENTATIVE _____

5. PLANNING DATA:

A. 1. CONTRACTOR _____

2. SUPERINTENDENT _____

3. SUPERVISOR RESPONSIBLE FOR LIFT _____

B. DESCRIPTION OF ITEM TO BE RAISED _____

_____

_____

C. MAJOR HOISTING EQUIPMENT TO BE USED (MUST INCLUDE INSPECTION TAG NUMBER AND DATE. TAGS ARE VALID FOR FOUR MONTHS.)

1. _____

2. _____

3. _____

4. _____

D. EQUIPMENT & LIFT RELATIONSHIP

1. OPERATING RADIUS _____

2. BOOM LENGTH _____

3. ALLOWABLE LOAD (FROM LOAD CHART) _____

4. RATIO OF LIFT TO ALLOWABLE LOAD _____

ST0028284

DOW 01803

5. CLEARANCE BETWEEN BOOM & LIFT _____

6. CLEARANCE TO SURROUNDING FACILITIES _____

_____

E. SCHEDULE OF OPERATIONS (INCLUDE TIME FOR RIGGING & EQUIPMENT INSPECTIONS).

6. BASIS FOR CRITICAL LIFT:

A. LOAD EXCEEDS 80% OF LOAD CHART FOR CRANE OR DERRICK _____

B. LOAD EXCEEDS 50% OF LOAD CHART, AND FAILURE WOULD ENDANGER EXISTING FACILITIES _____

C. TWO BOOMS ARE REQUIRED _____

D. POLES OR DERRICKS HAVE BEEN ERECTED FOR THIS SPECIFIC LIFT ____

_____

7. HOW WEIGHT OF CRITICAL LIFT WAS OBTAINED:

A. CERTIFIED SCALE WEIGHT _____

B. CALCULATED INDEPENDENTLY BY MORE THAN ONE SOURCE. _____

1. SOURCE _____ WEIGHT _____

2. SOURCE _____ WEIGHT _____

C. IF LIFT IS AN EXISTING ITEM (BEING REMOVED OR DEMOLISHED), THE WEIGHT IS TO BE RECALCULATED, TAKING INTO ACCOUNT ALL MODIFICATIONS INCLUDING INTERNAL AS WELL AS AN ALLOWANCE FOR SCALE, SEDIMENT, SLUDGE, INSULATION, LIQUID, ETC.

1. SOURCE _____ WEIGHT _____

2. SOURCE _____ WEIGHT _____

8. CONDITION OF HOISTING EQUIPMENT & RIGGING:

   A. HAS EQUIPMENT BEEN REINSPECTED FOR THIS LIFT?_____

   B. HAS ALL EQUIPMENT & RIGGING BEEN INSPECTED AND FOUND IN ACCEPTABLE CONDITION FOR THIS LIFT?_____

9. GUYS ANCHORS & GUYS:

   A. ADEQUACY OF FOUNDATION FOR FOOT BLOCKS_____

   B. ADEQUACY, NUMBER, AND LOCATION OF GUYS & ANCHORS_____

   _____

   C. FOOT BLOCKS ARE TO BE ANCHORED_____

   D. CONDITION OF ALL CABLE, INCLUDING SPLICES, CLAMPS, THIMBLES, AND OTHER HARDWARE_____

   _____

   _____

10. STABILITY OF GROUND AREA:

    A. CHECK SOIL BEARING ALLOWABLE LOAD_____

    B. WILL MATS BE REQUIRED?_____

    C. ANY UNDERGROUND INSTALLATIONS NEEDING SPECIAL TREATMENT_____

    _____

11. OPERATORS:

    WHAT IS OPERATOR'S EXPERIENCE ON THIS EQUIPMENT AND THIS TYPE OF LIFT?_____

    _____

12. REMARKS:

ST0028286

DOW 01805

NOTHING IN THIS SUBMISSION AND/OR ACCEPTANCE OF THIS CHECK LIST IS TO BE CONSIDERED AS RELIEVING THE CONTRACTORS OF ANY RESPONSIBILITY FOR A SAFE OPERATION.

_____
CONTRACTOR

BY: _____

TITLE: _____

RESUME OF ACTUAL SCHEDULE:

DATE OF LIFT _____

INSPECTIONS COMPLETED _____

LIFT STARTED _____

PERMANENT SUPPORTS COMPLETED _____

TOTAL TIME _____

8.6 When arc welding is being done in an area restricted by a safe work permit, the grounding lead must be connected to the work within the limits as provided in the safe work permit.

8.7 Any contact provision for connections to an owner's plant services for construction use must be cleared with the owner's representative. Authorized connections must be made under the direction of the owner's personnel. The turning off and on of the supply shall be done only by authorized owner's personnel.

8.8 Gloves must not be worn while using grinders, drills, saws or any tools where gloves are apt to become entangled.

8.9 Loose clothing must not be worn while working around machinery.

8.10 Personnel must not crank any machinery with their feet.

8.11 Hose connectors and adaptors must be of a standard manufacture and used only for the type of service intended.

8.11.1 In order to insure positive locking at all times, connectors must be in good condition and not abused. Sandblast hose connections shall be the safety lock type which prevents accidental disengagements.

8.11.2 Air pressure on pneumatic tools must be bled down before tools are disconnected from air supply.

9.0 LADDERS AND SCAFFOLDS

9.1 All ladders must be of the proper length and in good condition before using them. All unacceptable ladders must be immediately removed from owner's property.

9.1.1 Ladders are not to be painted with anything other than clear paint or linseed oil.

9.1.2 All straight ladders must be tied off or held. Stepladders higher than ten feet must be tied off at the top or held at the bottom by another workman. Personnel must not stand on the top step of any stepladder.

9.1.3 When climbing a ladder, personnel must face the ladder and keep both hands free for climbing.

9.1.4 Set straight ladders so that the bottom is out from the vertical about one-fourth of the distance from the upper support to the bottom.

9.1.5 All ladders should be provided with nonskid adjustable feet or properly supported on a level surface.

9.1.6 The area around the bottom of all ladders must be free from slippery substance and tripping hazards.

9.1.7 Ladders are not to be used as pencil or scaffold boards.

9.1.8 The top section of extension ladders are not to be used by themselves.

9.2 The use of No. 9 soft annealed wire should be minimized on scaffolds.

9.2.1 When No. 9 soft annealed wire is used, a minimum of two separate strands must be used to tie scaffold handrails, braces, etc. The ties must be crossed to form a lock and prevent slipping in any direction.

9.2.2 Do not reuse No. 9 wire for any purpose.

9.3 Makeshift scaffolds such as boxes, crates and drums must not be used.

9.4 Wood scaffolding, aluminum ladders, aluminum scaffolds and aluminum pencil boards are not permitted except in special cases as specified in operating area rules and job specifications or by prior written approval from the owner's representative.

9.5 The following rules apply to all patented metal scaffolds:

9.5.1 Scaffolds must be erected with proper fixtures made for each type of scaffolding. Scaffolds and associated equipment must not be modified in any manner that reduces the manufacturer's designed performance.

9.5.2 All scaffolds and allied equipment must be kept in good repair.

9.5.3 Equipment that is damaged or deteriorated to the extent that it is unsafe shall not be used. Such equipment shall be removed from the owner's property.

9.5.4 Compensate for unevenness of ground by using adjusting screws in addition to proper blocking.

9.5.5 Do not force braces to fit. Adjust evenness of scaffold until the proper fit can be made with ease.

9.5.6 Use ladders when climbing scaffold rather than the cross braces and handrails.

9.5.7 Personnel shall use ladders when climbing scaffold rather than the cross braces.

9.5.8 Horizontal diagonal bracing shall be used at bottom and intermediate levels of thirty feet to prevent racking of all scaffolds.

9.5.9 Planking overhang shall be 3-5/8" on stackup scaffolds. 1" by 4" wood cleats shall be nailed across top of planking at each end outside end frames. 2" by 2" cleats shall be bolted underside each end of plank with 2-1/4" stove bolts.

9.5.10 The maximum span for guying or tying off all fixed towers is every 18' of elevation.

9.6 The following rules apply to rolling tower scaffolds:

9.6.1 The minimum base dimensions for towers shall be 5' by 7'.

9.6.2 Towers of a height greater than three times the minimum base dimension must be guyed or tied off while being erected, used or dismantled.

9.6.3 Caster brakes must be applied when not in motion.

9.6.4 Towers must be free of men, material and equipment while being moved. Care must be exercised while moving.

9.6.5 Surface area where tower is being moved shall be free of rubble or any material that may cause the tower to tip.

9.6.6 Do not attempt to move a rolling tower without sufficient help.

9.6.7 Do not extend adjusting screws beyond the limits specified by the equipment manufacturer.

9.6.8 The minimum size for casters shall be 6". Scaffolds higher than 25' must be stabilized either with outriggers or hand lines while being moved.

9.6.9 Horizontal diagonal bracing is to be used at the bottom and at intermediate levels of 30 feet.

9.6.10 Do not use knee braces or cantilevered brackets on rolling towers.

9.7 The following rules apply to suspended scaffolds:

9.7.1 Chains or 1/4" (minimum) steel cable shall be used to support suspended scaffolds. All suspended scaffolds shall be anchored to prevent swinging. Chains so used shall be made of not less than 1/4" links* and shall be inspected immediately prior to each use.

TABLE I
SAFE CENTER LOADS FOR SCAFFOLD PLANK IN POUNDS

SIZE OF PLANK

Span in Feet	2 x 10 Dressed To 1-5/8 x 9½	2 x 12 Dressed To 1-5/8 x 11½	3 x 10 Dressed To 2-5/8 x 9½	3 x 12 Dressed To 2-5/8 x 11½
6	256	309	667	807
8	192	232	500	605
10	153	186	400	484
12	128	155	333	404
14	110	133	286	346
16		116	250	303

TABLE II
SAFE CENTER LOADS ON TIMBER USED AS BEAMS IN POUNDS

LENGTH OF SPAN IN FEET

Nominal Timber Size	5	6	8	10	12	14	16	20	24
2 x 4	440	290	210						
4 x 4	725	575	420	330	260	215			
2 x 6	780	650	470	360	290	240	190		
2 x 8	1400	1150	850	660	530	450	370	270	190
2 x 10	2190	1820	1350	1050	860	710	600	450	320
2 x 12	2800	2630	1950	1530	1250	1050	890	670	510
3 x 8	2100	1730	1290	990	810	680	560	410	290
3 x 10	3290	2750	2120	1590	1300	1070	900	670	490
3 x 12	4525	3940	2920	2300	1880	1570	1340	1000	660

TABLE III
SAFE LOADING FOR SIMPLE MATERIAL HOIST ON CANTILEVER BEAM IN POUNDS

LENGTH OF CANTILEVER (B) IN FEET

Beam Size	2	3	4	5	6	7	8
4 x 4	220	160	105	80	65		
4 x 6	495	320	260	190	150	125	105
6 x 6	740	490	360	285	230	190	160
6 x 8	1325	875	650	515	420	350	300
8 x 6	1765	1165	865	685	560	470	400

Horizontal dimension from front bearing to rear anchor must be equal to or greater than cantilever Projection "B" in table.

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*1/4" proof coil loading chain Safe Load	900 lbs.
5/16" proof coil loading chain Safe Load	1,360 lbs.
5/16" proof coil loading chain Proof-tested Safe Load	2,720 lbs.
5/16" proof coil loading chain Unlimited Safe Load	5,440 lbs.

9.7.2 The suspended support must be insulated when arc welding is to be performed from platform, thus avoiding accidental arcing and subsequent failure.

9.7.3 Block and falls shall be a minimum of two sheaves for 3/4" rope and the minimum size rope shall be 5/8". Acid resistant rope shall be used in acid or caustic areas. Tail ropes shall be placed in an open container for protection while used in an acid area or above operating machinery, pumps, etc. All ropes and blocks must be inspected and tested prior to each use and taken down and stored inside at the end of each work day.

9.8 The following rules apply to all scaffolds:

9.8.1 Scaffolds and related material shall be carefully inspected at regular intervals and particularly just before using.

9.8.2 Provide sufficient sills or underpinning on all scaffolds to be erected on filled or otherwise soft ground. Scaffold boards shall not be used for this purpose.

9.8.3 All scaffolds must be plumb and reasonably level at all times.

9.8.4 Anchor running scaffolds to wall approximately every 28' of length and 18' of height. Use additional care when using pulley arms.

9.8.5 Handrailing and access ladders must be used on all scaffolds regardless of height. Scaffolds higher than 30' around columns, tanks, etc., must have access ladders constructed on the inside, unless a ladder cage is provided. Handrails must be at a height sufficient to provide maximum personnel safety.

9.8.6 Scaffolds must not be used as material hoist towers or for mounting derricks without first determining the loads and stresses involved.

9.8.7 Erect scaffolds in such a manner that ladder is accessible and lined up from top to bottom.

9.8.8 Lumber used in the construction of platforms shall be of good quality and reasonably straight grained. It shall be free from defects such as injurious ring shakes, checks, splits, cross grains, unsound knots, knots in groups, decay and growth characteristics or any other defect which materially decreases the strength of the lumber. Planking shall not be painted all over, as this would conceal any defects. Scaffold boards shall be identified by painting each end. All scaffold boards shall be used exclusively for that purpose. Nothing less than 2" by 4" material shall be used as handrails on wooden scaffolds.

9.8.9 The normal size of planking shall be determined from Table I. These values are for planks with the wide face up, with the loads concentrated at the center. Loads given in the table are net. Allowance has been made for the weight of the planking. If select structural coast region Douglas fir, merchantable structural square and sound southern pine are used, the loads may be increased 45 percent.

9.8.10 Planks used for platforms shall be of uniform thickness, laid close together. These planks must be overlapped at the bearers. An overlap of at least 2' must be allowed with the bearing in the center of the overlap. When planks overhang a bearer more than one-tenth of the length of the span, the planks must be securely fastened to the bearer at the opposite end to prevent tipping.

9.8.11 All nails used in scaffold construction shall be driven full length. If double headed nails are used, they shall be driven to the first head only and may not be used on platforms or walkways. No nail smaller than 8d shall be used in this construction. The design must be such that no nail is subject to a direct pull.

9.8.12 Where beams are used in scaffolding, the schedule of loads shown in Table II shall be followed. Loading on cantilever type beams for tool and material hoists is shown in Table III. It should be noted that the loading at the center of bearing point is 4 times as great as the load being lifted and the bearing should be checked to ascertain if it will support the contemplated load. The inboard end of the beam has a force upward of twice the load and must be securely fastened with no nails in direct pull.

9.8.13 Platforms shall be kept clear of slippery substances and tripping hazards.

10.0 DANGER, WARNING AND CAUTION TAGS

10.1 Danger Tags (Red)

10.1.1 To insure that operating status of equipment is not changed while it is being used or worked on, red danger tags must be attached to the controls so that personnel will know not to use them. These tags must be used to protect personnel exposed to hazards of equipment and must be respected by all personnel. The personnel responsible for the operation of equipment or their designee must clear and tag the equipment. Any personnel whose safety could be endangered while working on this equipment must affix their tag. Violation of red danger tag rules will result in disciplinary action up to and including rejection from any work on owner's property.

10.1.2 No control such as a valve, switch, clutch, etc., is to be operated by anyone while a red danger tag is attached. If a control must be operated intermittently such as for testing equipment, the red danger tag must be properly removed before each operation. Attachment of danger tags to equipment controls does not mean that equipment has been cleared to work on. When work is to be done on tagged-out equipment, personnel responsible for the operation of the equipment are responsible for clearing the equipment and making it safe for others to work on.

10.1.3 Whenever the operation or use of any equipment may endanger anyone, a request must be made to supervision of the group which operates the equipment to clear and tag the equipment. "Clearing" means making the equipment inoperable and safe for others to work on. The authority to clear and tag equipment may be delegated by this supervision to any qualified personnel after supervision has assured themselves that the person delegated can properly clear the particular job involved.

10.1.4 After the group which operates the equipment has cleared and tagged the equipment, each worker or group of workers who may be exposed to the hazards must tag the equipment for their protection. When red danger tags are attached to equipment by persons other than those responsible for its operation, prior approval from the person responsible shall be obtained.

10.1.5 As the individual jobs have been completed, each worker or group of workers must remove their tags immediately.

10.1.6 The group responsible for the equipment must place their tag first and remove their tags last.

10.1.7 Red danger tags may be removed only upon authorization of the person designated on the tag. The supervisor of any person who fails to remove a red danger tag when a job has been completed may authorize the removal of the tag after he has determined to his complete satisfaction that the equipment can be operated in a safe manner. In the space on the tag entitled "Removal Will be Ordered By ," it is permissible to designate a classification such as shift foreman, electrician, or machinist instead of a specific individual's name.

10.1.8 At the discretion of the supervisor, locks may be used on valves and switches in addition to, but not replacing red danger tags.

10.1.9 Tags removed must be filled out and turned in to the owner's representative.

10.2 Warning Tags (Green)

10.2.1 When it is necessary to convey instructions or information prior to operation of equipment controls, green "warning" tags are to be attached to the controls.

10.2.2 Green "Warning" tags should be removed when conditions set forth on the tag have been met.

10.3 Caution Tags (White)

10.3.1 White caution tags are affixed to mechanical or electric equipment by the owner's representative to prevent operation of such equipment by anyone until items on the tag have been completed.

10.3.2 The tag provides spaces for meggering, rotation, final alignment and lubrication of equipment. When appropriate action has been taken, the personnel performing the work signs and dates the tag.

10.3.3 When tagged equipment is released to the owner, a representative of operations and the owner's representative sign the tag which is kept by the owner's representative until job completion.

11.0 SAFE WORK PERMITS

11.1 Safe work permits issued by the owner to contractor personnel may be required for certain hazardous locations and conditions. These permits are designed to provide a means of checking at the job site the safety of such jobs as, but not limited to, entering closed vessels; working on electrical gear; welding, cutting on, breaking into or repairing pipelines or vessels in operation or under pressure or that have contained hazardous materials. These permits also cover work involving the use of flame or spark producing equipment in hazardous areas or near an open ditch and work on machinery.

11.2 Contractor supervision must be in close contact with the progress of work as well as communicating with the owner's representative for up-to-date status of operations. Further, contractor supervision must be certain that all personnel involved are informed as to specific procedures and changes in the situation.

11.3 Safe work permits are to be initially requested through the owner's representative and issued by the owner's operating area or facility supervision involved on any job where the safe work permit is applicable. More than one safe work permit may be required on certain jobs which will be ascertained upon obtaining each safe work permit. Permits are issued on a day-to-day basis.

11.4 Personnel must give to the person issuing the safe work permit a careful and complete description of the work to be done.

11.4.1 Where a job presents a serious man-hazard due to chemical, mechanical, electrical, temperature or height exposure, it is mandatory that a written safe job procedure accompany the request for the safe work permit. This procedure is to be signed by the owner's representative, process representative, and the contractor, who thereby agree that the procedure allows the job to be done safely.

11.5 Directions and restrictions noted on safe work permits must be carefully followed.

11.6 A safe work permit must be reissued for a job if there is evidence that conditions have changed subsequent to the issuance of the original safe work permit.

11.7 Permits issued for jobs that last longer than one day will normally be issued for that job each day. By mutual consent of the parties involved, permits for these jobs may be issued for longer or shorter periods of time.

11.8 Vessels in an existing facility to be entered must be made safe for personnel by such measures as disconnecting, blinding, or double block and bleed on connecting piping. If such precautions are impractical, a detailed procedure for performing the work in a safe manner must be prescribed as specified in Paragraph 11.4.1.

11.9 Vessels in an existing facility to be welded on, or cut, must be positively checked inside for flammable or explosive gas and/or liquids and safe work permits issued before heat is applied.

11.10 The contractor may request safe work permits for his own protection. Safety checks by the owner for dangerous gases or chemicals should be requested through the owner's representative when there is any uncertainty.

11.11 All safe work permits in the area affected are automatically cancelled when an emergency signal is sounded and must be reissued after the all-clear signal.

12.0 EXCAVATIONS, FLOOR OPENINGS, BARRICADES

12.1 Where a safety hazard would be created for any personnel, excavations such as ditches, trenches, or bell holes should be sufficiently sloped to prevent cave-ins or slides. If sloping is impractical, shoring must be used in cases whenever the vertical dimension exceeds four feet.

12.1.1 Personnel removing shoring after completion of work must not be in the bottom of the excavation. Shoring must be removed in such a manner to prevent cave-in on personnel.

12.2 Contractors must provide adequate barricades, covers, handrails, signals, flagmen, or other appropriate warning devices to protect personnel near any hazardous operation or excavation. Floor openings, open trenches, excavations, etc., shall be covered when handrails or barricades do not provide adequate protection to personnel.

12.2.1 Contractors must notify the owner's representative of necessary obstruction on road shoulders on the day it occurs.

12.2.2 Contractors must obtain approval from the owner's representative at least one day prior to cutting roads or otherwise obstructing traffic on plant roads.

12.3 Grade lines, ropes, chains, etc., must be sufficiently marked in order to be visible day or night.

12.4 No obstruction of any kind, whether permanent or temporary, is permitted within 8'-9" horizontally from the centerline of any railroad track and within 22'-6" vertically from the top of the rail. Specific authorization from the owner's representative as well as blue flags are required prior to boring under or excavating adjacent to railroad tracks. Blue flags must be placed on railroad tracks when the entrance of a train would present a hazard to personnel or equipment.

12.5 In locations where strictly temporary loading or unloading operations are to be undertaken, portable derails must be used by personnel engaged in these operations to prevent overrunning of the cars by a train.

12.6 Blue flags meeting ICC specifications, available through the owner's representative, must be placed on railroad tracks when the entrance of a train would present a hazard to personnel or equipment and in addition to, or in conjunction with, derails during loading or unloading operations. Blue lights, available from the owner's representative, must be attached to blue flags at night.

12.6.1 Blue flags must be placed on the tracks so they will be in unobstructed view of the train crew and they must be placed a minimum of two-car lengths (100 feet) in front of the end car they are intended to protect. Exceptions to the minimum distance may be made by the owner's representative where existing installations do not allow sufficient space.

12.6.2 Blue flags must be removed immediately when the hazard for which they were installed no longer exists.

13.0 RADIATION

13.1 All state and/or federal laws governing use, storage or handling of a radiation source must be complied with.

13.2 A minimum of qualified people are required for the performance of any radiographic work.

13.3 In locations where a radiation source is used or stored, regulations require that it be marked with a "Radiation Material" sign. This sign is for the purpose of informing anyone in the area that such material is present, and not that a safety hazard due to radiation exists.

13.3.1 Only authorized personnel may enter an area marked by "Radiation Area" sign.

13.3.2 All areas where a radiation hazard exists must be roped off and marked conspicuously by standard signs at a safe distance from the source of radiation. These signs bear the radiation symbol of magenta (or purple) on a yellow background with the words "Caution—Radiation Area."

13.3.3 "Radiation Area" signs must be removed when a radiation hazard no longer exists in the affected area.

13.4 Equipment containing a source of radiation must not be handled, uncrated or installed without prior clearance with the owner's representative.

14.0 DEMOLITION

14.1 This section specifically covers the demolition (removal of facilities that have been abandoned). Due to the inherent hazards in this type of work, special care must be devoted to safe procedures, scope understanding and communications concerning the safe clearance of work.

14.2 It is not appropriate to make assumptions in any stage of a demolition job. Responsibilities must be delegated only to those whose profession qualifies them to make the necessary judgments and decisions that are required to assure the safest possible prosecution of the job. From start to finish, each person connected with a demolition job must adopt an attitude of "prepare for any possibility."

14.3 The contractor shall make certain that all lines, services and equipment have been cleaned or purged and properly cleared for safe removal. All lines (including water and steam) are to be considered hot until positive safe clearance has been obtained.

14.4 Special care shall be exercised to locate and mark old underground or otherwise hidden lines, cables and sewers using the best available information and owner's assistance.

14.5 The prejob safety meeting with the contractor, as covered in Section 1 of this manual, shall devote special attention to preplanning the safety aspects of demolition jobs.

14.5.1 Steps of dismantling and loads to be handled shall be reviewed with the owner's representative prior to starting work.

14.5.2 Temporary provisions must be made where safety showers, eyewash baths and fire extinguishers are being moved in the work area.