CONTRACTOR'S SAFETY GUIDELINES

FOR WORKING IN THE

BAYTOWN CHEMICAL PLANT

Revised
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PART 1

RESPONSIBILITIES

Part 1

Owner's Responsibilities

Owner shall furnish to Contractor all safety and health information, including but not limited to material safety data sheets, for each material which Contractor or any subcontractor or their employees shall be exposed to or come into contact with during Contractor's or subcontractor's performance hereunder on Owner's jobsite. Contractor shall assure itself that it understands the safety and health information so furnished. Contractor warrants that it will observe all warning or hazard information and implement all recommended safety practices or their equivalent. Contractor warrants that it will disseminate such health and safety information to its employees and to its subcontractors and their employees.

Contractor's Responsibilities:

Contractor shall comply with Exxon Chemical Americas Baytown Plant's Regulations entitled Safety Manual Baytown Chemical Plant a copy of which has been furnished to Contractor and receipt of which is hereby acknowledged. Contractor shall secure sufficient copies of said publication from Owner to furnish one copy to each of its supervisory personnel. Contractor shall with Owner's assistance, conduct an orientation meeting with each of its supervisory personnel to review the provisions of said publication and require that its supervisory personnel shall have a basic understanding and familiarity with the provisions of the publication, especially those provisions specifically relating to the performance of the Contractor hereunder. Failure to comply with any one or more provisions of the publication shall constitute a breach of the entire contract and shall entitle Owner to terminate the agreement as hereinafter provided. Contractor, also shall observe and comply with all safety and health standards and regulations promulgated by the Secretary of labor under the Williams-Steiger Occupational Safety and Health Act of 1970, especially those safety and health standards promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Standards Act published at 29 CFR, Part 1518, and Contractor shall comply with and obey all applicable Exxon Chemical Americas Baytown Plant occupational, safety and health standards. Failure to comply with any hereinabove referenced health or safety standard shall constitute a breach of the entire agreement and shall entitle the Owner to terminate the agreement as hereinafter provided. All provisions of Owner's regulations governing safety and health standards and practices as well as OSHA and State safety and health standards shall apply to all subcontractors and their employees as well as to Contractor and its employees. Contractor shall have the affirmative duty of requiring that each subcontractor become as familiar with Owner's health and safety rules and regulations and OSHA and State health and safety rules and standards as required of its own employees.

Prior to the commencement of Contractor's performance hereunder Contractor and Owner's representative shall meet and discuss any potential safety and health risks to Contractor's, Owner's and subcontractor's performance. Contractor shall thereupon prepare a specific written health and safety

compliance plan identifying the potential health and safety risks to be encountered and commit itself to specific safe acts and practices which it will observe to avoid or mitigate each health or safety risk. Contractor shall furnish said written compliance plan to Owner prior to the commencement of its performance which shall thereupon become a part of this agreement. Contractor shall identify one or more of its supervisory personnel who at all times during all Contractor's performance of this agreement shall be responsible for Contractor's compliance with health and safety regulations (including its own written compliance plan). Contractor's designated health and safety compliance supervisor shall at all times be available on the jobsite for consulation with Owner's designated representative and shall have the authority to terminate any unsafe act or practice which he observes or is informed of by Owner's representative.

If Contractor shall permit an imminently hazardous condition to occur on the jobsite as a result of its failure to properly observe the health and safety regulations hereinabove enumerated or health and safety information furnished, Owner's representative shall have the right to terminate all work being performed by Contractor's or subcontractor's employees immediately. Contractor shall not recommence any work until the condition has been abated. Contractor's failure to abate the condition within twenty-four hours shall result in termination of the entire agreement. If Contractor fails to comply with any health or safety provision required herein other than one creating an imminently hazardous condition, Contractor shall upon notice of such noncompliance from Owner's representative to Contractor's health and safety supervisor remedy such noncompliance. Failure of Contractor to abate such noncompliance within a reasonable time shall entitle Owner to terminate the entire agreement.

Part 2

FOREWORD, DEFINITIONS, CONTRACTORS' RESPONSIBILITIES,
CONTRACTORS' SAFETY ADMINISTRATION ACTIVITIES

Part 2

I. Foreword

The following safety rules apply to all persons working in the Exxon Chemical Americas plant at Baytown. This includes all contractor and subcontractor personnel. These safety rules specify minimum safety requirements that must be followed. Additional accident prevention measures are to be required by any Supervisor if, in his opinion, they are necessary. In those instances or situations not specifically covered herein, it is expected that they will be handled within the guidelines of this directive: Safety is not to be sacrificed for production.

It is the prerogative of Exxon Chemical Americas Management to set aside any of these rules; but before doing so, the situation should be discussed with the Plant Safety Coordinator and approval obtained from the Division Manager (Exxon Chemical Americas) in charge.

Further information on the application of specialized safety rules and procedures is available in the Safety Manual, Baytown Engineering Standards, Safety Standards Manual, and various Operating and Maintenance Manuals.

Technical help in the application of safety principles and safety equipment to specific situations is available through the Safety Coordinator, Industrial Hygienists, Safety Permit Inspectors, Technical Divisions, and Safe Operations Committees.

II. Definitions

As used herein, the following definitions are applicable:

Plant: The facilities of Exxon Chemical Americas, Baytown, Texas.

A. Owner: For the purposes of these safety rules and procedures, owner shall mean The Baytown Chemical Plant, Exxon Chemical Americas, an operating division of Exxon Corporation.

B. Basic Equipment Owner: The Baytown Chemical Plant representative primarily responsible for the safety of the personnel and equipment on which the work is to be performed.

C. Employee: Is that person employed by Exxon Chemical Americas to maintain, operate, and supervise its facilities.

D. Supervisor: That person responsible for the overall safety, work execution and work completion of each job to be performed.

E. Technician: Any member of the operating crew serving in a job designated by the Supervisor as carrying the authority to issue and sign permits.

F. Safety Permit Inspector: The authorized individual who makes the gas tests and inspects the area.

G. Craftsman: The person designated by the Supervisor to perform the Mechanical Work.

H. Qualified Craftsman: That person who has previously satisfactorily demonstrated the ability to perform the duties that the job requires.

I. Contact Man: The Owner's representative assigned to the project as the liaison between Exxon Chemical Americas and Contractor, and is responsible for the overall safety of the job. The Contact Man, on proper request, will assist the Contractor in obtaining all permits required hereunder and will be the normal contact between the Contractor and all of the Owner's personnel.

J. Contractor and Subcontractors: Those persons performing work for Exxon Chemical Americas on a Contract basis and reporting through that person designated as the "Contact Man."

III. Contractor Responsibilities

Contractor shall fully comply with these Safety, Plant Security, and Traffic Regulations in the performance of work described in the contract. These regulations shall also fully apply to all Subcontractors and their employees, as well as to the Prime Contractor and its employees. Contractor shall notify its employees, its Subcontractors, and the employees of its Subcontractors of the provisions of the regulations and shall secure compliance therewith by all such parties; and Contractor shall not allow any of such persons to begin work inside Owner's Baytown Plants until such notification has been given them.

Contractor shall observe and comply with the Texas Occupational Safety Act (Art. 5182a, V.C.S.) and with all safety and health standards promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Standards Act, published in 29 CFR Part 1926 and adopted by the Secretary of Labor as occupational safety and health

standards under the Williams-Steiger Occupational Safety and Health Act of 1970, and to any other legislation enacted for the safety and health of contractor employees. Such safety and health standards shall apply to all Subcontractors and their employees as well as to the Contractor and its employees.

Contractor is and shall remain an independent Contractor as to all work performed under the contract. The detail manner, means, and methods of performing said work shall be under the control and direction of Contractor, the Owner being interested only in the results obtained.

These Safety, Plant Security, and Traffic Regulations are designed as minimum requirements for Contractor, and Contractor shall take any additional precaution necessary or proper under the circumstances to prevent injury or death to persons or damage to property. These regulations are to be considered as an addition to any safety rules or regulations of the Contractor. Neither compliance with the regulations by Contractor nor Owner's approval of any actions or procedures of Contractor as provided therein shall relieve Contractor of its obligation always to use due care in performing work.

Nothing contained in these regulations shall be interpreted to enlarge the legal duty of the Owner to the Contractor, his agents, employees, or Subcontractors.

IV. Contractor Safety Administration Activities

A. Contractor shall submit monthly to Owner a copy of the safety statistics required by OSHA.

B. Contractor shall submit to Owner a report on the investigation of all disabling injuries that are incurred on the site. Owner is willing to assist Contractor in conducting these investigations. Similar reports shall be submitted for near misses with potential serious consequences.

C. Contractor shall conduct weekly toolbox safety talks for all of his employees. These talks should last five to ten minutes and cover topics relative to the work being done.

D. Contractor shall conduct a safety indoctrination for all employees reporting to the Baytown site for the first time. At this time, the safety requirements specific to Exxon Chemical Americas shall be reviewed, as well as Contractor's requirements.

E. Contractor's monthly progress report shall review the safety statistics for the project and report significant safety activities.

F. Periodic safety inspections of the job site shall be made by the Contractor and Owner's representative. Frequency of inspections shall be determined by Owner's representative, dependent on safety conditions and incidents observed. Contractor shall promptly correct any deficiencies noted during these inspections.

Part 3

CONTRACTOR'S RESPONSIBILITIES FOR
SAFETY, PLANT SECURITY, AND
TRAFFIC REGULATIONS

Part 3

SECTION I. SAFETY RULES

I. General

A. Do not go to a Plant fire unless you have specific duties or responsibilities.

B. Report all injuries to your Supervisor immediately after they occur.

C. Follow all safety rules and procedures applicable to the job being performed, including the use of appropriate protective equipment.

D. Do not enter an operating equipment area or work on operating equipment without the approval of the Basic Equipment Owner or his designated representative.

E. Do not indulge in horseplay on Company property.

F. Use the right tool for the job - no makeshifts.

G. Keep clear of suspended loads.

H. Eliminate or guard against known hazardous conditions.

I. Notify Utilities Section of the Utilities & Environmental Control Department and request protection against possible electrical hazard before erecting or using a scaffold located near electrical power lines or equipment.

J. Drink water only from potable water outlets or from authorized containers or drinking fountains.

II. Supervisory Responsibilities For Safety

A. Set a good example.

B. Provide necessary protective equipment and safety tools.

C. Provide adequate instruction in and require compliance with:

1. Accident prevention aspects of each job.

2. Use and application of appropriate protective equipment and devices.

3. Use or application of tools and equipment.

D. Cooperate with other Supervisors and Staff personnel where the safety aspects of a job require coordinating the efforts of one or more departments. This includes, among others, the securing and/or issuing of Permits for Cold Work, Permits to Enter, Hot Work Permits, and Electrical Lock-out Procedures.

E. See that there is an adequate procedure for the job to be done and that all procedures are well understood and followed.

F. If an employee sustains an injury that is serious enough that professional medical attention is required, it is the supervisor's responsibility to provide the necessary transportation to the Medical Department or hospital. Once the injured employee has checked into Medical, it is Medical's responsibility to provide any additional transportation necessary to transport the injured employee to other facilities. Under no circumstances shall an injured employee drive himself to Medical unattended. When transportation is required by either the supervisor or the Medical Department, it may be obtained by calling the Chemical Plant Night Superintendent's office, ext. 5303, and indicate the type of transportation necessary. If the injury is serious enough that an ambulance is required, DIAL 3600.

G. Contractor shall notify the "Mechanical Contact Man" of any injury that occurs to any person under his supervision as soon as possible. Contract supervisor will diligently follow up with each one of his employees who is injured to determine the extent of the injury and the expected day of return to work.

III. Employee Responsibilities For Safety

A. Clothing Requirements

The following are clothing requirements inside the Chemical Plant:

1. Clothing contaminated with oil, hazardous liquids, or chemicals must not be worn. If a person is inadvertently sprayed or contacted by oils, hazardous liquids, or chemicals, the clothing shall be removed as quickly as practical, the affected parts washed with soap and water, and the situation reported to the Supervisor.

2. Protective clothing which fully covers the body, (arms, legs, shoulders, feet, etc.) must be worn at all times, except at certain locations specified by the Department Head after consulation with the Safety Coordinator. Canvas shoes, sandals, or thongs shall not be worn inside the plant.

3. Loose clothing, loose sleeves, neckties, or gloves shall not be worn where there is a probability of their being caught in moving machinery.

b. Protective Equipment Requirements

1. Safety hats and safety glasses shall be worn in all areas of the Chemical Plant except at certain locations specified by the Department Head after consultation with the Safety Coordinator.

2. Contact lenses shall not be worn inside the plant.

3. Goggles and/or safety glasses with side shields shall be worn in those areas where the possibility of flying objects exist.

4. Chemical goggles shall be worn at those areas where exposure to chemicals or liquid hazards exist.

5. Respiratory protection shall be worn where the atmosphere of the work area is contaminated by hazardous dust, toxic gases, excess vapors or fumes, or where an oxygen deficiency exists (for example, a vessel blanketed with nitrogen).

6. Special protective clothing for the particular hazard shall be worn where there is a probability of exposure to acid, caustic or other hazardous material.

7. Safety belts attached to an independently supported line shall be worn:

a. When working from scaffolds, platforms, or any other surface which may not afford sufficient protection against falling.

b. While working on any roof with a slope greater than one on four.

c. When working within six feet of the edge of any roof.

d. Where an oxygen deficiency exists or where the surrounding atmosphere is immediately hazardous to life.

8. Life preservers shall be worn when working on barges, boats, or directly over water.

9. Ear protection that has been approved by Medical shall be worn when working in:

a. Area designated with warning signs as "high noise area."

b. Area in which equipment or tools generate sufficient noise to make normal conversation difficult.

C. Guarding

1. Guard temporary openings in floors, handrails, etc., to prevent falling. Replace permanent handrails and guardrails immediately after need for opening has ended.

2. Guard or cover open excavations or manholes before leaving the job.

3. Do not perform work above open moving machinery.

4. Guard or protect any area into which materials or tools are to be deliberately dropped or thrown.

5. Do not use, start up, or run machinery or tools unless all guards are in place. Exceptions: Temporary situations where guard must be taken off to make running adjustments. Secure supervisory approval in these instances.

D. Housekeeping

1. Keep aisles, passageways, stairs, platforms, and ladders clear of all unnecessary obstructions.

2. Remove or bend down all protruding nails that present a snag or puncture hazard.

3. Keep worksite clean and orderly.

4. At all times the job site shall be kept clean and free from debris, trash, and rubbish. All materials shall be stored in a neat and orderly fashion, and shall not be stored within a distance of seven feet and two inches horizontally from the edge of the nearest railroad, and no temporary or permanent structures shall be constructed within this minimum clearance. Dismantled or surplus materials, trash, and debris (including earth, clay, lumber, concrete, metal, insulation, paper, etc.) that falls from vehicles shall be promptly cleaned up.

E. Electrical Tools and Equipment

1. Do not open or close an electrical switch without full knowledge of the results which can be expected.

2. Ground portable electrical tools, metal building, and electrical equipment. Report them to the Supervisor if they are found to be defective.

3. General purpose two-or-three-cell (1.5v per cell) flashlights may be used everywhere, except if specified otherwise by governmental agencies.

4. All single-fixture portable lamps must be of the explosion-proof type with the outside globe and metal guard in place.

5. Hand-held portable electrical lighting used in moist and/or other hazardous locations (inside of drums, tanks, vessels, etc.) shall be operated at a maximum of 12 volts. Exceptions: Fix-mount, take-up reel type mechanic's lamps or other special application which has been specifically approved by the Mechanical Contact Man after consultation with the Safety Coordinator.

6. Explosion-proof, approved portable lights (Underwriters Laboratory or Bureau of Mines approved) must be used where hot work is not authorized. This includes the following: Portable explosion-proof floodlights, extension cords with explosion-proof fixtures (plug boards) and constructed using double insulated wiring with ground.

7. Where hot work is authorized, nonexplosion-proof portable lamplights and fixtures may be used. They include: Approved portable string lights with guard on each fixture, nonexplosion-proof floodlights.

8. Do not remove vapor-proof globes, except for cleaning, repairing, or replacing lamps.

9. Explosion-proof fixtures shall be opened only by authorized persons.

F. Power Tools - Machinery

1. Do not work on any machinery while it is in motion. Exception: If it is impractical to shut the equipment down before working on it, secure Supervisor's approval before proceeding.

2. Keep abrasive wheel tool rest adjusted to within one-eighth inch maximum of the wheel. Do not use abrasive wheels which are in bad order.

3. Do not use any high-speed abrasive wheels unless they are properly guarded.

C. Ladders and Scaffolds

1. Use only ladders which are in good condition. If not equipped with safety shoes, or if there is a question of slippage, they must either be held or lashed securely while in use.

2. Do not place any ladder where it can be bumped, such as in front of a door, in the street or aisles, etc., unless adequate precautions are taken to protect both the climber and others who may be in the area.

3. Use good working techniques when climbing, working from, or descending a ladder, such as holding with both hands and keeping the body within the side rails of the ladder.

4. Lower and lash swing scaffolds at the end of the shift.

5. Provide a safe means of access to all scaffolds.

6. Provide standard handrails and toe boards on all scaffolds from which it is possible for an individual to fall more than six feet.

7. Place tools or materials on scaffold platforms in such a manner that they will not create a tripping hazard or become dislodged and fall.

8. Report any alterations to scaffolds to the appropriate Supervisor.

H. Excavations

Do not enter or perform work in an excavation which requires your head to be below the surface of the ground until:

1. Hydrocarbon and oxygen tests have been made by the Chemical Plant Safety Permit Inspector and approval for entry has been okayed by him.

2. A ladder or stairway has been provided for safe entrance and exit.

3. Adequate shoring or sloping of the trench wall has been provided in accordance with current State and Federal laws.

I. Working Over Water

1. Ring buoys with at least ninety (90) feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed two hundred (200) feet.

2. At least one life saving skiff shall be immediately available at locations where employees are working over or adjacent to water.

J. Railroad

1. Do not construct or place any permanent or temporary obstructions closer than seven feet two inches horizontally, or twenty-three feet vertically from any railroad rail without specific authorization from the Supervisor responsible for railroad trackage.

2. Do not board or ride on railroad equipment unless authorized by your Supervisor.

3. Do not jump from loading rack to tank car, from car to car, or from car to ground. Use tank car ladders and hand irons.

K. Hoisting Equipment

1. Operate hoisting equipment so as not to endanger other people or damage equipment in the operating area.

2. Do not ride on blocks, hooks, balls, or crane loads - use an approved sling or bosun chair.

3. Do not place any guy line, mooring line, or load line in such a position that it will tighten against operating equipment, pipe lines, tanks, or machinery.

L. Structures

1. Do not use handrails as a support for material or rigging.

M. Hazardous Materials

1. Do not use materials from, or place hazardous material in unlabeled containers.

2. Identify dismantled or relocated equipment which has been in "Hazardous Material" service.

3. Use only those solvents for cleaning purposes which are approved by your Supervisor.

4. Precautions should be taken to prevent breathing of vapor or contacting the skin with high boiling point materials (above 700 degrees F.) from catalytic cracking operations or other highly aromatic or toxic materials. If these oils do come in contact with the skin, they should be washed off promptly with soap and water.

N. Compressed Air - Yard System

1. Do not use compressed yard air pressure above 30 psi to clean clothing or personnel.

2. Do not use plant system compressed air for breathing purposes.

3. Do not use compressed air to open plugged sewers.

O. Compressed Gas Cylinders - Transportation, Storage, and Use

Observe the following in the transportation, storage and use of compressed gas cylinders:

1. Keep protective caps in place when not in use.

2. Store and transport full cylinders in vertical position.

3. Use holders, chains, or keepers to prevent overturning.

4. Empty cylinders, except acetylene, may be stored and transported in a horizontal position.

5. Secure cylinders in a vertical position with a suitable keeper while connected to equipment.

6. Do not allow pure oxygen to come in contact with hydrocarbons in any form.

7. Avoid any type of rough handling.

8. Do not use oxygen or acetylene for testing purposes.

9. Do not release hazardous compressed gases into confined work spaces.

10. Do not use compressed gases to clean clothing or personnel.

11. Do not take oxygen or acetylene cylinders inside a vessel.

12. Do not attempt to repair a leaking compressed gas cylinder. If cylinder can be moved, move to a safe location and allow to depressure itself. If it cannot be moved safely, clear area and initiate emergency steps during depressuring.

P. Fire Prevention - Fire Fighting

1. Do not block fire-fighting equipment.

2. Do not fight an electrical fire with a solid stream of water. Water fog may be applied to an electrical fire only by a qualified Fire Fighter.

Q. Welding and Burning in Confined Spaces

1. To prevent gas from escaping through leaking or improperly closed torch valves, the gas supply to the torch shall be positively shut off at some point outside the enclosed space or the hoses disconnected at the regulator whenever gas welding or burning is suspended for a substantial period of time or when the torch is left unattended such as during the lunch period, at shift change, etc.

   The torch and hose shall be removed from the confined space, or if this is impractical, the hoses shall be disconnected at the regulators (1) at the end of the shift when work is not to be continued on the next shift, (2) at any time when positive ventilation of the confined space is discontinued.

   The torch or other gas-consuming device shall not be removed from the hose inside the confined space.

2. Vent and clear any hollow or partially hollow vessel or equipment which may be overpressured by the application of heat before heating or burning into it.

3. Do not weld on oil or gas lines or equipment in service unless there is an internal cooling agent to remove heat, such as flowing liquid or gas, and/or unless there is sufficient metal, as approved by the Metal Inspector, to prevent a burn-through. Exception: No hot work is to be done on air lines in service between the reciprocating compressor discharge and the knockout drum or drier. Hot work can be done on air lines down-stream of knockout drum or drier, or on air lines pressured by centrifugal equipment, after a gas test shows the air in the line to have no hydrocarbons present.

IV. <u>Other Responsibilities For Safety</u>

A. All Contractors or Subcontractors' employees shall be held responsible for adherence to all applicable rules and procedures in the "Baytown Chemical Plant Safety Manual".

B. Other Contractors and Subcontractors Safety Requirements:

1. Authorization to Start Work

Contractor and Subcontractors shall not start work until authorized by the Contact Man at the jobsite. Such authorization does not constitute authority to proceed with any work involving special permits as outlined herein. Contractor shall also secure approval from Contact Man before any materials are delivered to jobsite when material deliveries precede Contractor's arrival on site.

2. Contractors' Equipment

a. All equipment brought into the Plant by Contractors shall be in safe operating condition. Authorized Owner personnel at any time may inspect Contractors' equipment. Such inspections or failure to inspect shall not relieve Contractors of their responsibilities for the safe condition of their equipment.

b. All Contractors moving trailer-type equipment shall use a hitch equal to Premier's automatic latching hitch No. 105 for one-ton loads, or No. 580 for one-and-one-half ton loads, except that properly rated ball hitches may be used when provided with safety chains.

c. Load limits for the San Jacinto Street overpass are as follows: maximum axle load - 32,000 pounds and maximum gross load - 72,000 pounds. A tandem axle vehicle shall be considered as being a single axle.

3. Smoking

Smoking within the Plant is prohibited, except at locations and times approved in writing by Owner. The Contact Man will obtain the required permission.

4. Hot Work (see Section 4 of the Baytown Chemical Plant Safety Manual)

Contractors shall not use open fires or spark-producing equipment or do any "hot work" without a written permit on Form 541-0623 properly filled out and signed by (1) The Basic Equipment Owner in the space marked, "Operating Man," (2) Owner's Safety Permit Inspector in the space marked "Gas Inspector," and (3) by the Contractor's

authorized representative in the space marked "Mechanical Supervisor." Permits are valid for only the time and date specified on the face of permit. Owner will assign areas in which contractor may do "hot work" on a job duration basis and will give short-time permits in other locations where considered safe. Contractors shall stop any "hot work" upon request of any employee of Owner and shall not resume such work until authorized by the Contact Man. Contractor shall watch for conditions that make the use of "hot work" unsafe: and immediately upon observing such conditions. Contractor shall cease "hot work" and report the condition to the Contact Man.

5. Explosives

Explosives shall not be used without prior written approval of Owner.

6. Connecting Into Existing Pipe Lines or Equipment

a. Contractor shall not open or tie its work into Owner's existing pipe lines or equipment without a written permit on Form 541-0079A "Permit For Cold Work," properly signed by Basic Equipment Owner in the space marked "Operating Man." After a tie-in has been made to Owner's existing lines or equipment, the whole piping or equipment system involved shall be considered the same as Owner's existing lines and equipment and written approval on Form 541-0079A, mentioned above, shall be obtained from Owner before additional work can be done on any of these lines or equipment, unless a blank, approved by the Contact Man, has been installed separating the lines and equipment being worked on from the remainder of the system.

b. Permission must be obtained from the Contact Man prior to the use of company utilities, such as, but not limited to, water, steam and air systems, and fire hydrants. Each connection shall be guarded by a check valve. When taking water from fire hydrants, the main center valve shall be opened completely.

7. Connecting into Existing Sewers

Contractor shall not open or tie into or work on Owner's sewer system without a written permit on Form 541-0079A, "Permit For Cold Work" (Section 6, Baytown Chemical Plant Safety Manual) properly signed by the Basic Equipment

Owner in the space marked "Operating Man." After sewers constructed by Contractor have been tied into Owner's sewer system, the "hot work" permit shall terminate. Contractor shall not perform any "hot work" in the area until a new "hot work" permit has been obtained.

8. Work On, Adjacent To, or Connecting Into Existing Electrical Power Circuits and Work on Electrically Operated Equipment.

Under no circumstances shall Contractor work on, adjacent to, or connect into Owner's electrical system or work on Owner's electrically operated equipment without securing prior written permission from Owner in accordance with Owner's "Electrical Tagout Procedures," latest edition, (Section 3 Baytown Chemical Plant Safety Manual). Contractor shall comply with said procedures in performing all work.

9. Entering Process Equipment (See Section 2 Procedure for Entering Equipment or Confined Spaces, Baytown Chemical Plant Safety Manual).

Contractor shall not enter any Chemical Plant Process Equipment without permission from the Technician, where a written permit on Form 541-0751, "Report of Gas Analysis" and "Permit to Enter," is required it shall be properly signed by (1) Owner's Safety Permit Inspector, (2) the Basic Equipment Owner and (3) Contractor's authorized representative in the space marked "Foreman Doing Work." The permit is valid for only the time and date shown on the face of the permit.

10. Work Involving the Use of Ionizing Radiation.

Contractor Involving the Use of Ionizing Radiation

Contractor shall not perform any work involving the use of ionizing radiation without written notification in duplicate to the Owner. Notification shall include: (1) the job reference, (2) time of entry, (3) type of ionizing radiation equipment, (4) strength of the ionizing source. Contractor shall comply with "Texas Regulations for Control of Radiation," latest edition. Texas State Department of Health, division of Occupation Health and Radiation Control, Austin, Texas, together with all future amendments, additions, and revisions to said regulations and standards. Owner reserves the right to conduct independent and unannounced radiation surveys of Contractor's equipment and its uses on Owner's premises.

11. Use of Lines, Conduits or Structures as Supports

Contractor shall not use Owner's pipe lines, electrical conduits, handrails or structures as supports for loads, for ladders, or for scaffolds without authorization from the Contact Man.

12. Use of Stanchions or Equipment for Anchors

Contractor shall not use Owner's pipe stanchions or other equipment for attaching snatch blocks, guy lines or for other services which apply loads on the equipment without written approval of the Contact Man.

13. Guy Lines

When it is necessary for Contractor to install guy lines across Owner's electric lines, Contractor shall construct guards of a type approved by Owner, to prevent guy lines from coming in contact with the electric lines. No guy lines shall be detached nor buried guy line anchors disturbed without prior approval of the Contact Man. Contractor shall not place any guy line, mooring line, or load line in such a position that it will tighten against operating equipment, pipe lines, tanks, or machinery.

14. Working in the Vicinity of Electric Lines

When it is necessary for a Contractor to operate cranes or derricks, or perform other work within 12 feet of open electric lines (vertically or horizonally), Contractor shall consult the Contact Man and determine whether the electric lines can be de-energized. Contractor shall not proceed with any work until the electric lines have been de-energized or until guards have been installed.

15. Excavation, Open Top Vessels, Sewers and Furnaces

All excavations made by the Contractor shall be adequately protected to prevent sloughing of earth by shoring or sloping and shall be fenced in or boarded over to prevent personnel from slipping or falling into them. In excavation which employees may be required to enter, excavated or other material shall be effectively stored and retained at least two (2) feet or more from the edge of the excavation. Contractor shall not enter or perform work in an excavation which requires a person's head to be below the surface of the ground until a "Permit To Enter" has been secured. This includes open top vessels, sewers and furnaces.

WARNING - RED CONCRETE UNDERGROUND signifies the presence of an electrical circuit. Stop excavating and notify the Contact Man.

16. Moving Suspended Loads

Contractor shall not move loads suspended from mobile equipment without load being secured to prevent swinging. All chains, cables, ropes, etc., suspended from mobile equipment shall be properly fastened.

17. Damage to Owner's Property

If Contractor damages any of Owner's property, or property of any other Contractor or Subcontractor, the damage shall immediately be reported to the Contact Man.

18. Warning and Caution Signs

Contractors shall obey all safety warning signs posted by Owner and shall provide safety equipment required by signs.

19. Entering Operating Unit

Contractor shall not enter any operating unit or area with motorized equipment without a Cold Work Permit as outlined under Section 3. Vehicles entering these areas may be required to have spark proof mufflers or their equivalent.

20. Operating Owner's Equipment

Contractor shall not operate any of Owner's equipment, such as electric power switches, valves, etc., without prior specific approval of the Contact Man.

21. Use of Special Vehicles

No vehicle or piece of equipment having metallic-lugged wheels or tracks shall be operated on any hard surface street without adequate protection to the street, as approved by Contact Man. No tracked equipment having flat pavement treads shall be operated on a paved street without approval of the Contact Man.

22. Fire Extinguishers

Welding machines and tar pots shall have a 12-pound CO_2 or 20-pound dry chemical-type fire extinguisher in proper working condition located adjacent to the equipment. An extinguisher shall be located in each working area where "hot work" is being done.

Fire Hose - Where fixed hose reels are not available, the Contractor shall furnish and maintain a minimum of one fire hose in each working area where hot work is being done. Each hose shall be 1-1/2" diameter with threaded coupling

and NYC Fire Department threaded adapter suitable for 150 psi pressure. Each hose shall be equipped with a 1-1/2" combination fog, straight stream, and shut-off nozzle equal to American LaFrance or Elkhart L-200. Hoses shall be connected to a hydrant. The Contractor shall be responsible for opening the water supply valve at the hydrant in full open position while hot work is in progress, but pressure is not to be left on hose overhight.

23. Plant Air

Contractor shall not use plant system compressed air for breathing purposes.

24. Machinery

Contractor shall not work on any machinary while it is either in motion or operation without approval of the Contact Man.

25. Refueling Vehicles and Equipment

Whenever possible, gasoline and fuel should be dispensed through a pump and hose. If not possible, approved* safety cans with flexible spouts may be used. Transfer of fuel in nonapproved cans, open containers and glass containers is prohibited. Vehicle and equipment engines must be turned off during refueling.

* Underwriters Laboratory or Factory Mutual approved con-container for flammable liquid.

26. Securing of Temporary Buildings

All tamporary buildings shall be tied down by the Contractor in accordance with the Contact Man's instructions and applicable Baytown Engineering Standards.

II. PROCEDURES

I. PROCEDURE FOR ENTERING EQUIPMENT OR CONFINED SPACES

A. Purpose

The purpose of this procedure is to establish minimum precautions to be taken for the safety of personnel entering excavations, Chemical Plant equipment, or confined spaces (pits, sewers, excavations, etc.) to do cold work, inspections, or other job related activities where a "Hot Work" Permit is not required.

B. Scope

This procedure covers all work to be done inside vessels, tanks, or confined spaces such as pits, sewers, etc. This section is designed to protect personnel against such hazards as oxygen deficiency, toxic materials, flammable materials, and power-driven equipment.

C. Responsibilities

1. Basic Equipment Owner is responsible for:

   a. Assuring that the equipment to be entered is empty and cleared of hazardous material.

   b. Assuring that the equipment is purged free of gases or vapors.

   c. Assuring that sufficient blinds are installed and piping disconnects are made.

   d. Signing and issuing the yellow "Permit to Enter" tag.

2. Safety Permit Inspector is responsible for:

   a. Inspecting the area.

   b. Making the necessary gas tests.

   c. Signing the yellow "Permit to Enter" tag.

3. Person or Persons Doing the Work are responsible for assuring that:

   a. The proper permit has been obtained, is properly signed, and is located in a conspicuous place.

b. Only the type of work covered by the permit is performed.

c. All safety precautions are followed.

d. Upon returning to the worksite after leaving for such things as lunch break, safety meetings, etc., that the yellow "Permit to Enter" tag is still in place, and conditions are unchanged.

Note: He should never proceed with his work if the yellow "Permit to Enter" tag is not in place. He should also be alert for changing conditions, and report changes to his supervisor and/or the Basic Equipment Owner.

4. Standby Man is responsible for:

a. An accounting of personnel working in the vessel.

b. Preventing fouling of air or life lines.

c. Being alert for hazards to workers.

d. Providing normal assistance in handling materials, tools, messages, etc.

e. Evacuating of vessel in case of fire or disaster alarm.

f. Being well trained in operation of respiratory equipment when being used.

g. Maintaining an adequate air supply.

D. Procedure for Entering A Vessel Without Protective Equipment

1. Any vessel or space to be entered shall be emptied, cleaned of hazardous materials, and purged to place it in a safe condition prior to entry.

2. An independent fresh air ventilating system shall be provided and be in operation.

3. All connecting lines to the vessel must be physically disconnected or blanked off at a point as near to the vessel as practical. Double block valves with an intervening bleeder valve are not considered equivalent to a blind where personnel bodily enter the equipment.

4. All power-driven equipment in the vessel shall be immobilized. Electrical equipment shall be locked out in accordance with Electrical Lock-Out Procedures. The power supply to other equipment driven by air, steam, or hydraulic fluid shall be blanked or disconnected.

5. Atmosphere inside the vessel to be entered shall be tested for explosivity, oxygen deficiency, and toxic materials by the Safety Permit Inspector.

   a. Explosivity: No entry will be permitted unless test indicates a safe range.

   b. Oxygen Deficiency: No entry will be permitted if oxygen content is less than 20%.

   c. Toxic Material: No entry will be permitted unless test indicates a safe range.

   Additional checks are to be made as work inside the vessel proceeds if possibility of release of fumes or depletion of oxygen exists.

6. A stand-by shall be required when the situation is such that outside warning is necessary. He shall be equipped with a Claxon horn for warning purposes.

7. Either a yellow "Permit to Enter" or a green "Hot Work Permit" is required before entry and is not valid until the permit has been issued and the specified requirements met. It must be posted at a conspicuous location at the jobsite.

E. Procedure For Entering A Vessel <u>With</u> Protective Equipment

In certain circumstances, it may be necessary to enter vessels that have an oxygen deficiency or is not completely purged of toxic materials. Entry will be permitted provided appropriate precautionary measures are taken.

1. A vessel or space to be entered must be cleaned of hazardous materials and be purged, insofar as practical, prior to entry.

2. An independent fresh air ventilation system must be provided and be in operation where applicable.

3. All connecting lines to the vessel must be physically disconnected or blanked off at a point as near to the vessel as practical. Double block valves with an intervening bleeder valve are not considered equivalent to a blind where personnel bodily enter the equipment.

4. All power-driven equipment in the vessel must be immobilized. Electrical equipment must be locked out in accordance with the Electrical Lock-Out Procedure (Section 3). The power supply to other equipment driven by air, steam, or hydraulic fluid must be blanked or disconnected.

5. Atmosphere inside the vessel to be entered must be tested for explosivity, oxygen deficiency, and toxic materials by the Safety Permit Inspector.

   a. Explosivity: No entry will be permitted unless test indicates a safe range.

   b. Oxygen Deficiency: Entry will be permitted with a pressure-demand, hose-line air mask.

   c. Toxic Material: Entry will be permitted with appropriate protective equipment.

   Additional checks are to be made as work inside the vessel proceeds if possibility of release of fumes exist.

6. All personnel entering vessels must wear protective equipment appropriate for the hazard involved. Use of respiratory masks and other protective equipment (such as rubber suits, goggles, gloves, etc.) inside vessels is to be determined by the Basic Equipment Owner, the Maintenance Supervisor, and the Safety Permit Inspector. The yellow "Permit to Enter" tag must be posted at a conspicuous location at the job-site and shall have the required protective equipment for entry written on it.

   a. Protective clothing must be used if there is a hazard to the skin.

   b. Pressure-demand, hose-line air mask with self-contained life line must be used if there is a hazard to breathing.

   c. A stand-by shall be required when workmen are required to wear pressure-demand hose-line air masks inside the vessel, or when the situation is such that outside warning is necessary. The stand-by shall be equipped with a Claxon horn for warning purposes and emergency air-pak (stand-by kit) so that he may assist in rescue. Scott Air-Paks are permissible in lieu of the pressure-demand, hose-line air mask for emergency use.

      Note: The stand-by man should never attempt to enter the vessel, even in an emergency, until help has arrived.

F. Permits Required

1. For entering only - green "Hot Work Permit" tag or yellow "Permit to Enter" tag required.

2. For hot work - green "Hot Work Permit" tag required.

G. Duration of Permits

Same as for green "Hot Work Permit" tag.

H. Standby Person

A stand-by person is required when workmen inside the vessel are required to wear fresh air breathing equipment, or when the situation is such that outside warning is necessary. The standby person must be equipped with exactly the same type of equipment that the workmen inside the vessel are wearing, shall have it on at all times and be ready to assist in the rescue operation if necessary. In addition the stand-by will be equipped with a Claxon horn for warning or securing help. The stand-by person shall never attempt a rescue operation, even in an emergency, until help has arrived.

II. ELECTRICAL LOCK-OUT, WIRING DISCONNECT AND POWER LINE PROCEDURES

A. Purpose

The purpose of these procedures is to establish the minimum standards for persons doing work on electrical circuits or electrically powered equipment. Before anyone works on electrical circuits or electrically powered equipment in a position such that he could be endangered, the electrical supply shall be turned off and locked out in accordance with this procedure.

B. Scope

This procedure covers the minimum standards required for anyone working on electrical circuits: this includes the special precautions needed when working on equipment such as: fans inside cooling towers; inside confined spaces containing electrically powered equipment such as mixers or filters; where more than one item of equipment is controlled by a single switch and it is necessary to keep the other equipment in operation; or the removal of electric etc., or when working on or near power lines.

C. Responsibilities

1. Basic Equipment Owner is responsible for:
   a. Shutting down the equipment.
   b. Signing and placing the proper tags on the equipment.
   c. Positioning the Main disconnect switch on the "off" position and padlocking it with an operation lock.
   d. Assuring that the equipment is safe to work on.

2. Mechanical Craftsman is responsible for:
   a. Assuring that the proper tags, locks, etc., are in place and the equipment is safe to work on.
   b. Assuring his own safety by installing and keeping his own tag and lock on the main disconnect switch.

D. Exceptions

These procedures do not apply to the following:

- Lighting circuits for the purpose of relamping.
- Circuits of less than 100 volts.
- Circuits which must remain energized. In such cases, the methods established by the Mechanical and Operations organizations shall be used.
- Power lines.

E. Lockout Procedure

1. The Basic Equipment Owner or his designated representative shall:

   a. Shut the equipment down at the local start-stop switch, and tag the switch with a "Do Not Operate" tag.

   Note: In case there are remote start-stop switches on this equipment, the operating personnel responsible for operating the remote start-stop switches, shall tag the remote switch in the "off" position with a white "Do Not Operate" tag.

   b. Position the main disconnect switch in the "off" position, and padlock it with an operations lock, in the first position or the position nearest the switch, using a multiple lockout adapter.

   c. Tag the main disconnect switch with a white "Do Not Operate" tag.

   d. Check the local start-stop switch to assure the equipment will not start. Should the equipment start, the supervisor should be notified immediately.

   e. Enter the lockout in "the lockout" log in the Control Center.

   Note: If a process technician is to perform mechanical work on the equipment he should take a craftsman type lock from the Control Center and follow the same procedure as outlined for the mechanical craftsman under Item "2" below, steps a through c.

   f. After the work has been completed and the mechanical craftsman has removed the padlock and tag, the process technician shall remove the operations lock and "Do Not Operate" tags and enter the lock removal in the lockout book.

2. The Mechanical Craftsman shall use the following steps:

   a. Padlock the main disconnect switch with his own lock by placing it in the second position of the multiple lock-out adapter.

   b. Put a red "Do Not Operate" tag on the switch with his name, skill and date on it.

   c. Remove his own padlock and tag when he finishes his work, or remove his own padlock and tag at the end of his shift whether the work is completed.

Note: A master key for Mechanical Craftsmen's locks shall be kept at the Shift Superintendent's Office only. If it becomes necessary to remove a lock by other than the Craftsman who installed it, only the Shift Superintendent shall remove it.

Upon removal of the lock, the Shift Superintendent shall send a note to the Department Head of the Operating Department and the Mechanical organization stating whose lock was removed, where it was located, and why it was removed. A log of the same information shall be maintained in the Shift Superintendent's Office.

F. Procedure for Wiring Disconnect

1. The Basic Equipment Owner and the Qualified Craftsman shall lockout the equipment in accordance with the lockout procedure as described under item E steps 1 and 2 of this section.

2. After making sure the circuit is clear, by checking with a voltage tester, the Qualified Craftsman shall disconnect the wires and tape them together.

3. The Qualified Craftsman shall tag the disconnect switch with a yellow "Wiring Disconnected" tag. On the tag he shall note where the wiring is disconnected and shall sign and date the tag.

4. After the wiring has been disconnected, the Qualified Craftsman shall remove his padlock and red tag unless he must do other work on the equipment.

5. The Qualified Craftsman who reconnects the wiring shall remove the yellow "Wiring Disconnected" tag.

G. Procedure for Removing Equipment from Service Inside the Cooling Tower Stack to Perform Work

1. Lockout the electrical circuit as outlined in Item E steps 1 and 2 of this section.

2. Use a stand-by for jobs that can be completed the same shift started; and disconnect the electrical circuit (Item F).

3. If the job requires more than one Shift to completion then the fan to motor coupling shall be disconnected.

H. Procedure For Work On or Near Power Line

1. Responsibilities

a. Maintenance Supervisor - is responsible for removing circuits, tie lines and feeders from service to perform work and for returning these power lines to service.

b. Utilities Chief Operator - is responsible for issuing instruction to the Power Plant Technician.

c. Power Plant Technician - is responsible for attaching the red "Power Line" tags to the circuit breakers and control devices and to remove the power lines from service.

d. Personnel Working On The Line - shall be responsible for personally inspecting the red "Power Line" tags and circuit breakers on a line which has been removed from service to see that the proper information is on the red "Power Line" tags, and that the disconnect switches are open or the circuit breakers are in the lowered position. Before any work is done on a line up to, and including 2,500 volts, the line shall be checked with a potential transformer to assure that it is de-energized. On power lines over 2,500 volts a ground chain shall be pulled across the line to assure that it is de-energized.

e. If work is to be carried on at more than one location on the line, each group working on the line, whether in the field or inside the power plant, shall be protected by separate red "Power Line" tags on the circuit breakers and control devices.

2. Procedure

a. The Maintenance Supervisor or his authorized Mechanical Organization Representative shall contact the Utilities Chief Operator and request services to be removed, giving him full details.

b. The Utilities Chief Operator issues instructions to the Power Plant Technician.

c. The Power Plant Technician removes the power lines from service and attaches the red "Power Line" tags to the circuit breakers and control devices.

d. The Work Crew shall check to assure all procedures are followed in detail before commencing work.

3. Procedure For Returning Power Line To Service

When the work is completed, the following steps shall be taken to return a power line to service.

a. The Maintenance Supervisor or his designated representative shall contact the Utilities Chief Operator and authorize the removal of the red "Power Line" tags.

b. The Utilities Chief Operator issues instructions to the Power Plant Technician to remove the red "Power Line" tags, and return the line to service.

4. Precautions for Working on or Adjacent to 2,300-volt Power Lines

a. Before beginning work on, or adjacent to live uninsulated 2,300-volt circuits, the Maintenance Supervisor shall notify the Power Plant Process Technician at the Power Plant from which the circuit or circuits are controlled. The Power Plant Technician shall attach a "Caution-Craftsman Working on this Circuit" tag to the switch or switches controlling the circuit or circuits. If any switch to which a tag is attached is tripped, it shall not be reclosed until the Power Plant Technician is notified that it is safe to reclose. Upon completion of the job or in the event of trouble, the Maintenance Supervisor shall immediately notify the Power Plant Technician.

The tag or tags shall not be removed until the Maintenance Supervisor who had requested that they be placed requests their removal.

This shall be done promptly upon completion of the job, or when the Contractor's crew stops work for the day. The Power Plant Technician shall contact the Maintenance Supervisor or Utilities Chief Operator if there is any question in his mind regarding tags that are left hanging.

* Independent Contractor personnel shall use the red "Do Not Operate" tag and padlock as specified in this procedure. The name of the Contractor's firm and Contractor's employee affixing the tag shall be written on the tag. Padlocks used by Independent Contractor personnel shall be obtained from Exxon Chemical Americas' Contract Administration Contact Man. In the case of an independent Contractor, the Contractor's power line foreman must communicate with OWNER'S Contact Man, who will contact the Maintenance Supervisor of the Utilities Chief Operator.

5. The Basic Equipment Owner, Maintenance Supervisor and the Craftsmen shall remain alert for any conditions which could make hot work hazardous. If a hazardous condition develops, all hot work and machines shall be stopped at once. The Craftsmen shall immediately vacate the vicinity. The green "Hot Work Permit" tag shall be removed, and the person removing the green "Hot Work Permit" tag shall notify other involved persons. Before work may be resumed, a new green "Hot Work Permit" tag shall be issued. When Craftsmen leave a job (such as lunch time), they shall check to see that the permit tag has not been removed before starting work.

6. The Craftsman is responsible for checking the "Permit Tag" to be sure it is current, valid, and properly signed by the Basic Equipment Owner and Maintenance Supervisor. If either signature is missing, work shall not be started until the permit is completed.

7. The Basic Equipment Owner shall not issue a green "Hot Work Permit" tag while a white "Permit to Open and/or Blank or Cold Work" tag is in existence in the area that could be made hazardous by any spill. All openings from which spills could occur shall be considered hazardous. The area of concern shall cover the geographical limits where there is a remote possibility that sparks from hot work could fall into any vapors which could be released from the opening, or could flow to a point where sparks might ignite them. If a white "Permit to Open and/or Blank or Cold Work" tag is in existence, it is the responsibility of the Basic Equipment Owner to see that a green "Hot Work Permit" tag is not issued or the white "Permit to Open and/or Blank or Cold Work" tag is terminated. If the Basic Equipment Owner decided sufficient liquid or vapor has been released to create a hazard, a green "Hot Work Permit" tag shall not be issued until the hazard has been eliminated.

8. When electric welding is to be performed, the ground connection shall be attached to the work within the area covered by the permit, and the welding machine shall be in this area or in an approved one.

D. Procedure

1. Initial Issuance of Permit

a. Before the Safety Permit Inspector is called, the Basic Equipment Owner shall determine that the area is prepared for hot work as follows:

(1) Check to see that flammable liquids or solids are not spilled or trapped in equipment.

E. Duration of Permit

The Basic Equipment Owner, Maintenance Supervisor, and Safety Permit Inspector shall determine the duration of the permit.

1. Eight-Hour Permit

An eight-hour permit (or less) shall be issued where the job involves work adjacent to or on equipment handling flammable or toxic materials. Eight-hour permits are void at the end of the shift for which they were issued.

2. Twenty-Four Hour Permits

A twenty-four-hour permit may be issued where the job involves work in an area where there is no nearby equipment in flammable or toxic service. Examples are: (1) work in a unit in service which does not contain flammable or toxic materials and (2) work in a tank where no other tanks or equipment are within the same firewall. A twenty-four-hour permit may be continued beyond the end of the mechanical shift in which it was issued.

The Basic Equipment Owner and Maintenance Supervisor for the new shift shall make a personal inspection of the jobsite to determine that conditions have not changed and that it is safe to continue work. If conditions have not changed, the Basic Equipment Owner and Maintenance Supervisor shall sign the jobsite permit tag and the retained copy.

A twenty-four-hour permit is void 24 hours from the time of original issue and must be reissued, after determining that original inspection conditions prevail.

3. Job Completion Permits

Under certain conditions, a green "Hot Work Permit" tag may be issued for job duration. In general, it is where the job conditions at and surrounding the work will not change and create a flammable or toxic material hazard.

Approval for a job completion permit shall be given by the next level of supervision above the first-line supervisor. The permit requires a jobsite inspection at the beginning of each shift by the Basic Equipment Owner and the Maintenance Supervisor to assure that conditions remain safe.

If the permit is terminated by anyone other than the Basic Equipment Owner, the tag section of the permit shall be given to the Basic Equipment Owner for disposition as above.

G. Special Requirements

1. Stand-By Requirements

A stand-by shall be required when the situation is such that outside warning is necessary. He shall be equipped with a Claxon horn for warning purposes.

2. Ventilation

Adequate ventilation shall be provided when working in a closed container or enclosed space. If adequate ventilation is not possible, suitable respiratory protection shall be used.

3. Venting Hollow Equipment

Before burning into or heating any hollow vessel or equipment, such as ball floats, pistons, impellers, vessels, pipes, valves, fittings, or similar equipment which has been in service of any kind, the vessel or equipment shall be properly vented (unless the operation is performed under controlled conditions so that any overpressuring will be avoided, as in the case of heating barrels of oil or opening plugged lines or similar operations).

4. Fire Extinguishers

A fully-charged fire extinguisher of a type and size designated as suitable shall be provided where hot work is to be done.

5. Welding and Burning in Confined Spaces

To prevent gas from escaping through leaking or improperly closed torch valves, the gas supply to the torch shall be positively shut off at some point outside the enclosed space or the hoses disconnected at the regulator whenever gas welding or burning is suspended for a substantial period of time or when the torch is left unattended such as during the lunch period, at shift change, etc.

The torch and hose shall be removed from the confined space, or if this is impractical, the hoses shall be disconnected at the regulators (1) at the end of the shift when work is not to be continued on the next shift, (2) at any time when positive ventilation of the confined space is discontinued.

12. Protective Equipment Required

The protective devices and personal protective equipment required depend upon conditions at the jobsite.

IV. OPENING AND/OR BLINDING PERMIT

A. Purpose

This permit procedure is designed to prevent accidents by insuring adequate communications between the Basic Equipment Owner and the person doing the work when opening and/or blinding equipment.

B. Scope

This procedure covers the requirements necessary when OPENING, BLINDING, OR REMOVING BLINDS. Included are definitions, responsibilities, and examples. It also refers to the BLIND TRACKING PROCEDURE, which is a mandatory procedure to be followed in connection with the installation/removal of blinds.

C. Definitions

1. Opening - Exposing the interior of any processing equipment, including piping, to the atmosphere. This includes removing covers, breaking flanges, pulling header plugs, etc. It does not include draining or venting through a valve.

2. Blinding - Installing temporary slip blinds into piping or blind flanges onto equipment to isolate or close for mechanical work.

   a. Blinds must be installed when equipment is to be opened or isolated for any reason other than routine process operations. Draining lines or equipment through bleeders is not opening.

   b. Blinds must be installed on all open ended piping left unattended or equipment that has been removed for additions or repairs leaving open ended sections.

      EXCEPTION: Lines in water and air service of less than 100 psig may be left unattended without blinding.

      EXAMPLES: Work Requiring an OPENING OR BLINDING PERMIT

      1. Inserting a slip-blind in a line.
      2. Installing blinds to isolate equipment for entry.

are tightly closed and tagged with DANGER - DO NOT OPEN tags, (2) the case has been depressured through bleeders, (3) the driver has been properly immobilized, and (4) the work can be completed in one shift.

Pumps taking suction on vessels operating below atmospheric pressure must be blinded on the suction side.

b. Compressors - Minor repairs, such as cover plate gasket and valve replacements and bearing inspections may be performed without blinding provided (1) the compressor can be isolated by block valves, (2) block valves are tagged with DANGER - DO NOT OPEN tags, (3) the case is depressured through bleeders, (4) the driver has been properly immobilized, (5) the work is continuous until completion, and (6) no more than one cover plate and valve is open at any time.

c. Drivers - To perform major work on drivers, the driven end must be disconnected or blinded. Additional isolation must be as follows:

(1) Electric motors must be immobilized, using Electrical lockout Procedure (see Section 3).

(2) Gas engines must be blinded when performing work that requires entry into the case.

Exceptions: Gas engines do not require blinding when performing minor repairs such as spark plug replacement, repairs to fuel gas valves, and starting air valves, jumbo changers, etc.

(3) Combustion turbines must have fuel lines blinded and the auxiliary motors immobilized.

(4) Expansion gas turbines must be blocked by closing the inlet and exhaust valves, tagging the valves with DANGER - DO NOT OPEN tags, and depressuring through bleeders.

(5) Steam turbines must be blocked by closing the inlet and exhaust valves, tagging the valves with DANGER - DO NOT OPEN tags, and opening bleeders.

d. Vessels - Isolation blinds must be installed as close to the vessel as safely practical and in a manner to insure that no liquid or vapor can be trapped between the blind and vessel.

e. Cooling Towers - Individual cells and stacks on cooling towers may be isolated for entry by closing the water inlet valve to the cell. The valve may be secured with a DANGER - DO NOT OPEN tag attached by Basic Equipment Owner and a Mechanical lock placed on the valve by the person doing the work who will enter the cooling tower. If any chemical lines are connected to the cell to be entered, the line must be blinded or disconnected before entry.

f. Cursory Inspections - Equipment may be opened for cursory inspections without blinding under the following conditions:

(1) The equipment must be isolated by block valves tightly closed and tagged with DANGER - DO NOT OPEN tags.

(2) The equipment must be depressured and safe to open.

(3) Only one opening at a time must be made.

(4) No personnel entry allowed.

(5) When applicable, proper protection must be provided for individuals adjacent to the opening.

(6) The open equipment must not be left unattended.

4. Preparing Blinding List - Before blinding begins, the Basic Equipment Owner must prepare a blinding list indicating the size and location for all slip blinds and blind flanges to be installed in accordance with the BLIND TRACKING PROCEDURE.

5. Issuing Permit - The Basic Equipment Owner and the person doing the work must make a safety tour of the jobsite, identify and mark the places to be opened and/or blinded, and review the limitations and safety requirements stipulated on the permit including filling out the checklist. When both the Basic Equipment Owner and the person doing the work are satisfied that the task can be safely accomplished, then both will sign the permit.

The Basic Equipment Owner must post the cardboard portion in a conspicuous place at the jobsite and file the original copy in the permit file.

When an OPENING OR BLINDING PERMIT is required in an area where "Hot Work" is being performed, the HOT WORK PERMIT must be pulled and reissued after the area has been reinspected by all persons who are required to sign the HOT WORK PERMIT.

9. Removing Blinds - The removal of blinds requires another permit unless the installation and removal work is continuous and completed within 24 hours. The Basic Equipment Owner issuing the permit and the person doing the work accepting the permit must tour the area and physically identify the blinds to be removed. Equipment must be headed up before a permit to remove blinds is issued. The person doing the work must sign and date the blindin list as each slip blind and blind flange is removed. After the last blind has been removed or at the end of the shift of the person doing the work, the person doing the work must sign and date the cardboard portion and return both the permit and blinding list to the Basic Equipment Owner.

10. The Unit Permit Board - After the permit has been properly filled out and the cardboard section placed at the jobsite, the original must be filed in the AREA PERMIT BOARD in the box labeled "Active". When the permit extends beyond the shift of the person who issued the permit the current status of the job must be entered on both the original in the UNIT PERMIT BOX and the cardboard section at the jobsite.

11. Filing of Permits and Blinding Lists - Each permit must b filed for 72 hours after its expiration and then discarded. Blinding lists must be filed in accordance with the Blind Tracking Procedure.

V. COLD WORK PERMIT

A. Purpose

This permit procedure is designed to prevent accidents by giving Process Personnel control over cold work activities taking place in their processing area. To insure proper communications between Process and Mechanical, a blue COLD WORK PERMIT must be complete before work is started in a Process area.

B. Definition

Cold Work is any mechanical work in a process area that does not involve opening, blinding, entering, hot work, or electrical lockout.

C. Responsibilities

1. Chief Operator or his designated representative is responsible for approving blue COLD WORK PERMITS. He or his designated representative is responsible for insuring that all safety precautions have been completed prior to issuance of the permit.

2. Maintenance Supervisor or his designated representative has the responsibility for initiating the blue COLD WORK PERMIT and securing approval from Process personnel. He is responsible for seeing that only the work authorized by the permit is performed.

5. Permit Duration and Disposition - Blue COLD WORK PERMITS are issued for one mechanical shift. At the end of the mechanical shift or at job completion, whichever comes first, the Mechanical Person must sign the cardboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. The permit must be filed for 24 hours after its expiration and then discarded.

6. Extension of Permit - The permit may be extended by determining that the job conditions remain unchanged and by both Process and Mechanical signing the permit. The Permit shall not be extended beyond 24 hours' total duration.

VI. PROCEDURE FOR AUTHORIZING SMOKING PERMITS

When a smoking permit is desired, the requester, the Basic Equipment Owner, and a Safety Permit Inspector shall review the request at the proposed site.

Based upon the investigation and the approval of the reviewers, the Basic Equipment Owner shall make his recommendation in writing, addressing the original and three copies to this Department Head. The letter shall clearly define the boundaries, assure the presence of warning signs designating the area, and indicate whether a permanent or temporary permit is requested. If it is a temporary permit, it shall have a termination date specified and cannot be for a period of more than one year.

The Department Head involved shall indicate approval or disapproval on the copies and send one to each of the participants. A copy of the letter shall be displayed by the requester at the point where smoking is allowed. The Safety Permit Inspector shall maintain a central file on all approved smoking areas.

He shall inspect the area covered by a permanent permit annually and the areas covered by temporary permits monthly. If any changes in the boundaries or materials handled has occurred, he shall revoke the permit.

III.. SECURITY REGULATIONS

I. PARKING LOCATIONS

Parking locations will be designated for each Contractor by Owner. If Contractor desires to park on Owner's property, all parking shall be in the lot, or area designated. Posted regulations governing the use of the lot shall be followed. All vehicles on Owner's property shall be at the risk of the vehicle owner and Owner accepts no responsibility for paint or other damage to or theft of or from such vehicles.

II. ENTRANCE GATE

Owner will designate a gate or gates for the use of Contractor and for the delivery of its material and supplies. Contractor and vehicles serving the Contractor shall use only the designated gate for entrance and exit to and from the Contractor's jobsite. Contractor shall make arrangements so that vehicle drivers will know which gate to enter and the appropriate jobsite location.

III. WALKS AND ROADWAYS

Walks and roadways will be designated for the use of Contractor when entering or leaving the jobsite, when moving from one area to another, or when obtaining material from Owner. Contractor shall use only designated roadways and walks. The use of shortcuts or nondesignated pathways is prohibited.

IV. CONTRACTOR EMPLOYEE BADGES

Contractor's employees shall wear their Contractor's badges at all times they are in the Plant. Badges shall bear the firm's name and each badge shall be numbered with a different number. Contractor shall supply these badges and maintain a record of badge numbers with employees' names. Employees engaged for engineering services shall be required to wear badges furnished by Owner showing a number only. Badges must be shown to the gate Security Officer each time any employee of Contractor enters or leaves the Plant. When Subcontractors to the prime Contractor do not have their own badges, they may use the prime Contractor's badges.

When contract employees enter the Plant, the Contractor's supervisor is responsible for checking that every contract employee has a Contractor badge.

V. CONTRACTOR VEHICLE IDENTIFICATION

Contractor's vehicles must bear the Contractor's name or insignia prominently displayed, and the driver must have a badge. Such vehicles shall be restricted to the use of designated street or streets and Plant entrance or entrances assigned for use of Contractor. All equipment on rubber tires, such as mobile cranes, backhoes, air compressors, welding machines, etc., must have Contractor's name prominently displayed on both sides when being used by Contractor.

VI. MATERIAL PASSES

All tools and materials that the Contractor removes from the Plant shall be accompanied by a material pass obtained from the Contract Administrator. The material pass shall be completely filled out and shall be signed by a designated representative of Contractor and the Contact Man. The Contact Man retains one copy, and the original and one copy shall accompany the material to the gate. Both copies are to be surrendered to the gate Security Officer.

VII. THEFTS

Owner accepts no responsibility or liability for the theft of any property or material belonging to Contractor or its employees. It shall be the responsibility of Contractor to furnish any police protection it deems necessary to supplement the guard and patrol service provided by Owner. Owner maintains an investigative service and will cooperate with Contractor by assisting in the investigation of all reported thefts within the Plant. Thefts of property or automobiles from Owner's outside parking lots should be reported to local law enforcement officials. Contractor may obtain forms for reporting thefts from within the Plant from the Contract Administrator.

VIII. GAMBLING

All forms of gambling are prohibited on Owner's property.

IX. BUSINESS VISITORS, APPLICANTS, AND DELIVERY TRUCKS

Contractor shall furnish Plant Security with a list of persons who are authorized to pass business visitors, new employees, and delivery trucks to the jobsite. Plant Security will obtain authorization from one of these people before passing such individuals into the Plant. Special permission shall be obtained from the Contact Man to admit union business agents or safety inspectors other than contractor employees into the Plant.

X. AMBULANCE SERVICE

Contractor, when working in Plant, shall make any arrangements Contractor deems necessary for ambulance service from an outside firm. Requests for an ambulance, when working inside the Plant, shall be called in to Extension 3600. Requests for an ambulance, when working outside the Plant, shall be called in to 428-5305. Accident location, ambulance firm and hospital desired, and Contractor's name shall be given. Plant Security will escort the ambulance to the scene of the accident. All accidents shall be reported to the Contract Administrator as soon as possible, whether resulting in injury to a person or damage to the equipment of Owner or Contractor.

XI. INSPECTION OF LUNCH BOXES, PACKAGES, MOTOR VEHICLES, ETC.

When contract employees leave the Plant, the Contractor's supervisor is responsible for inspecting lunch containers, packages, and bundles.

Security officers have the right to inspect lunch containers, packages, bundles, tools, equipment, and motor vehicles in the Plant at any time.

XII. CAMERAS AND PHOTOGRAPHS

Unauthorized individuals shall not be permitted to enter the Plant with a camera. When Contractor desires to have photographs taken in the Plant, approval must be obtained from Public Relations Department.

XIII. LIQUOR, DRUGS, FIREARMS, AND EXPLOSIVES

Any person possessing intoxicating liquors or drugs, or who is under the influence of such, will not be permitted to enter the Plant or loiter on Owner's property.

Firearms and explosives will not be permitted in the Plant.

XIV. VISITING AND LOITERINGS

Visiting and loitering by Contractor's employees at or around entrance gates or other places on Owner's property will not be permitted.

XV. FINGERPRINTING

If requested by Owner, Contractor shall furnish the Owner two sets of fingerprints on each of his employees and each of his Subcontractor's employees.

IV. TRAFFIC REGULATIONS

I. Unless covered by a specific regulation in this Safety Manual, traffic regulations for safe driving inside the Chemical Plant are the same as the regulations of the State of Texas Motor Vehicles Laws.

A. Equipment and Identification Required on Motor Vehicles

All motor vehicles in the Chemical Plant must be in safe operating condition. When entering the Chemical Plant, all non-company vehicles must display a valid state inspection sticker on the windshield. As a minimum, the following equipment must be in proper working condition for the vehicle to be considered safe: (1) brakes; (2) lights - two headlights, tail lights, brake lights; (3) horn; (4) muffler; (5) safety glass; (6) windshield wiper and rear-view mirror; and (7) turn signals. Vehicles having dual wheels must be equipped with suitable flaps on each dual wheel so that objects will not be ejected past the flaps to the rear when the vehicle is in motion. Contractor's self-propelled, rubber-tired equipment must have contractor's name or insignia prominently displayed on both sides of the vehicle.

B. Driver's License

Persons operating motor vehicles in the Chemical Plant must have a valid operator's (automobile) license as a minimum.

C. Warning Flags

Red flags must be used on any load that extends beyond the front, side, or rear of any vehicle.

D. Traffic Signs

All traffic signs and signals, whether fixed or portable must be obeyed; and drivers must cooperate with Owner's Security Officers and others appointed to direct traffic.

E. "Road Closed" Signs

Areas blocked by traffic barriers and/or "road closed" signs are closed to all traffic. Follow procedure specified in FUI-55 for blocking Chemical Plant streets.

F. Speed Limit

All vehicles must be operated within the Chemical Plant's maximum speed limit of 30 miles per hour, unless a lower speed is posted.

G. Driving and Parking

Vehicles must be driven on the right side of the street and parked on the right side of the street, except when parking in designated parking areas or when directed otherwise by traffic signs or during emergencies. Vehicles must not be parked on streets or roadways in such a manner as to slow down, hinder, or interfere with the free flow of traffic. Vehicles must not be parked so as to block or interfere with the use of fire hydrants or fire equipment.

H. Right-of-Way

All motor vehicles must give the right-of-way to pedestrians, ambulances, fire-fighting equipment and firemen (who will be identified by driving with lights on and horn sounding), and bicycles. Vehicles must pull to one side and be brought to a complete stop when approached from any direction by an ambulance or fire equipment and firemen. Ordinary driving courtesy must be practiced by all drivers of motor vehicles.

I. Passengers

1. Passengers must be limited to a reasonable number so that vehicles will not be overcrowded.

2. Drivers of motor vehicles must not permit passengers to ride on fenders, running boards, tops, or bumpers of motor vehicles. Passengers must keep all parts of their bodies inside the car or body of vehicles and must be seated while vehicle is in motion.

3. Drivers of mobile equipment must not permit passengers unless special accommodations have been provided.

4. Passengers must not get on or off a vehicle while it is in motion.

J. Vehicles Prohibited

Motor bicycles or motorcycles are not permitted inside the Chemical Plant except to and from the designated "motorcycle only" parking areas provided near gates. Campers and recreational vehicles are not permitted in the Chemical Plant if loaded with gear or if they are otherwise difficult to inspect. Pressurized fuel containers shall be disconnected from refrigerators, stoves, etc., when a camper or recreational vehicle is in the Chemical Plant.

K. Vehicle Entry into Processing Area

Vehicles must not enter processing areas, including tank firewalls, without the permission of the Chief Operator or his designated representative.

EXCEPTION: Roadways through processing areas where entry is not prohibited by a sign or barrier may be used without permission of the Chief Operator.

L. Windshield or Window Obstruction

Vehicles having nontransparent materials that interfere with clear visibility through any side window or windshield must not be operated in the Chemical Plant. All vehicles must be equipped with adequate rear-view devices.

M. Failure to Comply With Regulations

Any person may have his in-plant driving privileges canceled or be subject to disciplinary action, or both, for failure to comply with these traffic regulations or for the improper use of his vehicle.