CONTRACTOR SAFETY MANUAL

GRACE

Lake Charles Plant

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I. INTRODUCTION

It is Grace's goal to prevent accidents and promote excellence in safety. To accomplish this goal, we must include contractors in our efforts regarding safety because they are an integral part of our workforce and contribute to the success of our plant.

We recognize that a strong and comprehensive contractor environment, health and safety program contributes to accident prevention and reduces property damage. Inadequate training, poor instructions, poor communications and unfamiliar environmental conditions lead to "poor safety performance" which is not acceptable in our industry.

The approach to safety discussed in this manual will help you, the contractor, prevent accidents while in the field and promote excellence in safety. However, these guidelines are intended to set minimum requirements for a contractor safety program.

II. PURPOSE

The purpose of this document is to establish the specific elements of the Contractor Safety Program for the overall benefit of contractor personnel and Grace employees and property. By implementing the programs outlined in this manual we intend to:

- Reduce or eliminate accidents to contractor personnel.
- Reduce or eliminate security incidents that may result in personnel injury or environmental upsets to the facility
- Establish formal, written criteria for acceptable safety performance by contractors.
- Establish criteria for acceptance to Grace Lake Charles "Approved Contractors List".
- Provide for the selection of qualified and safe contractors.
- Establish an understanding of the minimum requirements that will be required of the contractors.
- Incorporate formal on-site audit and job evaluation procedures which will

monitor and evaluate contractor safety performance.

- Apply these guidelines to every contractor, subcontractor and contractor employees performing work or overseeing work on the Grace premise.

III. POLICY STATEMENT

Grace has as its primary goal to provide a safe, healthy and secure workplace for everyone working in its plant. Every reasonable effort will be made to prevent accidents and to maintain a healthy work environment. There is no job so urgent or important that we cannot take the time to safely perform the work.

The safety rules and procedures contained in this manual will be utilized by all contract employees on all work performed. It is obvious that we cannot cover every conceivable situation that may arise so, each one, at all times must follow good common sense safety habits. Any unsafe conditions or practices should be reported to your supervisor immediately.

We want this Grace facility to be the safest in the industry.

IV. GRACE RESPONSIBILITIES

A. Project Engineer/Supervision

1. Ensure compliance with the terms of the contract including applicable safety and health rules.
2. Alert management of any changes in the scope of work that could adversely affect the safety of company personnel and/or property.
3. Assist in the investigation of contractor accidents or near-misses and ensure the contractor's supervisor completes the incident report as required in Section XIII.

B. Safety Department

The GRACE Safety Department reserves the right to require, participate or conduct

1. pre-job safety meetings with contractor supervisors that specifically address safety expectations.
2. contractor safety orientations which include safety instructions and hazard communication concerning hazards associated with the job.
3. maintain copies of all job site Accident Investigation Reports.
4. Be involved in any deviation from established safety standards or guidelines.

5. Be involved in contractor safety audits.
6. Review repeated violations or accidents by contractor employees.
7. Inform contractor personnel of our emergency plans and procedures.
8. Ensure compliance with local requirements of mandatory attendance of all contractor personnel of eight (8) hour safety training course by Safety Council of Southwest Louisiana or a GRACE approved equivalent.
9. Ensure compliance with the Marine Transportation Security Act while on site.

C. Purchasing Department

1. Inform the bidding contractors of what is expected of them in regard to their safety performance, i.e. training, past performance, etc.
2. Ensure that safety and health issues are considered in selection of contractors.
3. Communicate incident rate requirements.

V. CONTRACTOR RESPONSIBILITIES

1. Require employees to enter the plant through the entrance or gate designated by Grace.
2. Require their employees to have the Safety Council of Southwest Louisiana certification card or a GRACE approved equivalent prior to entering the plant. (Refer to Section XVIII. B).
3. Ensure that all contractors and sub-contractor employees comply with the terms of the contract, including applicable safety and health rules.
4. In the event of an emergency evacuation or shelter in place, contractors refer to Emergency Response Plan, the specific sections addressing evacuation and shelter in place procedures.
5. Obtain a Purchase Order or Master Order Release prior to starting work with the exception of some plant emergencies.
6. Ensure that their employees assigned to projects at Grace Lake Charles Plant are trained in the work practices necessary to perform their job safely.
7. Ensure that their employees are instructed in the known potential fire, explosion or toxic release hazards related to their job and the process, and in the applicable provisions of the emergency action plan.
8. Document that each of your employees has received and understands the training required by this document.
9. Keep the Grace representative fully informed of any work or unique hazards which may affect the safety of Grace employees or property. This includes complying with State and Federal Right-To-Know Legislation and providing the Grace representative with Material Safety Data Sheets about chemicals the contractor plans to bring onto the Grace site.
10. Keep your supervisors informed of who to call and what to do in an

emergency involving your work or employees.
11. Inform your supervisors as to where your first aid and medical services are located.
12. Immediately notify the Grace representative of any OSHA recordable injuries or illnesses your employees or sub-contractor employees sustain. (Refer to XVIII. Section G)
13. Contractor shall conduct and document site safety inspections to detect and correct unsafe conditions and safety rule violations.
14. Conduct and document safety meetings for employees.
15. Provide personal protective equipment that meets all OSHA (Occupational Safety and Health Administration) and plant standards.

Note: GRACE reserves the right to request verification of compliance

VI. CONTRACTOR QUALIFICATIONS

Contractors who receive an invitation to submit a proposal and attend a pre-bid meeting are selected from a current approved contractors list. This list is based on our experience with contractor's quality of work performed; record of completing work on schedule; handling of extras and cooperation with GRACE representatives. If a contractor has had no previous work experience in GRACE's Lake Charles plant then contractor must satisfy the following requirements.

1. Contractor with no previous work experience in the plant must be interviewed by Purchasing and Engineering.
2. Contractor must complete and return contractor safety questionnaire.
3. Contractor has in place a Drug and Alcohol Policy that assures a drug and alcohol free work force.
4. Contractor has in place a Louisiana Contractor's License.
5. Contractor must complete and return contractor questionnaire survey form.
6. The contractor must show a commitment to safety, as demonstrated by having a 3-year average Incident Rate below or equal to the latest published BLS average within your SIC/NAICS.
7. Contractor, at GRACE's request, must provide a description of the contractor's programs to comply with applicable regulatory requirements.
8. Contractor must meet or exceed Grace insurance requirements as stated in our Standard Agreement Article VII.
9. Contractor, at GRACE's request, must be able to secure a Performance Bond and a Labor and Material Payment Bond for the full amount of the work.
10. Contractor must provide financial statements if requested.

The above information will be maintained on file in the GRACE Purchasing Department or GRACE authorized location.

VII. HEALTH AND SAFETY TRAINING REQUIREMENTS

A. General Requirements

Contractor must provide safety and health training as required by federal regulations. The contractor shall document all training by completing the attendance rosters which contains the following information.

- Subjects covered
- Identity of employees
- Date of training
- Means used to verify that the employee understands the training
- Trainer's name

B. Annual Training Requirements

It is the responsibility of GRACE management to assure that contract employees are properly trained by their employer in OSHA mandated subjects prior to exposure at the jobsite. The health and safety topics shown below are a minimum annual requirement for contractors where applicable due to job skill set requirements:

1. Hazard Communication
2. Proper use of personal protective equipment
3. Proper lifting techniques
4. First Aid by CPR
5. Forklift operation
6. Confined Space Entry
7. Respiratory Protection
8. Material Safety Data Sheets and Hazard Communication Program
9. Electrical safety
10. Hand tools
11. Carcinogens
12. Hearing conservation
13. Emergency action plan
14. Blood borne pathogens
15. Hazardous waste operation and Emergency response
16. Industrial trucks
17. Mobile lifting equipment
18. Flammable and combustible liquids
19. Asbestos
20. First Aid and medical services
21. Signs and tags
22. Ventilation

23. Welding, cutting and brazing
24. Fire Prevention and protection
25. Fall protection
26. Excavation and trenching
27. Compressed gases
28. Manual material handling
29. Hands
30. Lock-out/Tag-out
31. Scaffolds, ladders and stairs
32. Aerial lifts
33. Slips, trips and falls
34. Rigging
35. Alcohol & drug abuse
36. Housekeeping
37. Floor & wall openings
38. Vehicles
39. Material storage
40. Radiation
41. Marine Transportation Act – MARSEC

Full compliance with health and safety training requirements for contractor personnel working in hazardous process areas is mandatory. The degree of compliance for contractors working in low risk areas may be modified based on a sound assessment of the work environment.

VIII. CONTRACTOR SAFETY ORIENTATION

All contractors prior to performing work for Grace, Lake Charles Plant, must attend our site GRACE Visitor or GRACE Contractor site specific safety orientation.

The visitor orientation is provided via Web-based Training (WBT) module using computers located in the main guard or construction guard offices. This orientation is designed to inform visitors of the general plant safety rules,

Contractor site specific training orientation is an instructor led class with a detailed overview of site-specific safety requirements, and hazard communication concerning hazards associated with the job.

This orientation is designed to inform and/or instruct contract employees in the following:

1. GRACE rules and regulations.
2. Potential fire, explosion, or toxic release hazards related to their job and the

process, and the applicable provisions of the emergency action plan.
3. Any unique hazards and site restricted work areas.
4. Emergency response plan including site shelter in place and evacuation plans.
5. GRACE's written procedure for work permits and authorization for such activities as Hot-work, Excavation, Confined Space Entry, Hazardous Energy Control, Line Break and Fall Protection requirements.
6. Incident notification. OSHA recordable injuries and illnesses, accidents, and damage must be reported to Grace's Safety Manager.
7. Accident investigation. Accident investigation reports must be completed and given to Grace's Safety Manager within 24 hours.
8. Policy on alcohol, controlled substances and firearms.
9. Parking area(s) entrance to and exit from the work area.

This session should last approximate 2 - 4 hours.

Contractors must pre register each employee at www.gracelakecharles.com, then click on the Contractor Requirements link and follow instructions.

After successful completion of the orientation, all persons will be entered into the GRACE database. Orientation must be completed annually unless other arrangements are made and agreed upon by Grace Management.

Neither of the safety orientations releases the contractor from their responsibility for safety training as required by federal, state, and local safety and health regulations. Nothing therein shall modify or limit the obligations undertaken by the contractor in its agreement or contract with Grace Davison.

IX. CONTRACTOR'S EMPLOYEE ORIENTATION

Before any work begins, the contractor must conduct a Safety Orientation for their employees. This orientation must be designed to inform and/or instruct their employees in the following:

1. Contractor Safety Rules.
2. Potential fire, explosion, or toxic release hazards related to their job and the process, and the applicable provisions of the emergency action plan.
3. Any unique hazards presented by the work.
4. Emergency response plan.
5. Incident notification. OSHA recordable injuries and illnesses, accidents, and damage must be reported to their immediate supervisor and GRACE's Safety Manager.
6. Accident investigation. Accident investigation reports must be completed and given to Grace's Safety Manager within 24 hours.

7. Policy on alcohol, controlled substances and firearms.
8. Attendance at safety meetings. How your meetings are conducted and how often they are held should be discussed. Mandatory attendance will be emphasized.
9. Designated person-in-charge.

Note: GRACE reserves the right to request verification of compliance.

X. CONTRACTOR ON-SITE SAFETY MEETINGS

1. The contractor must conduct weekly on-site safety meetings. The meetings should last from 15-30 minutes. Topics can be those listed in Section VII.B., OSHA Mandated Training.
2. The contractor shall be responsible for maintaining and enhancing the safety awareness of their personnel and sub-contractor's personnel, including arranging safety meetings and participating, as appropriate, in safety meetings held by Grace.
3. The contractor must inform the Grace project engineer of the time and place of safety meetings arranged by the contractor.
4. Copies of the safety meeting agenda and names of those that attended will be given to the project representative. This information will become part of the project file and will be maintained for one year after the completion of the job.
5. Grace may require the contractor’s and sub-contractor's attendance at Grace safety meetings in lieu of, or in addition to, the contractor safety meetings.

Note: GRACE reserves the right to request verification of compliance.

XI. Audits

1. Routine inspections by Grace representatives and walk through inspections will be made by various safety committees, project representative, or unit supervisor. All safety infractions will be documented. Contractor must address all safety infractions immediately.
2. Safety audits are performed by a third party auditing team using a standard format to evaluate contractor’s safety training and record keeping. Copies of the audits can be obtained from the Southwest Louisiana Safety Council.
3. The contractor is responsible at the end of each month for e-mailing the following information to the safety department.
    - Man-hours by craft
    - First aid cases

- Lost time cases
- Total number of accidents
- Louisiana workers

This information will be reported on the Monthly Manpower and Safety Report form. Any contractor who demonstrates a significant number of accidents will be reviewed for removal from the approved contractor list.

XII. ACCIDENT REPORTING & INVESTIGATIONS

Unfortunately, many accidents or near miss incidents occur because an unsafe practice or situation was allowed to occur repeatedly on a job. One of the ways to stop this from occurring is by conducting in depth investigations and reporting all accidents and near miss incidents. These actions will provide constructive and specific information to prevent the recurrence of unsafe behavior.

A. Reporting Accidents

The purpose of accident reporting is to alert and inform all the appropriate people about the circumstance and details of an accident. This is accomplished through an Accident Investigation Report that must be completed within 24 hours of an accident, after a thorough investigation has been conducted by the construction superintendent and the Grace representative.

Every contractor should have their own accident reporting form at every jobsite and be readily available. All contractor supervisory personnel must be indoctrinated in the proper procedures for reporting accidents, injuries, damaged property, near miss incidents, etc.

All questions on the report should be answered or if the questions do not apply, it should specify as such. Supplementary sheets should be used to provide additional information, such as sketches and drawings, and should be attached to the report.

All reports will be forwarded to the contractor’s main office with copies to Grace’s Safety Manager.

B. Investigation

Accident investigation and analysis are a necessary and effective means for preventing future accidents. A thorough investigation will lead to corrective actions that will improve productivity and safety, therefore it is a Grace requirement that all accidents be investigated, regardless of the severity of the injury or amount of property damage. The extent of the investigation depends on the outcome or potential outcome of the accident. An incident that involves minor first aid would usually be investigated to the same degree as an accident resulting in death.

Contractors and subcontractors should have a clear documented plan for handling accidents. A good plan can prevent the situation from getting out of control, save lives, protect property, and ensure a timely investigation.

Your accident investigation plan should specify all that needs to be done in case of an accident. It should list key names and phone numbers, specific tasks for individuals and what they are to do in an emergency.

If an accident has any serious potential, the following procedures should be followed:

1. Notify the appropriate medical personnel, ambulance, fire department as needed.
2. Secure the accident site.
3. Immediately notify Security to contact the Grace Incident Commander
4. Notify the contractor's Health & Safety Department.
5. Document and report the accident, alleged accident, property damage, etc.

C. Accident Investigation Report (Document)

The report form must meet the record keeping requirements specified in OSHA. As a minimum, the contractor’s form should include the following:

1. The date, time, conditions and location of the accident.
2. Name of the injured - record the last name first.
3. Date of accident or initial diagnosis of illness.
4. Occupation at time of accident. Indicate the occupation in which the injured was working at the time of the accident.
5. Explanation of the job or work performed.
6. Specific location of accident.
7. Describe how the accident occurred, including a detailed description of the injuries. Do not record opinions or place blame.
8. Accident sequence. List the events leading up to the accident**.**
9. Causal factors. Provide details of any conditions which may have influenced

the sequence of events.
10. Supervision at the time of accident.
11. Names of other parties involved in the accident, including witnesses.
12. Description of any tools, equipment, machinery, etc. involved in the accident.
13. Pictures, drawings, and diagrams of the general and specific areas of the accident, as needed.
14. Follow-up actions. Describe the corrective actions taken immediately after the accident.

All accidents and "near miss" accidents must be investigated and reported.

Preventive measures are to be developed and communicated to all employees.

XIII. CONTRACTOR'S GATE

A. Plant Admission

All Contractor personnel shall park in the designated contractor parking area. At this time there are two (2) parking lots located on the south side of Davison Road just east of the Administration Building. Which parking lot to be used by the contractor's personnel will be determined at the pre-job meeting.

After parking, all contractor employees shall enter and leave the plant through the provide transportation, if necessary, to and from the jobsite.

Note: Additional contractor parking and site entry may be designated as needed.

Only those contractor vehicles required for work shall be allowed into the plant. These vehicles shall be admitted by a pre-arranged vehicle pass. These passes will be secured through the Grace representative at the pre-job meeting. The passes must have the company name and vehicle number.

If there is no pre-job meeting the contractor must give 24 hour notice to the company project/job representative when they plan to perform work or visit the plant site. Arrangements will be made to have the vehicle passes available at the construction gate.

Plant speed limits are 10 mph unless otherwise noted.

All contractor employees will be logged in and out of the plant daily. Any employee who must leave the plant at any time, other than normal quitting time, except rainouts, must be cleared by the appropriate contractor's supervisor. The contractor

shall be accountable for adjusting the individual's pay for that period the employee was away from the job.

Supervisors are allowed to drive in or out of the plant as required with prearranged approval from the Grace Safety and Security Department.

From time to time, contractors may require material or supplies on an emergency basis. When this occurs the contractor's supervisor, (with approval from Grace representative), designates a contractor employee for the task of picking up material or supplies away from the plant site. The contractor's supervisor must inform the construction gate guard of the individual's name and purpose for leaving the plant. There is no adjustment to the individual's pay during this time.

Only Grace approved cell phones are allowed inside the facility. In some cases, a cell phone approval can be obtained by the Operations Director.

B. Material or Tools leaving or entering the Facility

No material, supplies, or equipment will be taken from the plant without an approval form. If necessary, the "P" form can be attached to a lengthy list of supplies prepared by the contractor, provided each page is initialed by the company representative.

All contractor's personnel and vehicles are subject to inspection by the Grace security at the gate, or any place within the plant, at Grace's discretion.

GRACE reserves the right to request a list of tools, supplies, and materials entering the plant in contractor's vehicles, is provided to the company representative and the construction gate guard(s) prior to entry.

C. Business Visitors

Grace Project Supervisors can authorize visits by suppliers into the contractor's compound for business reasons. The visitor is only authorized to visit the contractor representative he/she has business with and cannot leave the construction compound. The compound is defined as that area bounded by the construction guard gate entrance on north side, asphalt road on west side, contractor offices on south side, and the electrical contractor office on eastside.

Contractors are not allowed to bring vendors or other third parties into the manufacturing area without authorization from the Grace representative.

D. Third Party Deliveries to Contractors

Trucks or cars delivering materials or equipment to contractors must enter through the east gate. The driver must log in with the security guard and provide the following information.

- Company name
- Vehicle number if available
- Company and person to whom he is making the delivery
- Valid Drivers Lic.

If the visitor/delivery person must leave the contractor's compound the person must be escorted by the party concerned (Contractor) or by a Grace representative.

E. Vehicle Search

All vehicles and personnel entering or leaving the Grace Plant will be subject to search. Failure to comply shall result in the immediate discharge and removal from company property.

XIV. JOB COMPLETION EVALUATION

At the end of every project, a Grace representative should complete a Contractor Evaluation Form . In the case of full time contractors, the form should be completed every quarter by representatives of the maintenance department and project engineering.

The evaluation form rates the contractor's performance in the areas of safety, work quality, personnel and equipment. The evaluation will be discussed with the contractor in order to improve performance on the next job. The evaluations will be used by the purchasing department to rate contractors for inclusion or exclusion to Grace’s approved contractors list.

XV. WORK PERMITS & SPECIAL PERMITS

A. Work Permit

This procedure shall be followed by all contract employees performing work in a Permit Area. The permit areas are listed under the Definitions section of the Grace Work Permit Procedure. The Grace representative is responsible for obtaining all work permits before contract employees can enter the work site. Refer to Work

Permit Procedure that can be found on the Grace Web Page

B. <u>Special Permits are required for the following types of work</u>
(These are in addition to the Daily Work Permit)

Hot Work: Hot work is defined as an activity that might create open flames, sparks, heat, etc. Examples are arc welding, gas welding, cutting, power washers, or any operation which utilizes an open flame or which may create a source of ignition.

Confined Space: This means any space which has limited openings for entry or exit, unfavorable natural ventilation, and not designed for continuous worker occupancy.

If you are required to work in a boiler, furnace, pit, silo, storage tank, vat, process vessel, or similar type enclosure, you are working in a confined space.

C. Obtaining Permits

The person responsible for issuing permits is shown on the following table:

	WORK PERFORMED BY	**WORK PERFORMED BY**	**WORK PERFORMED BY**
WORK AREA	**MAINTENANCE**	**CONTRACT**	**LABOR**
EXISTING PROCESS	OPERATIONS SUPERVISOR	OPERATIONS SUPERVISOR	OPERATIONS SUPERVISOR
BETWEEN EXISTING PROCESSES	OPERATIONS SUPERVISOR	OPERATIONS SUPERVISOR	OPERATIONS SUPERVISOR
OUTSIDE EXISTING PROCESS	MAINTENANCE SUPERVISOR	GRACE REPRESENTATIVE	LABOR SUPERVISOR
NEW PROJECT OUT OF PROCESS AREA	GRACE REPRESENTATIVE	GRACE REPRESENTATIVE	GRACE REPRESENTATIVE
NEW PROJECT WITHIN PROCESS AREA	GRACE REPRESENTATIVE	GRACE REPRESENTATIVE	GRACE REPRESENTATIVE

This table applies to a normal day (Monday - Friday) from 0700 to 1600. Permits required outside of this period will be issued by the shift foreman or area coordinator.

D. Pre-Work Inspections - Hot Work Area

Only the person responsible for issuing the permit or his/her designee is authorized to perform a Pre-work inspection and complete the Hot Work Permit. Also, tests for possible gas concentrations as per the current Hot Work Procedure.

E. Posting

A copy of the permit shall be posted by Contractor in a conspicuous place near the site of work. This will usually be the control room.

F. General

The measures outlined in the Permit will be exercised as the minimum requirement necessary to ensure safety.

A permit is always void when conditions change making continuation of the work hazardous.

G. After Work Inspection - Hot Work

Following completion of the work (welding, burning, etc.) the Grace representative shall conduct an after work inspection of the area. The reason for the inspection will be to ensure that there is no ignition source (hot slag or similar source) which can result in a hazardous condition.

XVI. HAZARDOUS ENERGY CONTROL

All equipment that may be energized by pneumatic, hydraulic, or steam must be tagged and locked out before maintenance is performed. The Grace representative will close the upstream valves, isolating the energy source, then place a lock and tag on a chain secured around the control valve handle. Contractor representative shall then personally lock out the chain with an identifiable lock before his/her employees begin work. After all tags and locks have been installed, no work is to be done until any and all local or remote block valves controlling an energy supply have been tested to make sure they will not cause the equipment to operate. This is the responsibility of the Grace Davison representative and the Contractor representative working on this equipment. When work is complete, contractor shall remove lock before leaving job.

Refer to the Lockout/Tagout Procedure on the Grace webpage.

XVII. HAZARD COMMUNICATION

The Hazard Communication Program and Procedures applies to hazardous chemicals known to be present in the work place to which employees or contractors may be exposed under normal conditions of use or in the event of a foreseeable emergency. This program is intended to assure employees a safe working environment.

The contractor's supervisor or safety representative shall be responsible for informing their personnel of:

- The requirements of this program.
- The hazardous chemicals which are present in their work area.
- New chemicals that may be introduced into their work area.
- The chemical list and SDS's.
- The location of the SDS's.

A. Safety Data Sheets

Safety Data Sheets (SDS) are required by OSHA for each hazardous chemical product and they are your primary source for information regarding chemicals in the Grace facilities. A copy of the SDS's are located in the Lab, Emergency Response Trailer and on the Grace interlan.

B. Training

All contractor training regarding these subjects shall be documented in the manner described in Section VII, Health and Safety Training Requirements.

C. Hazard Communications Program and Procedures

A copy of the Grace Lake Charles Hazardous Communication Procedure is available upon request.

D. Incoming Chemicals/Materials

The use of unapproved chemicals/materials in our plant is prohibited. Before a new chemical or material can be brought onto our plant site, it must go through a review and approval process. An SDS must be obtained and given to your Grace representative. They will complete the required paperwork and begin the routing process. It must be reviewed and approved by the following departments:

- Environmental,
- Safety,
- Quality and
- Production/Maintenance.

XVIII. GENERAL SITE SPECIFIC RULES

A. Contractor Supervision

At all times, while work is in progress, the Contractor shall designate at least one person as foreman, superintendent, etc., who shall represent the Contractor. This person will be responsible for job safety. The Contractor representative shall remain on the job as much as practical. The Contractor's representative shall maintain close contact with Grace's representative, and under no circumstances start work without notifying the proper Grace personnel.

On large projects, the Contractor shall have an employee designated to be responsible for full compliance of OSHA regulations, including conducting regular scheduled safety meetings with employees and Sub-Contractor employees.

B. Contractor Employees

All contractor employees must show proof of successfully completing the Safety Council of Southwest Louisiana eight (8) hour "Contractor Safety Orientation Course". A card from a safety council which has a signed reciprocal agreement with the Safety Council of Southwest Louisiana will also be accepted.

The employee's cards must be within a valid certification period and must be renewed when the validation period expires.

C. TWIC Program

Certain areas of the plant are security restricted areas and require a TWIC card for unescorted access. In most cases, work to be done in these areas will require a Grace escort who has a valid TWIC card.

D. Parking

Contractor's employees are to park in the respective assigned parking lots in an orderly fashion to maximize available parking slots. Grace assumes no responsibility or liability for vehicles in the parking lot. The parking space is provided as a courtesy only, by Grace, and parking is at owner's risk.

E. Smoking

Grace prohibits smoking in all air conditioned spaces. Smoking will be permitted in the following designated smoking areas.

DESIGNATED SMOKING AREAS

Administration Area	East of Training Room
Maintenance Shop	North side of Warehouse
Boilerhouse	Outside North door by RR tracks
Super D	Upstairs, on West platform off of Runoff area (outside control room)
Milling	Upstairs, on West side of building, North end of door
Spray/Flash Dryers	West side of MCC/East of 1144
DA	Bunker level, South side of bunker
DA/Silicate	West end of sand silos
Silicate	By old silicate stack
XP	Belt filter level, West end between filter building and 6672 baghouse
	Downstairs, West of PPE storage room
HPC	On stairwell outside the 5th floor
	South side of HPC building
	West side of HPC building
Z14/Code 550	Upstairs, East side, outside MCC/control room
	Breezeway between Z14 and Code 550
Loading/Rare Earth	East side of 4040 scale
XP Loading Area	South side of XP container scale building
Docks	Outside building on South side
Back Gate / Contractor Compound	Turner East yard
	Turner compound (between Labor and Iron Worker buildings)
	Turner office trailer, back porch
	Contractor break area
	Back gate

Smoking is allowed ONLY in these designated areas.
Areas are identified by yellow signs.
Please deposit cigarette butts in the receptacle provided.

Note: Autorization for additional Designated Smoking Areas will require approval of GRACE site management

F. Work Area

The Contractor is confined to the designated work area. The rest of the plant is declared “OFF LIMITS”. The exception to this rule is in the event of a “shelter in place” or “evacuation” situation. Refer to the Emergency Response Plan located on the Grace web page, for shelter in place and evacuation areas.

G. Housekeeping

The Contractor shall keep his work area orderly. All debris, scrap material, etc. are to be removed on a daily basis. Materials shall be placed in a safe orderly manner, so as not to interfere with any Operation area. The Contractor shall maintain his/her work area according to current OSHA standards.

H. First Aid

On-the-job first aid facilities must be maintained by the Contractor for minor injuries. A first aid kit that meets OSHA Construction Safety & Health Regulations Part 1926, Subpart D, Paragraph 1926.50 (d), 1 and 2 must be readily available and fully stocked. Grace’s first aid facilities will be available on a humanitarian basis only. Any major injury requiring ambulance service and hospitalization will be handled directly by the Contractor.

The Contractor shall report all injuries and accident investigations to Grace immediately. The Contractor shall report all injuries and keep records in accordance with OSHA and State requirements.

The Contractor will deliver a copy of its OSHA 300 Log to Grace when the first entry is made and after each subsequent entry.

I. Personal Protective Equipment

ANSI approved hard hats with chemical goggles available, safety glasses and hearing protection are minimum personal protective equipment required for all persons entering the plant.

Safety glasses, hard hats and hearing protection must be worn in all operating areas. Safety Glasses must be worn inside all work areas, ie…Contractor compound, Grace maintenance shop and contractor shop areas. The only exception is when employees are inside buildings eating or performing clerical duties.

Contractor employees must wear ANSI approved safety toed shoes appropriate for the job being performed. Tennis shoes are prohibited.

All contractor employees must wear long pants (skirts where appropriate) and shirts with sleeves (no tank tops). Clothing should be of proper fit and properly worn to minimize the possibility of snagging loose clothing on machinery or equipment.

Hearing protection is required in all operating areas except inside offices/control rooms and Lab area.

Other personal protective equipment that may be required for specialized tasks may include but is not limited to: work aprons, slicker suits, rubber boots, appropriate gloves for specific tasks, chemical suits, face shields, dust masks, respirators, fall protection harnesses.

All personal protective equipment will be provided by the Contractor.

J. Excavation, Trenching and Shoring Requirements

Prior to starting any work under these activities, the site shall be carefully inspected by Grace supervision for conditions that may present hazards. Prior to starting excavation work, the location and method of uncovering buried electrical lines, underground pipelines or other obstructions, that may be in the area, must be determined.

The contract companies competent person as describe by the OHSA construction standard must be on site

All excavation materials shall be placed a minimum of two feet (2') back from the edge of the excavation.

In trenches over four feet (4') in depth, ladders shall be provided for each 25 linear feet of trench and shall protrude a minimum of three feet (3') above the trench.

Side walls of every excavation over four feet (4') must be made safe by either shoring, sloping or benching.

Open excavations must be barricaded or marked and areas without sufficient lighting must be marked by flashing lights during hours of darkness.

Any trenches or excavations greater than four feet (4') in depth will require a "Confined Space Entry Permit" before entry of any employee.

Any trench or excavation greater than four feet (4') in depth will be inspected on a daily basis by a Contractor supplied "Competent Person". "Competent

Person" credentials must be available on site for examination by Grace Davison or others.

XIX. HYDROBLASTING SAFETY PROCEDURE

Purpose

The purpose of this procedure is to ensure the protection of maintenance, operations and contract personnel from injury while working with the hydro blaster.

Scope

This procedure applies to all plant personnel and contractors performing general hydro blasting operations and line molding or working in the immediate area where hydro blasting operations are occurring.

Definitions

a) High pressure Water Cleaning - The use of water and/or water additive combinations whose pressure exceeds 1000 psig and is used for the removal of unwanted matter on various surfaces.

b) Lance -A rigid metal tube used to extend the nozzle from the end of the nose.

c) Dump System - An operator-controlled manually operated safety device or system that instantaneously reduces the pressure to a safe level at the nozzle.

d) Moleing - An application whereby a hose with nozzle and/or hose with lance and nozzle combination is inserted into and retracted from the interior of a pipe or tubular product.

e) Nozzle - A device with one or more openings where fluid discharges from the system. A nozzle restricts the flow of water so the desired pump pressure, velocity and flow pattern can develop. Nozzles are commonly referred to as tips, sets, orifices, etc.

f) Operator -A person who has been trained and has demonstrated the

knowledge and experience to perform the assigned task.

g) Relief System - An automatic pressure-activated devise or system used to relieve excess pressure.

h) Shot-gunning - An application whereby a hand lance and nozzle combination can be manipulated in virtually all planes of operations.

i) Hose Assembly -A hose with coupling attached in accordance with the manufacturers specifications

j) Fail-Safe - A device to automatically shut off the high pressure water streams if the operator loses control. These include the foot-operated fail safe devices or hand operated fail safe devices.

Personal Protective Equipment

Employees involved in hydroblasting shall be provided with personal protective equipment designed to minimize the possibility of injury. It is the responsibility of the supervisor in charge of the job to see that proper protective equipment is available. It is the responsibility of the employee to utilize the provided equipment at all times during the performance of their work.

Minimum protection shall include the following items:

a) Hard Hat
b) Eye/Face protection

Face Shield
Goggles or safety glasses must be worn additionally under face shield

c) Rubber Boots
d) Slicker Suit
e) Rubber Gloves

Note: Additional protection may be required in specific work areas

Information/Requirements

a) A safe work permit is required before starting any hydroblasting operation.

b) All jobs shall be barricaded with highly visible safety tape. The tape shall be

placed at a distance of not less than ten feet (10') from where the actual hydroblasting will be done. Only authorized personnel will be allowed in the barricaded area. See Section XXI, "Temporary Barricades" for specifics.

c) All electrical equipment in the work area shall be covered with plastic to avoid water damage.

d) Remove all debris prior to start-up. This will decrease the likelihood of flying objects that may cause bodily injury.

e) Ground the hydroblast unit.

f) Inspection of equipment and hoses shall be done prior to start-up. The following items must be inspected (minimum):

- Nozzle tips
- All supply and high pressure hoses
- Pump discharge
- Fluid levels i.e. (engine oil, battery, coolant, etc.)
- Machine guards and belts
- Strainers
- Rear and forward barrel

Note: Any part found to be defective (especially hoses) shall be removed and/or replaced immediately.

a) The length of the lance used for "shot-gunning" shall be four feet (4'). This will minimize the possibility of injury. The use of a shorter lance for special applications will require prior approval of the maintenance and/or safety supervisor.

b) Line moleing of straight lengths of pipe will require the use of an eighteen inch (18") "stinger" attached to the end of the hose.

c) A safety shield or cone shall be used to prevent the line mole from being pulled out of the pipe while still under pressure.

d) The operator holding the hose will also operate the foot pedal. The second operator will control the unit.

e) Hoses will be inspected every three (3) months**.** These inspections shall be documented and made available at Grace's request.

General Safety

a) In the event of an emergency in the immediate work area, all hydroblasting must cease. Refer to, Emergency Response Procedure for instructions to "shelter in place" and to evacuate.

b) This procedure is designed for a two person operation. One at the unit and the other controlling the hose and foot pedal. c) Always use both hands when "shot-gunning". d) Always make sure both feet are firmly planted before you pull the trigger. Use an open-legged stance. e) Always be in a visible position so the second person can see you. f) "Dump" the system if unauthorized personnel wander into the work area. g) If you are getting tired - seek relief. Do not hydroblast when you are tired.

XX. TEMPORARY BARRICADES

All contractors will be required to follow the Grace Lake Charles Temporary Barricade policy/procedure.

The Grace Barricade Policy can be accessed on the Grace web page.

XXI. CONTRACTOR SAFETY RULES

A. Scaffolds –

All contractors will be required to follow the GRACE Lake Charles scaffold policy/procedure prior to building or working on a scaffold at the Lake Charles facility.

The Grace Scaffold Policy can be accessed on the Grace interlan.

B. Hand and Power Tools

The Contractor shall provide hand and power tools that meet current ANSI and OSHA standards on power tools and ensure that each employee has been trained in the proper use of each tool and has demonstrated the ability to use them safely.

General

All tools are inspected and repaired or replaced when returned to the toolroom . However, it is your responsibility to inspect all your equipment before using it. If the tool becomes damaged in any way, return it to the tool room at once for repair or replacement.

Hand Tools

Every tool was designed to do a specific job, use it only for its intended purpose. Do not force them beyond their capacity with things like “cheaters”.
Do not abuse your hand tools, keep them clean, sharpened, oiled, and dressed as required.

C. Hose Selection, Care and Use

Certain specification requirements have been established on hoses and couplings for plant air, water, steam and condensate. Check with the Grace representative for the type and descriptions of these hoses and couplings. The use of utility hoses for applications other than their specified usage is strictly forbidden.

All hose couplings with drilled holes must be properly secured with safety pin or wire. Any defective hoses shall be discarded and reported at once to the supervisor in charge of the area. Do not string hoses across hot lines, in paths of moving vehicles or across stairs or walkways. Roll up and store hoses after job completion.

Contractor to follow Grace guidelines in the use of hoses. Red hoses are designated for air and water. Yellow hoses are to be used for filtrates and other chemicals.

D. Oxygen and Acetylene Equipment

1. Cylinders shall be transported, stored and used securely fixed in the upright position. They must never be rolled on their sides, dropped or manhandled with the gauges fitted or without valve caps on. When not in use, cylinders shall be stored and secured in a specially designated area, with valve caps on.
2. When lifted by crane, purposed-made holders or trolleys shall be used**.** The use of slings on the cylinders is not permitted.
3. Maximum permissible pressure for acetylene shall be 15 psig.
4. A spark lighter or stationary flame should be used to light a torch - never

matches.
5. Oxyacetylene torches and hoses must be removed from confined spaces such as vessels, drums or excavations, when not in use, to prevent accumulation of flammable gases.
6. Handle oxygen and acetylene cylinders carefully**.** Dented cylinders shall not be used.
7. Under no circumstances shall oxygen be used for fresh-air ventilation.
8. Cylinders shall be stored in the designated area, secured in an upright position.
9. Empty cylinders shall be marked “empty” and treated with the same care as full cylinders.
10. Since oxygen under pressure forms an explosive mixture on contact with oil or grease, hoses, regulators, valves, gauges, and other fittings in oxygen service shall be kept free from oil, grease, and other lubricants.

E. Welding and Cutting

1. All welders shall be qualified to perform the desired work.
2. If required, a “Hot Work”, “Safe Work”, or “Entry Permit”, shall be obtained by the construction welder from his supervisor before any work commences.
3. All equipment shall be to an approved standard and in good condition.
4. Adequate and approved fire fighting equipment shall be maintained at each work site.
5. Sparks shall not be permitted to fall on gas cylinders, flammable material, operating equipment or pedestrian walkways.
6. Combustible materials or drums which have contained flammable liquids shall not be used to support work to be welded or burned.
7. Hoses and cables must not cause tripping hazards or be exposed to damage.
8. Adequate ventilation shall be maintained in confined spaces**.** OXYGEN MUST NEVER BE USED FOR THIS PURPOSE.
9. Cables or hoses shall be kept out of water and coiled on racks when not in use.

F. High Elevation Work Hazards

All work above a free-fall height of four feet (4’) where there is an unprotected edge or posibilty of a fall to a lower level is considered to be high elevation and requires safety harnesses and lanyards. Safety harnesses and lanyards are required when working from air spiders, suspended scaffolds, bosons chairs or extendable or articulating boom platforms. Lifelines will be connected to a secure object that will support the person’s weight. When overhead hazards exist, signs will be placed and the area roped off to prevent other persons from walking into the hazardous area. Lifelines will be inspected by the user before and after each use.

G. High Voltage Electrical Hazards

Contractors are expressly forbidden to start work near energized high voltage circuits until approved by Grace Representative. No work on any electrical equipment shall be performed by unauthorized personnel. Electrical equipment and lines shall be considered energized until determined to be de-energized by tests conducted by authorized Grace Electrical Personnel. When working with boom equipment around or under overhead electrical power lines, with which they may come in contact, a signal man shall be present. When working near exposed energized lines, approved rubber insulation devices shall be installed, as well as warning signs around area of activity. Before working on de-energized lines, grounding devices shall be installed.

H. Cranes and Rigging

1. General

a) Material, which is either too large or too heavy for safe manual handling, shall be handled by mechanical devices such as cranes, hoists, etc. The device used shall be operated within the safe operational limits set by the manufacturer.

b) All loads shall be controlled by use of tag lines or snub lines.

c) When possible, walk ahead and to the side of a moving load to watch its path of travel.

d) Before lifting a load, the load shall be properly balanced. Warn workers nearby to stay well out of the way in case the load falls or sways.

e) Equipment shall never be loaded above its rated capacity.

f) A weight indicator should be available to determine the weight on any load whose weight is unknown.

g) All lifts should be vertical. No attempt shall be made to swing loads.

h) A load shall not be passed over personnel.

I) No person shall ride on a load or the load hook**.**

j) Employees shall keep clear of any object being lowered or raised**.**

2. Cranes

a) All cranes shall be operated by qualified operators. A qualified signal person shall also be on duty.

b) Before any type of crane is used, the operator shall examine cables, drums, dogs, brakes, booms, masts, legs, and guards for defects. Accuracy of load indicating devices and boom angle indicators shall be checked. All defects shall be repaired before crane is used.

c) No one except the crane operator shall be permitted on the crane while it is in operation.

d) Standard crane signals shall be used. All signals shall be given by the signal person only.

e) All loads moved by crane shall be controlled by the use of tag lines.

f) All wire lines shall be changed when 10% wear is shown. It is the responsibility of the crane operator to inspect all lines regularly.

g) The crane operator shall pull all crane electrical switches when it is not in use.

h) The crane operator shall properly secure the boom before leaving the crane cab.

i) The crane operator shall make sure that all dog levers are left intact when the boom is not in operation.

j) The crane operator shall not operate the crane until all personnel are properly instructed about work to be done and everyone is properly dressed for work (hard hats, safety glasses and leather shoes).

3. Rigging

a) Rigging methods depend largely upon the job to be done. It is important to check all phases of the job and all possibilities of job deviations which may affect the rigging components.

b) Before hanging any rigging, it is imperative that the overhead structures be checked to make certain they will withstand the stresses of the load to be lifted.

c) The number of wraps around the beam is determined by the load to be lifted
d) Rope wrapped around the beam or strength members shall be protected from sharp corners by use of softeners.

e) To eliminate the use of cable clamps, a wire rope sling fitted with eyes on both ends and the required length may be used to join the two ends of the sling.

f) Eyebolts shall not be used when the load is to be lifted at an angle.

4. Hooks

a) ONLY one eye in a hook. Use a shackle to hold two (2) or more eyes.

b) b) The pin of the shackle shall be placed in the hook with the eyes of chokers bearing on the shank.

c) No hook shall be loaded beyond its rated capacity.

d) A hook shall either bear a safety latch or shackle around the point and shank to prevent it from slipping from the eye.

e) e) Hooks on all blocks, including snatch blocks, shall be provided with safety bridles.

f) f) Hooks shall be replaced when inspection shows spread, distortion, wear or fracture. Hooks shall be visually inspected monthly.

g) g) The load on a hook shall always be placed in the center, never on the point of the hook.

h) h) Get approval from your Supervisor before applying a beam clamp to any structural member, to ensure that the structural member will support the load being raised.

i) i) Never alter hooks by heating or welding.

5. Chains

a) Avoid sudden or abrupt applications of loads to chains. Do not overload them. If overloaded discard immediately.

b) Chains and end attachments shall be inspected monthly for excessive wear at the bearing surfaces, bent links, cracks, nicks, gouges, corrosion, and

elongation caused by stretching. Discard defective chains.

c) Never splice a chain by inserting a wire or bolt between links.

d) Never place a load on a kinked chain. Take up the slack slowly to see that each link seats properly.

e) Do not use a hammer to force a hook over a chain link.

f) Use chain attachments such as rings, shackles, couplings and

end links that are designed for use with the chain to which they are

fastened.

g) Chains not in use shall be stored in a suitable rack or container.

6. Hoists

a) Only authorized personnel may operate hoists.

b) Before moving an overhead hoist, be certain that the hook is high enough to clear obstacles.

c) The spur gear chain hoist is the most efficient of all chain hoists. Chain hoists shall be marked with the capacity in tons in a conspicuous place on the hoist body. Use the correct size hoist for the weight to be lifted.

d) Chain hoists shall be equipped with an automatic load brake to prevent the load from dropping. The load brake shall be the fail-safe type.

e) A chain hoist shall never be used beyond its rated capacity.

f) A load suspended by a chain hoist shall not be left unattended.

g) Do not stand below or have any parts of the body below a load suspended by a chain hoist.

h) Do not wrap the load chain around the load to be lifted.

i) All hoists (fixed member or trolley) shall be attached to their supports with shackles or with a hook equipped with a safety latch.

j) Do not overload the point of the chain hoist lifting hook. Make sure the load is bottomed in the hook. Safety latch or shackle all hooks.

k) If more than one lifting cable is to be handled by one chain hoist, use

a shackle to join the lifting cables before placing them in the hoist lifting hook.

l) Chain hoists are designed so that one person can operate the hand chain to lift a full-capacity load; if not, use larger chain hoist.

m) Avoid making angle lifts with a chain hoist whenever possible. Never use a chain hoist for a horizontal pull. Lever hoists or come-alongs shall be used for these conditions.

n) When lifting loads using two (2) or more chain hoists, use extreme care in the operation of the hand chain so that it is pulled in line with the sheave. The angle to lift shall not exceed 30 degrees from the vertical.

n) Control switches or cords on electrical hoists shall be arranged so that even without looking, the operator will know which control is “up” and which is “down”.

p) Avoid electric lines when using hoists or “A” frames. Keep ten feet (10’) or more distance from these lines.

7. Wire Ropes

a) The following conditions shall be noted when inspecting any wire ropes:
1 Wear or breaking of the crown wires.
2 Kinks, high strands, loose wires, nicking of wires, lack of lubrication, and internal corrosion.

 Wire ropes with these irreparable flaws shall be discarded.

b) Never attempt to tie a knot in a wire rope. All wire ropes shall have a proper end fitting.

c) Before lifting a load, the weight of the load shall be determined. Never exceed the safe lifting limit for the wire rope used.

d) When working with wire ropes, gloves shall be worn.

e) Wire ropes shall be kept lubricated per manufacturer’s recommendations.

f) Avoid short bends over unyielding or sharp-edged surfaces. Use a corner pad when necessary.

g) When wire rope is used with sheaves, the diameter of the sheave should

never be less than twenty (20) times as great as that of the line in use. The groove of the sheave should not be large enough to allow excessive play.

h) When cutting wire rope, wrap wire on either side of the place where the cut is to be made and use approved wire cutters. Wear goggles to prevent steel splinters from entering the eyes.

i) Avoid sudden or abrupt applications of loads to wire rope. Do not overload them.

8. Slings

a) Permanent identification tags are usually attached to chain slings by the manufacturer. Never remove these tags.

b) Visually inspect slings before each use. Inspect metal slings for broken wires, excessive wear, cracked or broken, welded and brazed joints, and lack of flexibility. Nylon slings shall be checked for caustic or acid burns, melting or charring from excessive heat, snags, punctures, tears, and other physical damage. Also check for broken or worn stitches.

c) Metal and nylon slings shall not be used until it has been determined that the lifting capacity is not exceeded by the weight of the load. The length of the sling shall be long enough to provide the maximum practical angle between the sling leg and the horizontal.

d) Slings shall never be kinked or twisted during lifting.

e) Slings that are damaged or defective shall not be used.

f) Slings shall not be shortened with knots, bolts or other makeshift apparatus.

g) Sling legs shall not be kinked.

h) Slings used in a basket hitch shall have the loads balanced to prevent slippage.

i) Slings shall be securely attached to their loads.

j) Slings shall be padded or protected from the sharp edges of their load.

k) Suspended loads shall be kept clear of all obstructions.

l) Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.

m) Shock loading is prohibited.

n) A sling shall not be pulled from under a load when the load is resting on the sling.

o) Inspections

Before each use, all slings, fasteners, and attachments shall be inspected for damage or defects. Damaged or defective slings shall be immediately removed from service.

Alloy steel chain slings shall be annually inspected for wear, defective welds, deformation and increase in length. Where such defects or deterioration are present, the sling shall be immediately removed from service.

I. Forklift Trucks

1. Operations

a) Trained and licensed operators are required.

b) No person shall be allowed to stand or pass under the elevated portion of any forklift truck, whether loaded or empty.

c) Unauthorized personnel shall not be permitted to ride on forklift trucks. A safe place to ride shall be provided where riding of forklift trucks is authorized.

d) Arms and legs are prohibited from being placed between the uprights of the mast or outside the running lines of the forklift truck.

e) When a forklift truck is left unattended, mast shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be blocked if the forklift truck is parked on an incline.

f) A forklift truck is unattended when the operator is twenty-five feet (25') or more away from the vehicle which remains in his/her view, or whenever the operator leaves the vehicle and it is not in his/her view.

g) When the operator of a forklift truck is dismounted and within twenty-five feet (25') of the forklift truck still in his/her view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.

h) A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform.

i) Forklift trucks shall not be used for opening or closing freight doors.

j) Brakes shall be set and wheel blocks shall be in place to prevent movement of forklift trucks, or trailers while loading or unloading. Fixed jacks may be necessary to support a semitrailer during loading or unloading when the trailer is not coupled to the tractor.

k) The flooring of trucks, or trailers, shall be checked for breaks and weakness before being driven over by forklift trucks.

l) There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.

m) An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.

n) A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

o) Only approved forklift trucks shall be used in hazardous locations.

p) Whenever a forklift truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks for lifting personnel, the following additional precautions shall be taken for the protection of personnel being elevated:

Use of a safety platform firmly secured to the lifting carriage and/or forks. Means shall be provided whereby personnel on the platform can shut off power to the forklift truck. Such protection from falling objects as indicated necessary by the operating conditions shall be provided.

a) Fire aisles, access to stairways, and fire equipment shall be kept clear.

2. Traveling

a) All traffic regulations shall be observed, including authorized plant speed limits. A safe distance shall be maintained approximately three (3) fork truck lengths from the forklift truck ahead, and the forklift truck shall be kept under control at all times.

b) The right of way shall be yielded to pedestrians and other vehicles in emergency situations.

c) Other forklift trucks traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.

d) The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.

e) The driver shall be required to look in the direction, and keep a clear view, of the path of travel.

f) Grades shall be ascended or descended slowly.

g) When ascending or descending grades in excess of ten percent (10%), loaded forklift trucks shall be driven with the load upgrade.

h) On all grades, the load and load engaging means shall be titled back if applicable, and raised only as far as necessary to clear the road surface. i) Under all travel conditions, the forklift truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner. j) Stunt driving and horseplay shall not be permitted. k) The driver shall be required to slow down for wet and slippery floors.

l) Dockboard, or bridge plates, shall be properly secured before they are driven over. Dockboard or bridge plates shall be driven over carefully and slowly, and their rated capacity never exceeded.

m) Running over loose objects on the roadway surface shall be avoided.

Loading

a) Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-center loads which cannot be centered.

b) Only loads within the rated capacity of the forklift truck shall be handled.

c) Pipe, tubing, or other object that could roll must be chocked or otherwise secured prior to the lift.

d) The long or high (including multi-tiered) loads which may affect capacity shall be adjusted.

e) Forklift trucks equipped with attachments shall be operated as partially-loaded forklift trucks when not handling a load.

f) A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.

g) Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. When stacking or tiering only enough backward tilt to stabilize the load shall be used.

4. Operation of the Truck

a) If, at any time, a forklift truck is found to be in need of repair, defective, or in any way unsafe, the forklift truck shall be taken out of service until it has been restored to a safe operating condition.

b) Fuel tanks shall not be filled while the engine is running**.** Spillage shall be avoided.

c) Spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.

d) No forklift truck shall be operated with a leak in the fuel system until the leak has been corrected.

e) Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

5. Maintenance

a) Any forklift truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.

b) No repairs shall be made in the following locations:

c) Locations in which flammable gases or vapors are, or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

Locations which are hazardous because of the presence of combustible dust.
Locations where easily ignitable fibers or flyings are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.

a) Those repairs to the fuel and ignition systems of forklift trucks which involve fire hazards shall be conducted only in locations designated for such repairs.

b) Forklift trucks in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.

c) All parts of any such forklift truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.

d) Forklift trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts.

e) Additional counter-weighing of forklift trucks shall not be done unless approved by the forklift truck manufacturer.

f) Forklift trucks shall be examined before being placed in service, and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily.

g) Where forklift trucks are used on a round-the-clock basis, they shall be

examined after each shift. Defects, when found, shall be immediately reported to the Supervisor and corrected.

h) Vehicles with mufflers having screens or other parts that may become clogged shall not be operated while such screens or parts are clogged.

i) Any vehicle that emits hazardous sparks or flames from the exhaust system shall be immediately removed from service, and not returned to service until the cause for the emission of such sparks and flames has been eliminated.

j) When the temperature of any part of any forklift truck is found to be in excess of it's normal operating temperature (thus, creating a hazardous condition), the vehicle shall be removed from service and not returned until the cause for such overheating has been eliminated.

k) Forklift trucks, shall be kept in a clean condition, free of lint, excess oil, and grease. A non-combustible agent should be used for cleaning forklift trucks. Low flash point (below 100 degrees Fahrenheit) solvents shall not be used. High flash point (at or above 100 degrees Fahrenheit) solvents may be used. Precautions regarding toxicity, ventilation, and fire hazard shall be consistent with the agent or solvent used.

J. Ladders

1. Always inspect ladder before using it. If it has been weakened or is questionable, do not use it.
2. All ladders (whether straight, step or extension) shall be laid down before workers leave the job, unless the ladder is located in an enclosed space not accessible to the public and is securely fastened.
3. Wooden ladders, when not in use, shall be stored at a location where they will not be exposed to the elements. They are not to be stored near excessive heat or dampness. Ladders shall be stored on racks designed to protect the ladder when not in use. Ladders carried on vehicles require more frequent maintenance and inspection due to exposure to the elements.
4. Wooden ladders shall not be painted. The paint can cover up hazardous defects. Clear varnish may be used for a protective coating, if desired.
5. When using a stepladder, make sure the spread arm is fully extended. The ladder legs shall be level and placed so they will not slip.
6. Portable ladders shall not be overloaded**.** Only one person should be on a ladder at one time, except in emergencies.
7. A straight ladder is to be positioned so that for every four feet (4') up, the base of the ladder is placed one foot (1') away from the object against which the top is resting. For example, the base of a twelve-foot (12') ladder should be three feet (3') away from the object against which it is resting.

8. A single ladder should extend beyond the top resting point if possible.
9. An extension ladder should extend three feet (3') or more beyond the ladder-support line.
10. Portable ladders in use shall be tied, blocked, held, or otherwise secured to prevent slipping.
11. Portable ladders shall have non-slip feet. Ladders shall not be placed on boxes, barrels, or any other unstable base.
12. Portable ladders shall not be placed in a passageway, doorway, driveway, or other locations where they may be displaced by activities being conducted by any other work, unless protected by barricades or another person.
13. Do not use metal ladders around electrical equipment.
14. All ladders shall be clean of oil, grease, or other slippery materials before being used. Muddy, greasy, or otherwise slippery shoes shall be cleaned before climbing a ladder.
15. Place your feet deep into the rungs and, if possible, use the side bracing for your hand-hold.
16. Both hands shall be free when climbing a ladder. Always face the ladder and ascend and descend with care. Each step shall be taken in order.
17. As a general rule to prevent over-reaching, your belt buckle should never extend past the side rail. Never stand on or sit astride the top of a ladder or a pail shelf.
18. Ladders shall not be used in a horizontal position as platforms, runways or scaffolds.

K. Material Handling

1. Proper gloves and safety shoes are required when handling materials**.** The type of gloves used will depend upon the material being handled.
2. When handling objects, watch for slivers, nails, sharp wire, sharp edges, etc.
3. Keep hands free of oil and grease when handling objects. Wipe off greasy, wet or dirty objects before handling them.
4. Avoid carrying loads that extend above eye level.
5. Avoid situations where you may get caught between the object being handled and the ground, floor, or other objects.

L. Lifting

1. The correct method to lift objects is using the proper lifting technique:

   a) Face the load and place your feet so you will have good balance.

   b) Squat -- keep your back curved inward and rigid. Let your arms and

   legs do most of the work.

c) Use smooth, coordinated movements. Avoid sudden or jerking movements and awkward body positions.

d) Keep the load as close to your body as possible -- do not over-reach.

e) Do not twist your body -- shift your feet instead.

f) If the object is difficult to handle because of size, shape or weight -get help. This help may be another person or a mechanical-lifting device.

g) Take advantage of skids, hoists, winches, bars, jacks, blocking, or rollers when moving heavy material.

h) Set the load down in the same safe manner you used to pick it up. Watch your fingers when setting the load down.

1 When lifting, carrying, or lowering pipe, conduit, lumber. and other awkward objects, teamwork is essential. Signals shall be given by a designated employee.
2 Pipe and conduit shall be laid on the ground carefully rather than being thrown or dropped. Hands shall be kept away from the ends of pipe or other pinch points, and both hands and feet shall be kept from underneath the pipe when it is being raised or lowered.
3 Pipe and conduit are particularly dangerous because of their tendency to roll. Employees shall not attempt to stop rolling pipe with their hands or feet.
4 Never walk or work under suspended loads.
5 Material has not been handled properly until it is piled or stacked correctly.

M. Motor Vehicle Safety

1. General

a) Always be courteous in your driving**.** Discourteous attitudes on the employee's part will direct ill will toward the employee and the Company.

b) All personnel driving or riding in front and rear seats of vehicles shall have their seat belts properly fastened.

c) Vehicle seat belts warning signals shall not be disconnected or tampered with.

d) When an accident occurs to a vehicle, the operator shall report it immediately to the construction supervisor.

e) Each driver shall realize that, under adverse weather conditions, the safe speed limit is often lower than the posted speed limit.

f) Each driver of a vehicle shall be familiar with and comply with laws and ordinances of the state, county or parish, and city in which the vehicle is being operated.

g) An employee driving a vehicle shall carry a current license for the type of vehicle.

h) The operating condition of a vehicle is the responsibility of the employee driving the vehicle. Unsafe conditions shall be repaired promptly or reported to your supervisor.

i) Windshield, door glasses, rear glasses, and rear view mirrors on Company-owned vehicles shall be properly maintained at all times. All glass shall be kept clean and free of stickers, etc., except for those required by law or approved by your supervisor. Windshields that have breaks, cracks, or shattered spots that obscure vision shall be replaced.

j) Daily maintenance of the vehicle shall include operational and/or visual check of the brakes, lights, horn, tires, windshield wipers and washers, rear view mirrors, windows, and steering assembly. If any of these items are not in good condition, they shall be replaced, cleaned, or repaired as required for safe operation of the vehicle.

k) The driver is responsible for maintaining the proper level of fuel, lubricants, and coolant in company vehicles.

l) All vehicles are equipped with a fire extinguisher and a first aid kit. It is the responsibility of the driver to ensure that these items are present and in proper working order.

m) When parking automotive equipment, the driver shall take positive steps to ensure that the vehicle does not run out of control while unattended.

n) Flammables shall not be transported in unvented compartments.

o) Smoking shall not be permitted in the vicinity of any vehicle being refueled.

p) Due to the danger of carbon monoxide poisoning, do not stay in a parked vehicle with the engine running.

q) The driver shall not leave the vehicle while the motor is running.

r) Drivers shall be sure that the pathway is clear before moving a vehicle. Check all directions before moving a vehicle. Direction of travel shall be clear before proceeding forward or backward.

s) Employees riding in, or on, vehicles shall be properly seated while the vehicle is in motion with no part of the body extending beyond the vehicle body. Employees shall not exit from a vehicle while it is moving.

t) When it becomes necessary to jump-start a vehicle with jumper cables, the following shall be observed:

Safety glasses and goggles shall be worn
Both engines shall be turned off with the vehicles in park or neutral before connecting the jumper cables

- Attach cables as follows:
  - Positive of good battery to the
  - Positive of dead battery
  - Negative of good battery to the
  - Car frame of dead battery
- When attaching cable to car frame, it should be as far from the battery as possible

Start the car with good battery
Start the car with dead battery: and

- Remove cables, as follows:
  - Negative from car frame
  - Negative from good battery
  - Positive from dead battery
  - Positive from good battery

2. Trucks

a) Material on trucks or pickups shall be loaded and tied down to prevent it from falling off when vehicle is in motion.

b) Employees being transported on, or in, a vehicle shall be properly seated while the vehicle is in motion. Employees shall not get on or off a vehicle while it is

moving.

c) Employees shall not stand between the end of the truck bed and the loading platform or any object being loaded.

d) The condition of all auxiliary equipment (such as winch, winch lines, gin poles, chains, fire extinguishers, tools, etc.) on trucks and pickups is the responsibility of the assigned driver. The driver shall inspect such items before each use. Defective items shall be repaired or replaced.

e) The winch line shall be completely spooled when not in use and shall not be handled unless someone is at the controls. Gloves shall be used when handling the winch line.

f) Vehicles with gin poles or booms shall not be operated within ten feet (10') of electric lines.

g) When raising or lowering a load on the gin poles, the truck driver shall be sure that the truck will not move and, if necessary, chock at least two (2) wheels.

h) Precise hand signals shall be used between truck drivers and helpers involved in winching operations.

i) When the truck is stationary and equipment is being moved with gin poles, a line shall be attached to the load to enable someone to stand in the clear and control the load.

j) All loads raised on gin poles shall have a snub line to prevent swinging.

k) The driver shall be sure everyone is in the clear before using the winch line to move a load.

l) Overhead clearance and width shall be checked before passing under low wires, cables, bridges, and overpasses.

m) A load on any vehicle shall not extend more than three feet (3') beyond the front of the vehicle nor more than four feet (4') beyond the rear. If a load does extend more than four feet (4'), it shall bear a red flag during daylight hours and a red light during night hours. Over-wide loads shall travel only during daylight hours and shall be flagged and escorted. If the state requires a permit, this shall be obtained.

n) Employees shall stand to one (1) side when airing truck tires as the safety or

retaining rim may be blown off the wheel.

o) DOT (Department of Transportation) requires a trailer being pulled by a coupling pole to have safety chains of sufficient size to hold the load should the coupling break.

N. Office Safety

1. The arrangement of office furniture and equipment is essential to the safety of every employee who enters or works in any room. Furniture and equipment should be arranged so there is ample room to work without bumping into chairs, desks, file cabinets, and the like.
2. Maintain office furniture in good repair. Poor casters, broken chairs, sharp edges, and improperly-fitted drawers are hazards.
3. There should be adequate lighting for all work area.
4. Electric cords and cable for all electric equipment (typewriters, adding machines, telephones, computer terminals, etc.) should be kept out of the way. These should be arranged in a manner so they will not be stepped on and pose a tripping hazard.
5. Waste baskets should be kept under a table or desk, in a corner, or in other out of the way places.
6. All chair legs should be kept on the floor at all times. Tilting back in a chair, which was not designed with that capability, often will result in a fall. Use caution in tilt-back chairs.
7. File cabinet drawers should be closed when not in use. The bottom drawer should be kept full so that they may serve as an anchor to stabilize the cabinets.
8. Never open more than one drawer of a file cabinet at a time; this will insure that the cabinet does not “tip” over.
9. Practice good housekeeping and keep working surfaces, hallways, stairs, and floors clean.
10. Do not overload a circuit by placing too many electric plugs in one outlet.
11. Learn and understand the proper emergency action and evacuation procedures with assigned work locations.
12. Always walk in all hallways, offices and on stairways. Do not run.
13. first aid kit shall be available at each construction office.

Painting

1. If volatile paints or solvents are used in a poorly-ventilated or Confined Space, an air-line respirator shall be worn. Additional protective equipment such as gloves, goggles, and aprons, shall be worn as necessary. Please note: Grace requires all paints to contain 3.5 pounds per gallon or less of VOCs.
2. Rubbing a protective cream over exposed skin before doing any painting will help prevent skin irritation and will facilitate washing paint off skin.

3. Most paint sprays and thinners are flammable; therefore, they shall not be used near open flames, lights, or other sources of ignition.
4. When spray painting tanks that contain flammable liquids, the paint gun shall be electronically bonded to the shell, and grounded.
5. Electrical equipment shall not be painted until approval is obtained from the Supervisor and the circuit has been disconnected.
6. The Supervisor shall be notified before areas near running electric motors are painted.
7. Avoid painting nameplates, signs, electrical switches, fusible plugs, smoke detectors, and heat detectors.
8. Oil or paint soaked clothing or rags are not to be left lying around the premises. Oil or paint soaked rags shall not be left in pockets of clothing. They shall be placed in covered metal containers until permanently disposed.
9. Empty paint containers, which are to be discarded, shall be resealed with the container lid and stored together in a well-ventilated area until they can be permanently disposed.
10. Upon completion of painting operations, all equipment and left-over paint shall be removed and properly stored in the area, building and/or storage cabinet designated for such use. All paints/solvents wastes shall be stored in the Grace's Hazardous Waste Storage Area.

XXII.RESTRICTIONS/EMERGENCIES - XP PLANT

A. Emergency Situations

1. When any emergency occurs at the XP plant, an audible alarm will sound.
2. All work must be stopped and open flames (cigarettes, torches, etc.) must be extinguished.
3. All equipment must be turned off and the contract personnel and truck drivers must immediately leave XP plant perimeter.

B. The following are some of the emergency situations that may occur**:**

1. XPS reactor not venting properly.
2. CX-100 reactor not venting properly.
3. Auxiliary diesel generator out of order.

XXIII. NORM WORKER PROTECTION

No Grace contractor shall perform any operation which results in the generation of NORM (Naturally Occurring Radioactive Material) waste without Grace's

authorization. Grace shall require contractors performing NORM decontamination and processing operations to have a NORM Specific License and be duly authorized by the state to perform such operations. Contractors operating under their own specific license shall comply with the terms of their license and follow the operating procedures specified by their license.

Non-specific licensed general contractors shall comply and operate under Grace's procedures as specified in the Worker Protection and Waste Management Plan. To assure that these procedures are followed, Grace shall:

1. Review Grace's NORM worker protection and standard operating procedures with the contractor's representative and monitor contractor's work to ensure that Grace's NORM work practices are being followed.
2. Inform the contractor's representative if Grace's NORM work practices are not being followed, and ensure that corrections by the contractor are made to meet these requirements.

Reference Grace's NORM Worker Protection and Waste Management Plan.

XXIV. REQUIREMENTS FOR CRITICAL LIFTS

A. Purpose

The purpose of this document is to define a "critical lift", and list the minimum requirements and prerequisites for making a "critical lift".

B. Scope

The procedure applies to all Grace, contractor, and third parties performing lifts with mobile cranes, derricks, or other lifting equipment, when the failure of that lift may negatively impact the operating of the Grace Lake Charles Plant.

C. Definitions

All mention of cranes, rigging, load tests, periodic inspection, etc., are as defined in 29 CFR 1910 and 1926.

A critical lift is any lift with a mobile crane where:

1. The lift is being made over or in close proximity of live process equipment and the weight is greater than 20,000 pounds.
2. A major process component, such as a tower, drum, compressor, fin fan, or other such equipment is being lifted and the weight is greater than 20,000

pounds.

D. Prerequisites and Requirements for Critical Lifts

Critical Lift Permit must be completed. This is the responsibility of the Contractor's Representative. The completed permit must be presented to Grace Representative. Under no Circumstances will a critical lift be made when the load is greater than 75% of the 85% chart for the configuration of the crane.

1. When the lift is to be made over live process equipment and pipe racks, the affected operating unit will identify and catalog each line that may be affected if the load falls. This cataloging will include product in the line, and up and downstream isolation points.
2. When the cataloging is needed, the Operations Supervisor of the affected unit must be notified of the need as soon as possible.
3. A review of drawings showing underground lines shall be made as part of the pre-lift preparation.
4. The Grace Representative in charge of the lift shall assure all necessary soil testing and calculations have been performed.
5. A pre-plan meeting shall be held for all critical lifts**.** At a minimum, meeting attendance shall include the area Operations Supervisor, Grace Representative in charge of the lift, and the appropriate Contractor or Mechanical Department personnel.
6. A dead load test lift will be performed after the crane is set up in the final position.
7. A Periodic Inspection, as defined by 29CFR 1910.180, shall be performed just prior to set up for the test lift. Documentation certifying this inspection shall be presented to the Grace representative in charge of the lift.
8. While the lift is in progress, the Grace representative in charge of the lift shall assure that all nonessential personnel leave the lift area.