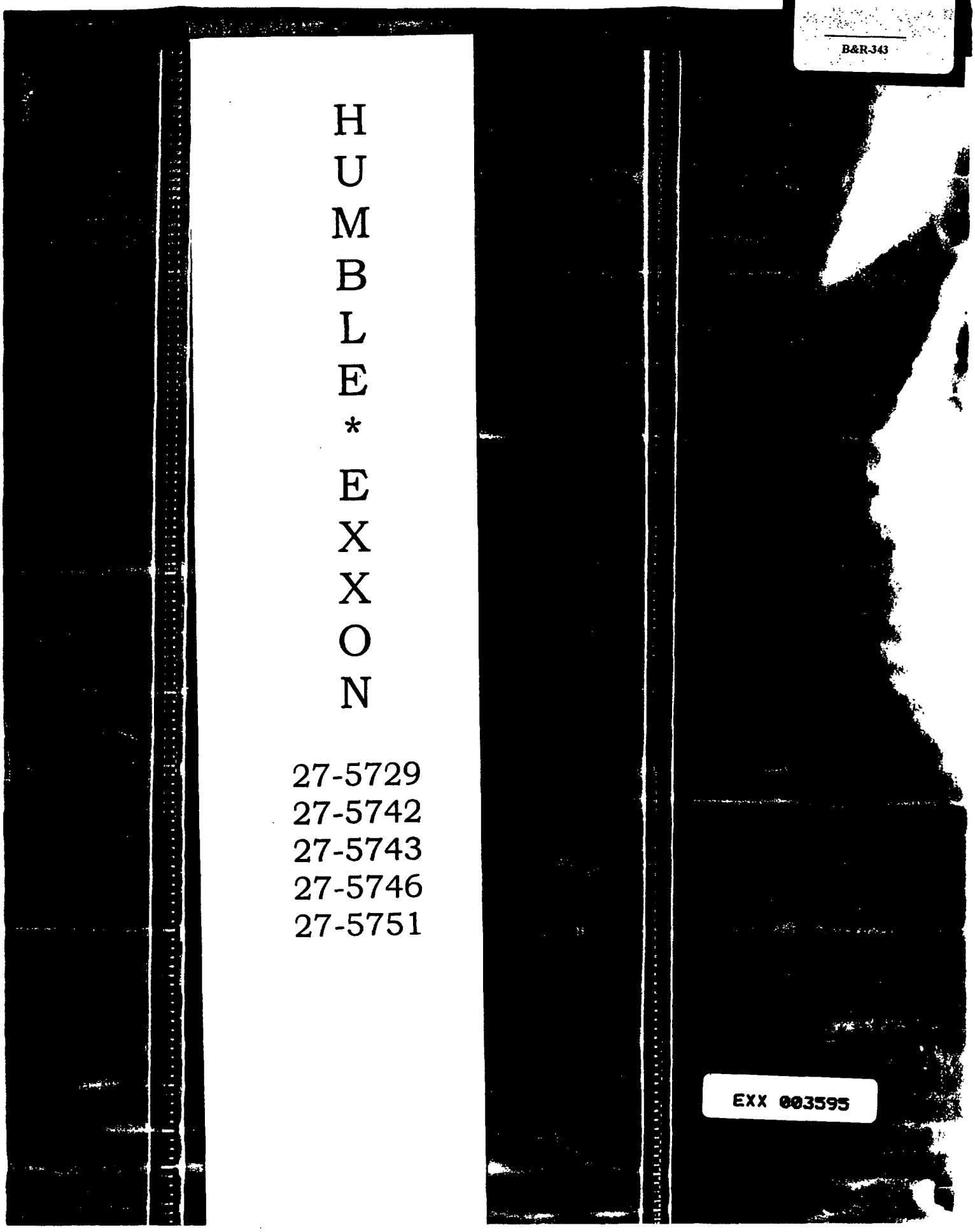
PLAINTIFF'S EXHIBIT
B&R-343
HUMBLE * EXXON
27-5729
27-5742
27-5743
27-5746
27-5751
EXX 003595

27-5729

21-5729

542-0060

Work Request JX15131-B Contract No. D-00-0661-A

THIS CONTRACT, entered into this 5th day of June 19 78, by and between Exxon Company, U.S.A. (a division of Exxon Corporation), hereinafter referred to as "Exxon," and BROWN & ROOT, INC. hereinafter referred to as "Contractor," WITNESSETH:

That in consideration of the covenants and agreements set out herein and the payments provided for herein Exxon and Contractor agree as follows:

1. Contractor agrees to begin immediately and press with due diligence until completion in a careful and workmanlike manner, with the necessary labor, supervision, tools, equipment, and materials, furnished and maintained by Contractor at its own cost and expense except as hereinafter provided, certain work briefly described as follows:

Perform all work in accordance with the specifications and exhibits listed below, a copy of said specifications and exhibits and of each drawing and Baytown Engineering Standard referred to therein being attached hereto and made a part hereof.

Designation	Title	Date
Specifications	Job Specifications for Removal of a Turning Dolphin at Dock 5	May 3, 1978
Exhibit "A"	Turning Dolphin for Dock 5	May 3, 1978

Insurance

In addition to insurance required by Paragraph 5.B, Contractor agrees to carry the following additional insurance:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto and including the following endorsements:

(a) U. S. Longshoremen's and Harbor-Workers' Compensation Act (Texas Form 46.1).

(b) Voluntary Compensation Minimum limits $50/200,000 (Texas Form 44).

(c) Amendment to Voluntary Compensation Endorsement - Maritime (Texas Form 49)

(d) Amendment to Coverage B Endorsement - Maritime (masters or members of the crews of vessels - minimum limits ($50/200,000). Such coverage TO provide transportation, wages, maintenance, and cure. (Texas Form 50). Contractor need not supply this particular coverage when equipment not owned by Contractor is used on this work, provided the owner of said equipment carries this insurance coverage and Contractor is named as coinsured while such equipment is being sued hereunder.

Contractor agrees to begin work immediately upon award of Contract, and will make every effort to complete the work on or before November 17, 1978.

2. As consideration for the satisfactory performance and completion of this Contract by Contractor, Exxon agrees to pay Contractor the lump sum of THREE HUNDRED TWENTY THREE THOUSAND THREE HUNDRED NINETY DOLLARS AND NO/100 $323,390). The attached schedule of charges for work delays by Exxon are shown on attached Exhibits "A" and "B."

Invoices will be paid thirty days after receipt of invoice.

EXX 003598

3. Contractor shall comply with all of the terms and conditions contained in Exxon's publication entitled "Contractors' Responsibilities for Safety, Plant Security, and Traffic Regulations," dated April 1, 1978, said publication being made a part of this contract by reference. Exxon will furnish copies of this publication to the Contractor. The rules and regulations contained in the "Contractors' Responsibilities" shall apply to all subcontractors and their employees as well as to the prime contractor and its employees. Before starting work under this Contract, Contractor shall obtain from Exxon copies of these regulations. Contractor shall notify its employees, its subcontractors, and the employees of its subcontractors of the provisions of said regulations and shall secure compliance therewith by all such parties; and Contractor shall not allow any of such persons to begin work inside Exxon's Baytown Refinery until such notification has been given them.

Said "Contractors' Responsibilities" 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. Neither compliance with such regulations by Contractor nor Exxon'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 hereunder.

4. Although Contractor shall provide its own representative or representatives to supervise and inspect all materials and workmanship entering into this job, Exxon reserves the right to have an inspector on the job. Any material which Exxon considers unsatisfactory shall be removed and replaced at Contractor's expense. Neither inspection, waiving of inspection, nor acceptance by Exxon shall relieve Contractor of its obligation to furnish all materials and workmanship in accordance with specifications.

5. It is understood and agreed that all work performed by Contractor hereunder shall meet with the approval of Exxon's engineers or inspectors but that the detailed manner and method of doing same shall be under the control of Contractor, Exxon being interested only in the result obtained, and that Contractor is an independent contractor as to all work performed hereunder. In this connection, Contractor and Exxon agree as follows:

A. Contractor agrees to indemnify and hold Exxon harmless from all claims, actions, demands, loss and causes of actions arising:

(1) From injury, including death, to its employees and those of its subcontractors, except such as may result solely from the negligence or willful acts of Exxon or its employees.

(2) From (a) injuries to or deaths of persons, including employees and representatives of Exxon, which result in whole or in part from the willful acts or negligence of Contractor, its employees, agents, or subcontractors, or (b) damage to property of Exxon and all other persons, which results in whole or in part from the negligence or willful acts of Contractor, its employees, agents, or subcontractors, except that Contractor shall not be responsible for damage to Exxon's property resulting from fire or explosion.

(3) From damage to property or injury to or death of persons which result in whole or in part from willful acts or the negligence of Contractor, its employees, agents or subcontractors, in connection with the handling and use of utilities furnished by Exxon except that Contractor shall not be responsible or liable for such damage to Exxon's property resulting from fire or explosion.

B. In addition, Contractor agrees to carry insurance as follows:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto.

EXX 003599

(2) Comprehensive General Liability Insurance (including Contractors' Protective Liability when subcontractors are used), covering

(a) Bodily injury liability with a limit of not less than $ 100,000 for one person injured or killed and, subject to such limit, $ 300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $ 100,000 for each accident, and $ 100,000 aggregate.

(3) Automobile Liability Insurance on owned, non-owned and hired automotive equipment covering

(a) Bodily injury liability with a limit of not less than $100,000 for one person injured or killed and, subject to such limit, $300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $50,000 for each accident.

C. Prior to commencing work hereunder, Contractor shall produce evidence in a form satisfactory to Exxon that all insurance required under this Contract is in force and carried with companies acceptable to Exxon and that such insurance will not be materially altered or canceled while the work covered hereby is in progress without a reasonable prior written notice to Exxon. Upon request of Exxon, Contractor shall furnish certified copies of all such insurance policies. Should Contractor at any time neglect, or refuse to provide, or should it cancel the insurance required herein, Exxon shall have the right to procure same and deduct the cost thereof from the consideration to be paid Contractor hereunder.

6. Contractor agrees to pay off and satisfy all claims for labor and material employed or used in anywise by it in connection with the work performed hereunder, and to permit no liens of any kind to be fixed upon or against the property of Exxon by Contractor's laborers, mechanics or materialmen, and agrees to indemnify, protect and save Exxon harmless from and against all such claims and liens.

7. Contractor agrees that if, in the opinion of Exxon, Contractor should fail at any time during the performance hereof, to provide the necessary labor, supervision, tools, equipment or materials for the prompt performance of the work herein contractor for, or should breach this Contract in whole or in part or fail to use due diligence in the performance thereof, or should not be performing this Contract in the manner herein provided, Exxon may, at its election, take over and perform or obtain another contractor to take over and perform all or any part of the work then remaining unperformed. In the event Exxon should exercise such right, it shall have the right to use all or any part of Contractor's tools or equipment then in use on the job but shall pay Contractor a reasonable rental for the use of such tools and equipment during the period use by Exxon and shall return same to Contractor upon the completion of the job in as good condition as when taken over by Exxon, ordinary wear and tear excepted. Should Exxon take over the completion of said job, or obtain another contractor to do so Exxon shall pay Contractor for the work then completed, subject to the later provisions hereof, unless the compensation for the completed work cannot be readily determined, in which latter event Exxon shall pay Contractor the full contract price less all costs and expenses incurred by it in the completion of the work.

8. Contractor agrees that upon the completion by it and acceptance by Exxon of the work herein contracted for it will furnish Exxon with proof satisfactory to the latter that all claims for labor and material have been satisfied and paid and that there are no unsatisfied claims for injuries to persons or property, and thereupon the amount due as herein provided shall be paid by Exxon to Contractor within 30 calendar days after receipt of final invoice, subject, however, to the right in Exxon to withhold payments in accordance with the provisions of Article 5469, Texas Revised Civil Statutes of 1925, and all amendments thereto or other provisions of law applicable. It is

agreed that upon request of Contractor and upon showing to the satisfaction of Exxon that all claims for labor and material and for damages to persons and property, as above provided, have been satisfied, Exxon, in the event it considers it safe to do so, will advance at approximately fifteen (15) day intervals up to ninety percent (90%) of the value of the work then completed, based upon estimates by Exxon's engineers or inspectors, in which event the balance will be paid upon completion and acceptance of the work and compliance with the terms and provisions hereof. Payment pursuant to the terms of this paragraph shall not preclude the right of Exxon from thereafter disputing any of the items involved.

Contractor agrees that in the event any lien or liens are fixed or attempted to be fixed, secured or claimed against Exxon or Exxon's property by any person or firm, lumber dealer or corporation, artisan, laborer, mechanic or subcontractor who furnished services or materials in connection with the performance of this Contract, Contractor will, within ten (10) days following notification by Exxon that such lien or liens have been fixed or attempted to be fixed, secured or claimed, furnish Exxon a bond in an amount equal to twice the value of the lien or liens. Such bond shall be executed by a corporate surety authorized to do business under the laws of the State of Texas and shall comply in all respects with the requirements of Article 5472c, Vernon's Annotated Texas Statutes. Contractor further agrees to file such bond with the County Clerk of Harris County, Texas, and to take all steps necessary to assure that prompt notice of such filing is given to the obligees named therein. Contractor further agrees that the giving of such bond shall be in addition to any other rights of Exxon or obligations of Contractor under this Contract and shall in no way be construed as abrogating or qualifying such rights and obligations.

9. In the event there is a conflict between any of the provisions hereof and any of the proposals, general conditions, specifications, or any documents, agreements, or papers of any kind which have been incorporated herein by other provisions hereof, it is understood and agreed that the provisions hereof shall be controlling.

The making, execution and delivery of this Contract by the parties hereto have been induced by no representations, statements, warranties or agreements other than those herein expressed. This Contract embodies the entire understanding of the parties hereto and there are no further or other agreements or understandings, written or oral, except as mentioned herein.

10. In performing its obligations hereunder, Contractor shall comply with all applicable federal, state, and municipal laws, and all applicable orders, rules and regulations of constituted authority.

11. If Contractor fails or refuses to pay any taxes or governmental charges, state or federal, relating to the employees of Contractor, and Exxon may be required or deems it necessary to pay such taxes or charges, Contractor agrees to furnish Exxon with information required to enable it to make the necessary reports and to pay such taxes or charges. Contractor agrees to reimburse Exxon on demand at Houston, Texas, for all such taxes or governmental charges, state or federal, which Contractor fails or refuses to pay and which Exxon may be required or deems it necessary to pay. In addition, Exxon, at its election, is authorized to deduct all sums so paid for taxes and governmental charges from any payment due Contractor hereunder.

12. In connection with the work provided for hereunder, Contractor (1) guarantees and warrants all material and equipment fabricated by it against defects and agrees to replace, without cost to Exxon, any such material or equipment which may become defective within one (1) year from Exxon's acceptance of the work except when such defects are the result of corrosion, erosion, normal wear and tear; (2) guarantees its field workmanship and agrees without cost or charge to Exxon to replace or repair any defects in the work covered by this Contract resulting from its field workmanship if such defects are reported to Contractor within one year from date of Exxon's acceptance of the work; (3) will to the extent reasonably possible secure from the vendors of materials and equipment guarantees substantially the same as the guarantees of Contractor set out in (1) and (2) above.

13. In the event Exxon loans or furnishes tools or equipment to Contractor in connection with its work covered hereunder, Contractor agrees:

A. To make its own determination before commencing work that such tools and equipment are adequate for the safe performance of the work by Contractor;

B. That such tools or equipment will be loaned or furnished and accepted by Contractor without warranty or representation by Exxon as to their condition.

C. To return such tools or equipment to Exxon at the conclusion of such use in as good condition as when received, ordinary wear and tear excepted; and;

D. To indemnify and hold Exxon harmless from all claims, demands, causes of action, damages and injuries resulting from Contractor's use of said tools or equipment.

For the purpose of this paragraph 13, tools and equipment shall be defined to include scaffolds, lights, and all other types of apparatus, facilities or services which Exxon may loan or furnish. In addition, all of the provisions of this paragraph shall be applicable to any lighting or illumination loaned or furnished to Contractor by Exxon.

14. Exxon may from time to time, by written instructions or drawings issued to Contractor, require additional work and services directly in connection with or incidental to the work covered by this Contract; and Exxon may by such instructions or drawings, require Contractor to alter, change, accelerate, or omit any work covered by this Contract. In the event Exxon desires any such additions, changes, alterations, accelerations or omissions which will materially increase or decrease the total contract price referred to in paragraph 2 above, Contractor shall submit to Exxon an estimate of such increase or decrease. Should Exxon desire to proceed in accordance with such estimate, Exxon shall issue to Contractor a Contract Change Order describing the work to be added or deleted and the corresponding price addition or deduction therefor. If Contractor has not obtained a Contract Change Order, signed by Exxon's appointed representative, no claim for additional compensation will be allowed. The provisions of this Contract except as may be otherwise provided shall apply to all such additions, changes or alterations as if they were embodied in the original drawings and specifications.

15. Contractor shall procure Exxon's prior written approval as to any subcontract covering any portion of the work provided for hereunder. No such approval shall relieve Contractor from any of the obligations of this Contract, and, as between the parties hereto, Contractor shall be and remain liable as if no such subcontract had been made. No subcontract shall bind or purport to bind Exxon but shall contain a provision permitting assignment thereof by Contractor to Exxon.

16. Contractor agrees to hold in confidence any and all technical information disclosed to Contractor by Exxon, including technical information included in or on tracings, drawings, field notes, calculations, specifications, and engineering data, except:

A. Technical information which at the time of disclosure by Exxon to Contractor is in the public domain;

B. Technical information which, after disclosure by Exxon to Contractor, becomes part of the public domain by publication or otherwise; and

C. Technical information which Contractor can show was in Contractor's possession at the time of Exxon's disclosure to Contractor and was not acquired, directly or indirectly, from Exxon.

Contractor agrees that Contractor will not, without the written permission of Exxon, use the technical information which Contractor is required to keep confidential under this Contract for any purpose other than the accomplishment of work under this Contract.

17. If Contractor or Contractor's personnel make any inventions based upon technical information which Contractor is required to keep confidential under this Contract, Contractor shall promptly disclose said inventions to Exxon. Contractor agrees to grant and hereby grants to Exxon an irrevocable, nonexclusive, royalty-free license and the irrevocable right to grant nonexclusive licenses, without accounting therefor to Contractor, to use said inventions under Contractor's Patent Rights. The licensing right herein granted by Contractor to Exxon is assignable by Exxon to any of its Affiliates. For the purpose of this Contract only, the term "Contractor's Patent Rights" shall mean patents and patent applications based on inventions made by Contractor or Contractor's personnel which inventions are based upon information which Contractor is required to keep confidential under this Contract and which are conceived during the life of this Contract and two (2) years thereafter. The term "Affiliate," as used in this paragraph, shall mean and include any company of which Exxon Corporation now or hereafter owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof. For the purpose of this definition, the stock owned or controlled by Exxon Corporation shall be deemed to include all stock owned or controlled, directly or indirectly, by any other company of which Exxon Corporation owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof.

18. It is expressly understood by Contractor that Exxon accepts no obligation of confidence with respect to any information disclosed to Exxon by Contractor under this Contract unless specifically covered by a separate, written confidentiality agreement. In the absence of such separate confidentiality agreement, Contractor agrees that it will not place any restrictive notices on the tracings, drawings, field notes, specifications, and any other documents embodying engineering or professional data developed by Contractor for Exxon pursuant to this Contract and that Exxon is hereby authorized to nullify, obliterate, or otherwise remove any such restrictive clauses; and that Exxon shall be free to use or disclose any or all of the information contained therein to third parties without accounting to Contractor therefor.

19. It is understood and agreed that Exxon may, upon written notice to Contractor, terminate the work provided for hereunder. In the event of such termination, Contractor shall be reimbursed for actual costs incurred to the date of such notice of termination in connection with the execution of the described work, and for actual costs thereafter incurred by Contractor in connection with such termination, plus applicable overhead and a reasonable profit based on such costs. However, in no event shall such reimbursement include prospective profits for work unperformed.

20. Contractor's obligations under paragraphs 16 and 17 of this Contract shall survive any termination of this Contract.

21. It is agreed as a condition of the Contract as follows:

A. That in the performance of this Contract, Contractor shall not engage in any conduct or practice which violates any applicable law, order or regulation prohibiting discrimination against any person by reason of race, color, religion, national origin, sex or age.

B. This order is XX ____ is not ____ subject to Executive Order 11246, as amended. The Equal Opportunity Supplement is made a part hereof and either is attached hereto for your signature and return or has been previously filed with Exxon. This contract also includes and is subject to Executive Order 11738 requiring certification of compliance with the affirmative action clauses concerning disabled veterans and veterans of the Vietnam era (41 CFR 60-250) and employment of the handicapped (41 CFR 60-741), and the appropriate clauses are either attached hereto or incorporated herein by reference.

EXX 003603

IN WITNESS WHEREOF, the parties hereto have executed this Contract in duplicate originals as of the day and year first above written.

~~BROWN & ROOT, INC.~~

By _____

VICE PRESIDENT

Exxon Company, U.S.A.
(a division of Exxon Corporation)

By _____

Purchasing Head
Materials Department

JWT:dec

(W. T. Campbell)

May 3, 1978
Work Request JX 15131-B
Revision 1

JOB SPECIFICATIONS FOR REMOVAL OF A TURNING DOLPHIN AT DOCK 5 EXXON COMPANY, U.S.A. (A DIVISION OF EXXON CORPORATION) BAYTOWN, TEXAS

SCOPE OF WORK

1.1 This job specification covers the removal of a severely damaged 60-foot-diameter turning dolphin at Dock 5 at Exxon's Baytown Refinery, Baytown, Texas. The scope of the work shall be as shown on drawings and standards that are listed in the following attached tables:

A. Table I - List of Engineering Drawings, dated May 3, 1978.

B. Table II - List of Engineering Standards, dated May 3, 1978.

DIVISION OF WORK

2.1 The materials furnished and the services performed by Exxon shall be as listed in the attached Exhibit "A," dated May 3, 1978.

JOB INSTRUCTIONS

3.1 Coordination procedures covering construction and accounting shall be as specified in the Baytown Engineering Standards (BTES) listed in Table II.

3.2 Dock 5 will remain in operation during the time this work is in progress. In the event that ships must be berthed at Dock 5 or any hazardous situation exists, all work may be stopped by Exxon. Exxon's personnel will advise Contractor concerning starting and stopping of work.

3.3 When requested by Exxon, Contractor shall move its barge and equipment to a safe location of its own choosing.

3.4 Contractor shall move its barge after each workday to an area of Contractor's choice acceptable to Exxon for overnight storage. One area acceptable to Exxon is the north side of the east-west approach to Dock 5.

3.5 Contractor shall comply with the following:

A. Perform the construction operations in a manner that will reduce turbidity and siltation to the lowest practical level.

B. Provide and operate sanitation facilities during construction that will adequately treat or dispose of sanitary wastes to conform with Federal, State, or Local Health Regulations.

3.5 (Continued)

C. Take precautions in the handling or storage of hazardous material to prevent discharges or spillages that would result in degradation of the water quality.

MECHANICAL SPECIFICATIONS

General

4.1 National or industry codes and standards referred to herein shall be defined as the latest published edition as of the date of this job specification.

4.2 Only those BTES listed in Table II shall be made a part of the job specification.

4.3 Contractor shall burn off all sheet piling to elevation minus 32 feet, 0 inches.

4.4 If Contractor proposes to utilize controlled explosives in removal of the concrete cap, Contractor shall prepare for Exxon's Project Engineer's approval a complete coordination procedure covering all aspects of the demolition work. This procedure shall be submitted for approval two weeks prior to the proposed starting date for the demolition work.

4.5 Contractor shall completely remove existing structure including any materials which have spilled or fallen to the mud line at elevation minus 32 feet 0 inches Exxon datum as a consequence of the accident, which destroyed the dolphin.

4.6 All materials which can be economically salvaged, such as the fendering system and clips, shall be saved for Exxon's use in future replacement of the dolphin.

HTC:brr

EXX 003606

May 3, 1978
Work Request JX 15131-B

TABLE I

LIST OF ENGINEERING DRAWINGS

Drawing No.	Rev.	Date	Title
309-31-49	4	11-6-74	Dock 5, Turning Dolphin, Plan, Elevation, and Details
309-31-51	1	4-17-74	Dock 5, Turning Dolphin, Details and Elevations
309-31-52	0	10-19-73	Dock 5, Turning Dolphin Walkway, Details and Elevations
309-31-54	1	5-24-74	Dock 5, Turning Dolphin, Piling and Rebar Steel, Orientation, Plan, Sections and Details
309-31-58	0	1-10-75	Dock 5, Turning Dolphin, Additional Fendering
SK-334WCH	0	3-20-78	Dock 5, Turning Dolphin, Debris Soundings

TABLE II

LIST OF ENGINEERING STANDARDS

Engineering Standard No.	Rev.	Date	Title
			JOB INSTRUCTIONS
BTES 50-5-1.1C	3	1-77	Construction Requirements, Instructions
BTES 50-5-5.1C	0	2-70	Field Welding Qualifications, Instructions
BTES 50-6-5.1D	1	1-73	Invoicing for Lump-Sum Contracts, Instructions

HTC:brr

EXHIBIT "A"

May 3, 1978
Work Request JX 15131-B

TURNING DOLPHIN FOR DOCK 5

EXXON COMPANY, U.S.A., WILL FURNISH ONLY THE FOLLOWING:

1.1 Copies of applicable drawings, specifications, and standards reasonably necessary for work execution.

1.2 The following utilities, if required and requested by Contractor, at existing outlets, which will not be extended by Exxon, and in quantities available at those outlets, each to be used at Contractor's risk:

A. Drinking water, not cooled.

B. Electrical power at 110/220 volts, 60 Hertz, single-phase, and 440 volts, 60 Hertz, three-phase.

EXXON WILL PERFORM ONLY THE FOLLOWING:

2.1 Designate a site or sites in the Baytown Refinery to which Contractor shall transport all dismantled, excavated, or surplus materials and debris.

2.2 Designate material storage areas and areas on which Contractor may locate temporary sanitary facilities, shops, or offices.

2.3 Provide an elevation benchmark as a reference for all work.

2.4 Obtain the necessary permits for dismantling the turning dolphin.

HTC:brr

STATE OF TEXAS

COUNTY OF

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be a person
(Individual's Name)
whose statement is worthy of full faith and credit, who, being by me first duly sworn, on his oath deposes and says as follows:

My name is _____.
(Individual's Name)

Under date of _____, _____
(Contract Date) (Contractor)
as Contractor and Exxon Company, U.S.A. as Exxon entered into
Contract No. _____
under the terms of which Contractor was to perform the following work or service for Exxon Company, U.S.A., to-wit:

Affiant says that all bills, costs, and indebtedness for labor and/or material used or employed or which arose in any manner in connection with the performance of said contract have been satisfied and paid: and that there are no unsatisfied claims for injuries to persons or property occurring in anywise incident to or in connection with the performance of said contract up to the date hereof.

Further affiant sayeth not.

_____
(Individual's Signature)

SWORN TO and SUBSCRIBED before me this the _____ day of _____, 19__.

_____
Notary Public in and for

_____ County, Texas

CONTRACTORS' RESPONSIBILITIES FOR SAFETY, PLANT SECURITY, AND TRAFFIC REGULATIONS

BAYTOWN REFINERY

January 1, 1977

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Section 1

GENERAL DEFINITIONS FOR SAFETY MANUAL

PERSONS

1. Chief Operator — The Process person who is responsible for Process operations in a processing area and has the authority to supervise Process personnel and issue work permits.

2. Contract Administrator — The Exxon Mechanical or Process supervisor assigned by the owner to assure that the contractor adheres to the plans, specifications, and Refinery safety rules.

3. Contractor — *The firm under contract to Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors by the prime contractor.*

4. Department Head — The person in charge of a Process department, i.e., Fuels, Specialties, Oil Movements, Utilities and Environmental Control, or Baytown Fuels Expansion.

5. Maintenance Supervisor — The Mechanical person, either Exxon or *contractor*, who has the authority to supervise the Mechanical work crew and is responsible for their work execution.

6. Mechanical Personnel or Person — Any of the Mechanical work crew (Supervisor, Craftsman, Trainee) either Exxon or *contractor*, performing work in the *Refinery*.

7. Owner — Exxon Company, U.S.A., Baytown Refinery.

8. Operating Supervisor — The second-line supervisor in Process and the immediate supervisor of the Chief Operators.

9. Process Personnel or Person — Any of the Process work crew (Chief Operator, Process Technician, or Process Technician Trainee) who has job responsibility for the assigned processing area.

10. Safety Permit Inspector — The person who has the primary responsibility of performing gas tests and inspecting the jobsite for compliance with applicable safety rules and standards for the purpose of issuing work permits.

11. Standby — The person designated by the Chief Operator and/or the maintenance supervisor to warn persons of hazardous or emergency conditions that could affect their safety.

PLACES

1. Enclosed Space — Any space that can be closed or has restricted entry or exit such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of personnel working are below the top of the confined space.

2. Processing Area — Any area under the jurisdiction of Process personnel.

3. Refinery — The manufacturing facilities of Exxon Company, U.S.A. located in Baytown, Texas.

ACTIVITIES — CONDITIONS

1. Cold Work — Any mechanical work that does not involve hot work or opening, blinding, and entering processing equipment.

2. Hot Work — Any work requiring the use of burning or welding and brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and

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saws), nonexplosionproof flour or string lights, sandblasting, explosion actuated tools, electric hot plates, or any other flame- or spark-producing equipment

3. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods

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

5 Blinding — Installing temporary slip blinds into piping or blind flanges onto equipment for the purpose of isolating or closing processing equipment

6 Flammable Material — Any material that will ignite and continue to burn in air

7 Explosive Mixture — Any mixutre of gas or vapor with air that will ignite (explode) when exposed to a source of ignition

8 Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

9 Toxic Materials — Any substance (other than a radioactive substance) that has the capacity to produce personal injury or illness to man through ingestion, inhalation, or absurption through any body surface.

10 Must and May — "Must" is used in the manual to indicate mandatory compliance "May" is used to indicate that good judgment shall be exercised.

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Section 2

SAFETY RULES

PURPOSE

The purpose of these personnel, equipment, and traffice safety rules is to specify minimum safety requirements that must be followed to prevent injury or death to persons and damage to property. These rules in their entirety apply to all persons, *including the contractor employees* working in Exxon Company, U S A 's Baytown Refinery. *Additional requirements for contractors and their employees are shown in italic type throughout the manual.*

DEFINITIONS

Definitions of terms used throughout this manual will be found in Section 1. Special definitions that apply to a specific permit or work procedure are in the applicable section of this manual.

RESPONSIBILITIES

1. Supervisors are responsible for the health and safety of the people under their work direction. They must:

a. Set a good example.

b. Provide adequate instruction in and require compliance with:

(1) Accident prevention aspects of each job.

(2) Use and application of appropriate protective clothing, equipment, and devices.

(3) Use or application of tools and equipment.

c. Cooperate with others where the safety aspects of a job require coordinating the efforts of one or more work groups. This includes, but is not limited to, the securing and/or issuing of a yellow PERMIT TO ENTER, green HOT WORK PERMIT, white OPENING OR BLINDING PERMIT, blue COLD WORK PERMIT, or ELECTRICAL LOCKOUT PROCEDURES.

d. Develop a safe work plan for the job to be done and see that the plan is well understood and followed.

e. Require additional accident prevention measures, other than those contained in this safety manual, if, in any supervisor's opinion, they are necessary. In instances or situations not specifically covered herein, it is expected that they will be handled within the guidelines contained in this manual. Safety is not to be sacrificed for production.

2. Individuals, Exxon *and contractor* working on the Baytown Refinery are responsible for their own safety and for the safety of other workers and for reporting injuries to themselves or others to their appropriate supervisor. Each person must assure himself that his work situation is safe and that he has adequate instructions, proper tools, and proper protective clothing and equipment. He must also make sure that necessary work permits have been obtained and are valid over the term of his shift.

As a minimum, each person must adhere to the *following safety regulations*:

a. Clothing and Protective Equipment

(1) Clothing contaminated with oil, hazardous liquids, or chemicals must not be worn. If a person is inadvertently sprayed or contacted by oils, hazardous liquid, or chemicals, the clothing must be removed as quickly as practical, the affected parts washed with soap and water, and the situation reported to the supervisor *and to the Exxon supervisor in charge or Contract Administrator in case of contractor.*

(2) Protective clothing that fully covers the body (arms, legs, shoulders, etc.) must be

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worn except at certain locations specified by the Department Head after consultation with the Safety Coordinator

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

(4) Safety hats and safety glasses must be worn in all areas of the Refinery except at certain locations specified by the Department Head after consultation with the Safety Coordinator

EXCEPTION: Welders need not wear safety hats while welding

(5) Contact lenses must not be worn inside the Refinery. Employees with unusual visual problems requiring the wearing of contact lenses must use appropriate eye protection as recommended by a medical doctor depending on occupational exposure. (For Exxon employees, the Medical Department will recommend appropriate eye protection.)

(6) Goggles and/or safety glasses with side shields must be worn in those areas where the possibility of flying objects exists

(7) Chemical goggles must be worn in those areas where exposure to chemicals or liquid hazards exist

(8) Respiratory protection must 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).

(9) Special protective clothing for the particular hazard must be worn where there is a possibility of exposure to acid, caustic, or other hazardous material.

(10) Bright-colored vests or equivalent highly visible attire must be worn by members of survey parties when working on or adjacent roads.

(11) Safety belts attached to an independently supported line must be worn

(a) When working from scaffolds, platforms, or any other surfaces that 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.

(12) Approved ear protection such as ear plugs, disposable plugs (Swedish wool and cotton are unacceptable), or ear muffs must be worn when working in areas designated with warning signs as "high noise area." Ear protection is required when using tools marked "caution — hearing protection required when using this tool" and in areas where equipment or tools generate sufficient noise to make normal conversation difficult.

b. Entering Processing Area

No person shall enter a processing area (including firewalls of operating tanks) without the permission of the Chief Operator or his designated representative. Chief Operator permission is also required when motorized equipment initially enters a closed processing area (radio or telephone approval by dispatcher is acceptable). No further permission is required as long as mechanical work is continuous. Once

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work is interrupted, such as for lunch breaks, permission must again be obtained. Vehicles entering these areas may be required to have sparkproof mufflers or their equivalent as required by the Chief Operator *or the Contract Administrator in the case of contractor vehicles*.

c. Working Over or Near Water

The U.S. Coast Guard approved life preservers must be worn when working on barges or directly over water, such as under the docks, from a boat, above pits, etc.

d. Working On or Over Machinery

(1) Do not work on moving machinery or above open operating machinery unless it is impractical to shut down the equipment. In such instances, secure Maintenance Supervisor's and or Chief Operator's approval and take necessary precautions before proceeding.

(2) Do not start up machinery unless all guards are in place.

EXCEPTION: In temporary situations where guards must be removed to make running adjustments, secure Maintenance Supervisor's and/or Chief Operator's approval before proceeding.

e. Guarding

(1) Temporary openings in floors, handrails, etc., must be guarded to prevent falling. Restore permanent handrails and guardrails immediately after need for opening has ended.

(2) Open excavations or manholes must be guarded or covered before leaving the job and during the job if practical.

(3) Areas into which materials or tools are to be deliberately dropped or thrown must be guarded or protected.

f. Housekeeping

(1) Aisles, passageways, stairs, platforms, and ladders must be kept clear of all unnecessary obstructions.

(2) Protruding nails that present a snag or puncture hazard must be removed or bent down.

(3) Worksite must be kept clean and orderly.

(4) Debris (including mud from wheels) that falls from transporting vehicles must be picked up.

g. Smoking and Matches

Smoking in the Refinery except at approved locations is prohibited. "Strike anywhere" matches must not be brought into the Refinery.

h. Hand and Power Tools — Portable Machinery

(1) Defective tools must not be used.

(2) Tools must not be subject to undue stress or used for purposes for which they are not designed. Makeshift tools must not be used.

(3) Portable Machinery must be shut down for repair work. If it is impractical to stop or shut the equipment down before working on it, secure Maintenance Supervisor's approval before proceeding.

(4) Abrasive wheel tool rests must be adjusted to within ⅛-inch maximum of the wheel. Do not use abrasive wheels that are visibly in bad order.

(5) High-speed abrasive wheels must be properly guarded as required. Do not stand

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in line of unguarded wheels

(6) Tools must not be started or used unless all required guards are in place

I. Electrical Tools and Equipment

(1) Electrical switches must not be operated without full knowledge that the results will not constitute a safety hazard

(2) Portable electrical tools, metal buildings with electrical service, and electrical equipment (including motor-driven welding machines and portable generators) must be grounded. Report them to the Maintenance Supervisor if they are found to be defective.

EXCEPTION: Double insulated tools and engine driven welding machines may be used without grounding.

(3) General purpose two- or three-cell flashlights (1.5 volts per cell) may be used everywhere except where use is prohibited by governmental agencies, such as at the docks.

(4) Explosionproof, approved portable lights (Underwriters Laboratory or Bureau of Mines approved) must be used where hot work is not authorized. This includes portable explosionproof hand lamps, portable explosionproof floodlights, and extension cords (plug boards) with explosionproof fixtures.

EXCEPTION: Fixed-mount, take-up, reel-type mechanic's lamp or other special appliances that have been specifically approved by the Department Head.

(5) Vaporproof globes must not be removed except for cleaning, repairing, or replacing lamps. Explosionproof fixtures shall be opened only by authorized persons.

J. Ladders and Scaffolds

(1) Ladders must be checked to insure that they are in good condition before use. Portable ladders must either be held or lashed securely while in use. Where practical, the siderails shall extend at least 36 inches above the landing.

(2) Ladders must be located where possible where they cannot be bumped. When located in areas such as in front of a door, in the street or aisles, etc., adequate precautions must be taken to protect both the climber and others who may be in the area.

(3) Good working techniques must be used when climbing, working from, or descending a ladder, such as holding with both hands and keeping the body within the siderails of the ladder.

(4) Scaffolds must be constructed to support at least four times the maximum intended load without failure.

(5) Platform planks must be laid with their edges close together so that there are no spaces large enough for tools or fragments of materials to fall through.

(6) Swing scaffolds must be lowered and lashed at the end of the shift.

(7) Access ladders or other safe means of access to all scaffolds must be provided.

(8) Standard handrails and toe boards must be provided on all scaffolds 10 feet or more in height.

(9) Tools or materials on scaffold platforms must be placed in such a manner that they will not create a tripping hazard or become dislodged and fall.

(10) Alterations to scaffolds must be re-

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ported to the appropriate supervisor

(11) Non Conductive ladders or scaffolds must be used when working on open energized electrical circuits.

k. Excavations

(1) Do not enter or work in excavations that will require a person's head to be below the level of the ground until

(a) Obtaining a yellow PERMIT TO ENTER,

(b) Shoring or sloping the excavation to prevent sloughing of earth,

(c) Effectively storing or retaining excavated material at least two feet from the edge of the excavation and

(d) A ladder or ramp for safe entrance and exit has been provided.

(2) Guard or cover all excavations before leaving job, and during the job if practical

(3) RED CONCRETE UNDERGROUND signifies the presence of an electrical circuit. Stop excavating and notify the Maintenance Supervisor and the Contract Administrator in case of contractor employees.

l. Connections Into Existing Pipelines, Equipment, or Service

After a tie-in has been made connecting new construction to existing lines, equipment, or sewers the whole piping equipment or sewer system involved must be considered the same as existing lines and equipment, and applicable work permits must be obtained from the Chief Operator before additional work can be done on any of these lines or equipment After new sewers have been tied into the sewer system any hot work in the area of the new sewer must terminate Any further hot work requires a new HOT WORK PERMIT.

m. Railroad

(1) Constructing or placing any permanent or temporary obstructions closer than eight feet six inches horizontally from the centerline of the track or 22 feet vertically from any top of rail is prohibited without specific authorization from the Exxon Supervisor responsible for railroad trackage

(2) Riding on railroad equipment is prohibited.

(3) Tank car ladders and hand irons must be used Do not jump from loading rack to tank car, from car to car, or from car to ground

n Hoisting Equipment

(1) Keep clear of suspended loads.

(2) Hoisting equipment must be operated so as not to endanger other people or damage equipment in the operating area

(3) Blocks, hooks, balls, or crane loads must not be ridden. Approved sling or bosun chair must be used.

(4) Loads suspended from mobile equipment must be secured to prevent swinging

(5) Guy lines, mooring lines, or load lines must not be placed in such a position that they will tighten against operating equipment, pipelines, tanks, or machinery.

(6) Insulating swivels must be used on all bosun chairs or baskets when supporting a

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welder

o Hazardous Materials

(1) Note locations of eyewash fountains and safety showers and know how they work

(2) Labeled containers must be used for handling hazardous materials

(3) Dismantled or relocated equipment that has been in "hazardous material" service must be identified by tagging or other physical marking

(4) Solvents for cleaning purposes must be varsol, or other approved materials

(5) High boiling point materials (above 700°F) from catalytic cracking operations or other highly aromatic or toxic materials are hazardous and precautions must be taken to prevent breathing of vapor or contacting the skin. If these oils do come in contact with the skin they must be washed off promptly with soap and water

(6) Appropriate Process Unit Instructions (PUI) or Mechanical Operating Practices (MOP) must be followed when working in areas where toxic materials are present.

p Compressed Air — Yard System

(1) Compressed yard air must not be used to clean clothing or personnel except at outlets that are especially equipped to permit a maximum pressure of 30 psi

(2) Compressed air must not be used to open plugged sewers

(3) Compressed yard air must not be used for breathing purposes

q Warning Signs

Caution and warning signs must be obeyed including use of specified protective or safety equipment

r. Compressed Gas Cylinders — Transportation, Storage, and Use

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

(1) Protective caps must be in place when cylinders not in use

(2) Full cylinders (except chlorine) must be stored and transported in vertical position with caps on. Chlorine cylinders must be transported in the horizontal position. Separate oxygen cylinders in storage from fuel gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least five feet high, having a fire-resistance rating of at least one-half hour.

(3) Holders, chains, or keepers must be used to prevent overturning

(4) Empty cylinders, except acetylene may be stored and transported in a horizontal position. Acetylene cylinders must be vertical at all times

(5) Cylinders in a vertical position must be secured with a suitable keeper while connected to equipment

(6) Pure oxygen and chlorine must not be allowed to contact hydrocarbons in any form

(7) Rough handling of cylinders must be avoided

(8) Oxygen or acetylene must not be used for testing purposes

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(9) Hazardous compressed gases must not be released into enclosed spaces

(10) Compressed bottled gases must not be used to clean clothing or personnel.

(11) Oxygen or acetylene cylinders must not be taken into enclosed spaces except into storage tanks where door sheet has been removed

(12) Repair of leaking compressed gas cylinders must not be attempted. If cylinder can be moved, move to a safe location and allow to depressure itself. If it cannot be moved safely, clear area and allow the cylinder to depressure. If the cylinder is chlorine, evacuate the area and initiate procedure outlined in MOP-C4. *If leak involves contractor cylinders, the Contract Administrator must be immediately notified.*

s Fire Prevention — Fire Fighting

(1) No one shall go to the scene of a fire unless directly involved or assigned to fire-fighting activities. Others not having operating duties shall evacuate the fire area. *Contractor employees must proceed to a prearranged assembly area.*

(2) Fire-fighting equipment access must not be blocked by traffic or other equipment.

(3) Electrical fires must not be fought with a solid stream of water. Water fog may be applied to an electrical fire only by an Exxon fire fighter.

t Working in the Vicinity of Electric Lines

When it is necessary to operate cranes or derricks or perform other work within 10 feet of open electric lines (measured radially), the Maintenance Supervisor must consult the Utilities Chief Operator *or the Contract Administrator in the case of contractor work* to determine whether the electric lines can be deenergized. No work can proceed until the electric lines have been deenergized or until guards have been installed. Install approved guards when it is necessary to install guy lines across any electric lines to prevent guy lines from coming in contact with the electric lines. All work on open electric lines must be done in accordance with Mechanical Safety Procedure No. 8.

u Refueling Vehicles and Equipment

Dispensing gasoline and fuel must be done through a pump and hose. If not possible, approved (Underwriters Laboratory or Factor Manual approved container for flammable liquid) safety cans with flexible spouts must be used. Vehicles and equipment engines must be turned off during refueling.

v Potable Water

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

w Asbestos Cement Roof

When installing or working on an asbestos cement roof, workers must use a spreader board or roofer ladder to distribute their weight over a minimum of two purlins.

TRAFFIC SAFETY REGULATIONS

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

1. Equipment and Identification Required on Motor Vehicles

All motor vehicles in the Refinery must be in safe operating condition. When entering the Refinery

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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: (a) brakes, (b) lights — two headlights, tail lights, brake lights, (c) horn, (d) muffler, (e) safety glass, (f) windshield wiper and rear-view mirror, and (g) 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. *Contractors' self-propelled, rubber-tired equipment must have contractor's name or insignia prominently displayed on both sides of the vehicle.*

2. Driver's License
Persons operating motor vehicles in the Refinery must have a valid operator's (automobile) license as a minimum.

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

4. 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.

5. "Road Closed" Signs
Areas blocked by traffic barriers and/or "road closed" signs are closed to all traffic. Follow procedure specified in PUI-S5 for blocking Refinery streets.

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

7. 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.

8. 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.

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

b. 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.

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

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

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10 Vehicles Prohibited
Motor bicycles or motorcycles are not permitted inside the Refinery except to and from the designated "motorcycle only" parking areas provided near gates. Campers and recreational vehicles are not permitted in the Refinery 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 Refinery.

11. Vehicle Entry Into Processing Areas
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.

12. 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 Refinery. All vehicles must be equipped with adequate rear-view devices.

13. 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.

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Section 3

CONTRACTOR'S SAFETY RESPONSIBILITIES

PURPOSE

The purpose of the personnel and equipment safety regulations contained in this section is to set out safety requirements for contractors, which are in addition to those contained in other sections of this manual. Each contractor must take any additional precautions necessary or proper under the circumstances to prevent injury or death to persons or damage to property.

SPECIAL DEFINITIONS

1. Owner – For purposes of these safety regulations, "owner" shall mean Exxon Company U S A (a division of Exxon Corporation).

2. Contract Administrator – The person assigned by the owner to assure contractor adherence to the contract provisions.

3. Contractor – The firm that has been contracted by the Exxon Company U S A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors to the prime contractor.

4. Maintenance Supervisor – The Mechanical person, either Exxon or contractor, who has the authority to supervise the Mechanical work crew and the responsibility for their work execution. As used in this section, the Maintenance Supervisor refers specifically to the contractor first line supervisor.

RESPONSIBILITIES

1. Contractor, as an independent contractor, is responsible for performing work under the contract in a healthful and safe manner including protecting the safety and welfare of other contractors and the owner's personnel and equipment. 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.

a. The contractor is responsible for informing his employees of the required safety rules and that the employees adhere to said rules.

b. The prime contractor is responsible for assuring compliance with these regulations by all subcontractors and their employees. Contractor must not by its employees, its subcontractors, and the employees of its subcontractors of these provisions of the regulations and shall secure compliance therewith by all such parties, and contractor must not allow any of such persons to begin work inside the Baytown Refinery until such notification has been given them.

c. Contractor must observe and comply with the Texas Occupational Safety Act (Article 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 C.F.R. 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 apply to all subcontractors and their employees as well as to the contractor and its employees.

d. Nothing contained in these regulations shall be interpreted to enlarge the legal duty of the owner to the contractor, his agents, employees, or subcontractors.

2. Maintenance Supervisors are responsible for the safe conduct of their jobs and for the safety of the persons under their direction. Specific supervisory responsibilities are contained in Section 3-2 of this manual. Each Maintenance Supervisor is responsible for assuring that each individual under his direction un-

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understands and adheres to the safety rules contained in Section 1-2 of this manual

3 Individual person doing work in the Refinery must assure himself that the work situation is safe and that he has the proper instructions, tools, and protective equipment. Each person must become familiar with and adhere to the safety rules contained in Section 1-2 of this manual

4. Contract Administrator will monitor the contractor's performance to assure safe execution of the work specified in the contract. He will, on proper request, assist the contractor in dealing with other owner personnel to obtain safety permits and to implement other safety related procedures. He will insure that all contractor's Maintenance Supervisors are properly indoctrinated in the relevant safety regulations

PROCEDURES

1. Work Execution

All work in processing areas must be performed with the approval of the Chief Operator responsible for the area. The Maintenance Supervisor must coordinate his work through the Chief Operator and must keep him informed as to the number, location, and activities of contract personnel. Any work performed after normal working hours and on weekends and holidays requires authorization by the owner. Such authorization will be obtained by the Contract Administrator

2 Required Work Permits and Procedures

Before beginning any work in processing areas, an appropriate permit must be obtained from the Chief Operator or his designated representative. Required work permits and procedures are:

a. Electrical Lockout Procedures – Section 4.

b. Hot Work Permits – Section 5.

c. Permit to Enter Enclosed Spaces – Section 6.

d. Opening or Blinding Permit – Section 7

e. Cold Work Permit – Section 8

Other work procedures may be specified in specialized work situations such as hot tap procedure, procedure for cleaning tanks, etc

3. Oil and Chemical Spills

Any hydrocarbon or chemical spill, whether accidental or otherwise, must be reported to the Chief Operator and the Contract Administrator

4 Connections Into Owner's Utilities Systems

Permission must be obtained from Contract Administrator prior to connecting into owner's utility system such as, but not limited to, water, air, nitrogen, and steam systems. Each connection shall be guarded by a check valve. When taking water from fire hydrants, the center valve must be opened completely

5 Contractor's Equipment

a. All equipment brought into the Refinery by contractors must be in safe operating condition. Authorized owner personnel may at any time inspect contractor's equipment. Such inspection or failure to inspect does not relieve the contractor of its responsibilities for the safe condition of its equipment

b. Equipment must be operated only by properly licensed persons

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

6. Working Over or Near Water

a. Ring Buoys with at least 90 feet of line must be readily available for rescue operations. Distance between ring buoys must not exceed 200 feet

b. A life saving skiff must be immediately available

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at locations where persons are working over or adjacent water

7. Work Involving Use of Ionizing Radiation

Contractors must not perform any work involving the use of ionizing radiation without notification to the Exxon Supervisor in charge or the Contract Administrator. A COLD WORK PERMIT must be obtained to perform this type work in processing areas. Contractors must comply with "Texas Regulations for Control of Radiation," latest edition, Texas State Department of Health, Division of Occupational 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 energy surveys of contractor's equipment and their uses on owner's premises.

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Section 4

ELECTRICAL LOCKOUT PROCEDURES

ELECTRICAL CIRCUITS AND ELECTRICALLY POWERED EQUIPMENT

PURPOSE

The purpose of these procedures is to protect anyone who works on either electrical circuits or electrically powered equipment from injury or death.

SPECIAL DEFINITIONS

Electrical circuits and electrically powered equipment do not include (1) lighting circuits for the purpose of relamping, (2) circuits of less than 100 volts, or (3) circuits that must remain energized. For circuits that must remain energized, a blue COLD WORK PERMIT may be required (see section 8).

RESPONSIBILITIES

1. Process person is responsible for isolating and preparing the equipment to assure it is in safe condition for mechanical work.

2. Person performing work is responsible for assuring himself that the equipment is safe for him to do his prescribed work, and that he has tagged and locked out the equipment in accordance with the electrical lockout procedures.

3. *Contractor Administrator is the contractor's contact with Process personnel for performing work under the electrical lockout procedure.*

PROCEDURE

1. Lockout Procedures — Before anyone works on electrical circuits or electrically powered equipment where they could be endangered, the electrical supply must be turned off and locked out in accordance with the following procedures

a. Shut Equipment Down — The Process person must shut the equipment down at the local start-stop switch or local "Hand-Off-Auto" switch. In case there are remote start-stop switches on this equipment, he must notify other operating personnel responsible for operating the remote start-stop switches and request that a white DO NOT OPERATE tag be placed on the start stop switches. If the start-stop switch is located on a control panel, then it must be covered with a section of DO NOT OPERATE pressure-sensitive tape.

b. Lock and Tag Disconnect Switch — The Process person must turn the disconnect switch to the off position, lock it with a Process lock, and tag it with the white DO NOT OPERATE tag. If a Process or another person is to work on the equipment, the Process person must use a multiple lockout adapter. The Process operations lock must be in the position closest to the switch. All Process locks will be identical, and the same key will unlock all of them.

c. Check Disconnect and Tag — The Process person must try the local pushbutton station to be sure the correct disconnect switch is locked out. When the local control station is a "Hand-Off-Auto" selector switch the process person must lock the switch in the "Off" position. He must then tag the pushbutton or selector switch with a white DO NOT OPERATE tag.

d. Enter in Log — The Process person must enter the "lockout" in the Process log book.

e. Apply Mechanical Lock — Before mechanical work is performed on equipment, a mechanical lock must be applied by the person performing the work.

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(1) Mechanical Person — Each Mechanical person who works on the equipment must first add his own lock and a red DO NOT OPERATE tag on which he will write his name, skill and the date. It is the responsibility of each person working on the equipment to assure his own safety by keeping his tag and individual lock on the disconnect switch while he works on the equipment. If two or more people in the same craft are working together on the equipment, only one mechanical lock and red DO NOT OPERATE tag are required. *If a contractor employee is doing the work, he must use an Exxon mechanical type lock and the appropriate electrical lockout procedures (as obtained from the Contract Administrator. He must write on the tag his name and the name of the contractor firm.*

(2) Process Person — When a Process person is to perform work on the equipment, he must obtain his individual mechanical-type lock and key from the supply in the control room or center and then follow the above procedures in e(1).

f. Remove Lock and Tag — Locks and DO NOT OPERATE tags must be removed as follows:

(1) Remove Mechanical Lock and Tag — As each person finishes his work, he must remove his own lock and red DO NOT OPERATE tag. At the end of his work shift, he must remove his lock and tag whether his work is finished or not. This does not include the original Process lock or white DO NOT OPERATE tag.

(2) Remove Process Lock or Locks and Tags — The Process lock or locks must be the last to be removed. When the local control station is a "Hand off Auto" selector switch the lock on this selector switch must be the last removed. The Process person, after determining that it is safe to do so, must remove the Process lock or locks and white DO NOT OPERATE tags and must notify other operating personnel to remove the white DO NOT OPERATE tags or DO NOT OPERATE pressure-sensitive tape from remote start-stop switches. He must then enter the lock removal in the log book.

(3) Emergency Lock Removal — If it becomes necessary to remove a lock by other than the Mechanical person who installed it, only the Shift Superintendent is allowed to remove it. Upon removal of the lock, the Shift Superintendent must send a note to the Department Heads of the Process and Mechanical Departments stating whose lock was removed, where it was located, and why it was removed. A log of the same information must be maintained in the Shift Superintendent's office. A master key for the mechanical person's locks must be kept at the Shift Superintendent's office only.

2. Wiring Disconnect Procedures — For some types of work, the lockout procedure alone is not adequate. Such work includes, but is not restricted to, the following: (1) work on fans inside cooling towers, (2) work inside confined spaces containing electrically powered equipment such as mixers or filters or electrodes (desalters), and (3) work on equipment where the switch controls more than the one piece of equipment. In such cases, this wiring disconnect procedure must be followed.

a. Lockout Equipment — The disconnect switch must be locked out in accordance with the above lockout procedure in this section.

b. Check and Disconnect Circuit — After making sure the circuit is clear by checking with a

EXX 003629

voltage tester, the Mechanical or Process person must disconnect the wires and tape them together.

c. Tag Circuit— The Mechanical or Process person must tag the disconnect switch with a yellow WIRING DISCONNECTED tag. On the tag, he must note where the wiring is disconnected and must sign and date the tag.

d. Remove Lock and Red DO NOT OPERATE Tag — After the wiring has been disconnected, and taped together, the Mechanical or Process person must remove his individual lock and red DO NOT OPERATE tag unless he must do other work on the equipment. Do not remove the yellow WIRING DISCONNECTED tag.

e. Wiring Reconnect — The Mechanical or Process person who reconnects the wiring must place his individual lock and red DO NOT OPERATE tag on the disconnect switch, reconnect the wiring, and then remove his lock and the red DO NOT OPERATE and yellow WIRING DISCONNECTED tags. *If a contractor employee is doing the work, he must obtain the required tags from the Contract Administrator and follow the above wiring disconnect procedures a through e. He must also include on the tags the name of the contractor's firm.*

3. Abnormal Condition Procedures — Conditions may exist that appear normal but actually are not. The following are examples of such abnormal conditions that require use of the orange ABNORMAL CONDITION tag. Such abnormal conditions include but are not limited to the following: (1) temporary power to equipment, (2) inside plastic handle broken off switch so outside handle will not operate switch, (3) one pushbutton inoperative but another will operate equipment, (4) a switch is left energized but a part of the equipment supplied by it is disconnected, such as

one out of several motor-operated valves (MOVs) supplied by one circuit breaker, and (5) a switch is off and tagged out but a separate circuit is still supplying power to the switch housing for controls, lights, heaters, etc.

a. Application of Orange ABNORMAL CONDITION Tag — Before a Mechanical Person leaves electrical equipment with temporary wiring connected or with any other abnormal condition existing, he must tag the equipment with orange ABNORMAL CONDITION tags. He must place one tag on the outside of the equipment and one inside on the wiring if it is practical to do so. He must describe the abnormal condition on the tags and must sign and date them. The abnormal condition must be entered in the log book. *If a contractor employee is doing the work, he must obtain the tags from the Contract Administrator and proceed according to a and b. In addition, he must also include on the tag the name of the contractor's firm.*

b. Removal of ABNORMAL CONDITION Tags — The tags must remain in place until the equipment has been returned to its normal condition. The Mechanical person who removed the temporary wiring or eliminates the abnormal condition must remove the tags and notify the Chief Operator responsible for the equipment, who must enter the action in the log book.

POWER LINES

PURPOSE

The purpose of these procedures is to protect anyone who works on or near power lines and on direct-connected Process equipment from injury or death.

SPECIAL DEFINITIONS

1. Power Lines — Those electrical lines that radiate

EXX 003630

from generating stations and distribution substations

2 Direct-Connected Process Equipment — A piece of electrical equipment on a Process unit supplied by a single power line having its electrical disconnect switch at an electrical substation or at a power plant

3 Electrical Maintenance Supervisor — The Line Crew Supervisor or the Power Systems Maintenance Supervisor or their designated representative

4. Utilities Chief Operator — The Process person responsible for the operation of the power system

5 Electrical Mechanical Person — Any lineman, electrician, or Mechanical person working on the power system or on the direct-connected Process equipment

6 Power Plant Process Person — The Process person who operates the power plant.

RESPONSIBILITIES

1. Electrical Maintenance Supervisor is responsible for requesting that power lines be removed from service and returned to service and for determining that the lines to be worked on are deenergized and tagged out.

2. Process Chief Operator or His Designated Representative is responsible for the removal and return to service of direct connected process equipment. He is also responsible for requesting the Utilities Chief Operator to deenergize the circuit serving the equipment and tag out.

3 Utilities Chief Operator is responsible for authorizing the removal and return to service of the power lines to be worked on.

4 Electrical Mechanical person is responsible for assuring himself that the equipment is safe for

him to do the prescribed work and that the following provisions of these procedures for which he is responsible are carried out

5 Power Plant Process person is responsible for removing from service and returning to service power lines to be worked on and for properly tagging

PROCEDURES

1. Procedure for Removing Power Lines or Direct-Connected Process Equipment from Service

a Request for Removal of Power Lines or Direct-Connected Process Equipment from Service. For power lines, the Electrical Maintenance Supervisor must make his request in person to the Utilities Chief Operator. For direct-connected Process equipment, the Process Chief Operator or his designated representative must request the Utilities Chief Operator for removal of these particular power lines from service. *If a contractor employee is to work on power lines or do electrical work on Process equipment, the Contract Administrator must make the arrangements for removing the lines from service and for returning them to service.*

b. Removal of Power Lines or Direct-Connected Process Equipment from Service. The Utilities Chief Operator must make the necessary arrangements with the Power Plant Process person to remove the power lines or the direct-connected Process equipment from service.

c. Check Circuit Removal before Work Begins: For power lines, the Utilities Chief Operator, the Electrical Maintenance Supervisor, and a representative of the group actually doing the work must personally observe that the line has been removed from service by

EXX 003631

lowering the circuit breaker or opening the disconnect switches at each substation and power plant involved. They must then tag on the equipment by attaching the red LOWER LINE DISCONNECT tags filled out and signed by the Utilities Chief Operator and signed by the Electrical Maintenance Supervisor on the equipment at each substation or power plant involved.

If work is being done on a line by more than one group, then each group must be protected by separate red POWER LINE DISCONNECT tags.

For direct connected process equipment, the Process Chief Operator or his designated representative shall notify the Utilities Chief Operator that this equipment has been removed from service and is ready for tagging. The Utilities Chief Operator will proceed to the site of the direct connected equipment, where he will meet the Process Chief Operator or his designated representative and a representative of the group which will actually work on the equipment. The Process Chief Operator or his designated representative will fill out and sign a red POWER LINE DISCONNECT tag and personally give that tag to the Utilities Chief Operator, verifying the equipment is ready for tagging on. The Utilities Chief Operator will keep that tag and along with the representative of the group which will actually work on the equipment he must then proceed to the electrical substation and observe that the circuit serving the equipment has been removed from service by lowering the circuit breaker or opening the disconnect switches. They must then tag on the appropriate circuit breaker with a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and the representative of the group which will actually work on the equipment. After completing that step, they must proceed to the Power Plant and tag on a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and a representative of the group actually doing the work on the equipment to the remote switch serving the equipment. Finally, the Utilities Chief Operator and the representative of the group actually doing the work will return to the site of the direct connected process equipment and sign and tag on to the local start-stop switches the red POWER LINE DISCONNECT tag originally signed by the Process Chief Operator or his designated representative. After completing this procedure the work can begin.

In the case of contractor personnel the contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign on the disconnect tags.

Before any work is done on an open power line up to and including 13,800 volts, the line must be checked with a voltage tester and a ground chain must be pulled across the line to assure that it is deenergized.

d Return Power Lines or Direct-Connected Process Equipment to Service: To return a power line to service, the Electrical Maintenance Supervisor must personally report to the Utilities Chief Operator that the work has been completed and accompany the Utilities Chief Operator to the substations and main power plants and properly tag off the power lines by signing and removing the red POWER DIS-

EXX 003632

CONNECT tags at the electrical substations and at the main power plants. The lines may then be energized by the Power Plant Process Operator.

In the case of direct connected process equipment, the Process Chief Operator or his designated representative must report to the Utilities Chief Operator that the work has been completed. The Utilities Chief Operator and a representative of the group actually working on the equipment will proceed to the site of the equipment and personally meet with the Process Chief Operator or his designated representative who will tag off the local start-stop switches by signing and removing the red POWER LINE DISCONNECT tag. He will give the tag to the Utilities Chief Operator who will also sign it, along with the representative of the group actually working on the equipment. The Utilities Chief Operator and the representative of the group actually doing the work must then proceed to the electrical substation and properly tag off the disconnect switches by signing and removing the red POWER LINE DISCONNECT tags. Finally, they must proceed to the Power Plant and tag off the remote control switch by signing and removing the red POWER LINE DISCONNECT tag from the remote control switch. The Utilities Chief Operator will keep the signed tags and notify the Process Chief Operator or his designated representative that the tag off procedure has been completed.

In the case of Contractor personnel the Contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign off the disconnect tags.

2. Procedure for Working on or Adjacent 2,300-Volt Power Lines

a. Tag Power Lines — Before beginning work on live uninsulated 2,300-volt power lines or working adjacent to any live uninsulated power line, the Maintenance Supervisor or his designated representative must notify the Utilities Chief Operator about the nature and location of the work to be performed.

The Utilities Chief Operator must request the appropriate Power Plant Process person to attach a yellow CAUTION-PEOPLE WORKING ON THIS CIRCUIT tag to the switch or switches controlling the power lines. *In the case of contractor lineman, the Contract Administrator must contact the Utilities Chief Operator.*

b. In Case of Circuit Trouble — In the event of circuit trouble at the jobsite, the Mechanical Supervisor must immediately notify the Power Plant Process person. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.* If any switch to which a tag is attached is tripped, it must not be reclosed until the Power Plant Process person is notified that it is safe to reclose.

c. Removal of Tags — Upon completion of the job, the Maintenance Supervisor who made the original request must notify the Power Plant Process person to remove the tags. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.*

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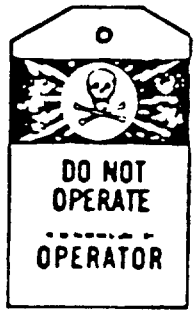
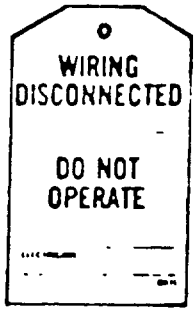


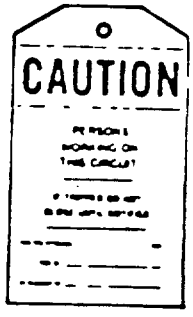
Red Lettering
On White Tag

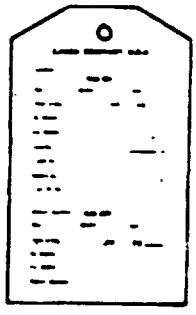
Red Tag



Yellow Tag

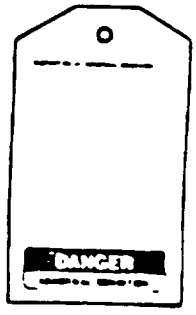
Yellow Tag





Red Tag

Orange Tag



Section 5

HOT WORK PERMIT

PURPOSE

The purpose of this permit procedure is to protect personnel and equipment from fires and/or explosions that could result from hot work performed in a hazardous area. This section outlines minimum precautions for safety when performing hot work in any location not designated as a routine hot work area. In all such areas, a green HOT WORK PERMIT is required for all hot work.

SPECIAL DEFINITIONS

1. Hot Work — Any work requiring the use of burning, welding or brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion-actuated tools, electric hot plates, or any other flame- or spark-producing equipment.

EXCEPTION: work on energized intrinsically safe circuits, electrical instruments and electrical power circuits covered under Cold Work Permits in Section 8.

2. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the green HOT WORK PERMIT for his equipment. He or his designated representative must designate boundaries within which the permit applies and must insure that all necessary safety precautions have been completed prior to the Chief Operator signing the permit.

When hot work is to be performed on equipment passing through or adjacent one processing area, but controlled from another, the Chief Operators from both processing areas are responsible for issuing the permit. This rule applies if the hot work to be performed is within approximately 50 feet of operating equipment. (Example: Oil Movements line in pipe rack adjacent a process unit.)

When hot work is to be performed on equipment in a non-processing area adjacent a processing area both the Chief Operator from the adjacent processing area and the Basic Equipment Owner of the non-processing area or his authorized representative are responsible for issuing the green HOT WORK PERMIT. (Example: road work adjacent a process unit.)

2. Maintenance Supervisor is primarily responsible for seeing that only the type of work covered by the permit is performed, and that conditions at the jobsite are safe for the scheduled work, also that hot work is confined to the area covered by the permit.

3. Safety Permit Inspector is primarily responsible for making the required gas tests and inspecting the jobsite for compliance with all applicable safety rules and standards.

4. Mechanical personnel performing the work are responsible for checking the green HOT WORK PERMIT to be sure it is current, valid, and properly signed by the Chief Operator, Mechanical Supervisor, and the Safety Permit Inspector. If any of the signatures are missing, work must not begin.

5. All persons at or near the hot work site must be constantly alert for any condition that could make

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hot work hazardous If such a condition develops, all hot work and machines must be stopped at once All personnel must immediately vacate the area and notify the Chief Operator or the nearest Process person of the hazardous condition The green HOT WORK PERMIT is no longer valid and must be removed All persons associated with the work must be notified Before work may resume, a new green HOT WORK PERMIT must be issued When Mechanical personnel leave the job (such as lunch break), they must check to see that conditions have not changed and the permit has not been removed before resuming hot work.

PROCEDURES

1. Area Other than Enclosed Spaces and on Marine Docks — For performing hot work in any area not designated as safe for routine performance of hot work, the following requirements apply

a. Hot Work Planning — The Maintenance Supervisor will advise the Chief Operator of the nature and location of the hot work to be performed as well as the proposed timing Normally this should be done at least one day before hot work is scheduled to begin.

b. Preparing for Hot Work — The Chief Operator will work with the Maintenance Supervisor to see that the area is prepared properly for hot work The Chief Operator will see that the following work is completed and checks performed before the Safety Permit Inspector is called

(1) Clearing and Blinding — Check to make sure all blinding and cleaning of equipment necessary for execution of hot work is completed If any blinding is required, make sure a blinding list has been prepared All opening and blinding that requires white OPENING OR BLINDING PERMIT must be done

in accordance with Section 7 of this manual

(2) Remove Flammable Material — Check to make sure that no flammable liquids or solids are spilled or trapped in or around equipment at the site of the proposed hot work

(3) Prepare Sewers — Cover all sewer catch basins and manholes in vicinity of hot work Catch basins containing flammable material must be flushed with water before covering Also, check for and seal off sewer vents in the area that may present a hazard

(4) Remove Trash — Remove other flammable materials such as trash, wood, or dry grass Where hot work is to be carried out over dry grass, the area must be saturated with water before performing hot work and a water hose left connected and readily accessible

(5) Provide Fire-Fighting Equipment — Make sure that adequate fire-fighting equipment is at the jobsite At least one fully charged fire extinguisher of a type and size designated as suitable must be provided where hot work is to be performed

(6) Make Surrounding Area Safe — Check surrounding area for possible release of flammable vapors in the hot work area Such things as safety valve discharges leaks from pumps and/or compressors, valve packing leaks, etc , must be identified and necessary corrective action taken

(7) Prepare for Hot Taps — For hot taps or other jobs requiring hot work on equipment in service, all requirements of the "Hot Tap Procedure Safety Standard" (Mechanical Division Safety Procedure No 11) must be satisfied Before the green HOT WORK PERMIT can be issued, the checklist attached

EXX 003636

to the above mentioned standard must be completed. The Chief Operator must make sure that his Operating Supervisor has approved the work to be done and so note in the space provided on the back of the permit. Also, he must see that the Mechanical Engineering Department Inspector has checked for adequate metal thickness and initialed the space provided on the back side of the tag.

(8) Check Other Work in Area — The Chief Operator must check for active white OPENING OR BLINDING PERMITS in the area of the hot work. A HOT WORK PERMIT must not be issued if work associated with existing white OPENING OR BLINDING PERMIT could create a hazard by spill or gas release. All openings from which release of flammable material could occur are to be considered hazardous. The area of concern must cover the geographical limits where there is a remote possibility that sparks from hot work could come in contact with flammable materials from any opening. If such a possibility exists in the proposed hot work area, the white OPENING OR BLINDING PERMIT must be killed. The green HOT WORK PERMIT shall not be issued until all openings from which flammable material could be released are blinded, and the area is cleared of flammable liquid or vapor.

(9) Provide for Overhead Hot Work — When hot work is to be performed in overhead locations, a suitable method for catching hot metal, electrode stubs, etc., must be provided where these materials would cause a fire hazard or when they would create a safety hazard when work is going on below.

(10) Safe Location of Welding Equipment — When electric welding is to be performed, the ground lead connection must be attached at a point within the area covered by the permit. The welding machine must be in the same area or an adjacent area approved for nonrestricted movement of motorized equipment.

c. Filling Out Green Card — After completion of all items covered in b above, the Chief Operator or his designated representative must double check the hot worksite. He and the Maintenance Supervisor will determine if a standby man or other special precautions are necessary. The Chief Operator or his designated representative will then fill out the green HOT WORK PERMIT and the checklist on the back side of the tag.

d. Maintenance Supervisor Site Inspection — The Maintenance Supervisor must also inspect the site to make sure all necessary work and checks have been completed. His signature on the green HOT WORK PERMIT indicates he checked the work area and agrees all is safe for hot work.

e. Safety Permit Inspector/Chief Operator Site Inspection — When all is considered ready by both the Chief Operator and Maintenance Supervisor, the Safety Permit Inspector shall be called for gas tests and a final inspection of the worksite. The Safety Permit Inspector shall perform gas tests for explosivity and or oxygen deficiency and/or toxic materials depending on the nature of the job. The Safety Permit Inspector and the Chief Operator must inspect the site together before the permit can be issued. The Safety Permit Inspector signifies all is safe for hot work by signing the green HOT WORK PERMIT. The Chief Operator then signs the permit signifying that hot work can begin.

f. Permit Duration and Disposition — Before the green HOT WORK PERMIT is issued the

EXX 003637

Chief Operator, Maintenance Supervisor, and Safety Permit Inspector must agree on the expiration time and note same in the space provided on the permit. This decision on duration as well as disposition of the permit copies must be in accordance with the following guidelines:

(1) Eight-Hour Permit — Permits to do hot work in or around processing areas where flammable or toxic materials exist are normally eight-hour permits. Such a permit is good for the shift in which it was issued. It can be continued into the next mechanical shift only after the Chief Operator and Maintenance Supervisor for the new shift have inspected the site and are confident no changes have taken place. If there is any question, the Safety Permit Inspector must be called for a gas test. Hot work on the new shift must not begin until the Chief Operator and the Maintenance Supervisor have signed the cardboard portion of the green permit. They must also sign the control center copy. If work continues into the third shift, the same procedure must be followed. Eight-hour permits are void at the end of 24 hours, and a new permit must be issued including job site inspection by the Safety Permit Inspector along with required gas tests.

When a green HOT WORK PERMIT is issued (1) the cardboard portion must be placed in a conspicuous location at the jobsite by the Chief Operator or his designated representative, (2) the original copy is to be given to the Safety Permit Inspector for his file, and (3) the carbon copy kept in the Process permit files. Upon expiration of the permit, the cardboard portion of the permit must be removed from the jobsite and filed along with the carbon copy in the Process file. Both copies must be retained for at least 24 hours after expiration and then discarded.

(2) "Drop Card" — For some jobs where hot work is in an area where there is no nearby equipment in flammable or toxic service or in offsite areas where there is virtually no chance of hazard from flammable or toxic materials, a "drop card" may be used. Examples of such jobs are (1) work in a unit that contains no flammable or toxic materials, (2) work in or adjacent a cleaned tank where no other tanks or equipment are within the same firewall and (3) work adjacent an offsite pipe rack where no hazard from flammable or toxic materials exist. For such jobs, The Chief Operator is not required to inspect the job with the Safety Permit Inspector. The Safety Permit Inspector may visit the site and make gas tests as deemed necessary before the work shift begins and pre-sign the green HOT WORK PERMIT. All other requirements for the "drop card" shall be the same as the "eight-hour" permit.

(3) Job Completion — Under certain conditions, a green HOT WORK PERMIT may be issued for the job duration. In general, it is when the job conditions at and surrounding the work area will not change and create a flammable or toxic material hazard. Examples of such jobs are (1) construction of a new Process unit, (2) a field pipe fabrication shop in an open area, (3) construction of a new tank in an open area, and (4) during turnarounds when oil, gas, and chemical lines are blinded at the unit limits. The cardboard portion of the permit must be placed at the Maintenance Supervisor's jobsite office. The Safety Permit Inspector will keep the original on file and the carbon copy must be kept in the Process permit file. The Operating Supervisor must approve all job completion permits including *contract jobs*.

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g Hot Work Authorization — Only after all of the above items have been completed and green HOT WORK PERMIT has been signed by the Chief Operator, Maintenance Supervisor, and Safety Permit Inspector is hot work authorized. After the Chief Operator or his designated representative has personally hung the cardboard portion of the permit in a conspicuous location at the job site, hot work can begin.

2 Marine Docks — For performing hot work on or under Marine Docks all provisions given in the basic procedure above shall apply. In addition, the following work shall be completed and checks made before a green HOT WORK PERMIT can be issued.

a Safe Tide Level — When hot work is to be performed under a dock, the tide level must be below any pipelines at the water level to prevent trapping oil between the pipelines, thus eliminating a possible source of combustible material.

b Avoid Falling Materials — The hot work area must be isolated to prevent molten metal and/or any combustible material from falling into the water.

c Remove Grating — Grating in the fender system must be removed in the hot work area when work is to be performed under a dock.

d Secure Coast Guard Approval — The Docks' Operating Supervisor must secure approval of the Houston Coast Guard Port Captain prior to any hot work.

e No hot work can be performed on any dock while a ship is berthed at that dock.

EXCEPTION: At Dock No. 1, hot work will be permitted 150 feet or more from vessels handling materials with a flash point of above 150F.

3 Enclosed Spaces — For performing hot work in enclosed spaces, all provisions given in the basic procedure above apply. In addition, the following work must be completed and/or checks made before a green HOT WORK PERMIT can be issued.

a Obtain Yellow PERMIT TO ENTER — Before many of the items listed in the basic procedure above can be done, it is necessary to enter the enclosed space. A yellow PERMIT TO ENTER is required to initially enter the enclosed space where hot work is to be done. Once the necessary requirements have been met and a green HOT WORK PERMIT has been issued, no yellow PERMIT TO ENTER tag is required as long as a valid green HOT WORK PERMIT is in effect.

b Other Requirements for Hot Work in Enclosed Spaces — After entry is made into the enclosed space, applicable portions of the basic Procedure above can be completed. In addition, the following must be performed and/or checks made before a green HOT WORK PERMIT can be issued.

(1) No Cylinders In Enclosed Spaces — Cylinders containing any type of flammable material must not be placed in an enclosed space where hot work is to be done. EXCEPTION: In storage tanks where door sheets have been removed.

(2) Thoroughly Clean — The enclosed space, including all internals, must be thoroughly cleaned and made safe for hot work. This includes freeing the container of all flammable gases, liquids, and solids as well as inert atmospheres and toxic materials.

(3) Provide Adequate Ventilation — A fresh air ventilation system must be provided and shall be adequate to remove fumes and gases created by the proposed hot work. It ade-

EXX 003639

quate ventilation is not possible, suitable respiratory protection must be used

SPECIAL REQUIREMENTS

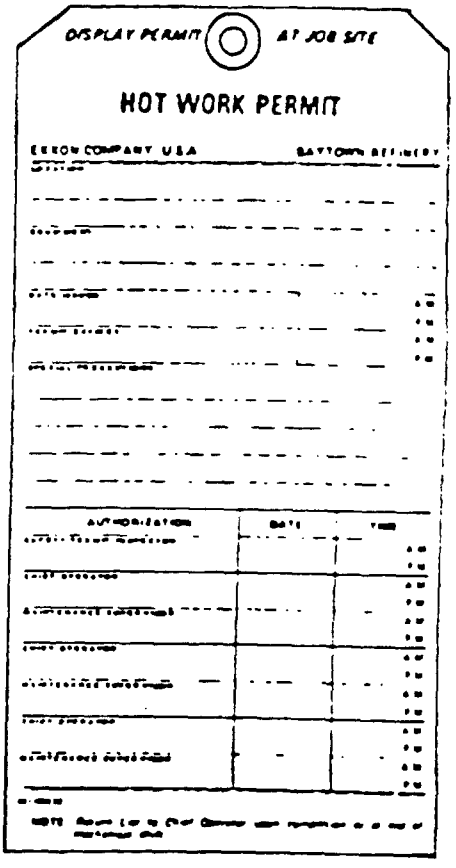
1. Work on Tank Cars — Hot work must not be done on tank cars while located at a loading rack

2 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 that has been in service of any kind, the vessel or equipment must be properly vented (unless the operation is performed under controlled conditions so that any over-pressuring will be avoided)

3 Gas Hoses In Confined Spaces — When gas hoses are used in connection with welding and/or burning in an enclosed space, the hoses must either (1) be removed from the enclosed space or (2) disconnected at the regulators at any time when positive ventilation is discontinued A torch or other gas-consuming device must never be removed from a hose while inside a confined space When torches are left unattended (such as lunch period, shift change, etc), the gas supply must be positively shut off at a point outside the enclosed space or the hoses disconnected at the regulators.

4 Establishment of Smoking Permits — Requires written approval by the appropriate Department Head Procedures for obtaining this approval are given in the Mechanical Operating Procedures Manual (S-13) and the Process Operating Practice Manual (S-6).

5 Hot Work by Process — When hot work is to be performed by Process personnel, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the green Hot Work Permit in space marked Maintenance Supervisor.



Green Tag

EXX 003640

Section 6

PROCEDURE FOR ENTERING ENCLOSED SPACES

PURPOSE

This procedure is designed to protect personnel against such hazards as oxygen deficiency, toxic materials, flammable substances, and power-driven equipment when working in enclosed spaces. A yellow PERMIT TO ENTER tag is required to enter any enclosed space. If hot work is to be performed in an enclosed space, a yellow PERMIT TO ENTER tag is required to initially enter the enclosed space. This procedure is to be considered the minimum precautions for the safety of personnel entering enclosed spaces.

SPECIAL DEFINITIONS

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of workmen are below the top of the confined space.

2. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

3. Standby — The person designated by the Chief Operator and or the Maintenance Supervisor to warn persons in enclosed spaces of hazardous or emergency conditions that could affect their safety.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the yellow PERMIT TO ENTER for entry into enclosed spaces in his processing area. He or his designated representative is responsible for insuring that all necessary safety precautions have been completed prior to issuance of the permit. The Chief Operator must sign the yellow PERMIT TO ENTER tag certifying that all requirements have been met.

2. Maintenance Supervisor is responsible for obtaining the yellow PERMIT TO ENTER and assisting in final preparation of the enclosed space for entry. He must inspect the area and sign the tag to indicate his approval of the required safety precautions. He must see that all proper job safety precautions are followed and be alert for changing conditions that might affect the safety of the job.

3. Safety Permit Inspector is responsible for making the necessary gas tests for explosivity, safe oxygen level, and safe toxic material levels. He will also inspect the jobsite for compliance with all applicable safety rules and standards.

4. Individual, before entering an enclosed space shall assure himself that the necessary safety preparations have been made and that a current yellow PERMIT TO ENTER, properly filled out and signed by the Chief Operator, the Maintenance Supervisor, and the Safety Permit Inspector, has been posted at the job site.

5. Standby is responsible for assuring the well-being of persons working in enclosed spaces when breathing equipment is in use or when conditions are such that outside warning may be necessary.

PROCEDURE

1. Entering an Enclosed Space Without Protective Equipment

a. Preparing Enclosed Spaces for Entry — The Chief Operator will see that the enclosed space is emptied and purged in preparation for opening. Process personnel may also physically disconnect or blind the enclosed space in accordance with Section 7.

EXX 003641

b. Requesting PERMIT TO OPEN OR BLIND — The Maintenance Supervisor will request a white OPENING OR BLINDING PERMIT from the Chief Operator in accordance with provisions of Section 7

c. Isolating the Enclosed Space — If not already done by Process, the Maintenance Supervisor will insure that all connecting lines to the enclosed space are physically disconnected or blinded at a point as near to the enclosed space as is safely practical. Double block valves with an intervening bleeder are not considered equivalent to a blind where personnel bodily enter the space

EXCEPTION: In steam, water, and air service where no blinding points exist, isolation valves shall be chained and locked with Mechanical locks to prevent opening

d. Immobilizing of Power-Driven Equipment — Before entry, the Maintenance Supervisor will arrange for electrical equipment to be immobilized in accordance with the electrical lockout procedure. The power supply to other equipment driven by air, steam, internal combustion engines, or hydraulic fluid shall be blinded or disconnected

e. Cleaning and Establishing Ventilation of Enclosed Space — The Maintenance Supervisor will have the space cleaned and if necessary, place in operation a fresh air ventilating system

EXCEPTION: No forced ventilation system is required where a natural draft is established and the Chief Operator, Maintenance Supervisor, and Safety Permit Inspector agree that entry is safe

f. Gas Testing the Atmosphere of the Enclosed Space — The Safety Permit Inspector must satisfactorily test for explosivity, oxygen deficiency and toxic materials

(1) Explosivity — Entry will not be permitted unless the test indicates a safe range

(2) Oxygen Deficiency — Entry will not be permitted unless oxygen concentration is greater than 19.5 percent

(3) Toxic Materials — Entry will not be permitted unless test indicates a safe range

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes or depletion of oxygen exists

g. Standby Requirement — A standby must be required and noted on the yellow PERMIT TO ENTER when the Chief Operator and or the Maintenance Supervisor determines that an unsafe condition may develop during the course of the work. The standby shall be equipped with a standby kit, a Claxon horn, and a unit radio for communication

h. Issuance of PERMIT TO ENTER — When the Maintenance Supervisor and Safety Permit Inspector are both satisfied that all requirements and safety precautions have been completed satisfactorily, each must complete applicable portions of the checklist and sign the permit. The Chief Operator will complete and sign the permit signifying that entry can be made. He will then post the cardboard portion of the permit in a conspicuous location at the jobsite and file the original paper portion in the Process permit file

i. Permit Duration and Disposition — A yellow PERMIT TO ENTER will have the same requirements for duration and disposition as a green HOT WORK PERMIT except that no "drop card" type permits will be allowed. Job completion permits will be allowed provided

EXX 003642

work in the enclosed space is continuous

2 Entering an Enclosed Space with Protective Equipment

Enclosed spaces to be entered with protective equipment must be emptied, cleaned of hazardous materials, and purged, insofar as practical, prior to entry. It must be physically isolated and all power-driven equipment immobilized as required in Procedure 1 above

a Required Tests — A yellow PERMIT TO ENTER will be issued only when the atmosphere in the enclosed space meets the following tests

(1) Explosivity — Entry will not be permitted unless the test indicates a safe range.

(2) Oxygen Deficiency — If oxygen level is below 19 5 percent, entry will be permitted only with a pressure-demand, hose-line air mask

(3) Toxic Materials — Entry will be permitted only with appropriate protective equipment.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes exists.

b Required Protective Equipment — All personnel entering enclosed spaces 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 closed spaces is to be determined by the Chief Operator, the Maintenance Supervisor, and the Safety Permit Inspector and indicated on the yellow PERMIT TO ENTER permit The cardboard section of the permit must be posted at a conspicuous location at the jobsite In the case of oxygen-deficient atmospheres, pressure-demand, hose-line air masks with self-contained life lines must be used and Operating Supervisor approval obtained for entry.

A standby is required when personnel are required to wear pressure-demand, hose-line air masks inside an enclosed space or the situation is such that outside warning is necessary Scott Air-Paks are permissible in place of the pressure-demand, hose-line air masks for emergency or rescue use where life is in immediate danger.

3 Duties of Standby

a. Accounting for personnel working in the enclosed space.

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 the enclosed space in case of fire or disaster alarm.

f. Being well trained in the operation of respiratory equipment and administering of artificial respiration.

g. Maintaining an adequate air supply

h. The standby should never attempt to enter the enclosed space even in an emergency until help has arrived.

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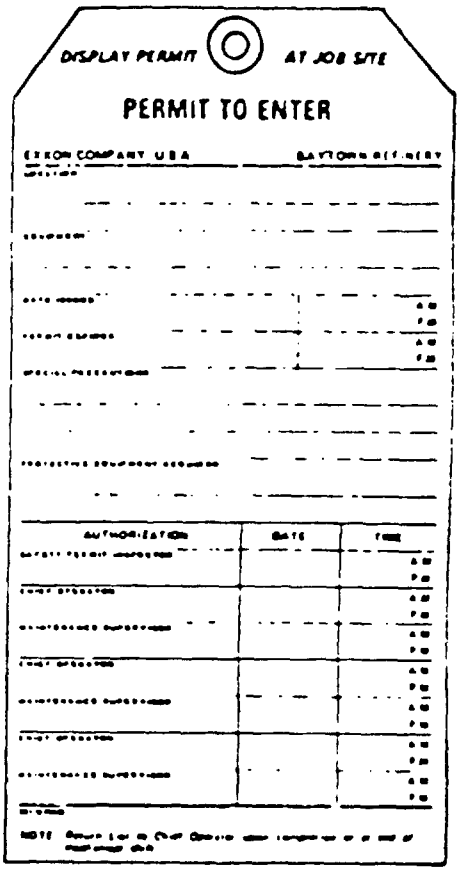
SPECIAL REQUIREMENTS

1. Entry to Prepare for Hot Work — A yellow PERMIT TO ENTER is required to initially enter an enclosed space where hot work is to be performed. Once the necessary requirements have been met and a green HOT WORK PERMIT has been issued, no yellow PERMIT TO ENTER is required as long as a valid green HOT WORK PERMIT is in effect.

2. Entry by Process without Mechanical Involvement — When entry is made by Process personnel without mechanical personnel involvement, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the yellow PERMIT TO ENTER in the space marked Maintenance Supervisor.



Yellow Tag

EXX 003644

Section 7

OPENING AND/OR BLINDING PERMIT

PURPOSE

This permit procedure is designed to prevent accidents by insuring adequate communications between Process and Mechanical Personnel when opening and/or blinding equipment in a processing area. A white OPENING OR BLINDING PERMIT shall be obtained before beginning such work.

SPECIAL 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.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the white OPENING AND OR BLINDING PERMIT. He or his designated representative has the responsibility for preparing the equipment, determining if the surrounding area is safe for the proposed work, and listing any special safety precautions required.

2. Maintenance Supervisor is responsible for seeing that a permit is secured to perform work involving opening or blinding. He is also responsible to see that Mechanical Personnel work within the limits of the permit and that all stipulated safety precautions are taken.

PROCEDURES

1. Requesting Permit — The Mechanical Supervisor or his designated representative must request a permit from the Chief Operator.

2. Initiating Safety Inspection — The Chief Operator or his designated representative must perform a safety inspection of the area. He must check for other active permits, prepare the equipment, and identify all locations to be opened. If blinding is required, he must also prepare a blinding list.

3. Blinding Requirements — Generally all opened equipment must be blinded for hot work (see Section 5), for entering (see Section 6), and opened piping left unattended. The installation and removal of slip blinds and blind flanges (except daily closure blinds) shall be recorded on the blinding list.

Specific blinding requirements and exceptions are as follows:

a. Pumps — Minor repairs such as small piping and seal replacement may be performed without blinding provided (1) the suction and discharge valves 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 complied 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 cumpressor can be isolated by block valves, (2) block valves are tagged with "DANGER — DO NOT OPEN"

EXX 003645

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 4)

(2) Gas engines must be blinded and the fly wheel blocked

(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. Piping — Unattended open Piping must be isolated with slip blinds or closed with blind flanges

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

e. 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

4. Preparing Blinding List — Before blinding begins, Process Personnel must prepare a blinding list indicating the size and location for all slip blinds and blind flanges to be installed

5. Issuing Permit — Process and Mechanical Personnel must make a safety tour of the job site, identify and mark the places to be opened and or blinded, and review the limitations and safety requirements stipulated on the permit. When both Process and Mechanical Persons are satisfied that no green HOT WORK PERMIT is in effect and the task can be safely accomplished, then both will sign the permit

The Process person must post the cardboard portion in a conspicuous place at the job site and file the original copy in the permit file

EXCEPTIONS:

Process Personnel — Mechanical work by Process may be done without a written permit provided the Chief Operator has authorized the work

Dock Personnel — Marine hookups on the dock may be performed by the Dock Connection Crew working under the direction of the Chief Operator without a written OPENING OR BLINDING permit

6. Blinding — The Mechanical Person must record each slip blind installed by signing and dating the blinding list. At the completion of the blinding list or at the end of the shift, the blinding list must be returned to the Chief Operator or his designated representative.

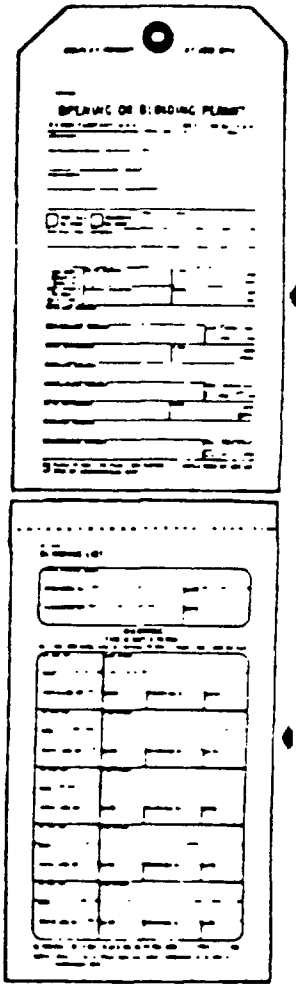
7. Duration of Permit — The permit is issued for one Mechanical shift. The permit must be signed and dated by the Mechanical Person and returned to the Chief Operator or his designated representative at the completion of the job or at the end of

EXX 003646

the shift. The permit may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours. An opening permit may be issued for duration of turnarounds provided all oil, gas, and chemical lines are blinded at the unit limits.

8 Removing Blinds — The removal of blinds requires another permit unless the installation and removal work is continuous and completed within 24 hours. The Process Person issuing the permit and the Mechanical Person accepting the permit must tour the area and physically identify the blinds to be removed. The Mechanical Person must sign and date the blinding list as each slip blind and blind flange is removed. After the last blind has been removed or at the end of the Mechanical shift, the Mechanical Person must sign and date the cardboard portion and return both the permit and blinding list to the Chief Operator.

9 Filing of Permits and Blinding Lists — Each permit must be filed for 24 hours after its expiration and then discarded. Blinding lists must be filed until all blinds have been removed. The blinding list may be discarded 24 hours after the last blind is removed.



EXX 003647

Section 8

COLD WORK PERMIT

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 completed before work is started in a Process area.

SPECIAL DEFINITIONS

1. Cold Work — Any mechanical work on processing equipment including work on intrinsically safe circuits and energized electrical instruments and electrical power circuits that does not involve opening, blinding, entering, hot work, or electrical lockout.

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.

PROCEDURE

1. Initiating COLD WORK PERMIT — The Mechanical Person in charge of the work group assigned to perform mechanical work in a processing area must fill in the date, time, area, equipment, and description of work on the blue COLD WORK PERMIT. He will then contact the Chief Operator and secure approval before starting to work.

EXCEPTIONS Blue COLD WORK PERMITS are not required:

a. When Process Personnel are performing mechanical work.

b. When the Dock Connection Crew is working in the dock area under instructions from the Chief Operator.

c. When instrument technicians and electricians who are regularly assigned to the processing area perform routine work authorized by the Chief Operator.

NOTICE: A COLD WORK PERMIT is required to work on energized electrical instruments and electrical power circuits above 100 volts.

d. When Technical, Safety Permit Inspection, or Laboratory personnel perform sampling and/or test work authorized by the Chief Operator.

e. When janitors perform janitorial-type work in the processing area.

f. *When contractor employees take work direction from Process Personnel.*

g. When Mechanical performs cold work in preparation for the issuance of other work permits on the same shift. Samples of such work are covering sewers, hooking up hoses, securing fire-fighting or safety equipment, hanging tarps, electrical lockout, etc.

h. When oil, gas and chemical lines are blinded at unit limits during unit turnarounds and work is being performed in accordance with the turnaround procedure.

EXX 003648

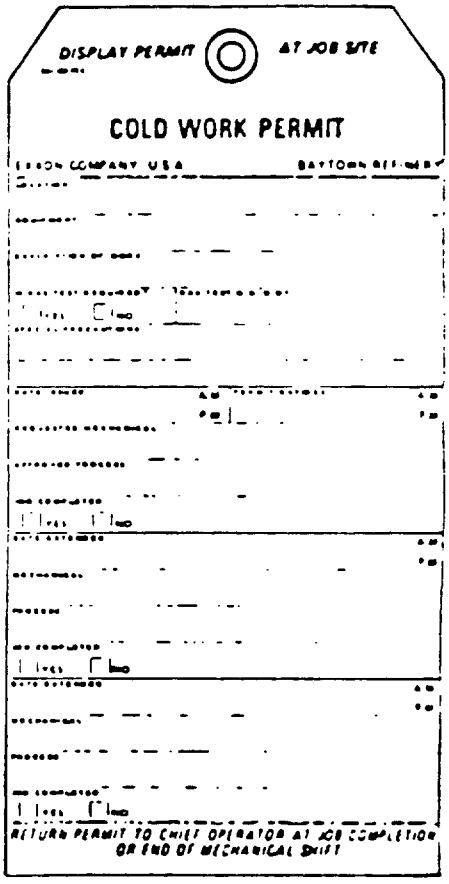
2 Making Safety Inspection — The Process Person designated to approve the permit must assure himself that the conditions at the job site are safe for the work. He must determine if a gas test is required and may make the gas test himself.

3 Issuing Permit — When both Process and Mechanical Persons are satisfied that the work can be safely performed in the area, each must sign the permit.

4 Posting Permit — The Mechanical person must display the cardboard portion in a conspicuous place at the job site. The Process Person must file the original portion in the permit file.

5 Duration of Permit — Blue COLD WORK PERMITS are issued for one mechanical shift. At the end of the shift or at job completion, whichever comes first, the Mechanical Person must sign the permit and turn it in 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. No permit shall be extended beyond 24 hours' total duration.


DISPLAY PERMIT AT JOB SITE

COLD WORK PERMIT

EXXON COMPANY, U.S.A.

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT

Light Blue

EXX 003649

SECTION 9

SECURITY REGULATIONS

1. 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.

2. 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 job site. Contractor shall make arrangements so that vehicle drivers will know which gate to enter and the appropriate job site location.

3. Walks and Roadways

Walks and roadways will be designated for the use of Contractor when entering or leaving the job site, 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.

4. Contractor Employee Badges

Contractor's employees shall wear their Contractor's badge 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.

EXX 003650

5. 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.

6. 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 Contract Administrator. The Contract Administrator 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.

7. 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.

8. Gambling

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

9. 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 job site. Plant Security will obtain authorization from one of these people before passing such individuals into the

EXX 003651

Plant. Special permission shall be obtained from the Contract Administrator to admit union business agents or safety inspectors other than contractor employed into the Plant.

10. 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 shall be called in to 427-5711, extension 3400. 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.

11. 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.

12. 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.

13. 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.

14. Visiting and Loitering

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

EXX 003652

15. 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.

SECTION 10

GENERAL REGULATIONS

1. Authorization to Start Work

Contractor and Subcontractors shall not start work until authorized by the Contract Administrator at the job site. Such authorization does not constitute authority to proceed with any work involving special permits as outlined in Exxon Refinery's Safety Manual. Contractor shall also secure approval from Contract Administrator before any materials are delivered to job site when material deliveries precede Contractor's arrival on site.

2. Contractor's Equipment

All Contractors moving trailer-type equipment within the Plant 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.

3. Explosives

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

4. 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 Contract Administrator.

5. 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 equipment without written approval of the Contract Administrator.

6. Damage to Owner's Property

If Contractor damages any of Owner's property, or property of any other contractor

EXX 003654

or subcontractor, the damage shall immediately be reported to the Contract Administrator.

7. 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 Contract Administrator.

8. 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 Contract Administrator. No tracked equipment having flat pavement treads shall be operated on a paved street without approval of the Contract Administrator.

9. 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. Hoses shall be connected to a hydrant. The Contractor shall be responsible for [illegible] water supply valve at the hydrant is full open position while hot work is in progress, but pressure is not to be left on hose overnight.

10. Welding

Contractor shall 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 there is sufficient metal, as approved by the Contract Administrator, 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 downstream 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.

EXX 003655

11. Securing of Temporary Buildings

All temporary buildings shall be tied down by the Contractor in accordance with the Contract Administrator's instructions, and applicable Baytown Engineering Standards.

12. Exit from the Plant

Contract employees, except for the driver, must dismount and walk through the gate when leaving the Refinery.

13. Non-English-Speaking Personnel

The ability to communicate with Contractor employees is essential to safe job execution. When the contract employee cannot speak English, the job foreman must be able to speak both English and the employee's language fluently. If there is reason to doubt the foreman's ability in this regard, a practical demonstration is in order. When the foreman cannot speak both English and the employee's language, the employee must either be placed under a foreman who can, or he must be prohibited from working in the Baytown Refinery.

14. Hurricane Precautions

The period between June 15 and October 15 is recognized as the hurricane season. Prior to this time, all material that is not needed for the job and that might become wind-borne in hurricane winds should be removed. That material still needed should be piled as compactly as possible. Provision should be made for tying down lightweight objects should the need arise. Scaffolds and some open-type structures should be dismantled if a hurricane approaches. Thus, there should be a plan formulated in advance to handle necessary actions, particularly in terms of the time and manpower required.

15. Contractor Accident Reporting

The contractor is responsible for notifying the Contract Administrator immediately:

a. Any time an ambulance is called;

b. In the event of any injury which could possibly result in lost time;

c. In the event of any incident which had serious potential, such as mobile equipment overturning, equipment contacting electric supply lines, etc.

EXX 003656

All injuries shall be reported on the Industrial Accident Board Standard Form for Employee's First Report of Injury or Illness — latest revision.

16. Emergency Evacuation Procedure

An emergency evacuation procedure form shall be completed by each Contractor prior to starting a contract. An assembly point should be chosen to provide a relatively safe, open area, in the event an emergency occurs that requires evacuation of all or part of the Refinery.

17. Contractor Safety Meetings

Each Contractor is strongly encouraged to hold a weekly safety meeting for his employees. Either a combined meeting of all the Contractor's employees in the Refinery or smaller meetings for each job or each foreman is suitable.

EXX 003657

21-5729

542-0060

27-5729

Work Request JX15131-B

Contract No. D-00-0661-A

THIS CONTRACT, entered into this 5th day of June 19 78, by and between Exxon Company, U.S.A. (a division of Exxon Corporation), hereinafter referred to as "Exxon," and BROWN & ROOT, INC. hereinafter referred to as "Contractor," WITNESSETH:

That in consideration of the covenants and agreements set out herein and the payments provided for herein Exxon and Contractor agree as follows:

1. Contractor agrees to begin immediately and press with due diligence until completion in a careful and workmanlike manner, with the necessary labor, supervision, tools, equipment, and materials, furnished and maintained by Contractor at its own cost and expense except as hereinafter provided, certain work briefly described as follows:

Perform all work in accordance with the specifications and exhibits listed below, a copy of said specifications and exhibits and of each drawing and Baytown Engineering Standard referred to therein being attached hereto and made a part hereof.

Designation	Title	Date
Specifications	Job Specifications for Removal of a Turning Dolphin at Dock 5	May 3, 1978
Exhibit "A"	Turning Dolphin for Dock 5	May 3, 1978

Insurance

In addition to insurance required by Paragraph 5.B, Contractor agrees to carry the following additional insurance:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto and including the following endorsements:

(a) U. S. Longshoremen's and Harbor-Workers' Compensation Act (Texas Form 46.1).

(b) Voluntary Compensation Minimum limits $50/200,000 (Texas Form 44).

(c) Amendment to Voluntary Compensation Endorsement - Maritime (Texas Form 49)

(d) Amendment to Coverage B Endorsement - Maritime (masters or members of the crews of vessels - minimum limits ($50/200,000). Such coverage TO provide transportation, wages, maintenance, and cure. (Texas Form 50). Contractor need not supply this particular coverage when equipment not owned by Contractor is used on this work, provided the owner of said equipment carries this insurance coverage and Contractor is named as coinsured while such equipment is being sued hereunder.

Contractor agrees to begin work immediately upon award of Contract, and will make every effort to complete the work on or before November 17, 1978.

2. As consideration for the satisfactory performance and completion of this Contract by Contractor, Exxon agrees to pay Contractor the lump sum of THREE HUNDRED TWENTY THREE THOUSAND THREE HUNDRED NINETY DOLLARS AND NO/100 $323,390). The attached schedule of charges for work delays by Exxon are shown on attached Exhibits "A" and "B."

Invoices will be paid thirty days after receipt of invoice.

EXX 003659

3. Contractor shall comply with all of the terms and conditions contained in Exxon's publication entitled "Contractors' Responsibilities for Safety, Plant Security, and Traffic Regulations," dated April 1, 1978, said publication being made a part of this contract by reference. Exxon will furnish copies of this publication to the Contractor. The rules and regulations contained in the "Contractors' Responsibilities" shall apply to all subcontractors and their employees as well as to the prime contractor and its employees. Before starting work under this Contract, Contractor shall obtain from Exxon copies of these regulations. Contractor shall notify its employees, its subcontractors, and the employees of its subcontractors of the provisions of said regulations and shall secure compliance therewith by all such parties; and Contractor shall not allow any of such persons to begin work inside Exxon's Baytown Refinery until such notification has been given them.

Said "Contractors' Responsibilities" 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. Neither compliance with such regulations by Contractor nor Exxon'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 hereunder.

4. Although Contractor shall provide its own representative or representatives to supervise and inspect all materials and workmanship entering into this job, Exxon reserves the right to have an inspector on the job. Any material which Exxon considers unsatisfactory shall be removed and replaced at Contractor's expense. Neither inspection, waiving of inspection, nor acceptance by Exxon shall relieve Contractor of its obligation to furnish all materials and workmanship in accordance with specifications.

5. It is understood and agreed that all work performed by Contractor hereunder shall meet with the approval of Exxon's engineers or inspectors but that the detailed manner and method of doing same shall be under the control of Contractor, Exxon being interested only in the result obtained, and that Contractor is an independent contractor as to all work performed hereunder. In this connection, Contractor and Exxon agree as follows:

A. Contractor agrees to indemnify and hold Exxon harmless from all claims, actions, demands, loss and causes of actions arising:

(1) From injury, including death, to its employees and those of its subcontractors, except such as may result solely from the negligence or willful acts of Exxon or its employees.

(2) From (a) injuries to or deaths of persons, including employees and representatives of Exxon, which result in whole or in part from the willful acts or negligence of Contractor, its employees, agents, or subcontractors, or (b) damage to property of Exxon and all other persons, which results in whole or in part from the negligence or willful acts of Contractor, its employees, agents, or subcontractors, except that Contractor shall not be responsible for damage to Exxon's property resulting from fire or explosion.

(3) From damage to property or injury to or death of persons which result in whole or in part from willful acts or the negligence of Contractor, its employees, agents or subcontractors, in connection with the handling and use of utilities furnished by Exxon except that Contractor shall not be responsible or liable for such damage to Exxon's property resulting from fire or explosion.

B. In addition, Contractor agrees to carry insurance as follows:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto.

(2) Comprehensive General Liability Insurance (including Contractors' Protective Liability when subcontractors are used), covering

(a) Bodily injury liability with a limit of not less than $ 100,000 for one person injured or killed and, subject to such limit, $ 300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $ 100,000 for each accident, and $ 100,000 aggregate.

(3) Automobile Liability Insurance on owned, non-owned and hired automotive equipment covering

(a) Bodily injury liability with a limit of not less than $100,000 for one person injured or killed and, subject to such limit, $300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $50,000 for each accident.

C. Prior to commencing work hereunder, Contractor shall produce evidence in a form satisfactory to Exxon that all insurance required under this Contract is in force and carried with companies acceptable to Exxon and that such insurance will not be materially altered or canceled while the work covered hereby is in progress without a reasonable prior written notice to Exxon. Upon request of Exxon, Contractor shall furnish certified copies of all such insurance policies. Should Contractor at any time neglect, or refuse to provide, or should it cancel the insurance required herein, Exxon shall have the right to procure same and deduct the cost thereof from the consideration to be paid Contractor hereunder.

6. Contractor agrees to pay off and satisfy all claims for labor and material employed or used in anywise by it in connection with the work performed hereunder, and to permit no liens of any kind to be fixed upon or against the property of Exxon by Contractor's laborers, mechanics or materialmen, and agrees to indemnify, protect and save Exxon harmless from and against all such claims and liens.

7. Contractor agrees that if, in the opinion of Exxon, Contractor should fail at any time during the performance hereof, to provide the necessary labor, supervision, tools, equipment or materials for the prompt performance of the work herein contractor for, or should breach this Contract in whole or in part or fail to use due diligence in the performance thereof, or should not be performing this Contract in the manner herein provided, Exxon may, at its election, take over and perform or obtain another contractor to take over and perform all or any part of the work then remaining unperformed. In the event Exxon should exercise such right, it shall have the right to use all or any part of Contractor's tools or equipment then in use on the job but shall pay Contractor a reasonable rental for the use of such tools and equipment during the period use by Exxon and shall return same to Contractor upon the completion of the job in as good condition as when taken over by Exxon, ordinary wear and tear excepted. Should Exxon take over the completion of said job, or obtain another contractor to do so Exxon shall pay Contractor for the work then completed, subject to the later provisions hereof, unless the compensation for the completed work cannot be readily determined, in which latter event Exxon shall pay Contractor the full contract price less all costs and expenses incurred by it in the completion of the work.

8. Contractor agrees that upon the completion by it and acceptance by Exxon of the work herein contracted for it will furnish Exxon with proof satisfactory to the latter that all claims for labor and material have been satisfied and paid and that there are no unsatisfied claims for injuries to persons or property, and thereupon the amount due as herein provided shall be paid by Exxon to Contractor within 30 calendar days after receipt of final invoice, subject, however, to the right in Exxon to withhold payments in accordance with the provisions of Article 5469, Texas Revised Civil Statutes of 1925, and all amendments thereto or other provisions of law applicable. It is

agreed that upon request of Contractor and upon showing to the satisfaction of Exxon that all claims for labor and material and for damages to persons and property, as above provided, have been satisfied, Exxon, in the event it considers it safe to do so, will advance at approximately fifteen (15) day intervals up to ninety percent (90%) of the value of the work then completed, based upon estimates by Exxon's engineers or inspectors, in which event the balance will be paid upon completion and acceptance of the work and compliance with the terms and provisions hereof. Payment pursuant to the terms of this paragraph shall not preclude the right of Exxon from thereafter disputing any of the items involved.

Contractor agrees that in the event any lien or liens are fixed or attempted to be fixed, secured or claimed against Exxon or Exxon's property by any person or firm, lumber dealer or corporation, artisan, laborer, mechanic or subcontractor who furnished services or materials in connection with the performance of this Contract, Contractor will, within ten (10) days following notification by Exxon that such lien or liens have been fixed or attempted to be fixed, secured or claimed, furnish Exxon a bond in an amount equal to twice the value of the lien or liens. Such bond shall be executed by a corporate surety authorized to do business under the laws of the State of Texas and shall comply in all respects with the requirements of Article 5472c, Vernon's Annotated Texas Statutes. Contractor further agrees to file such bond with the County Clerk of Harris County, Texas, and to take all steps necessary to assure that prompt notice of such filing is given to the obligees named therein. Contractor further agrees that the giving of such bond shall be in addition to any other rights of Exxon or obligations of Contractor under this Contract and shall in no way be construed as abrogating or qualifying such rights and obligations.

9. In the event there is a conflict between any of the provisions hereof and any of the proposals, general conditions, specifications, or any documents, agreements, or papers of any kind which have been incorporated herein by other provisions hereof, it is understood and agreed that the provisions hereof shall be controlling.

The making, execution and delivery of this Contract by the parties hereto have been induced by no representations, statements, warranties or agreements other than those herein expressed. This Contract embodies the entire understanding of the parties hereto and there are no further or other agreements or understandings, written or oral, except as mentioned herein.

10. In performing its obligations hereunder, Contractor shall comply with all applicable federal, state, and municipal laws, and all applicable orders, rules and regulations of constituted authority.

11. If Contractor fails or refuses to pay any taxes or governmental charges, state or federal, relating to the employees of Contractor, and Exxon may be required or deems it necessary to pay such taxes or charges, Contractor agrees to furnish Exxon with information required to enable it to make the necessary reports and to pay such taxes or charges. Contractor agrees to reimburse Exxon on demand at Houston, Texas, for all such taxes or governmental charges, state or federal, which Contractor fails or refuses to pay and which Exxon may be required or deems it necessary to pay. In addition, Exxon, at its election, is authorized to deduct all sums so paid for taxes and governmental charges from any payment due Contractor hereunder.

12. In connection with the work provided for hereunder, Contractor (1) guarantees and warrants all material and equipment fabricated by it against defects and agrees to replace, without cost to Exxon, any such material or equipment which may become defective within one (1) year from Exxon's acceptance of the work except when such defects are the result of corrosion, erosion, normal wear and tear; (2) guarantees its field workmanship and agrees without cost or charge to Exxon to replace or repair any defects in the work covered by this Contract resulting from its field workmanship if such defects are reported to Contractor within one year from date of Exxon's acceptance of the work; (3) will to the extent reasonably possible secure from the vendors of materials and equipment guarantees substantially the same as the guarantees of Contractor set out in (1) and (2) above.

13. In the event Exxon loans or furnishes tools or equipment to Contractor in connection with its work covered hereunder, Contractor agrees:

A. To make its own determination before commencing work that such tools and equipment are adequate for the safe performance of the work by Contractor;

B. That such tools or equipment will be loaned or furnished and accepted by Contractor without warranty or representation by Exxon as to their condition.

C. To return such tools or equipment to Exxon at the conclusion of such use in as good condition as when received, ordinary wear and tear excepted; and;

D. To indemnify and hold Exxon harmless from all claims, demands, causes of action, damages and injuries resulting from Contractor's use of said tools or equipment.

For the purpose of this paragraph 13, tools and equipment shall be defined to include scaffolds, lights, and all other types of apparatus, facilities or services which Exxon may loan or furnish. In addition, all of the provisions of this paragraph shall be applicable to any lighting or illumination loaned or furnished to Contractor by Exxon.

14. Exxon may from time to time, by written instructions or drawings issued to Contractor, require additional work and services directly in connection with or incidental to the work covered by this Contract; and Exxon may by such instructions or drawings, require Contractor to alter, change, accelerate, or omit any work covered by this Contract. In the event Exxon desires any such additions, changes, alterations, accelerations or omissions which will materially increase or decrease the total contract price referred to in paragraph 2 above, Contractor shall submit to Exxon an estimate of such increase or decrease. Should Exxon desire to proceed in accordance with such estimate, Exxon shall issue to Contractor a Contract Change Order describing the work to be added or deleted and the corresponding price addition or deduction therefor. If Contractor has not obtained a Contract Change Order, signed by Exxon's appointed representative, no claim for additional compensation will be allowed. The provisions of this Contract except as may be otherwise provided shall apply to all such additions, changes or alterations as if they were embodied in the original drawings and specifications.

15. Contractor shall procure Exxon's prior written approval as to any subcontract covering any portion of the work provided for hereunder. No such approval shall relieve Contractor from any of the obligations of this Contract, and, as between the parties hereto, Contractor shall be and remain liable as if no such subcontract had been made. No subcontract shall bind or purport to bind Exxon but shall contain a provision permitting assignment thereof by Contractor to Exxon.

16. Contractor agrees to hold in confidence any and all technical information disclosed to Contractor by Exxon, including technical information included in or on tracings, drawings, field notes, calculations, specifications, and engineering data, except:

A. Technical information which at the time of disclosure by Exxon to Contractor is in the public domain;

B. Technical information which, after disclosure by Exxon to Contractor, becomes part of the public domain by publication or otherwise; and

C. Technical information which Contractor can show was in Contractor's possession at the time of Exxon's disclosure to Contractor and was not acquired, directly or indirectly, from Exxon.

Contractor agrees that Contractor will not, without the written permission of Exxon, use the technical information which Contractor is required to keep confidential under this Contract for any purpose other than the accomplishment of work under this Contract.

EXX 003663

17. If Contractor or Contractor's personnel make any inventions based upon technical information which Contractor is required to keep confidential under this Contract, Contractor shall promptly disclose said inventions to Exxon. Contractor agrees to grant and hereby grants to Exxon an irrevocable, nonexclusive, royalty-free license and the irrevocable right to grant nonexclusive licenses, without accounting therefor to Contractor, to use said inventions under Contractor's Patent Rights. The licensing right herein granted by Contractor to Exxon is assignable by Exxon to any of its Affiliates. For the purpose of this Contract only, the term "Contractor's Patent Rights" shall mean patents and patent applications based on inventions made by Contractor or Contractor's personnel which inventions are based upon information which Contractor is required to keep confidential under this Contract and which are conceived during the life of this Contract and two (2) years thereafter. The term "Affiliate," as used in this paragraph, shall mean and include any company of which Exxon Corporation now or hereafter owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof. For the purpose of this definition, the stock owned or controlled by Exxon Corporation shall be deemed to include all stock owned or controlled, directly or indirectly, by any other company of which Exxon Corporation owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof.

18. It is expressly understood by Contractor that Exxon accepts no obligation of confidence with respect to any information disclosed to Exxon by Contractor under this Contract unless specifically covered by a separate, written confidentiality agreement. In the absence of such separate confidentiality agreement, Contractor agrees that it will not place any restrictive notices on the tracings, drawings, field notes, specifications, and any other documents embodying engineering or professional data developed by Contractor for Exxon pursuant to this Contract and that Exxon is hereby authorized to nullify, obliterate, or otherwise remove any such restrictive clauses; and that Exxon shall be free to use or disclose any or all of the information contained therein to third parties without accounting to Contractor therefor.

19. It is understood and agreed that Exxon may, upon written notice to Contractor, terminate the work provided for hereunder. In the event of such termination, Contractor shall be reimbursed for actual costs incurred to the date of such notice of termination in connection with the execution of the described work, and for actual costs thereafter incurred by Contractor in connection with such termination, plus applicable overhead and a reasonable profit based on such costs. However, in no event shall such reimbursement include prospective profits for work unperformed.

20. Contractor's obligations under paragraphs 16 and 17 of this Contract shall survive any termination of this Contract.

21. It is agreed as a condition of the Contract as follows:

A. That in the performance of this Contract, Contractor shall not engage in any conduct or practice which violates any applicable law, order or regulation prohibiting discrimination against any person by reason of race, color, religion, national origin, sex or age.

B. This order is XX is not _____ subject to Executive Order 11246, as amended. The Equal Opportunity Supplement is made a part hereof and either is attached hereto for your signature and return or has been previously filed with Exxon. This contract also includes and is subject to Executive Order 11738 requiring certification of compliance with the affirmative action clauses concerning disabled veterans and veterans of the Vietnam era (41 CFR 60-250) and employment of the handicapped (41 CFR 60-741), and the appropriate clauses are either attached hereto or incorporated herein by reference.

IN WITNESS WHEREOF, the parties hereto have executed this Contract in duplicate originals as of the day and year first above written.

BROWN & ROOT, INC.

By _____

_____ PRESIDENT

Exxon Company, U.S.A.
(a division of Exxon Corporation)

By _____

Purchasing Head
Materials Department

JWT:dcc

(H. T. Campbell)

May 3, 1978
Work Request JX 15131-B
Revision 1

JOB SPECIFICATIONS FOR REMOVAL OF A TURNING DOLPHIN AT DOCK 5 EXXON COMPANY, U.S.A. (A DIVISION OF EXXON CORPORATION) BAYTOWN, TEXAS

SCOPE OF WORK

1.1 This job specification covers the removal of a severely damaged 60-foot-diameter turning dolphin at Dock 5 at Exxon's Baytown Refinery, Baytown, Texas. The scope of the work shall be as shown on drawings and standards that are listed in the following attached tables:

A. Table I - List of Engineering Drawings, dated May 3, 1978.

B. Table II - List of Engineering Standards, dated May 3, 1978.

DIVISION OF WORK

2.1 The materials furnished and the services performed by Exxon shall be as listed in the attached Exhibit "A," dated May 3, 1978.

JOB INSTRUCTIONS

3.1 Coordination procedures covering construction and accounting shall be as specified in the Baytown Engineering Standards (BTES) listed in Table II.

3.2 Dock 5 will remain in operation during the time this work is in progress. In the event that ships must be berthed at Dock 5 or any hazardous situation exists, all work may be stopped by Exxon. Exxon's personnel will advise Contractor concerning starting and stopping of work.

3.3 When requested by Exxon, Contractor shall move its barge and equipment to a safe location of its own choosing.

3.4 Contractor shall move its barge after each workday to an area of Contractor's choice acceptable to Exxon for overnight storage. One area acceptable to Exxon is the north side of the east-west approach to Dock 5.

3.5 Contractor shall comply with the following:

A. Perform the construction operations in a manner that will reduce turbidity and siltation to the lowest practical level.

B. Provide and operate sanitation facilities during construction that will adequately treat or dispose of sanitary wastes to conform with Federal, State, or Local Health Regulations.

3.5 (Continued)

C. Take precautions in the handling or storage of hazardous material to prevent discharges or spillages that would result in degradation of the water quality.

MECHANICAL SPECIFICATIONS

General

4.1 National or industry codes and standards referred to herein shall be defined as the latest published edition as of the date of this job specification.

4.2 Only those BTES listed in Table II shall be made a part of the job specification.

4.3 Contractor shall burn off all sheet piling to elevation minus 32 feet, 0 inches.

4.4 If Contractor proposes to utilize controlled explosives in removal of the concrete cap, Contractor shall prepare for Exxon's Project Engineer's approval a complete coordination procedure covering all aspects of the demolition work. This procedure shall be submitted for approval two weeks prior to the proposed starting date for the demolition work.

4.5 Contractor shall completely remove existing structure including any materials which have spilled or fallen to the mud line at elevation minus 32 feet 0 inches Exxon datum as a consequence of the accident, which destroyed the dolphin.

4.6 All materials which can be economically salvaged, such as the fendering system and clips, shall be saved for Exxon's use in future replacement of the dolphin.

HTC:brr

EXX 003667

May 3, 1978
Work Request JX 15131-B

TABLE I

LIST OF ENGINEERING DRAWINGS

Drawing No.	Rev.	Date	Title
309-31-49	4	11-6-74	Dock 5, Turning Dolphin, Plan, Elevation, and Details
309-31-51	1	4-17-74	Dock 5, Turning Dolphin, Details and Elevations
309-31-52	0	10-19-73	Dock 5, Turning Dolphin Walkway, Details and Elevations
309-31-54	1	5-24-74	Dock 5, Turning Dolphin, Piling and Rebar Steel, Orientation, Plan, Sections and Details
309-31-58	0	1-10-75	Dock 5, Turning Dolphin, Additional Fendering
SK-334WCH	0	3-20-78	Dock 5, Turning Dolphin, Debris Soundings

TABLE II

LIST OF ENGINEERING STANDARDS

Engineering Standard No.	Rev.	Date	Title
			JOB INSTRUCTIONS
BTES 50-5-1.1C	3	1-77	Construction Requirements, Instructions
BTES 50-5-5.1C	0	2-70	Field Welding Qualifications, Instructions
BTES 50-6-5.1D	1	1-73	Invoicing for Lump-Sum Contracts, Instructions

HTC:brr

EXHIBIT "A"

May 3, 1978
Work Request JX 15131-B

TURNING DOLPHIN FOR DOCK 5

EXXON COMPANY, U.S.A., WILL FURNISH ONLY THE FOLLOWING:

1.1 Copies of applicable drawings, specifications, and standards reasonably necessary for work execution.

1.2 The following utilities, if required and requested by Contractor, at existing outlets, which will not be extended by Exxon, and in quantities available at those outlets, each to be used at Contractor's risk:

A. Drinking water, not cooled.

B. Electrical power at 110/220 volts, 60 Hertz, single-phase, and 440 volts, 60 Hertz, three-phase.

EXXON WILL PERFORM ONLY THE FOLLOWING:

2.1 Designate a site or sites in the Baytown Refinery to which Contractor shall transport all dismantled, excavated, or surplus materials and debris.

2.2 Designate material storage areas and areas on which Contractor may locate temporary sanitary facilities, shops, or offices.

2.3 Provide an elevation benchmark as a reference for all work.

2.4 Obtain the necessary permits for dismantling the turning dolphin.

HTC:brr

.542.0009C

STATE OF TEXAS

COUNTY OF

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be a person
(Individual's Name)
whose statement is worthy of full faith and credit, who, being by me first duly sworn, on his oath deposes and says as follows:

My name is _____.
(Individual's Name)

Under date of _____, _____
(Contract Date) (Contractor)
as Contractor and Exxon Company, U.S.A. as Exxon entered into Contract No. _____
under the terms of which Contractor was to perform the following work or service for Exxon Company, U.S.A., to-wit:

Affiant says that all bills, costs, and indebtedness for labor and/or material used or employed or which arose in any manner in connection with the performance of said contract have been satisfied and paid: and that there are no unsatisfied claims for injuries to persons or property occurring in anywise incident to or in connection with the performance of said contract up to the date hereof.

Further affiant sayeth not.

_____
(Individual's Signature)

SWORN TO and SUBSCRIBED before me this the _____ day of _____, 19__

_____
Notary Public in and for

_____ County, Texas

EXHIBIT A

SCHEDULE OF CHARGES*

	45 HOUR** WEEK	60 HOUR*** WEEK
A.) Contractor is notfied by Exxon before 4:00 P.M. that no work can be performed at jobsite the next day.	$1,000.00 WORKING DAY	$ 900.00 WORKING DAY
B.) After Contractor reports to jobsite to start work, Exxon notifies Contractor work will not be permitted that day.	$1,250.00 WORKING DAY	$1,150.00 WORKING DAY
C.) Contractor's floating rig is moved at Exxon's request away from jobsite to a place of Contractor's choice.	$ 600.00 PER MOVE (ROUND TRIP)	$ 600.00 PER MOVE (ROUND TRIP)
D.) After Contractor starts work, Exxon requests Contractor to perform no further work that day.	$ 125.00 PER HOUR FOR BALANCE OF WORKDAY	$ 115.00 PER HOUR FOR BALANCE OF WORKDAY
E.) Exxon delays Contractor from beginning work or delays him for any short period of time during the shift.	$ 215.00 PER HOUR FOR PERIOD OF DELAY	$ 205.00 PER HOUR FOR PERIOD OF DELAY

* These rates apply for floating rig used during fender removal, concrete cap removal, and piling removal.

** 5 - 9 hour days Monday - Friday

*** 6 - 10 hour days Monday - Saturday

EXHIBIT B

SCHEDULE OF CHARGES*

	45 HOUR WEEK	60 HOUR WEEK
A.) Contractor is notified by Exxon before 4:00 P.M. that no work can be performed at jobsite the next day.	$ 950.00 WORKING DAY	$ 850.00 WORKING DAY
B.) After Contractor reports to jobsite to start work, Exxon notifies Contractor work will not be permitted that day.	$1,200.00 WORKING DAY	$1,100.00 WORKING DAY
C.) Contractor's floating rig is moved at Exxon's request away from jobsite to a place of Contractor's choice.	$ 600.00 PER MOVE (ROUND TRIP)	$ 600.00 PER MOVE (ROUND TRIP)
D.) After Contractor starts work, Exxon requests Contractor to perform no further work that day.	$ 115.00 PER HOUR FOR BALANCE OF WORKDAY	$ 105.00 PER HOUR FOR BALANCE OF WORKDAY
E.) Exxon delays Contractor from beginning work or delays him for any short period of time during the shift.	$ 200.00 PER HOUR FOR PERIOD OF DELAY	$ 190.00 PER HOUR FOR PERIOD OF DELAY

* These rates apply for floating rig and land based rig used during limestone removal only.

** 5 - 9 hour days Monday - Friday

*** 6 - 10 hour days Monday - Saturday

27-5742 EXXON COMPANY, U.S.A.
CONTRACT FILES

From the desk of .....

GARY PETTERSON
Building Department
676-4445

DON!

27-5742

CONTRACT FILE

P

27-5742

542-0060

Appropriation 00728

Contract No. H-00-0787-A

THIS CONTRACT, entered into this 20TH day of September 19 78, by and between Exxon Company, U.S.A. (a division of Exxon Corporation), hereinafter referred to as "Exxon," and BROWN & ROOT, INC. hereinafter referred to as "Contractor," WITNESSETH:

That in consideration of the covenants and agreements set out herein and the payments provided for herein Exxon and Contractor agree as follows:

1. Contractor agrees to begin immediately and press with due diligence until completion in a careful and workmanlike manner, with the necessary labor, supervision, tools, equipment, and materials, furnished and maintained by Contractor at its own cost and expense except as hereinafter provided, certain work briefly described as follows:

Perform all work in accordance with the specifications and exhibits listed below, a copy of said specifications and exhibits and of each drawing and Baytown Engineering Standard referred to therein being attached hereto and made a part hereof.

Designation	Title	Date
Specifications	Specifications for Building 731 Additions Reforming Control Center	July 27, 1978
Exhibit "A"	Building 731 Additions Reforming Control Center	July 27, 1978
Addendum 1	Plans & Specifications for Reforming Control Center Bldg 731 dtd	8/24/78

Contractor agrees to begin work immediately upon award of Contract, and will make every effort to complete the work on or before April 13, 1979.

2. As consideration for the satisfactory performance and completion of this Contract by Contractor, Exxon agrees to pay Contractor the lump sum of TWO HUNDRED FORTY-SIX THOUSAND FIVE HUNDRED FORTY-ONE DOLLARS AND NO/100 ($246,541).

Invoices will be paid thirty days after receipt of invoice.

EXX 003675

3. Contractor shall comply with all of the terms and conditions contained in Exxon's publication entitled "Contractors' Responsibilities for Safety, Plant Security, and Traffic Regulations," dated April 1, 1978, said publication being made a part of this contract by reference. Exxon will furnish copies of this publication to the Contractor. The rules and regulations contained in the "Contractors' Responsibilities" shall apply to all subcontractors and their employees as well as to the prime contractor and its employees. Before starting work under this Contract, Contractor shall obtain from Exxon copies of these regulations. Contractor shall notify its employees, its subcontractors, and the employees of its subcontractors of the provisions of said regulations and shall secure compliance therewith by all such parties; and Contractor shall not allow any of such persons to begin work inside Exxon's Baytown Refinery until such notification has been given them.

Said "Contractors' Responsibilities" 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. Neither compliance with such regulations by Contractor nor Exxon'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 hereunder.

4. Although Contractor shall provide its own representative or representatives to supervise and inspect all materials and workmanship entering into this job, Exxon reserves the right to have an inspector on the job. Any material which Exxon considers unsatisfactory shall be removed and replaced at Contractor's expense. Neither inspection, waiving of inspection, nor acceptance by Exxon shall relieve Contractor of its obligation to furnish all materials and workmanship in accordance with specifications.

5. It is understood and agreed that all work performed by Contractor hereunder shall meet with the approval of Exxon's engineers or inspectors but that the detailed manner and method of doing same shall be under the control of Contractor, Exxon being interested only in the result obtained, and that Contractor is an independent contractor as to all work performed hereunder. In this connection, Contractor and Exxon agree as follows:

A. Contractor agrees to indemnify and hold Exxon harmless from all claims, actions, demands, loss and causes of actions arising:

(1) From injury, including death, to its employees and those of its subcontractors, except such as may result solely from the negligence or willful acts of Exxon or its employees.

(2) From (a) injuries to or deaths of persons, including employees and representatives of Exxon, which result in whole or in part from the willful acts or negligence of Contractor, its employees, agents, or subcontractors, or (b) damage to property of Exxon and all other persons, which results in whole or in part from the negligence or willful acts of Contractor, its employees, agents, or subcontractors, except that Contractor shall not be responsible for damage to Exxon's property resulting from fire or explosion.

(3) From damage to property or injury to or death of persons which result in whole or in part from willful acts or the negligence of Contractor, its employees, agents or subcontractors, in connection with the handling and use of utilities furnished by Exxon except that Contractor shall not be responsible or liable for such damage to Exxon's property resulting from fire or explosion.

B. In addition, Contractor agrees to carry insurance as follows:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto.

(2) Comprehensive General Liability Insurance (including Contractors' Protective Liability when subcontractors are used), covering

(a) Bodily injury liability with a limit of not less than $ 100,000 for one person injured or killed and, subject to such limit, $ 300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $ 100,000 for each accident, and $ 100,000 aggregate.

(3) Automobile Liability Insurance on owned, non-owned and hired automotive equipment covering

(a) Bodily injury liability with a limit of not less than $100,000 for one person injured or killed and, subject to such limit, $300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $50,000 for each accident.

C. Prior to commencing work hereunder, Contractor shall produce evidence in a form satisfactory to Exxon that all insurance required under this Contract is in force and carried with companies acceptable to Exxon and that such insurance will not be materially altered or canceled while the work covered hereby is in progress without a reasonable prior written notice to Exxon. Upon request of Exxon, Contractor shall furnish certified copies of all such insurance policies. Should Contractor at any time neglect, or refuse to provide, or should it cancel the insurance required herein, Exxon shall have the right to procure same and deduct the cost thereof from the consideration to be paid Contractor hereunder.

6. Contractor agrees to pay off and satisfy all claims for labor and material employed or used in anywise by it in connection with the work performed hereunder, and to permit no liens of any kind to be fixed upon or against the property of Exxon by Contractor's laborers, mechanics or materialmen, and agrees to indemnify, protect and save Exxon harmless from and against all such claims and liens.

7. Contractor agrees that if, in the opinion of Exxon, Contractor should fail at any time during the performance hereof, to provide the necessary labor, supervision, tools, equipment or materials for the prompt performance of the work herein contractor for, or should breach this Contract in whole or in part or fail to use due diligence in the performance thereof, or should not be performing this Contract in the manner herein provided, Exxon may, at its election, take over and perform or obtain another contractor to take over and perform all or any part of the work then remaining unperformed. In the event Exxon should exercise such right, it shall have the right to use all or any part of Contractor's tools or equipment then in use on the job but shall pay Contractor a reasonable rental for the use of such tools and equipment during the period use by Exxon and shall return same to Contractor upon the completion of the job in as good condition as when taken over by Exxon, ordinary wear and tear excepted. Should Exxon take over the completion of said job, or obtain another contractor to do so Exxon shall pay Contractor for the work then completed, subject to the later provisions hereof, unless the compensation for the completed work cannot be readily determined, in which latter event Exxon shall pay Contractor the full contract price less all costs and expenses incurred by it in the completion of the work.

8. Contractor agrees that upon the completion by it and acceptance by Exxon of the work herein contracted for it will furnish Exxon with proof satisfactory to the latter that all claims for labor and material have been satisfied and paid and that there are no unsatisfied claims for injuries to persons or property, and thereupon the amount due as herein provided shall be paid by Exxon to Contractor within 30 calendar days after receipt of final invoice, subject, however, to the right in Exxon to withhold payments in accordance with the provisions of Article 5469, Texas Revised Civil Statutes of 1925, and all amendments thereto or other provisions of law applicable. It is

agreed that upon request of Contractor and upon showing to the satisfaction of Exxon that all claims for labor and material and for damages to persons and property, as above provided, have been satisfied, Exxon, in the event it considers it safe to do so, will advance at approximately fifteen (15) day intervals up to ninety percent (90%) of the value of the work then completed, based upon estimates by Exxon's engineers or inspectors, in which event the balance will be paid upon completion and acceptance of the work and compliance with the terms and provisions hereof. Payment pursuant to the terms of this paragraph shall not preclude the right of Exxon from thereafter disputing any of the items involved.

Contractor agrees that in the event any lien or liens are fixed or attempted to be fixed, secured or claimed against Exxon or Exxon's property by any person or firm, lumber dealer or corporation, artisan, laborer, mechanic or subcontractor who furnished services or materials in connection with the performance of this Contract, Contractor will, within ten (10) days following notification by Exxon that such lien or liens have been fixed or attempted to be fixed, secured or claimed, furnish Exxon a bond in an amount equal to twice the value of the lien or liens. Such bond shall be executed by a corporate surety authorized to do business under the laws of the State of Texas and shall comply in all respects with the requirements of Article 5472c, Vernon's Annotated Texas Statutes. Contractor further agrees to file such bond with the County Clerk of Harris County, Texas, and to take all steps necessary to assure that prompt notice of such filing is given to the obligees named therein. Contractor further agrees that the giving of such bond shall be in addition to any other rights of Exxon or obligations of Contractor under this Contract and shall in no way be construed as abrogating or qualifying such rights and obligations.

9. In the event there is a conflict between any of the provisions hereof and any of the proposals, general conditions, specifications, or any documents, agreements, or papers of any kind which have been incorporated herein by other provisions hereof, it is understood and agreed that the provisions hereof shall be controlling.

The making, execution and delivery of this Contract by the parties hereto have been induced by no representations, statements, warranties or agreements other than those herein expressed. This Contract embodies the entire understanding of the parties hereto and there are no further or other agreements or understandings, written or oral, except as mentioned herein.

10. In performing its obligations hereunder, Contractor shall comply with all applicable federal, state, and municipal laws, and all applicable orders, rules and regulations of constituted authority.

11. If Contractor fails or refuses to pay any taxes or governmental charges, state or federal, relating to the employees of Contractor, and Exxon may be required or deems it necessary to pay such taxes or charges, Contractor agrees to furnish Exxon with information required to enable it to make the necessary reports and to pay such taxes or charges. Contractor agrees to reimburse Exxon on demand at Houston, Texas, for all such taxes or governmental charges, state or federal, which Contractor fails or refuses to pay and which Exxon may be required or deems it necessary to pay. In addition, Exxon, at its election, is authorized to deduct all sums so paid for taxes and governmental charges from any payment due Contractor hereunder.

12. In connection with the work provided for hereunder, Contractor (1) guarantees and warrants all material and equipment fabricated by it against defects and agrees to replace, without cost to Exxon, any such material or equipment which may become defective within one (1) year from Exxon's acceptance of the work except when such defects are the result of corrosion, erosion, normal wear and tear; (2) guarantees its field workmanship and agrees without cost or charge to Exxon to replace or repair any defects in the work covered by this Contract resulting from its field workmanship if such defects are reported to Contractor within one year from date of Exxon's acceptance of the work; (3) will to the extent reasonably possible secure from the vendors of materials and equipment guarantees substantially the same as the guarantees of Contractor set out in (1) and (2) above.

13. In the event Exxon loans or furnishes tools or equipment to Contractor in connection with its work covered hereunder, Contractor agrees:

A. To make its own determination before commencing work that such tools and equipment are adequate for the safe performance of the work by Contractor;

B. That such tools or equipment will be loaned or furnished and accepted by Contractor without warranty or representation by Exxon as to their condition.

C. To return such tools or equipment to Exxon at the conclusion of such use in as good condition as when received, ordinary wear and tear excepted; and;

D. To indemnify and hold Exxon harmless from all claims, demands, causes of action, damages and injuries resulting from Contractor's use of said tools or equipment.

For the purpose of this paragraph 13, tools and equipment shall be defined to include scaffolds, lights, and all other types of apparatus, facilities or services which Exxon may loan or furnish. In addition, all of the provisions of this paragraph shall be applicable to any lighting or illumination loaned or furnished to Contractor by Exxon.

14. Exxon may from time to time, by written instructions or drawings issued to Contractor, require additional work and services directly in connection with or incidental to the work covered by this Contract; and Exxon may by such instructions or drawings, require Contractor to alter, change, accelerate, or omit any work covered by this Contract. In the event Exxon desires any such additions, changes, alterations, accelerations or omissions which will materially increase or decrease the total contract price referred to in paragraph 2 above, Contractor shall submit to Exxon an estimate of such increase or decrease. Should Exxon desire to proceed in accordance with such estimate, Exxon shall issue to Contractor a Contract Change Order describing the work to be added or deleted and the corresponding price addition or deduction therefor. If Contractor has not obtained a Contract Change Order, signed by Exxon's appointed representative, no claim for additional compensation will be allowed. The provisions of this Contract except as may be otherwise provided shall apply to all such additions, changes or alterations as if they were embodied in the original drawings and specifications.

15. Contractor shall procure Exxon's prior written approval as to any subcontract covering any portion of the work provided for hereunder. No such approval shall relieve Contractor from any of the obligations of this Contract, and, as between the parties hereto, Contractor shall be and remain liable as if no such subcontract had been made. No subcontract shall bind or purport to bind Exxon but shall contain a provision permitting assignment thereof by Contractor to Exxon.

16. Contractor agrees to hold in confidence any and all technical information disclosed to Contractor by Exxon, including technical information included in or on tracings, drawings, field notes, calculations, specifications, and engineering data, except:

A. Technical information which at the time of disclosure by Exxon to Contractor is in the public domain;

B. Technical information which, after disclosure by Exxon to Contractor, becomes part of the public domain by publication or otherwise; and

C. Technical information which Contractor can show was in Contractor's possession at the time of Exxon's disclosure to Contractor and was not acquired, directly or indirectly, from Exxon.

Contractor agrees that Contractor will not, without the written permission of Exxon, use the technical information which Contractor is required to keep confidential under this Contract for any purpose other than the accomplishment of work under this Contract.

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17. If Contractor or Contractor's personnel make any inventions based upon technical information which Contractor is required to keep confidential under this Contract, Contractor shall promptly disclose said inventions to Exxon. Contractor agrees to grant and hereby grants to Exxon an irrevocable, nonexclusive, royalty-free license and the irrevocable right to grant nonexclusive licenses, without accounting therefor to Contractor, to use said inventions under Contractor's Patent Rights. The licensing right herein granted by Contractor to Exxon is assignable by Exxon to any of its Affiliates. For the purpose of this Contract only, the term "Contractor's Patent Rights" shall mean patents and patent applications based on inventions made by Contractor or Contractor's personnel which inventions are based upon information which Contractor is required to keep confidential under this Contract and which are conceived during the life of this Contract and two (2) years thereafter. The term "Affiliate," as used in this paragraph, shall mean and include any company of which Exxon Corporation now or hereafter owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof. For the purpose of this definition, the stock owned or controlled by Exxon Corporation shall be deemed to include all stock owned or controlled, directly or indirectly, by any other company of which Exxon Corporation owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof.

18. It is expressly understood by Contractor that Exxon accepts no obligation of confidence with respect to any information disclosed to Exxon by Contractor under this Contract unless specifically covered by a separate, written confidentiality agreement. In the absence of such separate confidentiality agreement, Contractor agrees that it will not place any restrictive notices on the tracings, drawings, field notes, specifications, and any other documents embodying engineering or professional data developed by Contractor for Exxon pursuant to this Contract and that Exxon is hereby authorized to nullify, obliterate, or otherwise remove any such restrictive clauses; and that Exxon shall be free to use or disclose any or all of the information contained therein to third parties without accounting to Contractor therefor.

19. It is understood and agreed that Exxon may, upon written notice to Contractor, terminate the work provided for hereunder. In the event of such termination, Contractor shall be reimbursed for actual costs incurred to the date of such notice of termination in connection with the execution of the described work, and for actual costs thereafter incurred by Contractor in connection with such termination, plus applicable overhead and a reasonable profit based on such costs. However, in no event shall such reimbursement include prospective profits for work unperformed.

20. Contractor's obligations under paragraphs 16 and 17 of this Contract shall survive any termination of this Contract.

21. It is agreed as a condition of the Contract as follows:

A. That in the performance of this Contract, Contractor shall not engage in any conduct or practice which violates any applicable law, order or regulation prohibiting discrimination against any person by reason of race, color, religion, national origin, sex or age.

B. This order is XX is not _____ subject to Executive Order 11246, as amended. The Equal Opportunity Supplement is made a part hereof and either is attached hereto for your signature and return or has been previously filed with Exxon. This contract also includes and is subject to Executive Order 11738 requiring certification of compliance with the affirmative action clauses concerning disabled veterans and veterans of the Vietnam era (41 CFR 60-250) and employment of the handicapped (41 CFR 60-741), and the appropriate clauses are either attached hereto or incorporated herein by reference.

EXX 003680

C. Contractor agrees to comply with all laws and lawful regulations applicable to any activities carried out in the name of or on behalf of Exxon under the provisions of this agreement and/or any amendments to it.

D. Contractor agrees that all financial settlements, billings, and reports rendered to Exxon, as provided for in this agreement and/or any amendments to it, will reflect properly the facts about all activities and transactions handled for the account of Exxon, which data may be relied upon as being complete and accurate in any further recording and reporting made by Exxon, for whatever purpose.

E. Contractor agrees to notify Exxon promptly upon discovery of any instance where the Contractor fails to comply with Provisions C and D above.

IN WITNESS WHEREOF, the parties hereto have executed this Contract in duplicate originals as of the day and year first above written.

BROWN & ROOT, INC.

By _____
O. M. BAKKEN Vice President

Exxon Company, U.S.A.
(a division of Exxon Corporation)

By _____
Contract Coordinator
Materials Department

CEB:dcc

(R. E. Kappler)

EXX 003681

July 27, 1978
Appropriation 00728

SPECIFICATIONS FOR BUILDING 731 ADDITIONS REFORMING CONTROL CENTER EXXON COMPANY, U.S.A. (A DIVISION OF EXXON CORPORATION) BAYTOWN, TEXAS

SCOPE

1.1 This job specification covers the materials, fabrication, erection, installation, and inspection covering the additions to Building 731 in Exxon's Baytown Refinery, Baytown, Texas. The scope of the work shall be as defined by specifications, drawings, and standards listed below:

A. "Specifications for Additions to Reforming Control Center, Building 731," dated July 11, 1978, as prepared by the McGinty Partnership, Architects, Incorporated.

B. Table I -- List of Engineering Drawings, dated July 27, 1978.

C. Table II -- List of Engineering Standards, dated July 27, 1978.

DIVISION OF WORK

2.1 The materials furnished and the services performed by Exxon shall be as listed in the attached Exhibit "A," dated July 27, 1978.

JOB INSTRUCTIONS

3.1 Coordination procedures covering procurement, construction, and accounting shall be as specified in the engineering standards listed in Table II.

3.2 When applicable, the following standard clauses shall be used:

(1) Print Clause -- Case 1

(2) Print Clause -- Case 1A

(3) Print Clause -- Case 2

(4) Print Clause -- Case 2A

(6) Operating Instructions Clause

July 27, 1978
Appropriation 00728

MECHANICAL SPECIFICATIONS

4.1 National or industry codes and standards referred to herein shall be defined as the latest published edition as of the date of this job specification.

4.2 Specifications are shown on drawings and in "Specifications for Additions to Reforming Control Center, Building 731."

REK:drc

EXX 003683

July 27, 1978
Appropriation 00728

TABLE I

LIST OF ENGINEERING DRAWINGS

NEW FACILITIES

Drawing No.	Revision	Date	Title
10-32-57	0	7-11-78	RCC Building 731, Mechanical Floor Plan
10-33-19	0	7-10-78	RCC Building 731, Plumbing Floor Plan
10-34-62	0	7-25-78	RCC Building 731, Electrical Lighting Plan
10-34-63	0	7-25-78	RCC Building 731, Electrical Power Plan
10-35-185	0	7-11-78	RCC Building 731, Plan and Schedules
10-35-186	0	7-11-78	RCC Building 731, Elevations and Sections
10-35-187	0	7-11-78	RCC Building 731, Details and Sections
10-35-188	0	7-11-78	RCC Building 731, Sections and Ceiling Plan
10-35-189	0	7-11-78	RCC Building 731, Foundation Plan and Details
10-35-190	0	7-11-78	RCC Building 731, Foundation Sections and Details
10-35-191	0	7-11-78	RCC Building 731, Foundation Sections
10-35-192	0	7-11-78	RCC Building 731, Structural Steel Plan
10-35-193	0	7-11-78	RCC Building 731, Steel Details
10-35-194	0	7-11-78	RCC Building 731, Wall Plan and Details
10-35-195	0	7-11-78	RCC Building 731, Wall Sections and Details
10-35-196	0	7-11-78	RCC Building 731, Wall Sections
10-140-16	0	7-11-78	RCC Building 731, Site Plan and Index
			UNDERGROUND CONDUITS
10-103-730	3	7-11-78	RCC Building 731, Terminal Room Stub-Up, Plan
546-105-963	2	7-11-78	Remote Control Underground Instrument Duct Sections
			FACILITIES TO BE REMOVED
10-32-48	1	7-11-78	RCC Building 731 Addition, A. C. Plan
10-34-54	2	7-11-78	RCC Building 731, Lighting and Receptacle Plan
10-35-164	3	7-11-78	RCC Building 731, Plan
10-35-165	2	7-11-78	RCC Building 731, Foundation and Roof Plan, Section and Details

REK:drc

July 27, 1978
Appropriation 00728

TABLE II

LIST OF ENGINEERING STANDARDS

Standard No.	Revision	Date	Title
EXES 16-13-1-1C	0	7-76	Field Installation and Testing of Electrical Equipment
BTES 50-5-1.1C	3	1-77	Construction Requirements, Instructions
BTES 50-6-5.1D	1	1-73	Invoicing for Lump-Sum Contracts, Instructions

REK:drc

EXHIBIT "A"

July 27, 1978
Appropriation 00728

BUILDING 731 ADDITIONS
REFORMING CONTROL CENTER

EXXON WILL FURNISH ONLY THE FOLLOWING:

1. Copies of applicable drawings, specifications, and standards reasonably necessary for work execution.

2. The following utilities, if required and requested by Contractor, at existing outlets, which will not be extended by Exxon, and in quantities available at those outlets each to be used at Contractor's risk:

   A. Drinking water, not cooled.

   B. Electrical power at 110/220 volts, 60 cycles, single-phase; and 440 volts, 60 cycles, three-phase.

3. The application of a barrier coat of exterior acrylic emulsion, fiberglass mats, and butyl rubber coatings (applied by others).

4. Temporary female facilities during construction.

EXXON WILL PERFORM ONLY THE FOLLOWING:

1. Designate a site or sites in the Baytown Refinery to which Contractor shall haul all dismantled or surplus materials and debris.

2. Designate material storage areas and areas on which Contractor may locate temporary sanitary facilities, shops, or offices.

3. Install telephone wiring and instruments.

REK:drc

CONTRACTORS' RESPONSIBILITIES FOR SAFETY, PLANT SECURITY, AND TRAFFIC REGULATIONS

BAYTOWN REFINERY

APRIL 1, 1978

EXX 003687

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Foreword
SAFETY POLICY

GENERAL

Safety is an integral part of the planning and execution of every job. It is the hallmark of efficient operations. An interested management, a knowledgeable and responsible supervisory staff, and a conscientious, well-trained work force, all concerned with the elimination of accidents in the overall performance of our work, will combine to make our organization safe and effective.

Exxon Management recognizes its responsibility for healthful and safe working conditions and, through its technical and supervisory personnel and through various committee assignments, strives to provide those conditions. This is accomplished through safe working rules based on experience, safety knowledge, and competent work direction.

Each employee has a personal responsibility for his own safety and for the safety of his fellow employees. He is expected to exercise good judgment, properly use and maintain the tools provided, adhere to the established working rules, and follow the directions of well-grounded supervision.

Information on the application of safety rules and procedures is available in this Safety Manual, Exxon Engineering Standards, and various Process and Mechanical manuals. Technical help in the application of safety principles and safety equipment to specific situations is available through the Safety Coordinator, Industrial Hygienists, the Technical Division, and the Safe Operations Committee.

The safety rules contained in this manual apply to all employees of Exxon Company, U.S.A. and all *contractor employees* working in the Baytown Refinery. These rules specify minimum safety requirements that must be followed. Willful or negligent violation of any of these safety rules may result in disciplinary action, including discharge without notice *or in the case of contractor, cancellation of the contract.*

Overlapping Permits

Work permit procedures are established to promote effective communications and to insure that work is performed in a safe environment. Since the permit is issued for the job, only one work permit should be in effect for one job in one area at one time. When more than one work group is involved on the same job in the same area, the "One Work Permit Rule" may lead to some confusion. Therefore, the Chief Operator will determine which of the two following alternatives is better for controlling the work in his area.

1. Issue one work permit for the job and have each Maintenance Supervisor who will perform work on the job sign the permit. The last work group to finish or the last Maintenance Supervisor to sign must turn in the work permit.

2. Issue a permit for the work each work group is to perform; but in absolutely no instance, must the permits conflict (i.e., work on one permit making work by another permit unsafe). For example: a permit to perform hot work and a permit to perform opening and blinding work.

PROCEDURE FOR DEVIATING FROM THIS SAFETY MANUAL IN SPECIAL SITUATIONS

Where special conditions or situations exist that make the requirements stipulated in this manual impractical to follow on a routine basis, an alter-

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nate procedure may be developed. This alternative must be written, reviewed with the Safety Coordinator and approval obtained from the Process and/or Mechanical Superintendent before implementing. The approved alternate procedure must be filed in the Unit Area Section of the Process Unit Instructions Manual and/or the Mechanical Safety Notebook.

PROCEDURE FOR MAKING CHANGES TO THIS SAFETY MANUAL

It is the prerogative of Management to set aside any of these rules. However, before doing so, the approval of the Superintendent in charge must be obtained and the situation discussed with the Safety Coordinator *and with the Contract Administrator in case of contractors.*

The Refinery Safety Coordinator is responsible for keeping this Safety Manual up to date, and he should be notified of desired additions or revisions. He will arrange for the preparation of additions or changes and obtain Management approval before inclusion into the Safety Manual.

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Section 1
GENERAL DEFINITIONS FOR SAFETY MANUAL

PERSONS

1. Chief Operator — The Process person who is responsible for Process operations in a processing area and has the authority to supervise Process personnel and issue work permits.

2. Contract Administrator — The Exxon Mechanical or Process supervisor assigned by the owner to assure that the contractor adheres to the plans, specifications, and Refinery safety rules.

3. Contractor — *The firm under contract to Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors by the prime contractor.*

4. Department Head — The person in charge of a Process department, i.e., Fuels, Specialties, Oil Movements, Utilities and Environmental Control, or Baytown Fuels Expansion.

5. Maintenance Supervisor — The Mechanical person, either Exxon or *contractor*, who has the authority to supervise the Mechanical work crew and is responsible for their work execution.

6. Mechanical Personnel or Person — Any of the Mechanical work crew (Supervisor, Craftsman, Trainee), either Exxon or *contractor*, performing work in the Refinery.

7. Owner — Exxon Company, U.S.A., Baytown Refinery.

8. Operating Supervisor — The second-line supervisor in Process and the immediate supervisor of the Chief Operators.

9. Process Personnel or Person — Any of the Process work crew (Chief Operator, Process Technician, or Process Technician Trainee) who has job responsibility for the assigned processing area.

10. Designated Representative — An Exxon Process Person, if designated by Chief Operator, or an Exxon Mechanical Person if designated by Maintenance Supervisor.

11. Standby — The person designated by the Chief Operator and/or the maintenance supervisor to warn persons of hazardous or emergency conditions that could affect their safety.

PLACES

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of personnel working are below the top of the confined space.

2. Processing Area — Any area under the jurisdiction of Process personnel.

3. Refinery — The manufacturing facilities of Exxon Company, U.S.A. located in Baytown, Texas.

ACTIVITIES — CONDITIONS

1. Cold Work — Any mechanical work that does not involve hot work or opening, blinding, and entering processing equipment.

2. Hot Work — Any work requiring the use of burning or welding and brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete

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busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion actuated tools, electric hot plates, or any other flame- or spark-producing equipment.

3. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

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

5. Blinding — Installing temporary slip blinds into piping or blind flanges onto equipment for the purpose of isolating or closing processing equipment.

6. Flammable Material — Any material that will ignite and continue to burn in air.

7. Explosive Mixture — Any mixture of gas or vapor that will ignite (explode) when exposed to a source of ignition. Hot work or entry must not be permitted if tests indicate that the atmosphere contains greater than five percent of the lower explosive concentration of the combustible material (five percent of lower explosive limit).

8. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

9. Toxic Materials — Any substance (other than a radioactive substance) that has the capacity to produce personal injury or illness to man through ingestion, inhalation, or absorption through any body surface. If test for toxic vapors shows a

concentration greater than 10 percent of the published eight-hour limit for the substance, entry without protective equipment must not be permitted.

10. Must and May — "Must" is used in the manual to indicate mandatory compliance. "May" is used to indicate that good judgment shall be exercised.

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Section 2
SAFETY RULES

PURPOSE
The purpose of these personnel, equipment, and traffice safety rules is to specify **minimum** safety requirements that must be followed to prevent injury or death to persons and damage to property. These rules in their entirety apply to all persons, *including the contractor employees* working in Exxon Company, U.S.A.'s Baytown Refinery. *Additional requirements for contractors and their employees are shown in italic type throughout the manual.*

DEFINITIONS
Definitions of terms used throughout this manual will be found in Section 1. Special definitions that apply to a specific permit or work procedure are in the applicable section of this manual.

RESPONSIBILITIES
1. **Supervisors** are responsible for the health and safety of the people under their work direction. They must:

a. Set a good example.

b. Provide adequate instruction in and require compliance with:

(1) Accident prevention aspects of each job.

(2) Use and application of appropriate protective clothing, equipment, and devices.

(3) Use or application of tools and equipment.

c. Cooperate with others where the safety aspects of a job require coordinating the efforts of one or more work groups. This includes, but is not limited to, the securing and/or issuing of a yellow PERMIT TO ENTER, green HOT WORK PERMIT, white OPENING AND/OR BLINDING PERMIT, blue COLD WORK PERMIT, or ELECTRICAL LOCKOUT PROCEDURES.

d. Develop a safe work plan for the job to be done and see that the plan is well understood and followed.

e. Require additional accident prevention measures, other than those contained in this safety manual, if, in any supervisor's opinion, they are necessary. In instances or situations not specifically covered herein, it is expected that they will be handled within the guidelines contained in this manual. **Safety is not to be sacrificed for production.**

2. Individuals, Exxon *and contractor,* working in the Baytown Refinery are responsible for their own safey and for the safety of other workers and for reporting injuries to themselves or others to their appropriate supervisor. Each person must assure himself that his work situation is safe and that he has adequate instructions, proper tools, and proper protective clothing and equipment. He must also make sure that necessary work permits have been obtained and are valid over the term of his shift.

As a *minimum, each person must adhere to the* following safety regulations:

a. Clothing and Protective Equipment

(1) Clothing contaminated with oil, hazardous liquids, or chemicals must not be worn. If a person is inadvertently sprayed or contacted by oils, hazardous liquid, or chemicals, the clothing must be removed as quickly as practical, the affected parts washed with soap and water, and the situation reported to the supervisor *and to the Exxon supervisor in charge or Contract Administrator in case of contractors.*

(2) Protective clothing that fully covers the

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body (arms, legs, shoulders, feet, etc.) must be worn in work areas. This includes long sleeves unless wearing long sleeves creates a greater hazard than not wearing them — such as Machinists around rotating equipment or Linemen working on overhead electrical lines on poles. The wearing of canvas-type shoes, thongs, and similar type footwear in work areas is prohibited. Exceptions must be approved by the Department Head after consultation with the Safety Coordinator.

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

(4) Safety hats and safety glasses must be worn in all areas of the Refinery except at certain locations specified by the Department Head after consultation with the Safety Coordinator.

EXCEPTION: Welders need not wear safety hats while welding.

(5) Contact lenses must not be worn inside the Refinery. Employees with unusual visual problems requiring the wearing of contact lenses must use appropriate eye protection as recommended by a medical doctor depending on occupational exposure. (For Exxon employees, the Medical Department will recommend appropriate eye protection.)

(6) Goggles and/or safety glasses with side shields must be worn in those areas where the possibility of flying objects exists.

(7) Chemical goggles must be worn in those areas where exposure to chemicals or liquid hazards exist.

(8) Respiratory protection must 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).

(9) Special protective clothing for the particular hazard must be worn where there is a possibility of exposure to acid, caustic, or other hazardous material.

(10) Bright-colored vests or equivalent highly visible attire must be worn by members of survey parties when working on or adjacent roads.

(11) Safety belts attached to an independently supported line must be worn:

(a) When working from scaffolds, platforms, or any other surfaces that 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.

(12) Approved ear protection such as ear plugs, disposable plugs, Swedish wool (cotton is unacceptable), or ear muffs must be worn when working in areas designated with warning signs as "high noise area." Ear protection is required when using tools marked "caution-hearing protection required when using this tool" and in areas where equipment or tools generate sufficient noise to make normal conversation difficult.

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b. Entering Processing Area

No person shall enter a processing area (including firewalls of operating tanks) without the permission of the Chief Operator or his designated representative. Chief Operator permission is also required when motorized equipment initially enters a closed processing area (radio or telephone approval by dispatcher is acceptable). No further permission is required as long as mechanical work is continuous. Once work is interrupted, such as for lunch breaks, permission must again be obtained. Vehicles entering these areas may be required to have sparkproof mufflers or their equivalent as required by the Chief Operator *or the Contract Administrator in the case of contractor vehicles.*

c. Working Over or Near Water

The U.S. Coast Guard approved life preservers must be worn when working on barges or directly over water, such as under the docks, from a boat, above pits, etc.

d. Working On or Over Machinery

(1) Do not work on moving machinery or above open operating machinery unless it is impractical to shut down the equipment. In such instances, secure Maintenance Supervisor's and/or Chief Operator's approval and take necessary precautions before proceeding.

(2) Do not start up machinery unless all guards are in place.

EXCEPTION: In temporary situations where guards must be removed to make running adjustments, secure Maintenance Supervisor's and/or Chief Operator's approval before proceeding.

e. Guarding

(1) Temporary openings in floors, handrails, etc., must be guarded to prevent falling. Restore permanent handrails and guardrails immediately after need for opening has ended.

(2) Open excavations or manholes must be guarded or covered before leaving the job and during the job if practical.

(3) Areas into which materials or tools are to be deliberately dropped or thrown must be guarded or protected.

f. Housekeeping

(1) Aisles, passageways, stairs, platforms, and ladders must be kept clear of all unnecessary obstructions.

(2) Protruding nails that present a snag or puncture hazard must be removed or bent down.

(3) Worksite must be kept clean and orderly.

(4) Debris (including mud from wheels) that falls from transporting vehicles must be picked up.

g. Smoking and Matches

Smoking in the Refinery except at approved locations is prohibited. "Strike-anywhere" matches must not be brought into the Refinery.

h. Hand and Power Tools — Portable Machinery

(1) Defective tools must not be used.

(2) Tools must not be subject to undue stress or used for purposes for which they are not designed. Makeshift tools must not be used.

EXX 003697

(3) Portable Machinery must be shut down for repair work. If it is impractical to stop or shut the equipment down before working on it, secure Maintenance Supervisor's approval before proceeding.

(4) Abrasive wheel tool rests must be adjusted to within ⅛-inch maximum of the wheel. Do not use abrasive wheels that are visibly in bad order.

(5) High-speed abrasive wheels must be properly guarded as required. Do not stand in line of unguarded wheels.

(6) Tools must not be started or used unless all required guards are in place.

i. Electrical Tools and Equipment

(1) Electrical switches must not be operated without full knowledge that the results will not constitute a safety hazard.

(2) Portable electrical tools, metal buildings with electrical service, and electrical equipment (including motor-driven welding machines and portable generators) must be grounded. Report them to the Maintenance Supervisor if they are found to be defective.

EXCEPTION: Double insulated tools and engine driven welding machines may be used without grounding.

(3) General purpose two- or three-cell flashlights (1.5 volts per cell) may be used everywhere except where use is prohibited by governmental agencies, such as at the docks.

(4) Explosionproof, approved portable lights (Underwriters Laboratory or Bureau of Mines approved) must be used where hot work is not authorized. This includes portable explosionproof hand lamps, portable explosionproof floodlights, and extension cords (plug boards) with explosionproof fixtures.

EXCEPTION: Fixed-mount, take-up, reel-type mechanic's lamp or other special appliances that have been specifically approved by the Department Head.

(5) Vaporproof globes must not be removed except for cleaning, repairing, or replacing lamps. Explosionproof fixtures shall be opened only by authorized persons.

j. Ladders and Scaffolds

(1) Ladders must be checked to insure that they are in good condition before use. Portable ladders must either be held or lashed securely while in use. Where practical, the siderails shall extend at least 36 inches above the landing.

(2) Ladders must be located where possible where they cannot be bumped. When located in areas such as in front of a door, in the street or aisles, etc., adequate precautions must be taken to protect both the climber and others who may be in the area.

(3) Good working techniques must be used when climbing, working from, or descending a ladder, such as holding with both hands and keeping the body within the siderails of the ladder.

(4) Scaffolds must be constructed to support at least four times the maximum intended load without failure.

(5) Platform planks must be laid with their edges close together so that there are no spaces large enough for tools or fragments of materials to fall through.

EXX 003698

(6) Swing scaffolds must be lowered and lashed at the end of the shift.

(7) Access ladders or other safe means of access to all scaffolds must be provided.

(8) Standard handrails and toe boards must be provided on all scaffolds 10 feet or more in height.

(9) Tools or materials on scaffold platforms must be placed in such a manner that they will not create a tripping hazard or become dislodged and fall.

(10) Alterations to scaffolds must be reported to the appropriate supervisor.

(11) Non Conductive ladders or scaffolds must be used when working on open energized electrical circuits.

k. Excavations

(1) Do not enter or work in excavations that will require a person's head to be below the level of the ground until:

(a) Obtaining a yellow PERMIT TO ENTER,

(b) Shoring or sloping the excavation to prevent sloughing of earth,

(c) Effectively storing or retaining excavated material at least two feet from the edge of the excavation and

(d) A ladder or ramp for safe entrance and exit has been provided.

(2) Guard or cover all excavations before leaving job, and during the job if practical.

(3) RED CONCRETE UNDERGROUND signifies the presence of an electrical circuit. Stop excavating and notify the Maintenance Supervisor *and the Contract Administrator in case of contractor employees.*

l. Connections Into Existing Pipelines, Equipment, or Service

After a tie-in has been made connecting new construction to existing lines, equipment, or sewers, the whole pipeing equipment or sewer system involved must be considered the same as existing lines and equipment; and applicable work permits must be obtained from the Chief Operator before additional work can be done on any of these lines or equipment. After new sewers have been tied into the sewer system, any hot work in the area of the new sewer must terminate. Any further hot work requires a new HOT WORK PERMIT.

m. Railroad

(1) Constructing or placing any permanent or temporary obstructions closer than eight feet six inches horizontally from the centerline of the track or 22 feet vertically from any top of rail is prohibited without specific authorization from the Exxon Supervisor responsible for railroad trackage.

(2) Riding on railroad equipment is prohibited.

(3) Tank car ladders and hand irons must be used. Do not jump from loading rack to tank car, from car to car, or from car to ground.

n. Hoisting Equipment

(1) Keep clear of suspended loads.

(2) Hoisting equipment must be operated so as not to endanger other people or damage equipment in the operating area.

(3) Blocks, hooks, balls, or crane loads must not be ridden. Approved sling or bosun chair must be used.

EXX 003699

(4) **Loads suspended from mobile equipment** must be secured to prevent swinging and the hoisting operator must remain at the controls.

(5) **Guy lines, mooring lines, or load lines must not be placed** in such a position that they will tighten against operating equipment, pipelines, tanks, or machinery.

(6) **Insulating swivels must be used** on all bosun chairs or baskets when supporting a welder.

o. Hazardous Materials

(1) **Note locations of eyewash fountains and safety showers** and know how they work.

(2) **Labeled containers must be used** for handling hazardous materials.

(3) **Dismantled or relocated equipment** that has been in "hazardous material" service must be identified by tagging or other physical marking.

(4) **Solvents for cleaning purposes** must be varsol, or other approved materials.

(5) **High boiling point materials** (above 700°F) from catalytic cracking operations or other highly aromatic or toxic materials are hazardous and precautions must be taken to prevent breathing of vapor or contacting the skin. If these oils do come in contact with the skin, they must be washed off promptly with soap and water.

(6) **Appropriate Process Unit Instructions (PUI) or Mechanical Operating Practices (MOP)** must be followed when working in areas where toxic materials are present.

p. Compressed Air — Yard System

(1) **Compressed yard air** must not be used to clean clothing or personnel except at outlets that are especially equipped to permit a maximum pressure of 30 psi.

(2) **Compressed air must not be used** to open plugged sewers.

(3) **Compressed yard air** must not be used for breathing purposes.

q. Warning Signs

Caution and warning signs must be obeyed including use of specified protective or safety equipment.

r. Compressed Gas Cylinders — Transportation, Storage, and Use

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

(1) **Protective caps must be in place** when cylinders not in use.

(2) **Full cylinders** (except chlorine) must be stored and transported in vertical position with caps on. Chlorine cylinders must be transported in the horizontal position. Separate oxygen cylinders in storage from fuel gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least five feet high, having a fire-resistance rating of at least one-half hour.

(3) **Holders, chains, or keepers** must be used to prevent overturning.

(4) **Empty cylinders,** except acetylene, may be stored and transported in a horizontal position. Acetylene cylinders must be vertical at all times.

EXX 003700

(5) Cylinders in a vertical position must be secured with a suitable keeper while connected to equipment.

(6) Pure oxygen and chlorine must not be allowed to contact hydrocarbons in any form.

(7) Rough handling of cylinders must be avoided.

(8) Oxygen or acetylene must not be used for testing purposes.

(9) Hazardous compressed gases must not be released into enclosed spaces.

(10) Compressed bottled gases must not be used to clean clothing or personnel.

(11) Oxygen or acetylene cylinders must not be taken into enclosed spaces except into storage tanks where door sheet has been removed.

(12) Repair of leaking compressed gas cylinders must not be attempted. If cylinder can be moved, move to a safe location and allow to depressure itself. If it cannot be moved safely, clear area and allow the cylinder to depressure. If the cylinder is chlorine, evacuate the area and initiate procedure outlined in MOP-C4. *If leak involves contractor cylinders, the Contract Administrator must be immediately notified.*

s. Fire Prevention — Fire Fighting

(1) No one shall go to the scene of a fire unless directly involved or assigned to fire-fighting activities. Others not having operating duties shall evacuate the fire area. *Contractor employees must proceed to a prearranged assembly area.*

(2) Fire-fighting equipment access must not be blocked by traffic or other equipment.

(3) Electrical fires must not be fought with a solid stream of water. Water fog may be applied to an electrical fire only by an Exxon fire fighter.

t. Working in the Vicinity of Electric Lines

When it is necessary to operate cranes or derricks or perform other work within 10 feet of open electric lines (measured radially), the Maintenance Supervisor must consult the Utilities Chief Operator *or the Contract Administrator in the case of contractor work* to determine whether the electric lines can be deenergized. No work can proceed until the electric lines have been deenergized or until guards have been installed. Install approved guards when it is necessary to install guy lines across any electric lines to prevent guy lines from coming in contact with the electric lines. All work on open electric lines must be done in accordance with Mechanical Safety Procedure No. 8.

u. Refueling Vehicles and Equipment

Dispensing gasoline and fuel must be done through a pump and hose. If not possible, approved (Underwriters Laboratory or Factor Manual approved container for flammable liquid) safety cans with flexible spouts must be used. Vehicles and equipment engines must be turned off during refueling.

v. Potable Water

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

EXX 003701

w. Asbestos Cement Roof
When installing or working on an asbestos cement roof, workers must use a spreader board or roofer ladder to distribute their weight over a minimum of two purlins.

TRAFFIC SAFETY REGULATIONS

Unless covered by a specific regulation in this Safety Manual, traffice regulations for safe driving inside the Refinery are the same as the regulations of the State of Texas Motor Vehicle Laws.

1. Equipment and Identification Required on Motor Vehicles
All motor vehicles in the Refinery must be in safe operating condition. When entering the Refinery, 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: (a) brakes; (b) lights — two headlights, tail lights, brake lights; (c) horn; (d) muffler; (e) safety glass; (f) windshield wiper and rear-view mirror; and (g) 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. *Contractors' self-propelled, rubber-tired equipment must have contractor's name or insignia prominantly displayed on both sides of the vehicle.*

2. Driver's License
Persons operating motor vehicles in the Refinery must have a valid operator's (automobile) license as a minimum.

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

4. 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.

5. "Road Closed" Signs
Areas blocked by traffic barriers and/or "road closed" signs are closed to all traffic. Follow procedure specified in PUI-S5 for blocking Refinery streets.

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

7. 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.

8. 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.

EXX 003702

9. Passengers

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

b. 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.

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

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

10. Vehicles Prohibited

Motor bicycles or motorcycles are not permitted inside the Refinery except to and from the designated "motorcycle only" parking areas provided near gates. Campers and recreational vehicles are not permitted in the Refinery 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 Refinery.

11. Vehicle Entry into Processing Areas

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.

12. 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 Refinery. All vehicles must be equipped with adequate rear-view devices.

13. 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.

EXX 003703

Section 3

CONTRACTOR'S SAFETY RESPONSIBILITIES

PURPOSE

The purpose of the personnel and equipment safety regulations contained in this section is to set out safety requirements for contractors, which are in addition to those contained in other sections of this manual. Each contractor must take any additional precautions necessary or proper under the circumstances to prevent injury or death to persons or damage to property

SPECIAL DEFINITIONS

1. *Owner* – *For purposes of these safety regulations, "owner" shall mean Exxon Company, U.S.A. (a division of Exxon Corporation).*

2. *Contract Administrator* – *The person assigned by the owner to assure contractor adherence to the contract provisions.*

3. *Contractor* – *The firm that has been contracted by the Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors to the prime contractor.*

4. *Maintenance Supervisor* – *The Mechanical person, either Exxon or contractor, who has the authority to supervise the Mechanical work crew and the responsibility for their work execution. As used in this section, the Maintenance Supervisor refers specifically to the contractor first line supervisor.*

RESPONSIBILITIES

1. *Contractor,* *as an independent contractor, is responsible for performing work under the contract in a healthful and safe manner including protecting the safety and welfare of other contractors and the owner's personnel and equipment. 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.

a. *The contractor is responsible for informing his employees of the required safety rules and that the employees adhere to said rules.*

b. *The prime contractor is responsible for assuring compliance with these regulations by all subcontractors and their employees. Contractor must notify its employees, its subcontractors, and the employees of its subcontractors of these provisions of the regulations and shall secure compliance therewith by all such parties; and contractor must not allow any of such persons to begin work inside the Baytown Refinery until such notification has been given them.*

c. *Contractor must observe and comply with the Texas Occupational Safety Act (Article 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 apply to all subcontractors and their employees as well as to the contractor and its employees.*

d. *Nothing contained in these regulations shall be interpreted to enlarge the legal duty of the owner to the contractor, his agents, employees, or subcontractors.*

2. Maintenance Supervisors *are responsible for the safe conduct of their jobs and for the safety of the persons under their direction. Specific supervisory responsibilities are contained in Section 1-2 of this manual. Each Maintenance Supervisor is responsible for assuring that each individual under his direction un-*

EXX 003704

derstands and adheres to the safety rules contained in Section 1-2 of this manual.

3. ***Individual*** *person doing work in the Refinery must assure himself that the work situation is safe and that he has the proper instructions, tools, and protective equipment. Each person must become familiar with and adhere to the safety rules contained in Section 1-2 of this manual.*

4. ***Contract Administrator*** *will monitor the contractor's performance to assure safe execution of the work specified in the contract. He will, on proper request, assist the contractor in dealing with other owner personnel to obtain safety permits and to implement other safety related procedures. He will insure that all contractor's Maintenance Supervisors are properly indoctrinated in the relevant safety regulations.*

PROCEDURES

1. Work Execution

All work in processing areas must be performed with the approval of the Chief Operator responsible for the area. The Maintenance Supervisor must coordinate his work through the Chief Operator and must keep him informed as to the number, location, and activities of contract personnel. Any work performed after normal working hours and on weekends and holidays requires authorization by the owner. Such authorization will be obtained by the Contract Administrator.

2. Required Work Permits and Procedures

Before beginning any work in processing areas, an appropriate permit must be obtained from the Chief Operator or his designated representative. Required work permits and procedures are:

- **a.** *Electrical Lockout Procedures – Section 4.*
- **b.** *Hot Work Permits – Section 5.*
- **c.** *Permit to Enter Enclosed Spaces – Section 6.*

- **d.** *Opening or Blinding Permit – Section 7.*
- **e.** *Cold Work Permit – Section 8.*

Other work procedures may be specified in specialized work situations such as hot tap procedure, procedure for cleaning tanks, etc.

3. Oil and Chemical Spills

Any hydrocarbon or chemical spill, whether accidental or otherwise, must be reported to the Chief Operator and the Contract Administrator.

4. Connections Into Owner's Utilities Systems

Permission must be obtained from Contract Administrator prior to connecting into owner's utility system such as, but not limited to, water, air, nitrogen, and steam systems. Each connection shall be guarded by a check valve. When taking water from fire hydrants, the center valve must be opened completely.

5. Contractor's Equipment

a. ***All equipment brought into the Refinery*** *by contractors must be in safe operating condition. Authorized owner personnel may at any time inspect contractor's equipment. Such inspection or failure to inspect does not relieve the contractor of its responsibilities for the safe condition of its equipment.*

b. ***Equipment must be operated*** *only by properly licensed persons.*

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

6. Working Over or Near Water

a. ***Ring Buoys*** *with at least 90 feet of line must be readily available for rescue operations. Distance between ring buoys must not exceed 200 feet.*

b. ***A life saving skiff*** *must be immediately avaiable*

EXX 003705

December 7, 1978

Way Engineering Company, Inc.
P.O. Box 36530
Houston, Texas 77036

Attn: Mr. Norman Way

Subject: Subcontract No. 27-5742-5003
Installation of HVAC System
Reforming Control Center Bldg. 731
Exxon Company U.S.A.
Baytown, Texas

Gentlemen:

We enclose herewith one fully executed copy of our Subcontract No. 27-5742-5003 dated October 12, 1978 for your permanent file.

Should you at any time have any further questions in regards to this Subcontract please contact the undersigned at (713) 676-3758.

Sincerely yours,

BROWN & ROOT, INC.

ORIGINAL SIGNED BY
J. E. FUTCHER

John E. Futcher
Subcontract Administrator
Subcontracts Department
Procurement Division

JEF/jb

Enclosure

bcc: E. E. Kernan (w/original attached)
R. R. Cadwell (w/yellow copy attached)
RF/RMB
RF/CIRC
RF/JEF
File - S/C No. 27-5742-5003

Form P-50 1-76

BROWN & ROOT, INC.

JF/kk

SUBCONTRACT

Job Number 27-5742 (5)

Subcontract No. 27-5742-5003

EXXON COMPANY, U.S.A.
REFORMING CONTROL CENTER BLDG. 731
BAYTOWN, TEXAS
(Project)

FURNISH AND INSTALL HVAC SYSTEM
(Sublet Work)

OCTOBER 12, 1978
(Effective Date)

THIS SUBCONTRACT, by and between BROWN & ROOT, INC., a Texas Corporation, P. O. BOX 3, HOUSTON, TEXAS 77001, "GENERAL CONTRACTOR" and,

Way Engineering Company, Inc.,

a Corporation (Corporation, Proprietorship, Partnership) under laws of Texas (State)

whose address is P. O. Box 36530 Houston, Texas 77036 (713) 666-3541,

"SUBCONTRACTOR," whose contractor's license number under laws of N/A

is N/A, entered into as of the EFFECTIVE DATE stated above,

WITNESSETH:

In consideration of the mutual promises herein contained General Contractor and Subcontractor agree, promise, and obligate themselves as follows:

1. Subcontractor promises to perform the Sublet Work for the Project in accordance with the Contract Documents.

2. General Contractor promises to pay Subcontractor, for full, accurate and timely performance of the Sublet Work in accordance herewith, the Price and other payments, and promises to perform all of the other obligations of General Contractor, as set forth in the Contract Documents.

3. The Contract Documents constituting this Subcontract consist of:

a. "Subcontract Terms" and exhibits thereto.

b. "[illegible]"

c. "General Conditions" Form P-50 (1-77)

d. "Affidavit for Subcontractor" (2)

e. "Contractor's Responsibilities for Safety, Plant Security and Traffic Regulations" (April 1, 1978).

Project Account Code 27-5742
Vendor Code No. 135329 24
Net Price: $ 27,335.00
Terms:

EXX 003707

The foregoing constitutes the entire contract, and supersede all prior proposals, negotiations, agreements, awards, letter of intent and written or oral statements, representations or agreements.

4. The Effective Date set forth above is the date as to which all Contract Documents and provisions thereof have reference for purposes of coordination of their meaning and effect. The price relates to the Sublet Work as described in drawings, specifications and other Contract Documents in their condition on that date. Changes after the effective date will be dealt with in accordance with the provision for changes. Any work commenced and any payments made pursuant to an Award or Letter of Intent prior to the execution hereof shall be deemed to have been done and paid after the Effective Date under the terms of this Subcontract.

GENERAL CONTRACTOR:

BROWN & ROOT, INC.

By: _____

D. E. Newton

Title: Vice President - Procurement

Date: 12-8-76

SUBCONTRACTOR:

Way Engineering Company, Inc.

By: _____

Title: PRESIDENT

Date: 12-1-76

EXX 003708

SUBCONTRACT TERMS

JF/kk

EXXON COMPANY

REFORMING CONTROL CENTER BLDG. 731

SUBCONTRACT NO. 27-5742-5003

1. SUBLET WORK

1.1 The Sublet Work, in general, is to furnish, deliver and install the heating, ventilating, and air conditioning system required for the Reforming Control Center Building 731 of the Exxon Company Facilities located in Baytown, Texas.

1.2 More specifically, the Subcontractor agrees to perform the Sublet Work which consists of furnishing all labor, materials, tools, equipment, warehousing, transportation, supervision, taxes, insurance and all other items necessary (except for those items described hereunder in Subcontract Term No. 3) to furnish and install the heating, ventilating, and air conditioning system at the location described above, all of which work shall be performed in accordance with and pursuant to the requirements of the drawings and specifications listed in Subcontract Term No. 2 hereunder and all other provisions of the Subcontract documents.

1.3 Subcontractor shall perform all work described herein in accordance with the directions of the General Contractor's Project Manager or his duly authorized representative.

2. DRAWINGS AND SPECIFICATIONS

2.1 The Sublet Work shall be performed in accordance with, and all materials furnished by the Subcontractor shall comply with and conform to, specifications entitled "Reforming Control Center Building No. 731", Exxon Company Appropriation No. 00728, referenced enumeration of drawings dated July 11, 1978, addendum No. 1 dated August 24, 1978 and addendum No. 2 (design change No. 1) dated September 22, 1978, prepared by the McGinty Partnership Architects, and Owner's publication entitled "Contractor's Responsibilities for Safety, Plant Security, and Traffic Regulations" dated April 1, 1978.

3. SERVICES AND MATERIALS PROVIDED BY GENERAL CONTRACTOR

General Contractor shall provide the Subcontractor with drinking water, sanitary facilities, and electrical power for use while performing the Sublet Work described herein.

4. TIME OF PERFORMANCE

4.1 Subcontractor shall commence the Sublet Work on or about October 23, 1978 and shall perform all work in a diligent manner until all aspects of the Sublet Work are complete which shall be on or before March 31, 1979.

4.2 Subcontractor shall perform the Sublet Work in accordance with the schedule of the General Contractor's Project Manager or his duly authorized representative.

4.3 Subcontractor shall maintain contact with the General Contractor's Project Manager, or his duly authorized representative, for the purpose of scheduling and coordinating the Sublet Work.

5. SUBCONTRACT PRICE

General Contractor agrees to pay Subcontractor for complete, satisfactory, and timely performance of the Sublet Work strictly in accordance with the drawings, specifications, and requirements of all of the Subcontract Documents the following Firm Lump Sum Price, inclusive of all sales and use taxes.

TWENTY SEVEN THOUSAND THREE HUNDRED THIRTY FIVE DOLLARS AND NO CENTS
(Words)

$27,335.00
(Figures)

6. PAYMENT AND PERFORMANCE BONDS

There is no requirement at this time to furnish separate 100% Payment and Performance Bonds. However General Contractor may at any time require seperate Payment and Performance Bonds in accordance with the provisions of General Condition No. 19.

7. PAYMENT

7.1 The following paragraph supplements Paragraph Number 32 of the General Conditions:

Subcontractor shall be paid in monthly progress payments the value of the Sublet Work satisfactorily performed during the preceding month based upon the firm lump sum price detailed and described in Subcontract Term No. 5 less 10% of such value as retainage until final completion and acceptance of the Sublet Work by General Contractor. Subcontractor shall prepare and submit an invoice for the proposed monthly progress payments and shall submit supporting documents and proof of payment of all bills for labor and materials, as may be requested by General Contractor. Subcontractor's invoice for proposed

7. PAYMENT -(continued)

monthly progress payments with requested supporting documents and proof of payment of all bills will be submitted for approval by General Contractor and when approved, payment shall be made within thirty days thereafter. Final payment and release of retainage shall be made when the Sublet Work has been satisfactorily completed and accepted and Subcontractor has submitted the affidavit as called for in Subcontract Term No. 8.

8. AFFIDAVITS

Two copies of the General Contractor's "Affidavit for Subcontractor" (Form P-7) are attached for use in implementing the provisions of General Condition No. 32. Subcontractor shall execute and return one copy with his final or retainage invoice to the address shown in Subcontract Term No. 9.

9. INVOICES

Subcontractor shall render all invoices to the following address:

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: Mel Lynch

10. SUBMITTALS

Subcontractor shall submit shop drawings and descriptive brochures in six (6) copies for approval by October 20, 1978 to the address shown in Subcontract term No. 9.

11. INSURANCE

Subcontractor shall forward his Certificate of Insurance stating the names of its Insurance Carriers and certifying that its insurance coverages meet the requirements set forth in General Condition No. 21 herein to the following address, in addition to the address shown in Subcontract Term No. 9.

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: J. E. Futcher
(01-116)

12. LABOR RELATIONS

The following supplements Paragraph 14 of the General Conditions:

Subcontractor represents that its pre-hiring collective bargaining agreements, if any, contain or will contain provisions that, or Subcontractor has entered into or will enter into a project agreement modifying such collective bargaining agreement to provide that, there shall be no strikes, slowdowns, picketing, secondary boycotts, or work stoppages during the performance of the Sublet Work. Subcontractor will further subcontract only to lower-tier subcontractors having similar provisions in their collective bargaining agreements, if any.

GENERAL CONDITIONS

1. INVESTIGATION OF SITE AND PROJECT CONDITIONS

Subcontractor represents that he is familiar with the site and the physical conditions, the availability of labor and materials and all other matters at the site or in the vicinity of the site which affects the Sublet Work. Subcontractor represents that he has examined the subcontract document and familiarized himself with the Project, the laws, rules and regulations relating to the Project; the environmental considerations affecting the Project and the Sublet Work; the participants in the Project; and the contractual and regulatory provisions of governmental agencies, the Owner and General Contractor affecting the participants in the Project and the Sublet Work. No allowance will be made to Subcontractor for not having made such examination and review or for requirements which a reasonable examination, inquiry and review would have disclosed.

2. RESPONSIBILITY

a. Subcontractor agrees to perform the Sublet Work in accordance with good construction practices and the plans, specifications and other requirements of this Subcontract, and to furnish all supervision, labor, supplies, tools, construction equipment, facilities, storage, permanent equipment and materials (except as specified herein to be furnished by Owner or General Contractor) and all other things and services necessary or desirable to perform the Sublet Work.

b. Subcontractor shall be responsible for the correctness of the positions, levels and dimensions of the Sublet Work, notwithstanding the Subcontractor may have been assisted by the General Contractor or any other Contractor in setting out the same; and if at any time during the performance of the Sublet Work, any error shall appear or arise therein, the Subcontractor shall immediately advise the General Contractor's Site Representative and await instructions for removal and replacement or performance of corrective work, before proceeding with that portion of the Sublet Work.

c. All work which is manifestly necessary to carry out the intent of the drawings and specifications pertaining to the Sublet Work, or which is customarily done in performing this type of work for the Owner or General Contractor, shall be performed by the Subcontractor as a part of the Sublet Work.

3. COORDINATION OF THE PROJECT

General Contractor is charged with the responsibility of accomplishing the work of the entire Project, or a significant portion thereof, in accordance with drawings, specifications, permits, licenses, rules and regulations, laws and ordinances, and requirements of the Owner. The contract price provisions, and the definition of requirements of the Sublet Work, as of the effective date, are coordinated and identified in the Subcontract Terms. General Contractor is charged with the responsibility of coordinating the efforts of all, or a significant portion of, the participants in the Project, including various subcontractors, specialty service contractors, suppliers, and other workmen, and the direct employees of General Contractor. Subcontractor agrees to perform the Sublet Work as part of the team of participants in the Project in cooperation with all other participants, and subject to all reasonable rules, regulations, and directives of General Contractor (a) for the coordination of the work of all participants, (b) for the maintenance of safety, efficiency, security and good order on the Project as a whole, (c) for compliance with the terms hereof, and (d) for the protection of the environment and the rights of the public.

4. SCHEDULING SUBLET WORK

Subcontractor agrees to commence the Sublet Work promptly when directed by General Contractor and to prosecute the Sublet Work diligently to completion. Subcontractor agrees to provide adequate number and types of: (a) laborers, skilled craftsmen and technicians, supervisors, administrators, and managers, (b) construction equipment in good condition, (c) materials, permanent equipment, and supplies, except for items specified to be supplied by General Contractor or Owner, to accomplish the work and maintain the Schedule or restore the Sublet Work to the Schedule. Subcontractor shall provide General Contractor a detailed Schedule for performance of the Sublet Work and shall revise and update such Schedule from time to time as the work on the Project progresses. The Schedule for the Sublet Work shall be subject to revision or approval by General Contractor to coordinate the Sublet Work with the over-all rate of progress of General Contractor and other participants in the Project as a whole, and to expedite performance of critical items of work on the schedule. General Contractor will schedule and coordinate the use by Subcontractor and others of jointly used facilities, construction equipment, and space, and Subcontractor shall accomodate its Schedule to such shared use. General Contractor will determine the normal working hours for the Project as a whole, and any special working hours for the Sublet Work on a normal shift or overtime basis will be subject to prior approval of General Contractor.

5. INTEGRATION WITH WORK OF OTHERS

Subcontractor shall inform itself regarding the nature, condition and state of progress of work of others which affects or connects with the Sublet Work. Before connecting Sublet Work to work of others, Subcontractor shall ascertain that such work of others is ready, properly aligned, and in suitable condition for such connection and integration with the Sublet Work, and shall report any discrepancies to General Contractor for adjustment prior to proceeding. Subcontractor is not charged with notice of latent defects in the work of others of which he has no actual knowledge.

6. ALLOCATION OF FACILITIES

General Contractor will designate for use by Subcontractor, entrances, parking areas, storage areas, office and work areas, and such facilities and construction equipment as General Contractor is to provide. General Contractor will allocate, and schedule the use of, such common facilities and utilities as are provided by General Contractor for use of Subcontractor and other participants in the Project. Temporary interruption of services, utilities and use of facilities are anticipated and shall not justify a claim for additional compensation.

7. INSPECTION AND QUALITY CONTROL

The Sublet Work shall be performed to the specified standards of workmanship and strictly in accordance with drawings, specifications, procedures, and other requirements of this Subcontract. General Contractor shall have the right to inspect the Sublet Work and Subcontractor's equipment, tools, records and facilities at all times. No work shall be covered until inspected and released in accordance with established inspection procedures, and any work improperly covered shall be uncovered and exposed by Subcontractor for inspection on request. Inspection and approval shall not relieve Subcontractor of the obligation to complete the entire Sublet Work in strict compliance with the requirements of this Subcontract. Any defective Sublet Work shall be discontinued, removed and replaced or corrected in accordance with specifications and directions of General Contractor. Subcontractor shall furnish for the Sublet Work all Quality Assurance and Quality Control documentation, as required by General Contractor for the Project as a whole or for the specific part thereof affected by the Sublet Work.

8. SAFETY, CLEANLINESS AND SANITATION

Subcontractor shall comply with all applicable laws, rules and regulations relating to safety. Subcontractor

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ıll comply with all safety standards, rules and regulations relating to safety, cleanliness and sanitation established by General Contractor for the Project as a whole. Subcontractor shall immediately stop work and take corrective action when directed by General Contractor because of any unsafe condition or practice. Subcontractor shall be responsible for the safety of its workmen and the Sublet Work and shall not create hazards for others or the work of others. Subcontractor shall provide first aid and ambulance facilities for its workmen to the extent sufficient facilities are not provided for the Project as a whole by General Contractor. General Contractor shall provide for safety of the Project as a whole. In case of emergency, General Contractor may direct Subcontractor's personnel and resources for the protection of life and property.

9. DELAYS

If Subcontractor's performance of the Sublet Work is delayed by Owner's or General Contractor's failure to perform their obligations hereunder, or by orders of the General Contractor delaying or suspending the work, or by changes in the work, Subcontractor shall be entitled to an equitable adjustment in the price and time for performance in accordance with the provision for Changes in Article 12; but no price adjustment shall be due for delays or inconvenience to Subcontractor from the scheduling and coordination of the Sublet Work with the rate of progress made by all participants in the Project. In the event Subcontractor is delayed by force majeure, Subcontractor shall be entitled to an equitable extension of time but no adjustment in the price; provided, that inadequate manpower or failure of Subcontractor's workmen to prosecute their work because of strikes, boycott, picketing, or other form of labor dispute shall not be deemed force majeure unless there is clear and substantial danger of bodily harm or property damage if the employees undertook to enter the work site and perform their work, as determined by General Contractor or the chief local law enforcement officer. Subcontractor shall notify General Contractor in writing within 48 hours after the commencement of a delay, if Subcontractor claims an extension of time or an adjustment of price because of such delay, or the right to such extension or adjustment shall be waived.

10. SUPPLEMENTING OR TAKING OVER BY GENERAL CONTRACTOR

If, after seven (7) days written notice by General Contractor to Subcontractor specifying any deficiency in the Sublet Work or the promptness with which it is being performed, Subcontractor has not promptly commenced to correct, and within a reasonable time corrected, such deficiency to the satisfaction of General Contractor, General Contractor may supplement the work of Subcontractor, or take over performance of the Sublet Work temporarily or completely, with General Contractor's own forces or by contract with others. General Contractor may use all or part of Subcontractor's construction equipment, tools and facilities at the project site, and any materials, permanent equipment and supplies, in the performance of the Sublet Work, without payment to Subcontractor otherwise than by the extent such use of Subcontractor's items causes a reduction of cost of completing the Sublet Work. All costs incurred by General Contractor in performing all or part of the Sublet Work, including a mark-up of 10% of such cost, shall be deducted from the price payable to Subcontractor and if such sum plus all payments previously made to Subcontractor shall exceed the price, Subcontractor shall refund to General Contractor the excess within ten (10) days after submittal of a properly documented invoice. If the price is on a cost reimbursable basis, Subcontractor will be reimbursed for use of construction equipment at the lowest applicable rate provided for herein or at prevailing rental rates if no rate is specified, and the cost of Subcontractor's materials used. Upon notice from General Contractor to Subcontractor, Subcontractor shall resume and complete the Sublet Work, but this right to supplement or take over the Sublet Work may again be exercised if necessary. The determination of General Contractor's project manager to invoke the provisions of this Article 10 shall be final and conclusive; provided Subcontractor may within said seven day period, appeal to an executive officer designated by the President of General Contractor, whose decision shall be final absent actual fraud.

11. DEFERMENT OR TERMINATION

In the event the Project is deferred or terminated by Owner, or if General Contractor shall elect to defer or terminate the Sublet Work, Subcontractor shall be paid: (1) the price earned for work completed and accepted, (2) a proportionate part of the price allocated to the portion of the work partially completed, (3) the reasonable cost incurred by Subcontractor in securing and protecting the work in progress against loss, damage or deterioration, and (4) unamortized mobilization and demobilization costs; standby costs, cancellation or deferment charges of suppliers; the cost of materials and equipment not sold or disposed of; and other special costs for terminating or suspending work or preserving the work accomplished and turning it over to General Contractor but (5) no compensation for the portion of the Sublet Work not performed. General Contractor shall notify Subcontractor whether the Sublet work is terminated or deferred to an indefinite or specified date and the deferment shall not exceed six months (or other limits expressed in the Subcontract Terms) without the consent of Subcontractor. If deferred, the Sublet Work may thereafter be terminated and shall be terminated upon expiration of the maximum period of deferment without notice to resume. Following deferment and notice to resume given by General Contractor to Subcontractor in writing, Subcontractor shall resume the Sublet Work in accordance with the terms hereof with an equitable adjustment, if required, in the price and time of completion, determined as in the case of changes. In case of any such termination or deferment, Subcontractor shall, as directed by General Contractor, secure, safeguard, remove or deliver to General Contractor all material, equipment, supplies, work in progress, and contract rights.

12. CHANGES

General Contractor reserves the right to make changes in the Sublet Work or the manner of its performance. No change shall be made by Subcontractor in the Sublet Work or its manner of performance, without prior written instructions from General Contractor, in a written Change Order specifying the change in plans, specifications, procedures, time, sequence, or other requirement of this subcontract, and specifying whether there is to be an adjustment in the price or time for performance and how any such adjustment shall be determined. No adjustment in price or time of performance shall be made for changes in arrangement, aesthetics, substitution of equivalent materials or equipment or other changes, unless such changes significantly affect Subcontractor's cost of performing the Sublet Work or extend the time that Subcontractor's equipment and forces are required at the project site. An equitable adjustment will be made in price or time of performance or both, if the change ordered by General Contractor substantially increases or decreases the cost to Subcontractor of the Sublet Work or the time that Subcontractor's equipment and forces are required at the project site. The method of determining the equitable adjustment shall be specified, and if possible, the price fixed at the time of the issuance of written direction for the change. Unless a lump sum is established by agreement or another method of pricing is established by agreement, General Contractor may direct determination of the equitable adjustment in price, whether an increase or decrease, by any of the following methods: (a) agreed or established fixed unit prices, (b) force account, or (c) cost plus fee. If the force account method is directed by General Contractor, the force account rates for equipment use, manhour labor rate including payroll burden and markup for overhead and profit, with reimbursement of actual cost of materials, as established in the Subcontract Terms or by other agreements, shall be used to determine the ad-

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justment. If the cost plus fee method is directed by General Contractor the adjustment will be based on the direct cost of the change in the work using the formula established in the Subcontract Terms or by other agreement. In the absence of agreement, Subcontractor shall be paid all actual, direct additional cost incurred, without allocation of home office general and administrative expense, plus 10% of such costs, and Subcontractor shall maintain and furnish General Contractor accurate and detailed records daily segregating the cost of the change in the Sublet Work. In case of deletion or reduction of the Sublet Work by such change, Subcontractor shall not be entitled to anticipated contribution to home office overhead and profit from any portion of the Sublet Work not performed.

13. WORKMEN AND EMPLOYMENT PRACTICES

Subcontractor shall provide competent and adequately trained and skilled personnel. Subcontractor shall, on request, remove from the Project any person found by General Contractor to be incompetent, unsafe, disorderly, unreliable, or unwilling to comply with regulations. Subcontractor shall provide badges, color codes, or other symbols or identification for its employees, tools and equipment, in accordance with the system specified by General Contractor. Subcontractor shall cooperate in security measures for the prevention of theft, pilferage, and waste. Subcontractor shall not discriminate against any employee or applicant for employment because of race, color, national origin, religion, sex, age, or for any reason prohibited by law. Subcontractor agrees to participate and cooperate in the implementation of any Affirmative Action Plan for equal employment opportunity adopted for the Project as a whole. To the extent applicable to the Sublet Work on this Project, Subcontractor shall comply with Executive Order 11246, or any amendment, replacement or counterpart thereof, and the parties mutually represent that they are familiar with such provisions and agree that a full copy thereof may be incorporated herein by either party by attachment at any time.

14. LABOR RELATIONS

Subcontractor shall comply with the National Labor Relations Act, any applicable Right to Work law, and any other applicable law related to labor relations. Subcontractor shall give General Contractor notice and full information regarding any existing or impending labor dispute affecting the Sublet Work or any part of the work on the Project as a whole. Subcontractor shall cooperate in any effort by General Contractor to mediate or otherwise attempt to resolve work stoppages, slowdowns, boycotts, disturbances, strikes, picketing or labor disputes affecting any participant in the Project or affecting any part of the Project as a whole, but Subcontractor shall have exclusive control and responsibility for its own labor relations. No such condition shall excuse Subcontractor from the obligation to diligently prosecute the work, unless, in the opinion of General Contractor, or if so determined by the chief local law enforcement officer, there is clear and substantial danger of bodily harm or property damage to Subcontractor's employees if they should undertake to enter the project site and perform their work. If Subcontractor has pre-hiring collective bargaining agreements, Subcontractor represents that they contain or have been modified to contain provisions prohibiting any strike, slow down, picketing, secondary boycotts or work stoppage during performance of the Sublet Work, and that the acceptance of the Sublet Work from General Contractor on this project does not violate such agreement.

15. LIENS

To the extent permitted by law, Subcontractor, for itself and all of its lower tier subcontractors and all laborers, mechanics and materialmen hereby waive and agree not to claim any lien against the Sublet Work, but shall rely solely upon the general credit of General Contractor. Subcontractor shall pay or cause to be paid when due, all bills for labor, materials, equipment or services connected with the Sublet Work, and shall not itself assert any lien or permit any lien to be asserted or maintained against the Project or any funds or land involved in the Project. General Contractor may pay directly any such valid obligation of Subcontractor, and Subcontractor shall indemnify General Contractor against any such obligation.

16. TITLE TO AND RESPONSIBILITY FOR SUBLET WORK AND MATERIALS

The Sublet Work in progress and all of the Owner and General Contractor-furnished items and all of Subcontractor-furnished material, equipment, plant, facilities, fabricated items, supplies, drawings, data, and contract rights intended for the Sublet Work shall be the property of General Contractor from the earliest moment of identification to the Sublet Work, subject to General Contractor's obligation to pay the price in accordance with the Subcontract. Notwithstanding General Contractor's or Owner's title thereto, Subcontractor shall be responsible for the care, custody, control and safekeeping and preservation of all Owner-furnished, General Contractor-furnished, or Subcontractor-furnished labor, materials, plant equipment, supplies and other things to promptly repair or replace any such which is damaged or lost, and to complete the Sublet Work and to deliver the Sublet Work complete and in accordance with all provisions and requirements hereof at the time specified. Except as otherwise provided in the Subcontract Terms or the Special Conditions, Subcontractor shall bear, without right of reimbursement, the full risk of loss or damage to the Sublet Work and all materials, equipment and other things.

17. SUBCONTRACTING OR ASSIGNMENT

Subcontractor shall not assign this subcontract or any funds due hereunder. Subcontractor shall not subcontract any portion of the Sublet Work without the prior written approval by General Contractor of the lower tier subcontractor and of the form, terms and conditions of the lower tier subcontract. No assignment or subcontracting, even with General Contractor's approval, shall relieve Subcontractor of any obligations hereunder, or create any contractual relationship between such sub-subcontractor and General Contractor or Owner. Any lower tier subcontractor shall assume unto General Contractor all of the obligations of Subcontractor as they relate to such portion of the Sublet Work.

18. RECORDS AND ACCOUNTS

Subcontractor shall maintain good accounting and personnel records reflecting performance of the Sublet Work and shall preserve such records for a period of two years after completion and acceptance of the Project as a whole. General Contractor shall have the right to inspect and audit such part of the records as relate to cost reimbursement or performance of labor related provisions. Copies of documents and records supporting requests for payment or compliance with labor related provisions shall be furnished General Contractor with such request or at such other times as General Contractor directs.

19. BONDS

If instructed by General Contractor in writing, Subcontractor shall provide a Performance Bond and a Payment Bond in form and with corporate surety satisfactory to General Contractor, at any time required by General Contractor, whether before commencement of the Sublet Work or at any time prior to completion and acceptance of the Sublet Work. General Contractor will separately reimburse Subcontractor the premium cost thereof set forth in the Subcontract Terms unless otherwise expressly provided. General Contractor may terminate this Subcontract for default or exercise the rights provided in Paragraph 10 of these General Conditions if Subcontractor should fail to provide such bond when requested.

20. INDEMNITY

Subcontractor hereby indemnifies and holds harmless General Contractor and Owner from any loss, cost, damage

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or liability from injury or death of any person, including Subcontractor or its employees, or damage or destruction of any property, arising from or in connection with the Sublet Work whether or not there be concurring negligence by General Contractor or Owner, but Subcontractor does not hereby assume responsibility for the sole negligence of General Contractor or Owner.

21. INSURANCE

Subcontractor shall provide insurance, with provisions against cancellation without thirty (30) days prior written notice, for the benefit of Subcontractor, General Contractor and Owner and with waiver of subrogation against all participants in the Project, in form and with underwriters satisfactory to General Contractor, with minimum coverages and limits as follows:

(a) Workmen's Compensation	Statutory
(b) Employer's Liability (If marine operations are involved, the limits shall be $250,000 per person and $500,000 per accident)	$ 100,000
(c) Comprehensive General and Automobile Liability	
Bodily Injury - per person	$ 100,000
- per accident	$ 300,000
Property Damage with blanket contractual, products and completed operations liability endorsements, and with xcu exclusion deleted.	$ 100,000
(d) Hull and protection and indemnity for any marine vessels, with General Contractor, Owner and their affiliates being co-insured.	Full Value, but not less than $1,000,000
(e) Such other available insurance or increased limits as General Contractor may request, the premium cost of which shall be directly reimbursable unless otherwise specified in the Subcontract Terms.	

22. INSURANCE ON CONSTRUCTION EQUIPMENT

Subcontractor shall fully insure, or self-insure and assumes all risk of loss of, or damage to, Subcontractor's construction equipment and tools, facilities and structures, however caused, including losses caused by vandals or theft, or by the negligence of others, including General Contractor or Owner. Subcontractor agrees to indemnify and hold harmless Owner and General Contractor from any such loss or liability regardless of any provision for reimbursement of uninsured losses.

23. USE OF GENERAL CONTRACTOR'S OR OWNER'S EQUIPMENT

If any construction equipment, tools, marine vessels, facilities, or services of General Contractor or Owner be furnished to Subcontractor or used by Subcontractor, on an exclusive or joint use basis, Subcontractor shall inspect and satisfy itself as to the safety and condition thereof and shall return same to General Contractor or Owner after such use in good order and condition and in at least as good condition as that in which received, fair wear and use excepted. Subcontractor shall at its own cost and without right of reimbursement, insure or self-insure all risks associated with such use and shall indemnify General Contractor and Owner against any liability or cost for injury to, or death of, persons or damage or destruction of property connected with such use even if General Contractor or Owner should be negligent in relation to such equipment or items used.

24. PERMITS, LICENSES, LAND RIGHTS

General Contractor will provide all licenses and permits required for the Project as a whole to be constructed. Subcontractor shall provide all licenses and permits required for Subcontractor to perform the Sublet Work, including [without limitation], contractors' licenses, specialty permits required by law to be issued to Subcontractor, and transportation permits. General Contractor will provide access to the work site and easements or land rights in the work site, but Subcontractor shall comply with all restrictions, limitations, terms and conditions relative thereto and Subcontractor shall obtain such additional easements and land rights as Subcontractor may require.

25. PATENTS AND PROPRIETARY RIGHTS

Subcontractor shall pay all royalties and obtain all licenses required for items specified to be furnished by Subcontractor, and for all items and methods selected by Subcontractor for the Sublet Work. General Contractor shall pay all royalties and obtain all licenses required for the Project as a whole or for Owner-furnished or General Contractor-furnished items. Subcontractor shall give prompt notice to General Contractor of any claim of infringement of any patent or proprietary right, and Subcontractor and General Contractor shall cooperate in the defense and disposition of any such claim or suit. The party obligated to furnish the license shall defend and indemnify the other party.

26. WARRANTY

Subcontractor guarantees and warrants that all materials furnished by Subcontractor and workmanship furnished by Subcontractor shall comply with the specifications and other requirements of the contract and shall be free of defects for a period of one year after completion and acceptance of the Project as a whole by the Owner, or one year after placement of the Sublet Work in service, whichever is earlier. With respect to items of manufactured equipment specified by General Contractor and purchased by Subcontractor from others, Subcontractor warrants that the equipment is as specified, and agrees to pass on and assign to General Contractor (or to Owner if directed by General Contractor) the manufacturer's warranty and Subcontractor shall prosecute the enforcement thereof in cooperation with General Contractor, but Subcontractor shall have no further quality or performance warranty responsibility with respect to such items of manufactured equipment.

27. PARTIAL OCCUPANCY AND USE

General Contractor and Owner shall have access to the Sublet Work at all times. General Contractor and Owner may occupy and use any portion of the Sublet Work which is sufficiently completed to permit such occupancy and use, provided there is no substantial interference with performance of the balance of the Sublet Work. Such partial occupancy and use shall not relieve Subcontractor of the obligation to complete all of the Sublet Work strictly in accordance with the requirements of this Subcontract.

28. CONFIDENTIALITY

Subcontractor shall not publicize, publish, or photograph the Project, the Sublet Work, or this Subcontract, except by consent of General Contractor and in compliance with General Contractor's regulations for the Project. Subcontractor will maintain in confidence and not use or disclose any confidential proprietary information of General Contractor or Owner. Subcontractor will execute, and if requested will cause its employees or agents to execute, such form of written secrecy agreement, further defining this confidentiality agreement, as is required of other participants in the Project. All plans, specifications, data and other material relating to the Project shall be delivered to General Contractor, on request, when no longer required by Subcontractor for performance of the Sublet Work.

29. INDEPENDENT CONTRACTOR

Subcontractor shall perform the Sublet Work as an independent contractor with exclusive control of the manner and means of performing the Sublet Work in accordance with the requirements of the Contract, unless

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at locations where persons are working over or adjacent water.

7. Work Involving Use of Ionizing Radiation

Contractors must not perform any work involving the use of ionizing radiation without notification to the Exxon Supervisor in charge or the Contract Administrator. A COLD WORK PERMIT must be obtained if radio isotopes are used, a HOT WORK PERMIT is required if an Industrial Xray Unit is used to perform this type work in processing areas. Contractors must comply with "Texas Regulations for Control of Radiation," latest edition, Texas State Department of Health, Division of Occupational 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 enenergy surveys of contractor's equipment and their uses on owner's premises.

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Section 4

ELECTRICAL LOCKOUT PROCEDURES

ELECTRICAL CIRCUITS AND ELECTRICALLY POWERED EQUIPMENT

PURPOSE

The purpose of these procedures is to protect anyone who works on either electrical circuits or electrically powered equipment from injury or death.

SPECIAL DEFINITIONS

Electrical circuits and electrically powered equipment do not include (1) lighting circuits for the purpose of relamping, (2) circuits of less than 100 volts, or (3) circuits that must remain energized. For circuits that must remain energized, a blue COLD WORK PERMIT may be required (see section 8)

RESPONSIBILITIES

1. *Process person* is responsible for isolating and preparing the equipment to assure it is in safe condition for mechanical work.

2. **Person performing work** is responsible for assuring himself that the equipment is safe for him to do his prescribed work, and that he has tagged and locked out the equipment in accordance with the electrical lockout procedures.

3. *Contractor Administrator is the contractor's contact with Process personnel for performing work under the electrical lockout procedure.*

PROCEDURE

1. **Lockout Procedures** — Before anyone works on electrical circuits or electrically powered equipment where they could be endangered, the

electrical supply must be turned off and locked out in accordance with the following procedures:

a. Shut Equipment Down — The Process person must shut the equipment down at the local start-stop switch or local "Hand-Off-Auto" switch. In case there are remote start-stop switches on this equipment, he must notify other operating personnel responsible for operating the remote start-stop switches and request that a white DO NOT OPERATE tag be placed on the start-stop switches. If the start-stop switch is located on a control panel, then it must be covered with a section of DO NOT OPERATE pressure-sensitive tape.

b. Lock and Tag Disconnect Switch — The Process person must turn the disconnect switch to the off position, lock it with a Process lock, and tag it with the white DO NOT OPERATE tag. If a Process or another person is to work on the equipment, the Process person must use a multiple lockout adapter. The Process operations lock must be in the position closest to the switch. All Process locks will be identical, and the same key will unlock all of them.

c. Check Disconnect and Tag — The Process person must try the local pushbutton station to be sure the correct disconnect switch is locked out. When the local control station is a "Hand-Off-Auto" selector switch the process person must lock the switch in the "Off" position. He must then tag the pushbutton or selector switch with a white DO NOT OPERATE tag.

d. Enter in Log — The Process person must enter the "lockout" in the Process log book.

e. Apply Mechanical Lock — Before mechanical work is performed on equipment, a mechanical lock must be applied by the person performing the work.

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(1) Mechanical Person — Each Mechanical person who works on the equipment must first add his own lock and a red DO NOT OPERATE tag on which he will write his name, skill, and the date. It is the responsibility of each person working on the equipment to assure his own safety by keeping his tag and individual lock on the disconnect switch while he works on the equipment. If two or more people in the same craft are working together on the equipment, only one mechanical lock and red DO NOT OPERATE tag are required. *If a contractor employee is doing the work, he must use an Exxon mechanical-type lock and the appropriate electrical lockout procedures tag obtained from the Contract Administrator. He must write on the tag his name and the name of the contractor firm.*

(2) Process Person — When a Process person is to perform work on the equipment, he must obtain his individual mechanical-type lock and key from the supply in the control room or center and then follow the above procedures in e(1).

f. Remove Lock and Tag — Locks and DO NOT OPERATE tags must be removed as follows:

(1) Remove Mechanical Lock and Tag — As each person finishes his work, he must remove his own lock and red DO NOT OPERATE tag. At the end of his work shift, he must remove his lock and tag whether his work is finished or not. This does not include the original Process lock or white DO NOT OPERATE tag.

(2) Remove Process Lock or Locks and Tags — The Process lock or locks must be the last to be removed. When the local control station is a "Hand-off-Auto" selector switch the lock on this selector switch must be the last removed. The Process person, after determining that it is safe to do so, must remove the Process lock or locks and white DO NOT OPERATE tags and must notify other operating personnel to remove the white DO NOT OPERATE tags or DO NOT OPERATE pressure-sensitive tape from remote start-stop switches. He must then enter the lock removal in the log book.

(3) Emergency Lock Removal — If it becomes necessary to remove a lock by other than the Mechanical person who installed it, only the Shift Superintendent is allowed to remove it. Upon removal of the lock, the Shift Superintendent must send a note to the Department Heads of the Process and Mechanical Departments stating whose lock was removed, where it was located, and why it was removed. A log of the same information must be maintained in the Shift Superintendent's office. A master key for the mechanical person's locks must be kept at the Shift Superintendent's office only.

2. Wiring Disconnect Procedures — For some types of work, the lockout procedure alone is not adequate. Such work includes, but is not restricted to, the following: (1) work on fans inside cooling towers, (2) work inside confined spaces containing electrically powered equipment such as mixers or filters or electrodes (desalters), and (3) work on equipment where the switch controls more than the one piece of equipment. In such cases, this wiring disconnect procedure must be followed:

a. Lockout Equipment — The disconnect switch must be locked out in accordance with the electrical lockout procedure in Paragraph 4a of this section.

b. Check and Disconnect Circuit — After making sure the circuit is clear by checking with a

EXX 003719

voltage tester, the Mechanical or Process person must disconnect the wires and tape them together.

c. Tag Circuit— The Mechanical or Process person must tag the disconnect switch with a yellow WIRING DISCONNECTED tag. On the tag, he must note where the wiring is disconnected and must sign and date the tag.

d. Remove Lock and Red DO NOT OPERATE Tag — After the wiring has been disconnected, and taped together, the Mechanical or Process person must remove his individual lock and red DO NOT OPERATE tag unless he must do other work on the equipment. Do not remove the yellow WIRING DISCONNECTED tag.

e. Wiring Reconnect — The Mechanical or Process person who reconnects the wiring must place his individual lock and red DO NOT OPERATE tag on the disconnect switch, reconnect the wiring, and then remove his lock and the red DO NOT OPERATE and yellow WIRING DISCONNECTED tags. *If a contactor employee is doing the work, he must obtain the required tags from the Contract Administrator and follow the above wiring disconnect procedures a through e. He must also include on the tags the name of the contractor's firm.*

3. Abnormal Condition Procedures — Conditions may exist that appear normal but actually are not. The following are examples of such abnormal conditions that require use of the pink ABNORMAL ELECTRICAL CONDITION tag. Such abnormal conditions include but are not limited to the following: (1) temporary power to equipment; (2) inside plastic handle broken off switch so outside handle will not operate switch; (3) one pushbutton inoperative but another will operate equipment; (4) a switch is left energized but a part of the equipment supplied by it is disconnected,

(MOVs) supplied by one circuit breaker; and (5) a switch is off and tagged out but a separate circuit is still supplying power to the switch housing for controls, lights, heaters, etc.

a. Application of Pink ABNORMAL ELECTRICAL CONDITION Tag — Before a Mechanical Person leaves electrical equipment with temporary wiring connected or with any other abnormal condition existing, he must tag the equipment with pink ABNORMAL ELECTRICAL CONDITION tags; he must place one tag on the outside of the equipment and one inside on the wiring if it is practical to do so. He must describe the abnormal condition on the tags and must sign and date them. The abnormal condition must be entered in the log book. *If a contractor employee is doing the work, he must obtain the tags from the Contract Administrator and proceed according to a and b. In addition, he must also include on the tag the name of the contractor's firm.*

b. Removal of ABNORMAL ELECTRICAL CONDITION Tags — The tags must remain in place until the equipment has been returned to its normal condition. The Mechanical person who removed the temporary wiring or eliminates the abnormal condition must remove the tags and notify the Chief Operator responsible for the equipment, who must enter the action in the log book.

POWER LINES

PURPOSE

The purpose of these procedures is to protect anyone who works on or near power lines and on direct-connected Process equipment from injury or death.

SPECIAL DEFINITIONS

1. *Power Lines* — Those electrical lines that radiate

EXX 003720

from generating stations and distribution substations.

2. Direct-Connected Process Equipment — A piece of electrical equipment on a Process unit supplied by a single power line having its electrical disconnect switch at an electrical substation or at a power plant.

3. Electrical Maintenance Supervisor — The Line Crew Supervisor or the Power Systems Maintenance Supervisor or their designated representative.

4. Utilities Chief Operator — The Process person responsible for the operation of the power system.

5. Electrical Mechanical Person — Any lineman, electrician, or Mechanical person working on the power system or on the direct-connected Process equipment.

6. Power Plant Process Person — The Process person who operates the power plant.

RESPONSIBILITIES

1. Electrical Maintenance Supervisor is responsible for requesting that power lines be removed from service and returned to service and for determining that the lines to be worked on are deenergized and tagged out.

2. Process Chief Operator or His Designated Representative is responsible for the removal and return to service of direct connected process equipment. He is also responsible for requesting the Utilities Chief Operator to deenergize the circuit serving the equipment and tag out.

3. Utilities Chief Operator is responsible for authorizing the removal and return to service of the power lines to be worked on.

4. Electrical Mechanical person is responsible for assuring himself that the equipment is safe for

him to do the prescribed work and that the following provisions of these procedures for which he is responsible are carried out.

5. Power Plant Process person is responsible for removing from service and returning to service power lines to be worked on and for properly tagging.

PROCEDURES

Procedure for Removing Power Lines or Direct-Connected Process Equipment from Service.

a. Request for Removal of Power Lines or Direct-Connected Process Equipment from Service: For power lines, the Electrical Maintenance Supervisor must make his request in person to the Utilities Chief Operator. For direct-connected Process equipment, the Process Chief Operator or his designated representative must request the Utilities Chief Operator for removal of these particular power lines from service. *If a contractor employee is to work on power lines or do electrical work on Process equipment, the Contract Administrator must make the arrangements for removing the lines from service and for returning them to service.*

b. Removal of Power Lines or Direct-Connected Process Equipment from Service: The Utilities Chief Operator must make the necessary arrangements with the Power Plant Process person to remove the power lines or the direct-connected Process equipment from service.

c. Check Circuit Removal before Work Begins: For power lines, the Utilities Chief Operator, the Electrical Maintenance Supervisor, and a representative of the group actually doing the work must personally observe that the line has been removed from service by lowering the circuit breaker or opening the dis-

EXX 003721

connect switches at each substation and power plant involved. They must then tag on the equipment by attaching the red POWER LINE DISCONNECT tags filled out and signed by the Utilities Chief Operator and signed by the Electrical Maintenance Supervisor on the equipment at each substation or power plant involved.

If work is being done on a line by more than one group, then each group must be protected by separate red POWER LINE DISCONNECT tags.

For direct connected process equipment, the Process Chief Operator or his designated representative shall notify the Utilities Chief Operator that this equipment has been removed from service and is ready for tagging. The Utilities Chief Operator will proceed to the site of the direct connected equipment, where he will meet the Process Chief Operator or his designated representative and a representative of the group which will actually work on the equipment. The Process Chief Operator or his designated representative will fill out and sign a red POWER LINE DISCONNECT tag and personally give that tag to the Utilities Chief Operator, verifying the equipment is ready for tagging on. The Utilities Chief Operator will keep that tag, and along with the representative of the group which will actually work on the equipment he must then proceed to the electrical substation and observe that the circuit serving the equipment has been removed from service by lowering the circuit breaker or opening the disconnect switches. They must then tag on the appropriate circuit breaker with a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and the representative of the group which will actually work on the equipment. After completing that step, they must proceed to the Power Plant and tag on a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and a representative of the group actually doing the work on the equipment to the remote switch serving the equipment. Finally, the Utilities Chief Operator and the representative of the group actually doing the work will return to the site of the direct connected process equipment and sign and tag on to the local start-stop switches the red POWER LINE DISCONNECT tag originally signed by the Process Chief Operator or his designated representative. After completing this procedure the work can begin.

In the case of contractor personnel the contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign on the disconnect tags.

Before any work is done on an open power line up to and including 13,800 volts, the line must be checked with a voltage tester and a ground chain must be pulled across the line to assure that it is deenergized.

d. Return Power Lines or Direct-Connected Process Equipment to Service: To return a power line to service, the Electrical Maintenance Supervisor must personally report to the Utilities Chief Operator that the work has been completed and accompany the Utilities Chief Operator to the substations and main power plants and properly tag off the power lines by signing and removing the red POWER DISCONNECT tags at the electrical substations and at the main power plants. The lines may

EXX 003722

then be energized by the Power Plant Process Operator.

In the case of direct connected process equipment, the Process Chief Operator or his designated representative must report to the Utilities Chief Operator that the work has been completed. The Utilities Chief Operator and a representative of the group actually working on the equipment will proceed to the site of the equipment and personally meet with the Process Chief Operator or his designated representative who will tag off the local start-stop switches by signing and removing the red POWER LINE DISCONNECT tag. He will give the tag to the Utilities Chief Operator who will also sign it, along with the representative of the group actually working on the equipment. The Utilities Chief Operator and the representative of the group actually doing the work must then proceed to the electrical substation and properly tag off the disconnect switches by signing and removing the red POWER LINE DISCONNECT tags. Finally, they must proceed to the Power Plant and tag off the remote control switch by signing and removing the red POWER LINE DISCONNECT tag from the remote control switch. The Utilities Chief Operator will keep the signed tags and notify the Process Chief Operator or his designated representative that the tag off procedure has been completed.

In the case of Contractor personnel the Contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign off the disconnect tags.

2. Procedure for Working on or Adjacent 2,300-Volt Power Lines

a. Tag Power Lines — Before beginning work on live uninsulated 2,300-volt power lines or working adjacent to any live uninsulated power line, the Maintenance Supervisor or his designated representative must notify the Utilities Chief Operator about the nature and location of the work to be performed.

The Utilities Chief Operator must request the appropriate Power Plant Process person to attach a yellow CAUTION-PEOPLE WORKING ON THIS CIRCUIT tag to the switch or switches controlling the power lines. *In the case of contractor lineman, the Contract Administrator must contact the Utilities Chief Operator.*

b. In Case of Circuit Trouble — In the event of circuit trouble at the jobsite, the Mechanical Supervisor must immediately notify the Power Plant Process person. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.* If any switch to which a tag is attached is tripped, it must not be reclosed until the Power Plant Process person is notified that it is safe to reclose.

c. Removal of Tags — Upon completion of the job, the Maintenance Supervisor who made the original request must notify the Power Plant Process person to remove the tags. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.*

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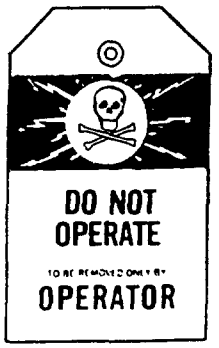
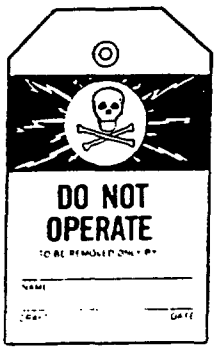
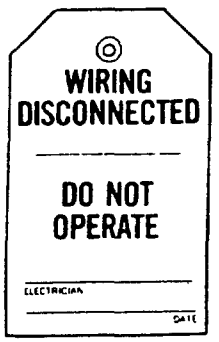


Red Lettering
On White Tag

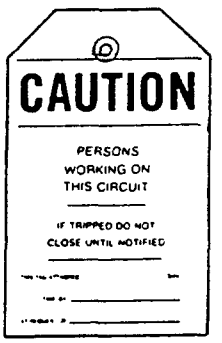
Red Tag

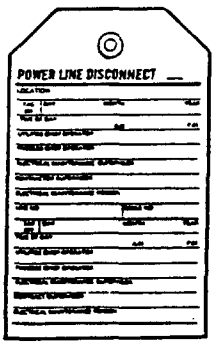




Yellow Tag

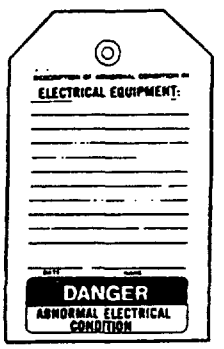
Yellow Tag





Red Tag

Pink Tag



Section 5
HOT WORK PERMIT

PURPOSE

The purpose of this permit procedure is to protect personnel and equipment from fires and/or explosions that could result from hot work performed in a hazardous area. This section outlines minimum precautions for safety when performing hot work in any location not designated as a routine hot work area. In all such areas, a green HOT WORK PERMIT is required for all hot work.

SPECIAL DEFINITIONS

1. Hot Work — Any work requiring the use of burning, welding, or brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion-actuated tools, electric hot plates, or any other flame- or spark-producing equipment.
EXCEPTION: work on energized intriniscally safe circuits, electrical instruments and electrical power circuits covered under Cold Work Permits in Section 8.

2. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the green HOT WORK PERMIT for his equipment. He or his designated representative must designate boundaries within which the permit applies and must insure that all necessary safety precau-

tions have been completed prior to the Chief Operator signing the permit.

When hot work is to be performed on equipment passing through or adjacent one processing area, but controlled from another, the Chief Operators from both processing areas are responsible for issuing the permit. This rule applies if the hot work to be performed is within approximately 50 feet of operating equipment. (Example: Oil Movements line in pipe rack adjacent a process unit.)

When hot work is to be performed on equipment in a non-processing area adjacent a processing area both the Chief Operator from the adjacent processing area and the Basic Equipment Owner of the non-processing area or his authorized representative are responsible for issuing the green HOT WORK PERMIT. (Example: road work adjacent a process unit.)

2. Maintenance Supervisor is primarily responsible for seeing that only the type of work covered by the permit is performed, and that conditions at the jobsite are safe for the scheduled work; also that hot work is confined to the area covered by the permit.

3. Mechanical personnel performing the work are responsible for checking the green HOT WORK PERMIT to be sure it is current, valid, and properly signed by the Chief Operator and Mechanical Supervisor. If any of the signatures are missing, work must not begin.

4. All persons at or near the hot work site must be constantly alert for any condition that could make hot work hazardous. If such a condition develops, all hot work and machines must be stopped at once. All personnel must immediately vacate the area and notify the Chief Operator or the nearest Process person of the hazardous condition. The green HOT WORK PERMIT is no longer valid and

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must be removed. All persons associated with the work must be notified. Before work may resume, a new green HOT WORK PERMIT must be issued. When Mechanical personnel leave the job (such as lunch break), they must check to see that conditions have not changed and the permit has not been removed before resuming hot work.

PROCEDURES

1. **Area Other than Enclosed Spaces and on Marine Docks** — For performing hot work in any area not designated as safe for routine performance of hot work, the following requirements apply:

a. Hot Work Planning — The Maintenance Supervisor will advise the Chief Operator of the nature and location of the hot work to be performed as well as the proposed timing. Normally this should be done at least one day before hot work is scheduled to begin.

b. Preparing for Hot Work — The Chief Operator will work with the Maintenance Supervisor to see that the area is prepared properly for hot work. The Chief Operator will see that the following work is completed:

(1) Clearing and Blinding — Check to make sure all blinding and clearing of equipment necessary for execution of hot work is completed. Equipment which has been removed from service for hot work and has contained flammable material or is connected to equipment that contains flammable material must be (1) blinded inerted and vented (2) blinded and cleaned or (3) disconnected and cleaned before issuing a green hot work permit. Opening and blinding of equipment requires a white opening or blinding permit as stipulated in Section 7.

(2) Remove Flammable Material — Check to make sure that no flammable liquids or solids

are spilled or trapped in or around equipment at the site of the proposed hot work.

(3) Prepare Sewers — Cover all sewer catch basins and manholes in vicinity of hot work. Catch basins containing flammable material must be flushed with water before covering. Also, check for and seal off sewer vents in the area that may present a hazard.

(4) Remove Trash — Remove other flammable materials such as trash, wood, or dry grass. Where hot work is to be carried out over dry grass, the area must be saturated with water before performing hot work, and a water hose left connected and readily accessible.

(5) Provide Fire-Fighting Equipment — Make sure that adequate fire-fighting equipment is at the jobsite. At least one fully charged fire extinguisher of a type and size designated as suitable must be provided where hot work is to be performed.

(6) Make Surrounding Area Safe — Check surrounding area for possible release of flammable vapors in the hot work area. Such things as safety valve discharges, leaks from pumps and/or compressors, valve packing leaks, etc., must be identified and necessary corrective action taken.

(7) Prepare for Hot Taps — For hot taps or other jobs requiring hot work on equipment in service, all requirements of the "Hot Tap Procedure Safety Standard" (Mechanical Division Safety Procedure No. 11) must be satisfied. Before the green HOT WORK PERMIT can be issued, the checklist attached to the above mentioned standard must be completed. The Chief Operator must make sure that his Operating Supervisor has ap-

EXX 003726

proved the work to be done and so note in the space provided on the back of the permit. Also, he must see that the Mechanical Engineering Department Inspector has checked for adequate metal thickness and initialed the space provided on the back side of the tag.

(8) Check Other Work in Area — The Chief Operator must check for active white OPENING AND/OR BLINDING PERMITS in the area of the hot work. A HOT WORK PERMIT must not be issued if work associated with existing white OPENING AND/OR BLINDING PERMIT could create a hazard by spill or gas release. All openings from which release of flammable material could occur are to be considered hazardous. The area of concern must cover the geographical limits where there is a remote possibility that sparks from hot work could come in contact with flammable materials from any opening. If such a possibility exists in the proposed hot work area, the white OPENING AND/OR BLINDING PERMIT must be killed. The green HOT WORK PERMIT shall not be issued until all openings from which flammable material could be released are blinded, and the area is cleared of flammable liquid or vapor.

(9) Provide for Overhead Hot Work — When hot work is to be performed in overhead locations, a suitable method for catching hot metal, electrode stubs, etc., must be provided where these materials would cause a fire hazard or when they would create a safety hazard when work is going on below.

(10) Safe Location of Welding Equipment — When electric welding is to be performed, the ground lead connection must be attached at a point within the area covered by the permit. The welding machine must be in the same area or an adjacent area approved

for nonrestricted movement of motorized equipment.

(11)Perform Gas Tests — The Chief Operator shall perform gas tests for explosivity, oxygen deficiency and toxic materials depending on the nature of the job.

c. Filling Out Green Card — After completion of all items covered in b above, the Chief Operator must double check the hot worksite. He and the Maintenance Supervisor will determine if a standby man or other special precautions are necessary. The Chief Operator or his designated representative will then fill out the green HOT WORK PERMIT and the checklist on the back side of the tag.

d. Maintenance Supervisor Site Inspection — The Maintenance Supervisor must also inspect the site to make sure all necessary work and checks have been completed. His signature on the green HOT WORK PERMIT indicates he checked the work area and agrees all is safe for hot work.

e. Chief Operator Site Inspection — When all is considered ready by both the Chief Operator and Maintenance Supervisor, and the Maintenance Supervisor has signed the permit, the Chief Operator will make a final site inspection and if all is safe for hot work, he will sign the permit signifying that hot work can begin.

f. Permit Duration and Disposition — Before the green HOT WORK PERMIT is issued, the Chief Operator and Maintenance Supervisor must agree on the expiration time and note same in the space provided on the permit. This decision on duration as well as disposition of the permit copies must be in accordance with the following guidelines:

(1) Eight-Hour Permit — Permits to do hot

EXX 003727

work in or around processing areas where flammable or toxic materials exist are normally eight-hour permits. Such a permit is good for the shift in which it was issued. It can be continued into the next mechanical shift only after the Chief Operator and Maintenance Supervisor for the new shift have inspected the site and are confident no changes have taken place. If there is any question, the Chief Operator must make a new gas test. Hot work on the new shift must not begin until the Chief Operator and the Maintenance Supervisor have signed the cardboard portion of the green permit. They must also sign the control center copy. If work continues into the third shift, the same procedure must be followed. Eight-hour permits are void at the end of 24 hours, and a new permit must be obtained if work is to continue.

When a green HOT WORK PERMIT is issued the cardboard portion must be placed in a conspicuous location at the jobsite by the Chief Operator or his designated representative. The original is to be kept in the Process Permit file. At the end of the Mechanical shift or at job completion, whichever comes first, the Mechanical Person must sign the carboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. Both copies must be retained for at least 24 hours after expiration and then discarded.

(2) Job Completion — Under certain conditions, a green HOT WORK PERMIT may be issued for the job duration. In general, it is when the job conditions at and surrounding the work area will not change and create a flammable or toxic material hazard. Examples of such jobs are: (1) construction of a new

Process unit; (2) a field pipe fabrication shop in an open area; (3) construction of a new tank in an open area; (4) during turnarounds when oil, gas, and chemical lines are blinded at the unit limits; and (5) no job completion cards can be issued inside an operating Process unit. The cardboard portion of the permit must be placed at the Maintenance Supervisor's jobsite office. The Chief Operator will keep the original on file in the Process permit file. Upon job completion, the Maintenance Supervisor must sign the cardboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. The Operating Supervisor must approve all job completion permits including *contract jobs*.

g. Hot Work Authorization — Only after all of the above items have been completed and green HOT WORK PERMIT has been signed by the Chief Operator and Maintenance Supervisor is hot work authorized. After the Chief Operator or his designated representative has personally hung the carboard portion of the permit in a conspicuous location at the job site, hot work can begin.

2. Marine Docks — For performing hot work on or under Marine Docks, all provisions given in the basic procedure above shall apply. In addition, the following work shall be completed and checks made before a green HOT WORK PERMIT can be issued.

a. Safe Tide Level — When hot work is to be performed under a dock, the tide level must be below any pipelines at the water level to prevent trapping oil between the pipelines, thus eliminating a possible source of combustible material.

b. Avoid Falling Materials — The hot work

EXX 003728

area must be isolated to prevent molten metal and/or any combustible material from falling into the water.

c. Remove Grating — Grating in the fender system must be removed in the hot work area when work is to be performed under a dock.

d. Secure Coast Guard Approval — The Docks' Operating Supervisor must secure approval of the Houston Coast Guard Port Captain prior to any hot work.

e. No hot work can be performed on any dock while a ship is berthed at that dock.

EXCEPTION: At Dock No. 1, hot work will be permitted 150 feet or more from vessels handling materials with a flash point of above 150F.

3. Enclosed Spaces — For performing hot work in enclosed spaces, all provisions given in the basic procedure above apply. In addition, the following work must be completed and/or checks made before a green HOT WORK PERMIT can be issued:

a. Obtain Yellow PERMIT TO ENTER — It may be necessary to enter an enclosed space to prepare for hot work. Before entering, a yellow "Permit to Enter" must be secured (see Section 6). Once the enclosed space has been prepared for hot work and a green "Hot Work Permit" has been issued, no yellow Permit to Enter tag is required for entering as long as the hot work permit is valid.

b. Other Requirements for Hot Work in Enclosed Spaces — After entry is made into the enclosed space, applicable portions of the basic Procedure above can be completed. In addition, the following must be performed and/or checks made before a green HOT WORK PERMIT can be issued:

(1) No Cylinders In Enclosed Spaces — Cylinders containing any type of flammable material must not be placed in an enclosed space where hot work is to be done. **EXCEPTION: In storage tanks where door sheets have been removed.**

(2) Thoroughly Clean — The enclosed space, including all internals, must be thoroughly cleaned and made safe for hot work. This includes freeing the container of all flammable gases, liquids, and solids as well as inert atmospheres and toxic materials.

(3) Provide Adequate Ventilation — A fresh air ventilation system must be provided and shall be adequate to remove fumes and gases created by the proposed hot work. If adequate ventilation is not possible, suitable respiratory protection must be used.

SPECIAL REQUIREMENTS

1. Work on Tank Cars — Hot work must not be done on tank cars while located at a loading rack.

2. 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 that has been in service of any kind, the vessel or equipment must be properly vented (unless the operation is performed under controlled conditions so that any over-pressuring will be avoided).

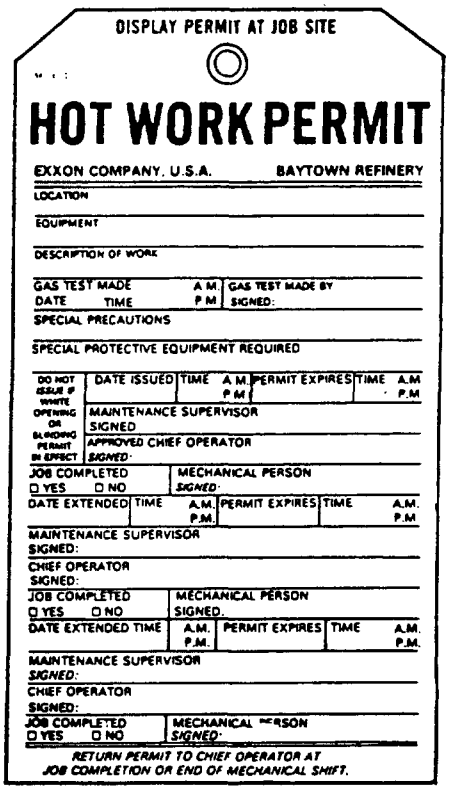
3. Gas Hoses In Confined Spaces — When gas hoses are used in connection with welding and/or burning in an enclosed space, the hoses must either (1) be removed from the enclosed space or (2) disconnected at the regulators at any time when positive ventilation is discontinued. A torch or other gas-consuming device must never be removed from a hose while inside a confined space. When torches are left unattended (such as lunch

EXX 003729

period, shift change, etc.), the gas supply must be positively shut off at a point outside the enclosed space or the hoses disconnected at the regulators.

4. Establishment of Smoking Permits — Requires written approval by the appropriate Department Head. Procedures for obtaining this approval are given in the Mechanical Operating Procedures Manual (S-13) and the Process Operating Practice Manual (S-6).

5. Hot Work by Process — When hot work is to be performed by Process personnel, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the green Hot Work Permit in space marked Maintenance Supervisor.



DISPLAY PERMIT AT JOB SITE

HOT WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. GAS TEST MADE BY SIGNED:

SPECIAL PRECAUTIONS

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DO NOT ISSUE IF WHITE OPENING OR BLANKING PERMIT IN EFFECT | DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED:

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED:

CHIEF OPERATOR SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED.

DATE EXTENDED TIME | A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED:

CHIEF OPERATOR SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED:

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Green Tag

EXX 003730

Section 6
PROCEDURE FOR ENTERING ENCLOSED SPACES

PURPOSE
This procedure is designed to protect personnel against such hazards as oxygen deficiency, toxic materials, flammable substances, and power-driven equipment when working in enclosed spaces. A yellow PERMIT TO ENTER tag is required to initially enter any enclosed space. If hot work is to be performed in an enclosed space, a yellow PERMIT TO ENTER tag is required to initially enter the enclosed space. This procedure is to be considered the minimum precautions for the safety of personnel entering enclosed spaces.

SPECIAL DEFINITIONS
1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of workmen are below the top of the confined space.

2. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

3. Standby — The person designated by the Chief Operator and/or the Maintenance Supervisor to warn persons in enclosed spaces of hazardous or emergency conditions that could affect their safety.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the yellow PERMIT TO ENTER for entry into enclosed spaces in his processing area. He or his designated representative is responsible for insuring that all necessary safety precautions have

been completed prior to issuance of the permit. The Chief Operator must make the necessary gas tests for explosivity, oxygen content and toxic materials depending upon the nature of the job. After the Maintenance Supervisor has signed the yellow Permit to Enter tag the Chief Operator must sign the permit signifying that all is safe for entry.

2. Maintenance Supervisor is responsible for obtaining the yellow PERMIT TO ENTER and assisting in final preparation of the enclosed space for entry. He must inspect the area and sign the tag to indicate his approval of the required safety precautions. He must see that all proper job safety precautions are followed and be alert for changing conditions that might affect the safety of the job.

3. Individual, before entering an enclosed space, shall assure himself that the necessary safety preparations have been made and that a current yellow PERMIT TO ENTER, properly filled out and signed by the Chief Operator and the Maintenance Supervisor has been posted at the job site.

4. Standby is responsible for assuring the well-being of persons working in enclosed spaces when breathing equipment is in use or when conditions are such that outside warning may be necessary.

PROCEDURE
1. Entering an Enclosed Space Without Protective Equipment

a. Preparing Enclosed Spaces for Entry — The Chief Operator will see that the enclosed space is emptied and purged in preparation for opening. Process personnel may also physically disconnect or blind the enclosed space in accordance with Section 7.

b. Requesting PERMIT TO OPEN AND/OR

EXX 003731

BLIND — The Maintenance Supervisor will request a white OPENING AND/OR BLINDING PERMIT from the Chief Operator in accordance with provisions of Section 7.

c. Isolating the Enclosed Space — If not already done by Process, the Maintenance Supervisor will insure that all connecting lines to the enclosed space are physically **disconnected** or **blinded** at a point as near to the enclosed space as is safely practical. Double block valves with an intervening bleeder are not considered equivalent to a blind where personnel bodily enter the space.

EXCEPTION: In steam, water, and air service, the use of double block valves with an intervening bleeder is acceptable provided the bleeder is open and clear and is at least one inch in size for lines four inches and larger. The double block valves shall be locked closed and the intervening bleeder locked open. Mechanical-type locks must be used.

d. Immobilizing of Power-Driven Equipment — Before entry, the Maintenance Supervisor will arrange for electrical equipment to be immobilized in accordance with the electrical lockout procedure. The power supply to other equipment driven by air, steam, internal combustion engines, or hydraulic fluid shall be blinded or disconnected.

e. Cleaning and Establishing Ventilation of Enclosed Space — The Maintenance Supervisor will clean the space if necessary and establish and place in operation a fresh air ventilating system.

EXCEPTION: No forced ventilation system is required where a natural draft is established and the Chief Operator and Maintenance Supervisor agree that entry is safe.

f. Gas Testing the Atmosphere of the Enclosed Space — The Chief Operator must satisfactorily test for explosivity, oxygen deficiency, and toxic materials.

(1) **Explosivity** — Entry will not be permitted unless the test indicates a safe range.

(2) **Oxygen Deficiency** — Entry will not be permitted unless oxygen concentration is greater than 19.5 percent.

(3) **Toxic Materials** — Entry will not be permitted unless test indicates a safe range.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes or depletion of oxygen exists.

g. Standby Requirement — A standby must be required and noted on the yellow PERMIT TO ENTER when the Chief Operator and/or the Maintenance Supervisor determines that an unsafe condition may develop during the course of the work. The standby must be equipped with a claxon horn and a unit radio for communications. A complete standby kit is required if the Chief Operator and/or the Maintenance Supervisor believe that a breathing hazard may develop.

h. Issuance of PERMIT TO ENTER — When the Maintenance Supervisor is satisfied that all requirements and safety precautions have been completed satisfactorily, he must complete applicable portions of the checklist and sign the permit. The Chief Operator will complete the permit, including the checklist, and sign the permit signifying that entry can be made. He or his designated representative will then post the cardboard portion of the permit in a conspicuous location at the jobsite and file the original paper portion in the Process permit file.

EXX 003732

i. Permit Duration and Disposition — A yellow PERMIT TO ENTER will have the same requirements for duration and disposition as a green HOT WORK PERMIT **except that no Job Completion type permits will be allowed.** 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 the appropriate box as to job completion, and return it to the Chief Operator.

2. Entering an Enclosed Space with Protective Equipment

Enclosed spaces to be entered with protective equipment must be emptied, cleaned of hazardous materials, and purged, insofar as practical, prior to entry. It must be physically isolated and all power-driven equipment immobilized as required in Part 1.

a. Required Tests — A yellow PERMIT TO ENTER will be issued only when the atmosphere in the enclosed space meets the following tests:

(1) Explosivity — Entry will not be permitted unless the test indicates a safe range.

(2) Oxygen Deficiency — If oxygen level is below 19.5 percent, entry will be permitted only with a pressure-demand, hose-line air mask.

(3) *Toxic Materials* — Entry will be permitted only with appropriate protective equipment.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes exists.

b. Required Protective Equipment — All personnel entering enclosed spaces 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 closed spaces is to be determined by the Chief Operator and the Maintenance Supervisor and indicated on the yellow PERMIT TO ENTER permit. The cardboard section of the permit must be posted at a conspicuous location at the jobsite. In the case of oxygen-deficient atmospheres, pressure-demand, hose-line air masks with self-contained life lines must be used and **Operating Supervisor approval obtained for entry.**

A standby is required when personnel are required to wear pressure-demand, hose-line air masks inside an enclosed space or the situation is such that outside warning is necessary. Scott Air-Paks are permissible in place of the pressure-demand, hose-line air masks for emergency or rescue use where life is in immediate danger.

3. Duties of Standby

a. Accounting for personnel working in the enclosed space.

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 the enclosed space in case of fire or disaster alarm.

f. Being well trained in the operation of respiratory equipment and administering of artificial respiration.

g. Maintaining an adequate air supply.

h. The standby should never attempt to enter the enclosed space even in an emergency until help has arrived.

EXX 003733

In order for standby equipment to be available for use, standby kits shall be checked out at the Refinery Storehouse at the same time the pressure-demand, hose-line unit is checked out for enclosed space entry.

SPECIAL REQUIREMENTS

1. Entry to Prepare for Hot Work — A yellow PERMIT TO ENTER is required to initially enter an enclosed space where hot work is to be performed. Once the necessary requirements have been met and a green HOT WORK PERMIT has been issued, no yellow PERMIT TO ENTER is required as long as a valid green HOT WORK PERMIT is in effect.

2. Entry by Process without Mechanical Involvement — When entry is made by Process personnel without mechanical personnel involvement, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the yellow PERMIT TO ENTER in the space marked Maintenance Supervisor.

3. Entry by Process Into Enclosed Pump Pits — A Process person may enter enclosed pump pits for Process functions without a written permit, provided the Process person performs a gas test to determine that the atmosphere is safe prior to entry.

4. Entry Into Boilers, Steam Generators, and Furnaces — For boilers, steam generators, and furnaces, the limits of the enclosed space must be clearly defined and agreed to by both Chief Operator and Maintenance Supervisor and so indicated on the permit tag. The limits of the enclosed space must be physical barriers which separate the enclosed space from other parts of the boiler, steam generator, or furnace. All the provisions of Section 6 "Procedure for Entering Enclosed Spaces" of the Safety Manual must be met for the defined enclosed space and, in addition, the provisions of Section 6-1C "Isolating the Enclosed Space" must be met for the entire boiler, steam generator, or furnace.

DISPLAY PERMIT AT JOB SITE

PERMIT TO ENTER

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M P.M | GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS | IS BREATHING EQUIPMENT REQUIRED? ☐ YES ☐ NO

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DATE ISSUED | TIME A.M P.M. | PERMIT EXPIRES | TIME A.M P.M.

MAINTENANCE SUPERVISOR
SIGNED

APPROVED CHIEF OPERATOR
SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED:

DATE EXTENDED | TIME A.M P.M. | PERMIT EXPIRES | TIME A.M P.M.

MAINTENANCE SUPERVISOR
SIGNED

CHIEF OPERATOR
SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED:

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M P.M.

MAINTENANCE SUPERVISOR
SIGNED:

CHIEF OPERATOR
SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED:

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Yellow Tag

EXX 003734

Section 7
OPENING AND/OR BLINDING PERMIT

PURPOSE
This permit procedure is designed to prevent accidents by insuring adequate communications between Process and Mechanical Personnel when opening and/or blinding equipment in a processing area. A white OPENING AND/OR BLINDING PERMIT shall be obtained before beginning such work.

SPECIAL 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.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the white OPENING AND/OR BLINDING PERMIT. He or his designated representative has the responsibility for preparing the equipment, determining if the surrounding area is safe for the proposed work, and listing any special safety precautions required.

2. Maintenance Supervisor is responsible for seeing that a permit is secured to perform work involving opening or blinding. He is also responsible to see that Mechanical Personnel work within the limits of the permit and that all stipulated safety precautions are taken.

PROCEDURES
1. Requesting Permit — The Maintenance Supervisor or his designated representative must request a permit from the Chief Operator.

2. Initiating Safety Inspection — The Chief Operator or his designated representative must perform a safety inspection of the area. He must check for other active permits, prepare the equipment, and identify all locations to be opened. If blinding is required, he must also prepare a blinding list.

3. Blinding Requirements — Generally all opened equipment must be blinded for hot work (see Section 5), for entering (see Section 6), and piping left unattended. The installation and removal of slip blinds and blind flanges (except daily closure blinds) shall be recorded on the blinding list.

Specific blinding requirements and exceptions are as follows:

a. Pumps — Minor repairs, such as small piping and seal replacement, may be performed without blinding provided (1) the suction and discharge valves 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 compited 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"

EXX 003735

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 4).

(2) Gas engines must be blinded and the fly wheel blocked.

(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. Piping — Unattended open Piping must be isolated with slip blinds or closed with blind flanges.

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

e. 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.

f. 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 must be secured with a "DANGER — DO NOT OPEN" tag attached by Process and a Mechanical lock placed on the valve by the Mechanical person 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.

g. 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, Process Personnel must prepare a blinding list indicating the size and location for all slip blinds and blind flanges to be installed.

5. Issuing Permit — Process and Mechanical Personnel must make a safety tour of the job site, 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 on the back of the cardboard section. When both Process and Mechanical Persons are satisfied that the provisions of Section 5 Item b(8) have been met and the task

EXX 003736

can be safely accomplished, then both will sign the permit.

The Process person must post the cardboard portion in a conspicuous place at the job site and file the original copy in the permit file.

EXCEPTIONS:

Process Personnel — Mechanical work by Process may be done without a written permit provided the Chief Operator has authorized the work.

Dock Personnel — Marine hookups on the dock may be performed by the Dock Connection Crew working under the direction of the Chief Operator without a written OPENING AND/OR BLINDING permit.

Unit Turnaround — During a unit turnaround, cleared items of equipment may be opened by verbal authorization of the Process Person designated as the Process/Mechanical contact coordinator, provided the following conditions are met:

a. All hydrocarbon and chemical lines are blinded at the unit limits.

b. Opening of equipment will not create a safety hazard for other work in progress.

c. All hot work in the area must be suspended while the equipment is being opened.

(1) If no hazard was created by the opened equipment, the Process contact coordinator may authorize the resumption of the hot work under the existing hot work permit.

(2) If a hazard was created (spill of hydrocarbons, flammable gas release, etc.), the hot work permit must be terminated. To resume work after the hazard has been eliminated, a new hot work permit must be issued.

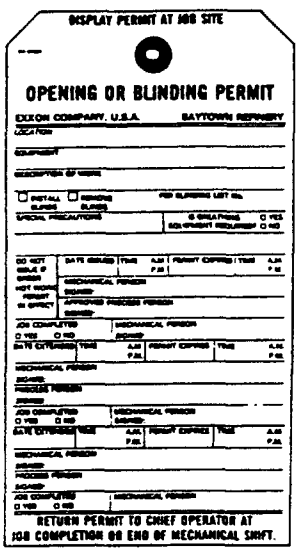
6. Blinding — The Mechanical Person must record each slip blind installed by signing and dating the blinding list. At the end of the mechanical shift or at completion of the blinding list, whichever comes first, the Mechanical Person must return the blinding list to the Chief Operator.

7. Permit Duration and Disposition — The permit is issued for one Mechanical shift. It may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours. 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 may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours.

8. Removing Blinds — The removal of blinds requires a new permit unless the work at the job site is continuous and is completed in 24 hours. The Process Person issuing the permit and the Mechanical Person accepting the permit must tour the area and physically identify the blinds to be removed. The Mechanical Person must sign and date the blinding list as each slip blind and blind flange is removed. After the last blind has been removed or at the end of the Mechanical shift, the Mechanical Person must sign and date the cardboard portion and return both the permit and blinding list to the Chief Operator.

9. Filing of Permits and Blinding Lists — Each permit must be filed for 24 hours after its expiration and then discarded. Blinding lists must be filed until all blinds have been removed. The blinding list may be discarded 24 hours after the last blind is removed.

EXX 003737


DISPLAY PERMIT AT JOB SITE

OPENING OR BLINDING PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

☐ INSTALL BLINDS ☐ REMOVE BLINDS FOR BLINDING LIST No.

SPECIAL PRECAUTIONS

H2S EVALUATION ☐ YES ☐ NO

RESPIRATORY EQUIPMENT REQUIRED ☐ YES ☐ NO

DO NOT ISSUE IF OPEN

NOT VALID UNLESS SIGNED

DATE ISSUED | TIME | A.M. P.M. | PERMIT EXPIRES | TIME | A.M. P.M.

MECHANICAL PERSON SIGNED

APPROVED PROCESS PERSON SIGNED

JOB COMPLETED ☐ YES ☐ NO

MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME | A.M. P.M. | PERMIT EXPIRES | TIME | A.M. P.M.

MECHANICAL PERSON SIGNED

PROCESS PERSON SIGNED

JOB COMPLETED ☐ YES ☐ NO

MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME | A.M. P.M. | PERMIT EXPIRES | TIME | A.M. P.M.

MECHANICAL PERSON SIGNED

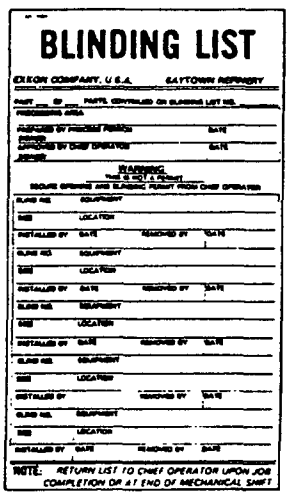
PROCESS PERSON SIGNED

JOB COMPLETED ☐ YES ☐ NO

MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

White Tag


BLINDING LIST

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

PART ___ OF ___ PARTS CONTAINED ON BLINDING LIST NO. ___

PROCESSING AREA

PURPOSE BY PROCESS PERSON DATE

APPROVED BY CHIEF OPERATOR DATE

AUTHORITY

WARNING
THIS IS NOT A PERMIT
ISSUE OPENING AND BLINDING PERMIT FROM CHIEF OPERATOR

BLIND NO. EQUIPMENT

SIZE LOCATION

INSTALLED BY DATE REMOVED BY DATE

NOTE: RETURN LIST TO CHIEF OPERATOR UPON JOB COMPLETION OR AT END OF MECHANICAL SHIFT

Buff Tag

Section 8
COLD WORK PERMIT

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 completed before work is started in a Process area.

SPECIAL DEFINITIONS
1. Cold Work — Any mechanical work on processing equipment including work on intrinsically safe circuits and energized electrical instruments and electrical power circuits that does not involve opening, blinding, entering, hot work, or electrical lockout.

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.

PROCEDURE
1. Initiating COLD WORK PERMIT — The Mechanical Person assigned to perform mechanical work in a processing area must fill in the date, time, area, equipment, and description of work

on the blue COLD WORK PERMIT. He will then contact the Chief Operator and secure approval before starting to work.

EXCEPTIONS: Blue COLD WORK PERMITS are not required:

a. When Process Personnel are performing mechanical work.

b. When the Dock Connection Crew is working in the dock area under instructions from the Chief Operator.

c. When instrument technicians and electricians who are regularly assigned to the processing area perform routine work authorized by the Chief Operator.

NOTICE: A COLD WORK PERMIT is required to work on energized electrical instruments and electrical power circuits above 100 volts.

d. When Technical or Laboratory personnel perform sampling and/or test work authorized by the Chief Operator.

e. When janitors perform janitorial-type work in the processing area.

f. *When contractor employees take work direction from Process Personnel.*

g. When Mechanical performs cold work in preparation for the issuance of other work permits on the same shift. Samples of such work are covering sewers, hooking up hoses, securing fire-fighting or safety equipment, hanging tarps, electrical lockout, etc.

h. When oil, gas and chemical lines are blinded at unit limits during unit turnarounds and work is being performed in accordance with the turnaround procedure.

EXX 003739

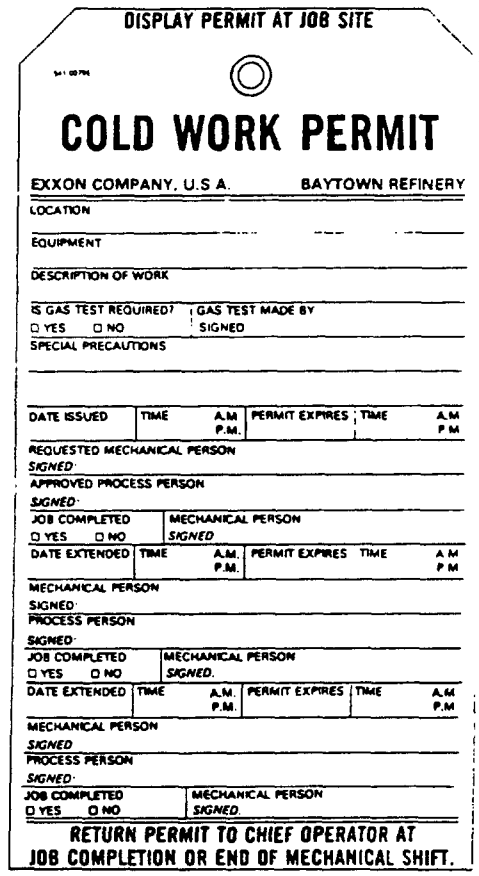
2. Making Safety Inspection — The Process Person designated to approve the permit must assure himself that the conditions at the job site are safe for the work. He must determine if a gas test is required and may make the gas test himself.

3. Issuing Permit — When both Process and Mechanical Persons are satisfied that the work can be safely performed in the area, each must sign the permit.

4. Posting Permit — The Mechanical person must display the cardboard portion in a conspicuous place at the job site. The Process Person must file the original portion in the permit file.

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. No permit shall be extended beyond 24 hours' total duration.



DISPLAY PERMIT AT JOB SITE

COLD WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

IS GAS TEST REQUIRED? ☐ YES ☐ NO | GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS

DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

REQUESTED MECHANICAL PERSON SIGNED:

APPROVED PROCESS PERSON SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MECHANICAL PERSON SIGNED:

PROCESS PERSON SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MECHANICAL PERSON SIGNED

PROCESS PERSON SIGNED:

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Light Blue Tag

EXX 003740

SECTION 9

SECURITY REGULATIONS

1. 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.

2. 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 job site. Contractor shall make arrangements so that vehicle drivers will know which gate to enter and the appropriate job site location.

3. Walks and Roadways

Walks and roadways will be designated for the use of Contractor when entering or leaving the job site, 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.

4. Contractor Employee Badges

Contractor's employees shall wear their Contractor's badge 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.

EXX 003741

5. 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.

6. 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 Contract Administrator. The Contract Administrator 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.

7. 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.

8. Gambling

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

9. 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 job site. Plant Security will obtain authorization from one of these people before passing such individuals into the

EXX 003742

Plant. Special permission shall be obtained from the Contract Administrator to admit union business agents or safety inspectors other than contractor employed into the Plant.

10. 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 shall be called in to 427-5711, extension 3600. 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.

11. Inspection of Lunch Boxes, Packages, Motor Vehicles, etc.

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

12. 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.

13. 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.

14. 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.

15. Fingerprinting

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

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SECTION 10

GENERAL REGULATIONS

1. Authorization to Start Work

Contractor and Subcontractors shall not start work until authorized by the Contract Administrator at the job site. Such authorization does not constitute authority to proceed with any work involving special permits as outlined in Exxon Refinery's Safety Manual. Contractor shall also secure approval from Contract Administrator before any materials are delivered to job site when material deliveries precede Contractor's arrival on site.

2. Contractor's Equipment

All Contractors moving trailer-type equipment within the Plant 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.

3. Explosives

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

4. 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 Contract Administrator.

5. 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 equipment without written approval of the Contract Administrator.

6. Damage to Owner's Property

If Contractor damages any of Owner's property, or property of any other contractor

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or subcontractor, the damage shall immediately be reported to the Contract Administrator.

7. 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 Contract Administrator.

8. 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 Contract Administrator. No tracked equipment having flat pavement treads shall be operated on a paved street without approval of the Contract Administrator.

9. 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 overnight.

10. Welding

Contractor shall 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 there is sufficient metal, as approved by the Contract Administrator, 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 downstream 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.

11. Securing of Temporary Buildings

All temporary buildings shall be tied down by the Contractor in accordance with the Contract Administrator's instructions, and applicable Baytown Engineering Standards.

12. Exit from the Plant

Contract employees, except for the driver, must dismount and walk through the gate when leaving the Refinery.

13. Non-English-Speaking Personnel

The ability to communicate with Contractor employees is essential to safe job execution. When the contract employee cannot speak English, the job foreman must be able to speak both English and the employee's language fluently. If there is reason to doubt the foreman's ability in this regard, a practical demonstration is in order. When the foreman cannot speak both English and the employee's language, the employee must either be placed under a foreman who can, or he must be prohibited from working in the Baytown Refinery.

14. Hurricane Precautions

The period between June 15 and October 15 is recognized as the hurricane season. Prior to this time, all material that is not needed for the job and that might become wind-borne in hurricane winds should be removed. That material still needed should be piled as compactly as possible. Provision should be made for tying down lightweight objects should the need arise. Scaffolds and some open-type structures should be dismantled if a hurricane approaches. Thus, there should be a plan formulated in advance to handle necessary actions, particularly in terms of the time and manpower required.

15. Contractor Accident Reporting

The contractor is responsible for notifying the Contract Administrator immediately:

a. Any time an ambulance is called;

b. In the event of any injury which could possibly result in lost time;

c. In the event of any incident which had serious potential, such as mobile equipment overturning, equipment contacting electric supply lines, etc.

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All injuries shall be reported on the Industrial Accident Board Standard Form for Employee's First Report of Injury or Illness — latest revision.

16. Emergency Evacuation Procedure

An emergency evacuation procedure form shall be completed by each Contractor prior to starting a contract. An assembly point should be chosen to provide a relatively safe, open area, in the event an emergency occurs that requires evacuation of all or part of the Refinery.

17. Contractor Safety Meetings

Each Contractor is strongly encouraged to hold a weekly safety meeting for his employees. Either a combined meeting of all the Contractor's employees in the Refinery or smaller meetings for each job or each foreman is suitable.

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an agency or other relationship is specified in the Subcontract Terms. Subcontractor has no authority to act or make any agreements or representation on behalf of General Contractor or Owner, and no contractual relationship exists between Subcontractor and Owner. No employee or agent engaged by Subcontractor shall be, or shall be deemed to be, an employee or agent of General Contractor or Owner. In the event General Contractor should, at the request of Subcontractor, furnish workmen to Subcontractor for any purpose to work under the direction and supervision of Subcontractor, such employees of General Contractor shall be deemed to be the borrowed servants of Subcontractor and Subcontractor shall be responsible for their actions while so engaged.

30. LAWS

This Subcontract is entered into in Houston, Texas, and shall be construed and governed by the laws of the State of Texas. Subcontractor shall comply with all laws, statutes, ordinances, rules and regulations of any governmental entity, having jurisdiction, and Subcontractor shall indemnify and hold harmless the Owner and General Contractor from any fines, penalties, costs or liability arising from Subcontractor's failure to comply therewith.

31. DISPUTES

All questions arising under this Subcontract shall be resolved in the first instance by General Contractor's project manager. No claim for additional compensation or extension of time shall be considered unless presented to General Contractor's project manager in writing within ten (10) days after the occurrence giving rise to the dispute. Any claim not satisfactorily resolved by General Contractor's project manager in the first instance, and which is presented in writing within the time provided, may be appealed by notice in writing to the project manager within ten (10) days after the project manager's initial decision, (a) to the engineer for the Project if the issue is interpretation of the drawings or specifications, or compliance of the Sublet Work therewith, in which event the engineer's decision shall be final, (b) to an Executive Officer of General Contractor as provided under Article 10 if the claim arises under Article 10., or (c) to an Executive Officer of General Contractor if any other question under the Subcontract is involved. Such review shall be a prerequisite to any further relief.

32. PROGRESS PAYMENTS AND FINAL PAYMENT

Progress payments will be made by General Contractor to Subcontractor monthly or at other intervals specified, in accordance with the Subcontract Terms. All progress payments are Trust Funds to be applied by Subcontractor to payment for labor, materials, equipment, services and supplies for the Sublet Work. With each request for progress payment, Subcontractor shall submit proper evidence, including affidavits and certificates, as may be requested by General Contractor showing: (a) the portion of the Sublet Work completed, (b) compliance with all requirements of this Subcontract, (c) payment of all bills, and (d) that no lien exists or could be claimed arising from the Sublet Work. General Contractor may withhold from progress payments ten percent (10%) of the amount earned, as retainage until final completion and acceptance (unless otherwise provided in the Subcontract terms), and in addition may withhold such amount as may be reasonably required to assure compliance by Subcontractor with the terms of this Subcontract. General Contractor may pay directly any obligation of Subcontractor arising under this Subcontract and withhold such payment from amounts otherwise due Subcontractor. Subcontractor shall submit with his request for final payment similar evidence and such expressions of warranty and indemnity as are required herein and a release of further claims against Owner or General Contractor. Subcontractor indemnifies General Contractor and Owner against any cost or liability, including attorney's fees, for failure of Subcontractor to perform all its obligations and pay all of its bills as required by this Subcontract.

33. APPLICATION TO COST REIMBURSEMENT TERMS

These General Conditions define the obligations, responsibilities and relationships of Subcontractor and General Contractor, and apply without change whether the terms for payment are fixed price or cost reimbursable or a combination thereof. The price and other payments to be made to Subcontractor for performance of the obligations of these General Conditions are provided for in the Subcontract Terms or other portions of this Subcontract.

34. NOTICES

Notices of changes, deficiencies, delays, claims or disputes shall be in writing, and shall furnish full information to the extent available. The party notified will acknowledge receipt by endorsement of a copy if requested, or will otherwise confirm receipt in writing. Ordinarily, notice will be given by delivery to the General Contractor's project manager, or Subcontractor's designated representative at the site, respectively, and mailing a copy to the address shown in the Subcontract Terms. To avoid difficulty in delivery of Notice, sufficient Notice shall be deemed to have been given by mailing by Registered or Certified Mail or equivalent, to the address shown in the Subcontract Terms.

35. INTEGRATION

The entire agreement between General Contractor and Subcontractor and all negotiations, proposals, representations and interpretations have been integrated into and superseded by the written provisions of this Subcontract. This Subcontract shall be valid and in force when signed by both parties and delivered and the parties understand that thereafter no person is authorized to amend this Subcontract except by agreement in writing and signed with equal formality. These General Conditions may be modified by the Special Conditions for the Project or by the Subcontract terms; and the Special Conditions for the Project may be modified by the Subcontract Terms, and as so modified it is intended that all terms and provisions of this Subcontract shall be construed in harmony and with equal dignity and effect.

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GENERAL CONDITIONS

1. INVESTIGATION OF SITE AND PROJECT CONDITIONS

Subcontractor represents that he is familiar with the site and the physical conditions, the availability of labor and materials and all other matters at the site or in the vicinity of the site which affects the Sublet Work. Subcontractor represents that he has examined the subcontract document and familiarized himself with the Project, the laws, rules and regulations relating to the Project; the environmental considerations affecting the Project and the Sublet Work; the participants in the Project; and the contractual and regulatory provisions of governmental agencies, the Owner and General Contractor affecting the participants in the Project and the Sublet Work. No allowance will be made to Subcontractor for not having made such examination and review or for requirements which a reasonable examination, inquiry and review would have disclosed.

2. RESPONSIBILITY

a. Subcontractor agrees to perform the Sublet Work in accordance with good construction practices and the plans, specifications and other requirements of this Subcontract, and to furnish all supervision, labor, supplies, tools, construction equipment, facilities, storage, permanent equipment and materials (except as specified herein to be furnished by Owner or General Contractor) and all other things and services necessary or desirable to perform the Sublet Work.

b. Subcontractor shall be responsible for the correctness of the positions, levels and dimensions of the Sublet Work, notwithstanding the Subcontractor may have been assisted by the General Contractor or any other Contractor in setting out the same; and if at any time during the performance of the Sublet Work, any error shall appear or arise therein, the Subcontractor shall immediately advise the General Contractor's Site Representative and await instructions for removal and replacement or performance of corrective work, before proceeding with that portion of the Sublet Work.

c. All work which is manifestly necessary to carry out the intent of the drawings and specifications pertaining to the Sublet Work, or which is customarily done in performing this type of work for the Owner or General Contractor, shall be performed by the Subcontractor as a part of the Sublet Work.

3. COORDINATION OF THE PROJECT

General Contractor is charged with the responsibility of accomplishing the work of the entire Project, or a significant portion thereof, in accordance with drawings, specifications, permits, licenses, rules and regulations, laws and ordinances, and requirements of the Owner. The contract price provisions, and the definition of requirements of the Sublet Work, as of the effective date, are coordinated and identified in the Subcontract Terms. General Contractor is charged with the responsibility of coordinating the efforts of all, or a significant portion of, the participants in the Project, including various subcontractors, specialty service contractors, suppliers, and other workmen, and the direct employees of General Contractor. Subcontractor agrees to perform the Sublet Work as part of the team of participants in the Project in cooperation with all other participants, and subject to all reasonable rules, regulations, and directives of General Contractor (a) for the coordination of the work of all participants, (b) for the maintenance of safety, efficiency, security and good order on the Project as a whole, (c) for compliance with the terms hereof, and (d) for the protection of the environment and the rights of the public.

4. SCHEDULING SUBLET WORK

Subcontractor agrees to commence the Sublet Work promptly when directed by General Contractor and to prosecute the Sublet Work diligently to completion. Subcontractor agrees to provide adequate number and types of: (a) laborers, skilled craftsmen and technicians, supervisors, administrators, and managers, (b) construction equipment in good condition, (c) materials, permanent equipment, and supplies, except for items specified to be supplied by General Contractor or Owner, to accomplish the work and maintain the Schedule or restore the Sublet Work to the Schedule. Subcontractor shall provide General Contractor a detailed Schedule for performance of the Sublet Work and shall revise and update such Schedule from time to time as the work on the Project progresses. The Schedule for the Sublet Work shall be subject to revision or approval by General Contractor to coordinate the Sublet Work with the over-all rate of progress of General Contractor and other participants in the Project as a whole, and to expedite performance of critical items of work on the schedule. General Contractor will schedule and coordinate the use by Subcontractor and others of jointly used facilities, construction equipment, and space, and Subcontractor shall accomodate its Schedule to such shared use. General Contractor will determine the normal working hours for the Project as a whole, and any special working hours for the Sublet Work on a normal shift or overtime basis will be subject to prior approval of General Contractor.

5. INTEGRATION WITH WORK OF OTHERS

Subcontractor shall inform itself regarding the nature, condition and state of progress of work of others which affects or connects with the Sublet Work. Before connecting Sublet Work to work of others, Subcontractor shall ascertain that such work of others is ready, properly aligned, and in suitable condition for such connection and integration with the Sublet Work, and shall report any discrepancies to General Contractor for adjustment prior to proceeding. Subcontractor is not charged with notice of latent defects in the work of others of which he has no actual knowledge.

6. ALLOCATION OF FACILITIES

General Contractor will designate for use by Subcontractor, entrances, parking areas, storage areas, office and work areas, and such facilities and construction equipment as General Contractor is to provide. General Contractor will allocate, and schedule the use of, such common facilities and utilities as are provided by General Contractor for use of Subcontractor and other participants in the Project. Temporary interruption of services, utilities and use of facilities are anticipated and shall not justify a claim for additional compensation.

7. INSPECTION AND QUALITY CONTROL

The Sublet Work shall be performed to the specified standards of workmanship and strictly in accordance with drawings, specifications, procedures, and other requirements of this Subcontract. General Contractor shall have the right to inspect the Sublet Work and Subcontractor's equipment, tools, records and facilities at all times. No work shall be covered until inspected and released in accordance with established inspection procedures, and any work improperly covered shall be uncovered and exposed by Subcontractor for inspection on request. Inspection and approval shall not relieve Subcontractor of the obligation to complete the entire Sublet Work in strict compliance with the requirements of this Subcontract. Any defective Sublet Work shall be discontinued, removed and replaced or corrected in accordance with specifications and directions of General Contractor. Subcontractor shall furnish for the Sublet Work all Quality Assurance and Quality Control documentation, as required by General Contractor for the Project as a whole or for the specific part thereof affected by the Sublet Work.

8. SAFETY, CLEANLINESS AND SANITATION

Subcontractor shall comply with all applicable laws, rules and regulations relating to safety. Subcontractor

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NOTE: This Affidavit is to be executed and returned with final or retainage invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT NO. 27-5712-5003

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

_____

Title: Name:

For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19____, to certify which witness my hand and seal of office.

_____

NOTARY PUBLIC

County of _____

State of _____

P-7 (1-77)

EXX 003750

NOTE: This Affidavit is to be executed and returned with final or retainage invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT NO. 27-5742-5003

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

Title: _____ Name: _____

For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19 _____, to certify which witness my hand and seal of office.

_____

NOTARY PUBLIC

County of _____

State of _____

P-7 (1-77)

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CONTRACTORS' RESPONSIBILITIES FOR SAFETY, PLANT SECURITY, AND TRAFFIC REGULATIONS

BAYTOWN REFINERY

APRIL 1, 1978

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Foreword
SAFETY POLICY

GENERAL

Safety is an integral part of the planning and execution of every job. It is the hallmark of efficient operations. An interested management, a knowledgeable and responsible supervisory staff, and a conscientious, well-trained work force, all concerned with the elimination of accidents in the overall performance of our work, will combine to make our organization safe and effective

Exxon Management recognizes its responsibility for healthful and safe working conditions and, through its technical and supervisory personnel and through various committee assignments, strives to provide those conditions. This is accomplished through safe working rules based on experience, safety knowledge, and competent work direction

Each employee has a personal responsibility for his own safety and for the safety of his fellow employees. He is expected to exercise good judgment, properly use and maintain the tools provided, adhere to the established working rules, and follow the directions of well-grounded supervision

Information on the application of safety rules and procedures is available in this Safety Manual, Exxon Engineering Standards, and various Process and Mechanical manuals. Technical help in the application of safety principles and safety equipment to specific situations is available through the Safety Coordinator, Industrial Hygienists, the Technical Division, and the Safe Operations Committee.

The safety rules contained in this manual apply to all employees of Exxon Company, U.S.A. and all *contractor employees* working in the Baytown Refinery. These rules specify minimum safety requirements that must be followed. Willful or negligent violation of any of these safety rules may result in disciplinary action, including discharge without notice *or in the case of contractor, cancellation of the contract.*

Overlapping Permits

Work permit procedures are established to promote effective communications and to insure that work is performed in a safe environment. Since the permit is issued for the job, only one work permit should be in effect for one job in one area at one time When more than one work group is involved on the same job in the same area, the "One Work Permit Rule" may lead to some confusion. Therefore, the Chief Operator will determine which of the two following alternatives is better for controlling the work in his area.

1. Issue one work permit for the job and have each Maintenance Supervisor who will perform work on the job sign the permit. The last work group to finish or the last Maintenance Supervisor to sign must turn in the work permit.

2. Issue a permit for the work each work group is to perform; but in absolutely no instance, must the permits conflict (i.e., work on one permit making work by another permit unsafe). For example: a permit to perform hot work and a permit to perform opening and blinding work

PROCEDURE FOR DEVIATING FROM THIS SAFETY MANUAL IN SPECIAL SITUATIONS

Where special conditions or situations exist that make the requirements stipulated in this manual impractical to follow on a routine basis, an alter-

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nate procedure may be developed. This alternative must be written, reviewed with the Safety Coordinator and approval obtained from the Process and/or Mechanical Superintendent before implementing. The approved alternate procedure must be filed in the Unit Area Section of the Process Unit Instructions Manual and/or the Mechanical Safety Notebook.

PROCEDURE FOR MAKING CHANGES TO THIS SAFETY MANUAL

It is the prerogative of Management to set aside any of these rules. However, before doing so, the approval of the Superintendent in charge must be obtained and the situation discussed with the Safety Coordinator ***and with the Contract Administrator in case of contractors.***

The Refinery Safety Coordinator is responsible for keeping this Safety Manual up to date, and he should be notified of desired additions or revisions. He will arrange for the preparation of additions or changes and obtain Management approval before inclusion into the Safety Manual.

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Section 1
GENERAL DEFINITIONS FOR SAFETY MANUAL

PERSONS

1. Chief Operator — The Process person who is responsible for Process operations in a processing area and has the authority to supervise Process personnel and issue work permits.

2. Contract Administrator — The Exxon Mechanical or Process supervisor assigned by the owner to assure that the contractor adheres to the plans, specifications, and Refinery safety rules.

3. Contractor — *The firm under contract to Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors by the prime contractor.*

4. Department Head — The person in charge of a Process department, i.e., Fuels, Specialties, Oil Movements, Utilities and Environmental Control, or Baytown Fuels Expansion.

5. Maintenance Supervisor — The Mechanical person, either Exxon or *contractor*, who has the authority to supervise the Mechanical work crew and is responsible for their work execution.

6. Mechanical Personnel or Person — Any of the Mechanical work crew (Supervisor, Craftsman, Trainee), either Exxon or *contractor*, performing work in the Refinery.

7. Owner — Exxon Company, U.S.A., Baytown Refinery.

8. Operating Supervisor — The second-line supervisor in Process and the immediate supervisor of the Chief Operators.

9. Process Personnel or Person — Any of the Process work crew (Chief Operator, Process Technician, or Process Technician Trainee) who has job responsibility for the assigned processing area.

10. Designated Representative — An Exxon Process Person, if designated by Chief Operator, or an Exxon Mechanical Person if designated by Maintenance Supervisor.

11. Standby — The person designated by the Chief Operator and or the maintenance supervisor to warn persons of hazardous or emergency conditions that could affect their safety.

PLACES

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of personnel working are below the top of the confined space.

2. Processing Area — Any area under the jurisdiction of Process personnel.

3. Refinery — The manufacturing facilities of Exxon Company, U.S.A. located in Baytown, Texas.

ACTIVITIES — CONDITIONS

1. Cold Work — Any mechanical work that does not involve hot work or opening, blinding, and entering processing equipment.

2. Hot Work — Any work requiring the use of burning or welding and brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete

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busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion actuated tools, electric hot plates, or any other flame- or spark-producing equipment.

3. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

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

5. Blinding — Installing temporary slip blinds into piping or blind flanges onto equipment for the purpose of isolating or closing processing equipment.

6. Flammable Material — Any material that will ignite and continue to burn in air.

7. Explosive Mixture — Any mixture of gas or vapor that will ignite (explode) when exposed to a source of ignition. Hot work or entry must not be permitted if tests indicate that the atmosphere contains greater than five percent of the lower explosive concentration of the combustible material (five percent of lower explosive limit).

8. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

9. Toxic Materials — Any substance (other than a radioactive substance) that has the capacity to produce personal injury or illness to man through ingestion, inhalation, or absorption through any body surface. If test for toxic vapors shows a

concentration greater than 10 percent of the published eight-hour limit for the substance, entry without protective equipment must not be permitted.

10. Must and May — "Must" is used in the manual to indicate mandatory compliance. "May" is used to indicate that good judgment shall be exercised.

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Section 2
SAFETY RULES

PURPOSE

The purpose of these personnel, equipment, and traffice safety rules is to specify **minimum** safety requirements that must be followed to prevent injury or death to persons and damage to property. These rules in their entirety apply to all persons, *including the contractor employees* working in Exxon Company, U.S.A.'s Baytown Refinery. *Additional requirements for contractors and their employees are shown in italic type throughout the manual.*

DEFINITIONS

Definitions of terms used throughout this manual will be found in Section 1. Special definitions that apply to a specific permit or work procedure are in the applicable section of this manual.

RESPONSIBILITIES

1. Supervisors are responsible for the health and safety of the people under their work direction. They must:

a. Set a good example.

b. Provide adequate instruction in and require compliance with:

(1) Accident prevention aspects of each job.

(2) Use and application of appropriate protective clothing, equipment, and devices.

(3) Use or application of tools and equipment.

c. Cooperate with others where the safety aspects of a job require coordinating the efforts of one or more work groups. This includes, but is not limited to, the securing and/or issuing of a yellow PERMIT TO ENTER, green HOT WORK PERMIT, white OPENING AND/OR BLINDING PERMIT, blue COLD WORK PERMIT, or ELECTRICAL LOCKOUT PROCEDURES.

d. Develop a safe work plan for the job to be done and see that the plan is well understood and followed.

e. Require additional accident prevention measures, other than those contained in this safety manual, if, in any supervisor's opinion, they are necessary. In instances or situations not specifically covered herein, it is expected that they will be handled within the guidelines contained in this manual. **Safety is not to be sacrificed for production.**

2. Individuals, Exxon *and contractor,* working in the Baytown Refinery are responsible for their own safey and for the safety of other workers and for reporting injuries to themselves or others to their appropriate supervisor. Each person must assure himself that his work situation is safe and that he has adequate instructions, proper tools, and proper protective clothing and equipment. He must also make sure that necessary work permits have been obtained and are valid over the *term of his shift.*

As a minimum, each person must adhere to the following safety regulations:

a. Clothing and Protective Equipment

(1) Clothing contaminated with oil, hazardous liquids, or chemicals must not be worn. If a person is inadvertently sprayed or contacted by oils, hazardous liquid, or chemicals, the clothing must be removed as quickly as practical, the affected parts washed with soap and water, and the situation reported to the supervisor *and to the Exxon supervisor in charge or Contract Administrator in case of contractors.*

(2) Protective clothing that fully covers the

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body (arms, legs, shoulders, feet, etc.) must be worn in work areas. This includes long sleeves unless wearing long sleeves creates a greater hazard than not wearing them — such as Machinists around rotating equipment or Linemen working on overhead electrical lines on poles. The wearing of canvas-type shoes, thongs, and similar type footwear in work areas is prohibited. Exceptions must be approved by the Department Head after consultation with the Safety Coordinator.

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

(4) Safety hats and safety glasses must be worn in all areas of the Refinery except at certain locations specified by the Department Head after consultation with the Safety Coordinator.

EXCEPTION: Welders need not wear safety hats while welding.

(5) Contact lenses must not be worn inside the Refinery. Employees with unusual visual problems requiring the wearing of contact lenses must use appropriate eye protection as recommended by a medical doctor depending on occupational exposure. (For Exxon employees, the Medical Department will recommend appropriate eye protection.)

(6) Goggles and/or safety glasses with side shields must be worn in those areas where the possibility of flying objects exists.

(7) Chemical goggles must be worn in those areas where exposure to chemicals or liquid hazards exist.

(8) Respiratory protection must 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).

(9) Special protective clothing for the particular hazard must be worn where there is a possibility of exposure to acid, caustic, or other hazardous material.

(10) Bright-colored vests or equivalent highly visible attire must be worn by members of survey parties when working on or adjacent roads.

(11) Safety belts attached to an independently supported line must be worn:

(a) When working from scaffolds, platforms, or any other surfaces that 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.

(12) Approved ear protection such as ear plugs, disposable plugs, Swedish wool (cotton is unacceptable), or ear muffs must be worn when working in areas designated with warning signs as "high noise area." Ear protection is required when using tools marked "caution-hearing protection required when using this tool" and in areas where equipment or tools generate sufficient noise to make normal conversation difficult.

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b. Entering Processing Area

No person shall enter a processing area (including firewalls of operating tanks) without the permission of the Chief Operator or his designated representative. Chief Operator permission is also required when motorized equipment initially enters a closed processing area (radio or telephone approval by dispatcher is acceptable). No further permission is required as long as mechanical work is continuous. Once work is interrupted, such as for lunch breaks, permission must again be obtained. Vehicles entering these areas may be required to have sparkproof mufflers or their equivalent as required by the Chief Operator *or the Contract Administrator in the case of contractor vehicles*.

c. Working Over or Near Water

The U.S. Coast Guard approved life preservers must be worn when working on barges or directly over water, such as under the docks, from a boat, above pits, etc.

d. Working On or Over Machinery

(1) Do not work on moving machinery or above open operating machinery unless it is impractical to shut down the equipment. In such instances, secure Maintenance Supervisor's and or Chief Operator's approval and take necessary precautions before proceeding.

(2) Do not start up machinery unless all guards are in place.

EXCEPTION: In temporary situations where guards must be removed to make running adjustments, secure Maintenance Supervisor's and/or Chief Operator's approval before proceeding.

e. Guarding

(1) Temporary openings in floors, handrails, etc., must be guarded to prevent falling. Restore permanent handrails and guardrails immediately after need for opening has ended.

(2) Open excavations or manholes must be guarded or covered before leaving the job and during the job if practical.

(3) Areas into which materials or tools are to be deliberately dropped or thrown must be guarded or protected.

f. Housekeeping

(1) Aisles, passageways, stairs, platforms, and ladders must be kept clear of all unnecessary obstructions.

(2) Protruding nails that present a snag or puncture hazard must be removed or bent down.

(3) Worksite must be kept clean and orderly.

(4) Debris (including mud from wheels) that falls from transporting vehicles must be picked up.

g. Smoking and Matches

Smoking in the Refinery except at approved locations is prohibited. "Strike-anywhere" matches must not be brought into the Refinery.

h. Hand and Power Tools — Portable Machinery

(1) Defective tools must not be used.

(2) Tools must not be subject to undue stress or used for purposes for which they are not designed. Makeshift tools must not be used.

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(3) Portable Machinery must be shut down for repair work. *If* it is impractical to stop or shut the equipment down before working on it, secure Maintenance Supervisor's approval before proceeding.

(4) Abrasive wheel tool rests must be adjusted to within ⅛-inch maximum of the wheel. Do not use abrasive wheels that are visibly in bad order.

(5) High-speed abrasive wheels must be properly guarded as required. Do not stand in line of unguarded wheels.

(6) Tools must not be started or used unless all required guards are in place

I. Electrical Tools and Equipment

(1) Electrical switches must not be operated without full knowledge that the results will not constitute a safety hazard.

(2) Portable electrical tools, metal buildings with electrical service, and electrical equipment (including motor-driven welding machines and portable generators) must be grounded. Report them to the Maintenance Supervisor if they are found to be defective.

EXCEPTION: Double insulated tools and engine driven welding machines may be used without grounding.

(3) General purpose two- or three-cell flashlights (1.5 volts per cell) may be used everywhere except where use is prohibited by governmental agencies, such as at the docks.

(4) Explosionproof, approved portable lights (Underwriters Laboratory or Bureau of Mines approved) must be used where hot work is not authorized. This includes portable explosionproof hand lamps, portable explosionproof floodlights, and extension cords (plug boards) with explosionproof fixtures.

EXCEPTION: Fixed-mount, take-up, reel-type mechanic's lamp or other special appliances that have been specifically approved by the Department Head.

(5) Vaporproof globes must not be removed except for cleaning, repairing, or replacing lamps. Explosionproof fixtures shall be opened only by authorized persons.

J. Ladders and Scaffolds

(1) Ladders must be checked to insure that they are in good condition before use. Portable ladders must either be held or lashed securely while in use. Where practical, the siderails shall extend at least 36 inches above the landing.

(2) Ladders must be located where possible where they cannot be bumped. When located in areas such as in front of a door, in the street or aisles, etc., adequate precautions must be taken to protect both the climber and others who may be in the area.

(3) Good working techniques must be used when climbing, working from, or descending a ladder, such as holding with both hands and keeping the body within the siderails of the ladder.

(4) Scaffolds must be constructed to support at least four times the maximum intended load without failure.

(5) Platform planks must be laid with their edges close together so that there are no spaces large enough for tools or fragments of materials to fall through.

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(6) Swing scaffolds must be lowered and lashed at the end of the shift.

(7) Access ladders or other safe means of access to all scaffolds must be provided.

(8) Standard handrails and toe boards must be provided on all scaffolds 10 feet or more in height.

(9) Tools or materials on scaffold platforms must be placed in such a manner that they will not create a tripping hazard or become dislodged and fall.

(10) Alterations to scaffolds must be reported to the appropriate supervisor.

(11) Non Conductive ladders or scaffolds must be used when working on open energized electrical circuits.

k. Excavations

(1) Do not enter or work in excavations that will require a person's head to be below the level of the ground until.

(a) Obtaining a yellow PERMIT TO ENTER,

(b) Shoring or sloping the excavation to prevent sloughing of earth.

(c) Effectively storing or retaining excavated material at least two feet from the edge of the excavation and

(d) A ladder or ramp for safe entrance and exit has been provided.

(2) Guard or cover all excavations before leaving job, and during the job if practical.

(3) RED CONCRETE UNDERGROUND signifies the presence of an electrical circuit. Stop excavating and notify the Maintenance Supervisor *and the Contract Administrator in case of contractor employees.*

l. Connections Into Existing Pipelines, Equipment, or Service

After a tie-in has been made connecting new construction to existing lines, equipment, or sewers, the whole pipeing equipment or sewer system involved must be considered the same as existing lines and equipment; and applicable work permits must be obtained from the Chief Operator before additional work can be done on any of these lines or equipment. After new sewers have been tied into the sewer system, any hot work in the area of the new sewer must terminate. Any further hot work requires a new HOT WORK PERMIT.

m. Railroad

(1) Constructing or placing any permanent or temporary obstructions closer than eight feet six inches horizontally from the centerline of the track or 22 feet vertically from any top of rail is prohibited without specific authorization from the Exxon Supervisor responsible for railroad trackage.

(2) Riding on railroad equipment is prohibited.

(3) Tank car ladders and hand irons must be used. Do not jump from loading rack to tank car, from car to car, or from car to ground.

n. Hoisting Equipment

(1) Keep clear of suspended loads.

(2) Hoisting equipment must be operated so as not to endanger other people or damage equipment in the operating area.

(3) Blocks, hooks, balls, or crane loads must not be ridden. Approved sling or bosun chair must be used.

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(4) Loads suspended from mobile equipment must be secured to prevent swinging and the hoisting operator must remain at the controls.

(5) Guy lines, mooring lines, or load lines must not be placed in such a position that they will tighten against operating equipment, pipelines, tanks, or machinery.

(6) Insulating swivels must be used on all bosun chairs or baskets when supporting a welder.

o. Hazardous Materials

(1) Note locations of eyewash fountains and safety showers and know how they work.

(2) Labeled containers must be used for handling hazardous materials.

(3) Dismantled or relocated equipment that has been in "hazardous material" service must be identified by tagging or other physical marking.

(4) Solvents for cleaning purposes must be varsol, or other approved materials.

(5) High boiling point materials (above 700°F) from catalytic cracking operations or other highly aromatic or toxic materials are hazardous and precautions must be taken to prevent breathing of vapor or contacting the skin. If these oils do come in contact with the skin, they must be washed off promptly with soap and water.

(6) Appropriate Process Unit Instructions (PUI) or Mechanical Operating Practices (MOP) must be followed when working in areas where toxic materials are present.

p. Compressed Air — Yard System

(1) Compressed yard air must not be used to clean clothing or personnel except at outlets that are especially equipped to permit a maximum pressure of 30 psi.

(2) Compressed air must not be used to open plugged sewers.

(3) Compressed yard air must not be used for breathing purposes.

q. Warning Signs

Caution and warning signs must be obeyed including use of specified protective or safety equipment.

r. Compressed Gas Cylinders — Transportation, Storage, and Use

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

(1) Protective caps must be in place when cylinders not in use.

(2) Full cylinders (except chlorine) must be stored and transported in vertical position with caps on. Chlorine cylinders must be transported in the horizontal position. Separate oxygen cylinders in storage from fuel gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least five feet high, having a fire-resistance rating of at least one-half hour.

(3) Holders, chains, or keepers must be used to prevent overturning.

(4) Empty cylinders, except acetylene, may be stored and transported in a horizontal position. Acetylene cylinders must be vertical at all times.

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(5) Cylinders in a vertical position must be secured with a suitable keeper while connected to equipment.

(6) Pure oxygen and chlorine must not be allowed to contact hydrocarbons in any form.

(7) Rough handling of cylinders must be avoided.

(8) Oxygen or acetylene must not be used for testing purposes.

(9) Hazardous compressed gases must not be released into enclosed spaces.

(10) Compressed bottled gases must not be used to clean clothing or personnel.

(11) Oxygen or acetylene cylinders must not be taken into enclosed spaces except into storage tanks where door sheet has been removed.

(12) Repair of leaking compressed gas cylinders must not be attempted. If cylinder can be moved, move to a safe location and allow to depressure itself. If it cannot be moved safely, clear area and allow the cylinder to depressure. If the cylinder is chlorine, evacuate the area and initiate procedure outlined in MOP-C4. *If leak involves contractor cylinders, the Contract Administrator must be immediately notified.*

s. Fire Prevention — Fire Fighting

(1) No one shall go to the scene of a fire unless directly involved or assigned to fire-fighting activities. Others not having operating duties shall evacuate the fire area. *Contractor employees must proceed to a prearranged assembly area.*

(2) Fire-fighting equipment access must not be blocked by traffic or other equipment.

(3) Electrical fires must not be fought with a solid stream of water. Water fog may be applied to an electrical fire only by an Exxon fire fighter.

t. Working in the Vicinity of Electric Lines

When it is necessary to operate cranes or derricks or perform other work within 10 feet of open electric lines (measured radially), the Maintenance Supervisor must consult the Utilities Chief Operator *or the Contract Administrator in the case of contractor work* to determine whether the electric lines can be deenergized. No work can proceed until the electric lines have been deenergized or until guards have been installed. Install approved guards when it is necessary to install guy lines across any electric lines to prevent guy lines from coming in contact with the electric lines. All work on open electric lines must be done in accordance with Mechanical Safety Procedure No. 8.

u. Refueling Vehicles and Equipment

Dispensing gasoline and fuel must be done through a pump and hose. If not possible, approved (Underwriters Laboratory or Factor Manual approved container for flammable liquid) safety cans with flexible spouts must be used. Vehicles and equipment engines must be turned off during refueling.

v. Potable Water

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

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w. Asbestos Cement Roof
When installing or working on an asbestos cement roof, workers must use a spreader board or roofer ladder to distribute their weight over a minimum of two purlins.

TRAFFIC SAFETY REGULATIONS

Unless covered by a specific regulation in this Safety Manual, traffice regulations for safe driving inside the Refinery are the same as the regulations of the State of Texas Motor Vehicle Laws.

1. Equipment and Identification Required on Motor Vehicles
All motor vehicles in the Refinery must be in safe operating condition. When entering the Refinery, 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: (a) brakes; (b) lights — two headlights, tail lights, brake lights; (c) horn; (d) muffler; (e) safety glass; (f) windshield wiper and rear-view mirror; and (g) 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. *Contractors' self-propelled, rubber-tired equipment must have contractor's name or insignia prominantly displayed on both sides of the vehicle.*

2. Driver's License
Persons operating motor vehicles in the Refinery must have a valid operator's (automobile) license as a minimum.

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

4. 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.

5. "Road Closed" Signs
Areas blocked by traffic barriers and/or "road closed" signs are closed to all traffic. Follow procedure specified in PUI-S5 for blocking Refinery streets.

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

7. 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.

8. 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.

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9. Passengers

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

b. 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.

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

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

10. Vehicles Prohibited

Motor bicycles or motorcycles are not permitted inside the Refinery except to and from the designated "motorcycle only" parking areas provided near gates. Campers and recreational vehicles are not permitted in the Refinery 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 Refinery.

11. Vehicle Entry into Processing Areas

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.

12. 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 Refinery. All vehicles must be equipped with adequate rear-view devices.

13. 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.

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Section 3

CONTRACTOR'S SAFETY RESPONSIBILITIES

PURPOSE

The purpose of the personnel and equipment safety regulations contained in this section is to set out safety requirements for contractors, which are in addition to those contained in other sections of this manual. Each contractor must take any additional precautions necessary or proper under the circumstances to prevent injury or death to persons or damage to property

SPECIAL DEFINITIONS

1. Owner – *For purposes of these safety regulations, "owner" shall mean Exxon Company, U.S.A. (a division of Exxon Corporation).*

2. Contract Administrator – *The person assigned by the owner to assure contractor adherence to the contract provisions*

3. Contractor – *The firm that has been contracted by the Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors to the prime contractor.*

4. Maintenance Supervisor – *The Mechanical person, either Exxon or contractor, who has the authority to supervise the Mechanical work crew and the responsibility for their work execution. As used in this section, the Maintenance Supervisor refers specifically to the contractor first line supervisor*

RESPONSIBILITIES

1. Contractor, *as an independent contractor, is responsible for performing work under the contract in a healthful and safe manner including protecting the safety and welfare of other contractors and the owner's personnel and equipment. 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.

a. *The contractor is responsible for informing his employees of the required safety rules and that the employees adhere to said rules.*

b. *The prime contractor is responsible for assuring compliance with these regulations by all subcontractors and their employees. Contractor must notify its employees, its subcontractors, and the employees of its subcontractors of these provisions of the regulations and shall secure compliance therewith by all such parties; and contractor must not allow any of such persons to begin work inside the Baytown Refinery until such notification has been given them.*

c. *Contractor must observe and comply with the Texas Occupational Safety Act (Article 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 apply to all subcontractors and their employees as well as to the contractor and its employees.*

d. *Nothing contained in these regulations shall be interpreted to enlarge the legal duty of the owner to the contractor, his agents, employees, or subcontractors.*

2. Maintenance Supervisors *are responsible for the safe conduct of their jobs and for the safety of the persons under their direction. Specific supervisory responsibilities are contained in Section 1-2 of this manual. Each Maintenance Supervisor is responsible for assuring that each individual under his direction un-*

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derstands and adheres to the safety rules contained in Section 1-2 of this manual.

3. Individual person doing work in the Refinery must assure himself that the work situation is safe and that he has the proper instructions, tools, and protective equipment. Each person must become familiar with and adhere to the safety rules contained in Section 1-2 of this manual.

4. Contract Administrator will monitor the contractor's performance to assure safe execution of the work specified in the contract. He will, on proper request, assist the contractor in dealing with other owner personnel to obtain safety permits and to implement other safety related procedures. He will insure that all contractor's Maintenance Supervisors are properly indoctrinated in the relevant safety regulations.

PROCEDURES

1. Work Execution

All work in processing areas must be performed with the approval of the Chief Operator responsible for the area. The Maintenance Supervisor must coordinate his work through the Chief Operator and must keep him informed as to the number, location, and activities of contract personnel. Any work performed after normal working hours and on weekends and holidays requires authorization by the owner. Such authorization will be obtained by the Contract Administrator.

2. Required Work Permits and Procedures

Before beginning any work in processing areas, an appropriate permit must be obtained from the Chief Operator or his designated representative. Required work permits and procedures are:

a. Electrical Lockout Procedures – Section 4.

b. Hot Work Permits – Section 5.

c. Permit to Enter Enclosed Spaces – Section 6.

d. Opening or Blinding Permit – Section 7.

e. Cold Work Permit – Section 8.

Other work procedures may be specified in specialized work situations such as hot tap procedure, procedure for cleaning tanks, etc.

3. Oil and Chemical Spills

Any hydrocarbon or chemical spill, whether accidental or otherwise, must be reported to the Chief Operator and the Contract Administrator.

4. Connections Into Owner's Utilities Systems

Permission must be obtained from Contract Administrator prior to connecting into owner's utility system such as, but not limited to, water, air, nitrogen, and steam systems. Each connection shall be guarded by a check valve. When taking water from fire hydrants, the center valve must be opened completely.

5. Contractor's Equipment

a. All equipment brought into the Refinery by contractors must be in safe operating condition. Authorized owner personnel may at any time inspect contractor's equipment. Such inspection or failure to inspect does not relieve the contractor of its responsibilities for the safe condition of its equipment.

b. Equipment must be operated only by properly licensed persons.

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

6. Working Over or Near Water

a. Ring Buoys with at least 90 feet of line must be readily available for rescue operations. Distance between ring buoys must not exceed 200 feet.

b. A life saving skiff must be immediately available

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at locations where persons are working over or adjacent water.

7. Work Involving Use of Ionizing Radiation

Contractors must not perform any work involving the use of ionizing radiation without notification to the Exxon Supervisor in charge or the Contract Administrator. A COLD WORK PERMIT must be obtained if radio isotopes are used, a HOT WORK PERMIT is required if an Industrial Xray Unit is used to perform this type work in processing areas. Contractors must comply with "Texas Regulations for Control of Radiation," latest edition, Texas State Department of Health, Division of Occupational 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 enenergy surveys of contractor's equipment and their uses on owner's premises.

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Section 4

ELECTRICAL LOCKOUT PROCEDURES

ELECTRICAL CIRCUITS AND ELECTRICALLY POWERED EQUIPMENT

PURPOSE

The purpose of these procedures is to protect anyone who works on either electrical circuits or electrically powered equipment from injury or death.

SPECIAL DEFINITIONS

Electrical circuits and electrically powered equipment do not include (1) lighting circuits for the purpose of relamping, (2) circuits of less than 100 volts, or (3) circuits that must remain energized. For circuits that must remain energized, a blue COLD WORK PERMIT may be required (see section 8).

RESPONSIBILITIES

1. **Process person** is responsible for isolating and preparing the equipment to assure it is in safe condition for mechanical work.

2. **Person performing work** is responsible for assuring himself that the equipment is safe for him to do his prescribed work, and that he has tagged and locked out the equipment in accordance with the electrical lockout procedures.

3. ***Contractor Administrator*** *is the contractor's contact with Process personnel for performing work under the electrical lockout procedure.*

PROCEDURE

1. **Lockout Procedures** — Before anyone works on electrical circuits or electrically powered equipment where they could be endangered, the electrical supply must be turned off and locked out in accordance with the following procedures:

a. Shut Equipment Down — The Process person must shut the equipment down at the local start-stop switch or local "Hand-Off-Auto" switch. In case there are remote start-stop switches on this equipment, he must notify other operating personnel responsible for operating the remote start-stop switches and request that a white DO NOT OPERATE tag be placed on the start-stop switches. If the start-stop switch is located on a control panel, then it must be covered with a section of DO NOT OPERATE pressure-sensitive tape.

b. Lock and Tag Disconnect Switch — The Process person must turn the disconnect switch to the off position, lock it with a Process lock, and tag it with the white DO NOT OPERATE tag. If a Process or another person is to work on the equipment, the Process person must use a multiple lockout adapter. The Process operations lock must be in the position closest to the switch. All Process locks will be identical, and the same key will unlock all of them.

c. Check Disconnect and Tag — The Process person must try the local pushbutton station to be sure the correct disconnect switch is locked out. When the local control station is a "Hand-Off-Auto" selector switch the process person must lock the switch in the "Off" position. He must then tag the pushbutton or selector switch with a white DO NOT OPERATE tag.

d. Enter in Log — The Process person must enter the "lockout" in the Process log book.

e. Apply Mechanical Lock — Before mechanical work is performed on equipment, a mechanical lock must be applied by the person performing the work.

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(1) Mechanical Person — Each Mechanical person who works on the equipment must first add his own lock and a red DO NOT OPERATE tag on which he will write his name, skill, and the date. It is the responsibility of each person working on the equipment to assure his own safety by keeping his tag and individual lock on the disconnect switch while he works on the equipment. If two or more people in the same craft are working together on the equipment, only one mechanical lock and red DO NOT OPERATE tag are required. *If a contractor employee is doing the work, he must use an Exxon mechanical-type lock and the appropriate electrical lockout procedures tag obtained from the Contract Administrator. He must write on the tag his name and the name of the contractor firm.*

(2) Process Person — When a Process person is to perform work on the equipment, he must obtain his individual mechanical-type lock and key from the supply in the control room or center and then follow the above procedures in e(1).

f. Remove Lock and Tag — Locks and DO NOT OPERATE tags must be removed as follows:

(1) Remove Mechanical Lock and Tag — As each person finishes his work, he must remove his own lock and red DO NOT OPERATE tag. At the end of his work shift, he must remove his lock and tag whether his work is finished or not. This does not include the original Process lock or white DO NOT OPERATE tag.

(2) Remove Process Lock or Locks and Tags — The Process lock or locks must be the last to be removed. When the local control station is a "Hand-off-Auto" selector switch the lock on this selector switch must be the last removed. The Process person, after determining that it is safe to do so, must remove the Process lock or locks and white DO NOT OPERATE tags and must notify other operating personnel to remove the white DO NOT OPERATE tags or DO NOT OPERATE pressure-sensitive tape from remote start-stop switches. He must then enter the lock removal in the log book.

(3) Emergency Lock Removal — If it becomes necessary to remove a lock by other than the Mechanical person who installed it, only the Shift Superintendent is allowed to remove it. Upon removal of the lock, the Shift Superintendent must send a note to the Department Heads of the Process and Mechanical Departments stating whose lock was removed, where it was located, and why it was removed. A log of the same information must be maintained in the Shift Superintendent's office. A master key for the mechanical person's locks must be kept at the Shift Superintendent's office only.

2. Wiring Disconnect Procedures — For some types of work, the lockout procedure alone is not adequate. Such work includes, but is not restricted to, the following: (1) work on fans inside cooling towers, (2) work inside confined spaces containing electrically powered equipment such as mixers or filters or electrodes (desalters), and (3) work on equipment where the switch controls more than the one piece of equipment. In such cases, this wiring disconnect procedure must be followed:

a. Lockout Equipment — The disconnect switch must be locked out in accordance with the electrical lockout procedure in Paragraph 4a of this section.

b. Check and Disconnect Circuit — After making sure the circuit is clear by checking with a

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voltage tester, the Mechanical or Process person must disconnect the wires and tape them together.

c. Tag Circuit— The Mechanical or Process person must tag the disconnect switch with a yellow WIRING DISCONNECTED tag. On the tag, he must note where the wiring is disconnected and must sign and date the tag.

d. Remove Lock and Red DO NOT OPERATE Tag — After the wiring has been disconnected, and taped together, the Mechanical or Process person must remove his individual lock and red DO NOT OPERATE tag unless he must do other work on the equipment. Do not remove the yellow WIRING DISCONNECTED tag.

e. Wiring Reconnect — The Mechanical or Process person who reconnects the wiring must place his individual lock and red DO NOT OPERATE tag on the disconnect switch, reconnect the wiring, and then remove his lock and the red DO NOT OPERATE and yellow WIRING DISCONNECTED tags. *If a contactor employee is doing the work, he must obtain the required tags from the Contract Administrator and follow the above wiring disconnect procedures a through e. He must also include on the tags the name of the contractor's firm.*

3. Abnormal Condition Procedures — Conditions may exist that appear normal but actually are not. The following are examples of such abnormal conditions that require use of the pink ABNORMAL ELECTRICAL CONDITION tag. Such abnormal conditions include but are not limited to the following: (1) temporary power to equipment; (2) inside plastic handle broken off switch so outside handle will not operate switch; (3) one pushbutton inoperative but another will operate equipment; (4) a switch is left energized but a part of the equipment supplied by it is disconnected,

(MOVs) supplied by one circuit breaker; and (5) a switch is off and tagged out but a separate circuit is still supplying power to the switch housing for controls, lights, heaters, etc.

a. Application of Pink ABNORMAL ELECTRICAL CONDITION Tag — Before a Mechanical Person leaves electrical equipment with temporary wiring connected or with any other abnormal condition existing, he must tag the equipment with pink ABNORMAL ELECTRICAL CONDITION tags; he must place one tag on the outside of the equipment and one inside on the wiring if it is practical to do so. He must describe the abnormal condition on the tags and must sign and date them. The abnormal condition must be entered in the log book. *If a contractor employee is doing the work, he must obtain the tags from the Contract Administrator and proceed according to a and b. In addition, he must also include on the tag the name of the contractor's firm.*

b. Removal of ABNORMAL ELECTRICAL CONDITION Tags — The tags must remain in place until the equipment has been returned to its normal condition. The Mechanical person who removed the temporary wiring or eliminates the abnormal condition must remove the tags and notify the Chief Operator responsible for the equipment, who must enter the action in the log book.

POWER LINES

PURPOSE

The purpose of these procedures is to protect anyone who works on or near power lines and on direct-connected Process equipment from injury or death.

SPECIAL DEFINITIONS

I. Power Lines — Those electrical lines that radiate

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from generating stations and distribution substations.

2. Direct-Connected Process Equipment — A piece of electrical equipment on a Process unit supplied by a single power line having its electrical disconnect switch at an electrical substation or at a power plant.

3. Electrical Maintenance Supervisor — The Line Crew Supervisor or the Power Systems Maintenance Supervisor or their designated representative.

4. Utilities Chief Operator — The Process person responsible for the operation of the power system.

5. Electrical Mechanical Person — Any lineman, electrician, or Mechanical person working on the power system or on the direct-connected Process equipment.

6. Power Plant Process Person — The Process person who operates the power plant.

RESPONSIBILITIES

1. Electrical Maintenance Supervisor is responsible for requesting that power lines be removed from service and returned to service and for determining that the lines to be worked on are deenergized and tagged out.

2. Process Chief Operator or His Designated Representative is responsible for the removal and return to service of direct connected process equipment. He is also responsible for requesting the Utilities Chief Operator to deenergize the circuit serving the equipment and tag out.

3. Utilities Chief Operator is responsible for authorizing the removal and return to service of the power lines to be worked on.

4. Electrical Mechanical person is responsible for assuring himself that the equipment is safe for

him to do the prescribed work and that the following provisions of these procedures for which he is responsible are carried out.

5. Power Plant Process person is responsible for removing from service and returning to service power lines to be worked on and for properly tagging.

PROCEDURES

Procedure for Removing Power Lines or Direct-Connected Process Equipment from Service.

a. Request for Removal of Power Lines or Direct-Connected Process Equipment from Service: For power lines, the Electrical Maintenance Supervisor must make his request in person to the Utilities Chief Operator. For direct-connected Process equipment, the Process Chief Operator or his designated representative must request the Utilities Chief Operator for removal of these particular power lines from service. *If a contractor employee is to work on power lines or do electrical work on Process equipment, the Contract Adminstrator must make the arrangements for removing the lines from service and for returning them to service.*

b. Removal of Power Lines or Direct-Connected Process Equipment from Service: The Utilities Chief Operator must make the necessary arrangements with the Power Plant Process person to remove the power lines or the direct-connected Process equipment from service.

c. Check Circuit Removal before Work Begins: For power lines, the Utilities Chief Operator, the Electrical Maintenance Supervisor, and a representative of the group actually doing the work must personally observe that the line has been removed from service by lowering the circuit breaker or opening the dis-

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connect switches at each substation and power plant involved. They must then tag on the equipment by attaching the red POWER LINE DISCONNECT tags filled out and signed by the Utilities Chief Operator and signed by the Electrical Maintenance Supervisor on the equipment at each substation or power plant involved.

If work is being done on a line by more than one group, then each group must be protected by separate red POWER LINE DISCONNECT tags.

For direct connected process equipment, the Process Chief Operator or his designated representative shall notify the Utilities Chief Operator that this equipment has been removed from service and is ready for tagging. The Utilities Chief Operator will proceed to the site of the direct connected equipment, where he will meet the Process Chief Operator or his designated representative and a representative of the group which will actually work on the equipment. The Process Chief Operator or his designated representative will fill out and sign a red POWER LINE DISCONNECT tag and personally give that tag to the Utilities Chief Operator, verifying the equipment is ready for tagging on. The Utilities Chief Operator will keep that tag, and along with the representative of the group which will actually work on the equipment he must then proceed to the electrical substation and observe that the circuit serving the equipment has been removed from service by lowering the circuit breaker or opening the disconnect switches. They must then tag on the appropriate circuit breaker with a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and the representative of the group which will actually work on the equipment. After completing that step, they must proceed to the Power Plant and tag on a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and a representative of the group actually doing the work on the equipment to the remote switch serving the equipment. Finally, the Utilities Chief Operator and the representative of the group actually doing the work will return to the site of the direct connected process equipment and sign and tag on to the local start-stop switches the red POWER LINE DISCONNECT tag originally signed by the Process Chief Operator or his designated representative. After completing this procedure the work can begin.

In the case of contractor personnel the contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign on the disconnect tags.

Before any work is done on an open power line up to and including 13,800 volts, the line must be checked with a voltage tester and a ground chain must be pulled across the line to assure that it is deenergized.

d. Return Power Lines or Direct-Connected Process Equipment to Service: To return a power line to service, the Electrical Maintenance Supervisor must personally report to the Utilities Chief Operator that the work has been completed and accompany the Utilities Chief Operator to the substations and main power plants and properly tag off the power lines by signing and removing the red POWER DISCONNECT tags at the electrical substations and at the main power plants. The lines may

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then be energized by the Power Plant Process Operator.

In the case of direct connected process equipment, the Process Chief Operator or his designated representative must report to the Utilities Chief Operator that the work has been completed. The Utilities Chief Operator and a representative of the group actually working on the equipment will proceed to the site of the equipment and personally meet with the Process Chief Operator or his designated representative who will tag off the local start-stop switches by signing and removing the red POWER LINE DISCONNECT tag. He will give the tag to the Utilities Chief Operator who will also sign it, along with the representative of the group actually working on the equipment. The Utilities Chief Operator and the representative of the group actually doing the work must then proceed to the electrical substation and properly tag off the disconnect switches by signing and removing the red POWER LINE DISCONNECT tags. Finally, they must proceed to the Power Plant and tag off the remote control switch by signing and removing the red POWER LINE DISCONNECT tag from the remote control switch. The Utilities Chief Operator will keep the signed tags and notify the Process Chief Operator or his designated representative that the tag off procedure has been completed.

In the case of Contractor personnel the Contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign off the disconnect tags.

2. Procedure for Working on or Adjacent 2,300-Volt Power Lines

a. Tag Power Lines — Before beginning work on live uninsulated 2,300-volt power lines or working adjacent to any live uninsulated power line, the Maintenance Supervisor or his designated representative must notify the Utilities Chief Operator about the nature and location of the work to be performed.

The Utilities Chief Operator must request the appropriate Power Plant Process person to attach a yellow CAUTION-PEOPLE WORKING ON THIS CIRCUIT tag to the switch or switches controlling the power lines. *In the case of contractor lineman, the Contract Administrator must contact the Utilities Chief Operator.*

b. In Case of Circuit Trouble — In the event of circuit trouble at the jobsite, the Mechanical Supervisor must immediately notify the Power Plant Process person. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.* If any switch to which a tag is attached is tripped, it must not be reclosed until the Power Plant Process person is notified that it is safe to reclose.

c. Removal of Tags — Upon completion of the job, the Maintenance Supervisor who made the original request must notify the Power Plant Process person to remove the tags. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.*

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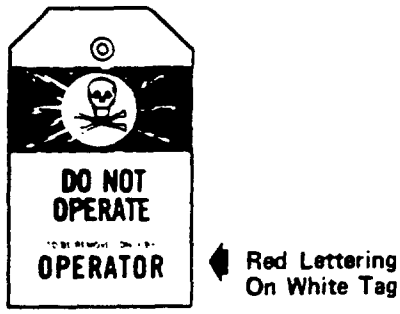
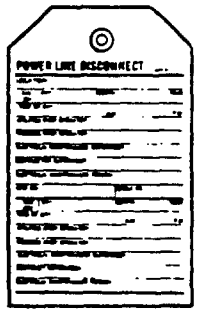


Red Lettering
On White Tag

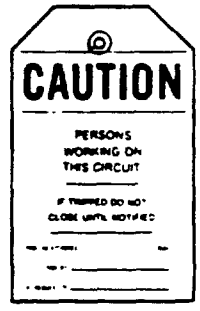
Yellow Tag



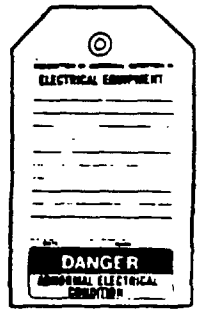
Red Tag

Red Tag

Yellow Tag



Pink Tag



EXX 003776

Section 5
HOT WORK PERMIT

PURPOSE
The purpose of this permit procedure is to protect personnel and equipment from fires and/or explosions that could result from hot work performed in a hazardous area. This section outlines **minimum** precautions for safety when performing hot work in any location not designated as a routine hot work area. In all such areas, a green HOT WORK PERMIT is required for all hot work.

SPECIAL DEFINITIONS
1. Hot Work — Any work requiring the use of burning, welding, or brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion-actuated tools, electric hot plates, or any other flame- or spark-producing equipment.
EXCEPTION: work on energized intriniscally safe circuits, electrical instruments and electrical power circuits covered under Cold Work Permits in Section 8.

2. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the green HOT WORK PERMIT for his equipment. He or his designated representative must designate boundaries within which the permit applies and must insure that all necessary safety precau-

tions have been completed prior to the Chief Operator signing the permit.

When hot work is to be performed on equipment passing through or adjacent one processing area, but controlled from another, the Chief Operators from both processing areas are responsible for issuing the permit. This rule applies if the hot work to be performed is within approximately 50 feet of operating equipment. (Example: Oil Movements line in pipe rack adjacent a process unit.)

When hot work is to be performed on equipment in a non-processing area adjacent a processing area both the Chief Operator from the adjacent processing area and the Basic Equipment Owner of the non-processing area or his authorized representative are responsible for issuing the green HOT WORK PERMIT. (Example: road work adjacent a process unit.)

2. Maintenance Supervisor is primarily responsible for seeing that only the type of work covered by the permit is performed, and that conditions at the jobsite are safe for the scheduled work; also that hot work is confined to the area covered by the permit.

3. Mechanical personnel performing the work are responsible for checking the green HOT WORK PERMIT to be sure it is current, valid, and properly signed by the Chief Operator and Mechanical Supervisor. If any of the signatures are missing, work **must not** begin.

4. All persons at or near the hot work site must be constantly alert for any condition that could make hot work hazardous. If such a condition develops, all hot work and machines **must be stopped at once.** All personnel must immediately vacate the area and notify the Chief Operator or the nearest Process person of the hazardous condition. The green HOT WORK PERMIT is no longer valid and

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must be removed. All persons associated with the work must be notified. Before work may resume, a new green HOT WORK PERMIT must be issued. When Mechanical personnel leave the job (such as lunch break), they must check to see that conditions have not changed and the permit has not been removed before resuming hot work.

PROCEDURES

1. Area Other than Enclosed Spaces and on Marine Docks — For performing hot work in any area not designated as safe for routine performance of hot work, the following requirements apply:

a. Hot Work Planning — The Maintenance Supervisor will advise the Chief Operator of the nature and location of the hot work to be performed as well as the proposed timing. Normally this should be done at least one day before hot work is scheduled to begin.

b. Preparing for Hot Work — The Chief Operator will work with the Maintenance Supervisor to see that the area is prepared properly for hot work. The Chief Operator will see that the following work is completed:

(1) Clearing and Blinding — Check to make sure all blinding and clearing of equipment necessary for execution of hot work is completed. Equipment which has been removed from service for hot work and has contained flammable material or is connected to equipment that contains flammable material must be (1) blinded inerted and vented (2) blinded and cleaned or (3) disconnected and cleaned before issuing a green hot work permit. Opening and blinding of equipment requires a white opening or blinding permit as stipulated in Section 7.

(2) Remove Flammable Material — Check to make sure that no flammable liquids or solids are spilled or trapped in or around equipment at the site of the proposed hot work.

(3) Prepare Sewers — Cover all sewer catch basins and manholes in vicinity of hot work. Catch basins containing flammable material must be flushed with water before covering. Also, check for and seal off sewer vents in the area that may present a hazard.

(4) Remove Trash — Remove other flammable materials such as trash, wood, or dry grass. Where hot work is to be carried out over dry grass, the area must be saturated with water before performing hot work, and a water hose left connected and readily accessible.

(5) Provide Fire-Fighting Equipment — Make sure that adequate fire-fighting equipment is at the jobsite. At least one fully charged fire extinguisher of a type and size designated as suitable must be provided where hot work is to be performed.

(6) Make Surrounding Area Safe — Check surrounding area for possible release of flammable vapors in the hot work area. Such things as safety valve discharges, leaks from pumps and or compressors, valve packing leaks, etc., must be identified and necessary corrective action taken

(7) Prepare for Hot Taps — For hot taps or other jobs requiring hot work on equipment in service, all requirements of the "Hot Tap Procedure Safety Standard" (Mechanical Division Safety Procedure No. 11) must be satisfied. Before the green HOT WORK PERMIT can be issued, the checklist attached to the above mentioned standard must be completed. The Chief Operator must make sure that his Operating Supervisor has ap-

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proved the work to be done and so note in the space provided on the back of the permit. Also, he must see that the Mechanical Engineering Department Inspector has checked for adequate metal thickness and initialed the space provided on the back side of the tag.

(8) Check Other Work in Area — The Chief Operator must check for active white OPENING AND/OR BLINDING PERMITS in the area of the hot work. A HOT WORK PERMIT must not be issued if work associated with existing white OPENING AND/OR BLINDING PERMIT could create a hazard by spill or gas release. All openings from which release of flammable material could occur are to be considered hazardous. The area of concern must cover the geographical limits where there is a remote possibility that sparks from hot work could come in contact with flammable materials from any opening. If such a possibility exists in the proposed hot work area, the white OPENING AND/OR BLINDING PERMIT must be killed. The green HOT WORK PERMIT shall not be issued until all openings from which flammable material could be released are blinded, and the area is cleared of flammable liquid or vapor.

(9) Provide for Overhead Hot Work — When hot work is to be performed in overhead locations, a suitable method for catching hot metal, electrode stubs, etc., must be provided where these materials would cause a fire hazard or when they would create a safety hazard when work is going on below.

(10) Safe Location of Welding Equipment — When electric welding is to be performed, the ground lead connection must be attached at a point within the area covered by the permit. The welding machine must be in the same area or an adjacent area approved for nonrestricted movement of motorized equipment.

(11) Perform Gas Tests — The Chief Operator shall perform gas tests for explosivity, oxygen deficiency and toxic materials depending on the nature of the job.

c. Filling Out Green Card — After completion of all items covered in b above, the Chief Operator must double check the hot worksite. He and the Maintenance Supervisor will determine if a standby man or other special precautions are necessary. The Chief Operator or his designated representative will then fill out the green HOT WORK PERMIT and the checklist on the back side of the tag.

d. Maintenance Supervisor Site Inspection — The Maintenance Supervisor must also inspect the site to make sure all necessary work and checks have been completed. His signature on the green HOT WORK PERMIT indicates he checked the work area and agrees all is safe for hot work.

e. Chief Operator Site Inspection — When all is considered ready by both the Chief Operator and Maintenance Supervisor, and the Maintenance Supervisor has signed the permit, the Chief Operator will make a final site inspection and if all is safe for hot work, he will sign the permit signifying that hot work can begin.

f. Permit Duration and Disposition — Before the green HOT WORK PERMIT is issued, the Chief Operator and Maintenance Supervisor must agree on the expiration time and note same in the space provided on the permit. This decision on duration as well as disposition of the permit copies must be in accordance with the following guidelines:

(1) Eight-Hour Permit — Permits to do hot

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work in or around processing areas where flammable or toxic materials exist are normally eight-hour permits. Such a permit is good for the shift in which it was issued. It can be continued into the next mechanical shift only after the Chief Operator and Maintenance Supervisor for the new shift have inspected the site and are confident no changes have taken place. If there is any question, the Chief Operator must make a new gas test. Hot work on the new shift must not begin until the Chief Operator and the Maintenance Supervisor have signed the cardboard portion of the green permit. They must also sign the control center copy. If work continues into the third shift, the same procedure must be followed. Eight-hour permits are void at the end of 24 hours, and a new permit must be obtained if work is to continue.

When a green HOT WORK PERMIT is issued the cardboard portion must be placed in a conspicuous location at the jobsite by the Chief Operator or his designated representative. The original is to be kept in the Process Permit file. At the end of the Mechanical shift or at job completion, whichever comes first, the Mechanical Person must sign the carboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. Both copies must be retained for at least 24 hours after expiration and then discarded.

(2) Job Completion — Under certain conditions, a green HOT WORK PERMIT may be issued for the job duration. In general, it is when the job conditions at and surrounding the work area will not change and create a flammable or toxic material hazard. Examples of such jobs are: (1) construction of a new Process unit; (2) a field pipe fabrication shop in an open area; (3) construction of a new tank in an open area; (4) during turnarounds when oil, gas, and chemical lines are blinded at the unit limits; and (5) no job completion cards can be issued inside an operating Process unit. The cardboard portion of the permit must be placed at the Maintenance Supervisor's jobsite office. The Chief Operator will keep the original on file in the Process permit file. Upon job completion, the Maintenance Supervisor must sign the cardboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. The Operating Supervisor must approve all job completion permits including *contract jobs*.

g. Hot Work Authorization — Only after all of the above items have been completed and green HOT WORK PERMIT has been signed by the Chief Operator and Maintenance Supervisor is hot work authorized. After the Chief Operator or his designated representative has personally hung the carboard portion of the permit in a conspicuous location at the job site, hot work can begin.

2. Marine Docks — For performing hot work on or under Marine Docks, all provisions given in the basic procedure above shall apply. In addition, the following work shall be completed and checks made before a green HOT WORK PERMIT can be issued.

a. Safe Tide Level — When hot work is to be performed under a dock, the tide level must be below any pipelines at the water level to prevent trapping oil between the pipelines, thus eliminating a possible source of combustible material.

b. Avoid Falling Materials — The hot work

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area must be isolated to prevent molten metal and/or any combustible material from falling into the water.

c. Remove Grating — Grating in the fender system must be removed in the hot work area when work is to be performed under a dock.

d. Secure Coast Guard Approval — The Docks' Operating Supervisor must secure approval of the Houston Coast Guard Port Captain prior to any hot work.

e. No hot work can be performed on any dock while a ship is berthed at that dock.

EXCEPTION: At Dock No. 1, hot work will be permitted 150 feet or more from vessels handling materials with a flash point of above 150F.

3. Enclosed Spaces — For performing hot work in enclosed spaces, all provisions given in the basic procedure above apply. In addition, the following work must be completed and/or checks made before a green HOT WORK PERMIT can be issued:

a. Obtain Yellow PERMIT TO ENTER — It may be necessary to enter an enclosed space to prepare for hot work. Before entering, a yellow "Permit to Enter" must be secured (see Section 6). Once the enclosed space has been prepared for hot work and a green "Hot Work Permit" has been issued, no yellow Permit to Enter tag is required for entering as long as the hot work permit is valid.

b. Other Requirements for Hot Work in Enclosed Spaces — After entry is made into the enclosed space, applicable portions of the basic Procedure above can be completed. In addition, the following must be performed and/or checks made before a green HOT WORK PERMIT can be issued:

(1) No Cylinders In Enclosed Spaces — Cylinders containing any type of flammable material must not be placed in an enclosed space where hot work is to be done.
EXCEPTION: In storage tanks where door sheets have been removed.

(2) Thoroughly Clean — The enclosed space, including all internals, must be thoroughly cleaned and made safe for hot work. This includes freeing the container of all flammable gases, liquids, and solids as well as inert atmospheres and toxic materials.

(3) Provide Adequate Ventilation — A fresh air ventilation system must be provided and shall be adequate to remove fumes and gases created by the proposed hot work. If adequate ventilation is not possible, suitable respiratory protection must be used.

SPECIAL REQUIREMENTS

1. Work on Tank Cars — Hot work must not be done on tank cars while located at a loading rack.

2. 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 that has been in service of any kind, the vessel or equipment must be properly vented (unless the operation is performed under controlled conditions so that any over-pressuring will be avoided).

3. Gas Hoses In Confined Spaces — When gas hoses are used in connection with welding and/or burning in an enclosed space, the hoses must either (1) be removed from the enclosed space or (2) disconnected at the regulators at any time when positive ventilation is discontinued. A torch or other gas-consuming device must never be removed from a hose while inside a confined space. When torches are left unattended (such as lunch

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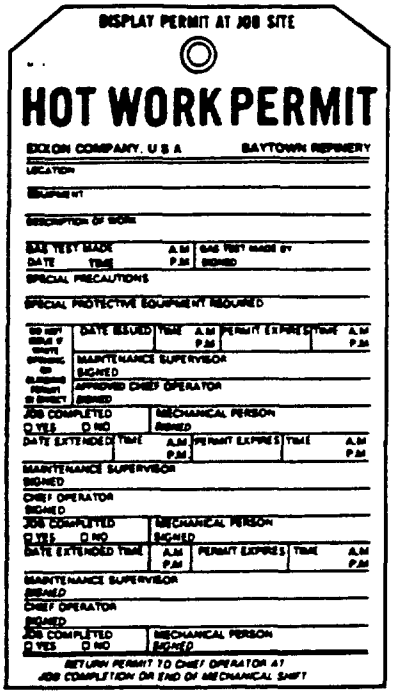
period, shift change, etc.), the gas supply must be positively shut off at a point outside the enclosed space or the hoses disconnected at the regulators.

4. Establishment of Smoking Permits — Requires written approval by the appropriate Department Head. Procedures for obtaining this approval are given in the Mechanical Operating Procedures Manual (S-13) and the Process Operating Practice Manual (S-6).

5. Hot Work by Process — When hot work is to be performed by Process personnel, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the green Hot Work Permit in space marked Maintenance Supervisor.


DISPLAY PERMIT AT JOB SITE

HOT WORK PERMIT

EXXON COMPANY, U S A — BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. | GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DO NOT ISSUE IF WHITE OPENING OR CLOSING PERMIT IS EXPECT | DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED TIME | A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT

Green Tag

EXX 003782

Section 6
PROCEDURE FOR ENTERING ENCLOSED SPACES

PURPOSE

This procedure is designed to protect personnel against such hazards as oxygen deficiency, toxic materials, flammable substances, and power-driven equipment when working in enclosed spaces. A yellow PERMIT TO ENTER tag is required to initially enter any enclosed space. If hot work is to be performed in an enclosed space, a yellow PERMIT TO ENTER tag is required to initially enter the enclosed space. This procedure is to be considered the minimum precautions for the safety of personnel entering enclosed spaces.

SPECIAL DEFINITIONS

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of workmen are below the top of the confined space.

2. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

3. Standby — The person designated by the Chief Operator and/or the Maintenance Supervisor to warn persons in enclosed spaces of hazardous or emergency conditions that could affect their safety.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the yellow PERMIT TO ENTER for entry into enclosed spaces in his processing area. He or his designated representative is responsible for insuring that all necessary safety precautions have

been completed prior to issuance of the permit. The Chief Operator must make the necessary gas tests for explosivity, oxygen content and toxic materials depending upon the nature of the job. After the Maintenance Supervisor has signed the yellow Permit to Enter tag the Chief Operator must sign the permit signifying that all is safe for entry.

2. Maintenance Supervisor is responsible for obtaining the yellow PERMIT TO ENTER and assisting in final preparation of the enclosed space for entry. He must inspect the area and sign the tag to indicate his approval of the required safety precautions. He must see that all proper job safety precautions are followed and be alert for changing conditions that might affect the safety of the job.

3. Individual, before entering an enclosed space, shall assure himself that the necessary safety preparations have been made and that a current yellow PERMIT TO ENTER, properly filled out and signed by the Chief Operator and the Maintenance Supervisor has been posted at the job site.

4. Standby is responsible for assuring the well-being of persons working in enclosed spaces when breathing equipment is in use or when conditions are such that outside warning may be necessary.

PROCEDURE

1. Entering an Enclosed Space Without Protective Equipment

a. Preparing Enclosed Spaces for Entry — The Chief Operator will see that the enclosed space is emptied and purged in preparation for opening. Process personnel may also physically disconnect or blind the enclosed space in accordance with Section 7.

b. Requesting PERMIT TO OPEN AND/OR

EXX 003783

BLIND — The Maintenance Supervisor will request a white OPENING AND/OR BLINDING PERMIT from the Chief Operator in accordance with provisions of Section 7.

c. Isolating the Enclosed Space — If not already done by Process, the Maintenance Supervisor will insure that all connecting lines to the enclosed space are physically disconnected or blinded at a point as near to the enclosed space as is safely practical. Double block valves with an intervening bleeder are not considered equivalent to a blind where personnel bodily enter the space.

EXCEPTION: In steam, water, and air service, the use of double block valves with an intervening bleeder is acceptable provided the bleeder is open and clear and is at least one inch in size for lines four inches and larger. The double block valves shall be locked closed and the intervening bleeder locked open. Mechanical-type locks must be used.

d. Immobilizing of Power-Driven Equipment — Before entry, the Maintenance Supervisor will arrange for electrical equipment to be immobilized in accordance with the electrical lockout procedure. The power supply to other equipment driven by air, steam, internal combustion engines, or hydraulic fluid shall be blinded or disconnected.

e. Cleaning and Establishing Ventilation of Enclosed Space — The Maintenance Supervisor will clean the space if necessary and establish and place in operation a fresh air ventilating system.

EXCEPTION: No forced ventilation system is required where a natural draft is established and the Chief Operator and Maintenance Supervisor agree that entry is safe.

f. Gas Testing the Atmosphere of the Enclosed Space — The Chief Operator must satisfactorily test for explosivity, oxygen deficiency, and toxic materials.

(1) **Explosivity** — Entry will not be permitted unless the test indicates a safe range.

(2) **Oxygen Deficiency** — Entry will not be permitted unless oxygen concentration is greater than 19.5 percent.

(3) **Toxic Materials** — Entry will not be permitted unless test indicates a safe range.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes or depletion of oxygen exists.

g. Standby Requirement — A standby must be required and noted on the yellow PERMIT TO ENTER when the Chief Operator and/or the Maintenance Supervisor determines that an unsafe condition may develop during the course of the work. The standby must be equipped with a claxon horn and a unit radio for communications. A complete standby kit is required if the Chief Operator and/or the Maintenance Supervisor believe that a breathing hazard may develop.

h. Issuance of PERMIT TO ENTER — When the Maintenance Supervisor is satisfied that all requirements and safety precautions have been completed satisfactorily, he must complete applicable portions of the checklist and sign the permit. The Chief Operator will complete the permit, including the checklist, and sign the permit signifying that entry can be made. He or his designated representative will then post the cardboard portion of the permit in a conspicuous location at the jobsite and file the original paper portion in the Process permit file.

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l. Permit Duration and Disposition — A yellow PERMIT TO ENTER will have the same requirements for duration and disposition as a green HOT WORK PERMIT except that no Job Completion type permits will be allowed. 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 the appropriate box as to job completion, and return it to the Chief Operator.

2. Entering an Enclosed Space with Protective Equipment

Enclosed spaces to be entered with protective equipment must be emptied, cleaned of hazardous materials, and purged, insofar as practical, prior to entry. It must be physically isolated and all power-driven equipment immobilized as required in Part 1.

a. Required Tests — A yellow PERMIT TO ENTER will be issued only when the atmosphere in the enclosed space meets the following tests:

(1) Explosivity — Entry will not be permitted unless the test indicates a safe range.

(2) Oxygen Deficiency — If oxygen level is below 19.5 percent, entry will be permitted only with a pressure-demand, hose-line air mask.

(3) Toxic Materials — Entry will be permitted only with appropriate protective equipment.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes exists.

b. Required Protective Equipment — All personnel entering enclosed spaces 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 closed spaces is to be determined by the Chief Operator and the Maintenance Supervisor and indicated on the yellow PERMIT TO ENTER permit. The cardboard section of the permit must be posted at a conspicuous location at the jobsite. In the case of oxygen-deficient atmospheres, pressure-demand, hose-line air masks with self-contained life lines must be used and Operating Supervisor approval obtained for entry.

A standby is required when personnel are required to wear pressure-demand, hose-line air masks inside an enclosed space or the situation is such that outside warning is necessary. Scott Air-Paks are permissible in place of the pressure-demand, hose-line air masks for emergency or rescue use where life is in immediate danger.

3. Duties of Standby

a. Accounting for personnel working in the enclosed space.

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 the enclosed space in case of fire or disaster alarm.

f. Being well trained in the operation of respiratory equipment and administering of artificial respiration.

g. Maintaining an adequate air supply.

h. The standby should never attempt to enter the enclosed space even in an emergency until help has arrived.

EXX 003785

In order for standby equipment to be available for use, standby kits shall be checked out at the Refinery Storehouse at the same time the pressure-demand, hose-line unit is checked out for enclosed space entry.

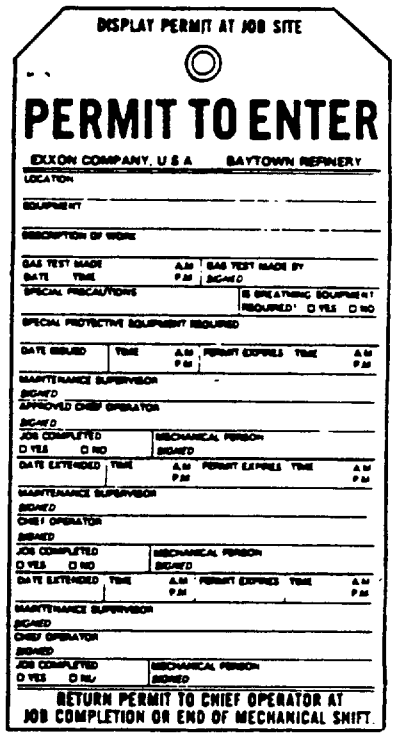
SPECIAL REQUIREMENTS

1. Entry to Prepare for Hot Work — A yellow PERMIT TO ENTER is required to initially enter an enclosed space where hot work is to be performed. Once the necessary requirements have been met and a green HOT WORK PERMIT has been issued, no yellow PERMIT TO ENTER is required as long as a valid green HOT WORK PERMIT is in effect.

2. Entry by Process without Mechanical Involvement — When entry is made by Process personnel without mechanical personnel involvement, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the yellow PERMIT TO ENTER in the space marked Maintenance Supervisor.

3. Entry by Process Into Enclosed Pump Pits — A Process person may enter enclosed pump pits for Process functions without a written permit, provided the Process person performs a gas test to determine that the atmosphere is safe prior to entry.

4. Entry Into Boilers, Steam Generators, and Furnaces — For boilers, steam generators, and furnaces, the limits of the enclosed space must be clearly defined and agreed to by both Chief Operator and Maintenance Supervisor and so indicated on the permit tag. The limits of the enclosed space must be physical barriers which separate the enclosed space from other parts of the boiler, steam generator, or furnace. All the provisions of Section 6 "Procedure for Entering Enclosed Spaces" of the Safety Manual must be met for the defined enclosed space and, in addition, the provisions of Section 6-1C "Isolating the Enclosed Space" must be met for the entire boiler, steam generator, or furnace.


DISPLAY PERMIT AT JOB SITE

PERMIT TO ENTER

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS IS BREATHING EQUIPMENT REQUIRED? ☐ YES ☐ NO

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DATE ISSUED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO MECHANICAL PERSON SIGNED

DATE EXTENDED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO MECHANICAL PERSON SIGNED

DATE EXTENDED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Yellow Tag

EXX 003786

Section 7
OPENING AND/OR BLINDING PERMIT

PURPOSE
This permit procedure is designed to prevent accidents by insuring adequate communications between Process and Mechanical Personnel when opening and/or blinding equipment in a processing area. A white OPENING AND/OR BLINDING PERMIT shall be obtained before beginning such work.

SPECIAL 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.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the white OPENING AND/OR BLINDING PERMIT. He or his designated representative has the responsibility for preparing the equipment, determining if the surrounding area is safe for the proposed work, and listing any special safety precautions required.

2. Maintenance Supervisor is responsible for seeing that a permit is secured to perform work involving opening or blinding. He is also responsible to see that Mechanical Personnel work within the limits of the permit and that all stipulated safety precautions are taken.

PROCEDURES
1. Requesting Permit — The Maintenance Supervisor or his designated representative must request a permit from the Chief Operator.

2. Initiating Safety Inspection — The Chief Operator or his designated representative must perform a safety inspection of the area. He must check for other active permits, prepare the equipment, and identify all locations to be opened. If blinding is required, he must also prepare a blinding list.

3. Blinding Requirements — Generally all opened equipment must be blinded for hot work (see Section 5), for entering (see Section 6), and piping left unattended. The installation and removal of slip blinds and blind flanges (except daily closure blinds) shall be recorded on the blinding list.

Specific blinding requirements and exceptions are as follows:

a. Pumps — Minor repairs, such as small piping and seal replacement, may be performed without blinding provided (1) the suction and discharge valves 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 complted 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"

EXX 003787

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 4).

(2) Gas engines must be blinded and the fly wheel blocked.

(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. Piping — Unattended open Piping must be isolated with slip blinds or closed with blind flanges.

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

e. 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.

f. 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 must be secured with a "DANGER — DO NOT OPEN" tag attached by Process and a Mechanical lock placed on the valve by the Mechanical person 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.

g. 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, Process Personnel must prepare a blinding list indicating the size and location for all slip blinds and blind flanges to be installed.

5. Issuing Permit — Process and Mechanical Personnel must make a safety tour of the job site, 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 on the back of the cardboard section. When both Process and Mechanical Persons are satisfied that the provisions of Section 5 Item b(8) have been met and the task

EXX 003788

can be safely accomplished, then both will sign the permit.

The Process person must post the cardboard portion in a conspicuous place at the job site and file the original copy in the permit file.

EXCEPTIONS:

Process Personnel — Mechanical work by Process may be done without a written permit provided the Chief Operator has authorized the work.

Dock Personnel — Marine hookups on the dock may be performed by the Dock Connection Crew working under the direction of the Chief Operator without a written OPENING AND/OR BLINDING permit.

Unit Turnaround — During a unit turnaround, cleared items of equipment may be opened by verbal authorization of the Process Person designated as the Process/Mechanical contact coordinator, provided the following conditions are met:

a. All hydrocarbon and chemical lines are blinded at the unit limits.

b. Opening of equipment will not create a safety hazard for other work in progress.

c. All hot work in the area must be suspended while the equipment is being opened.

(1) If no hazard was created by the opened equipment, the Process contact coordinator may authorize the resumption of the hot work under the existing hot work permit.

(2) If a hazard was created (spill of hydrocarbons, flammable gas release, etc.), the hot work permit must be terminated. To resume work after the hazard has been eliminated, a new hot work permit must be issued.

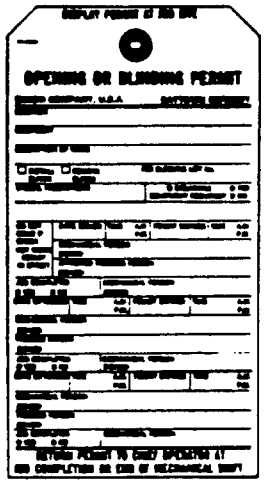
6. Blinding — The Mechanical Person must record each slip blind installed by signing and dating the blinding list. At the end of the mechanical shift or at completion of the blinding list, whichever comes first, the Mechanical Person must return the blinding list to the Chief Operator.

7. Permit Duration and Disposition — The permit is issued for one Mechanical shift. It may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours. 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 may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours.

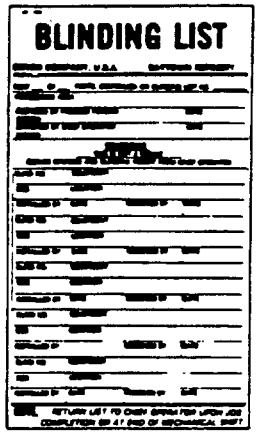
8. Removing Blinds — The removal of blinds requires a new permit unless the work at the job site is continuous and is completed in 24 hours. The Process Person issuing the permit and the Mechanical Person accepting the permit must tour the area and physically identify the blinds to be removed. The Mechanical Person must sign and date the blinding list as each slip blind and blind flange is removed. After the last blind has been removed or at the end of the Mechanical shift, the Mechanical Person must sign and date the cardboard portion and return both the permit and blinding list to the Chief Operator.

9. Filing of Permits and Blinding Lists — Each permit must be filed for 24 hours after its expiration and then discarded. Blinding lists must be filed until all blinds have been removed. The blinding list may be discarded 24 hours after the last blind is removed.

EXX 003789



White Tag



Buff Tag

Section 8
COLD WORK PERMIT

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 completed before work is started in a Process area.

SPECIAL DEFINITIONS

1. Cold Work — Any mechanical work on processing equipment including work on intrinsically safe circuits and energized electrical instruments and electrical power circuits that does not involve opening, blinding, entering, hot work, or electrical lockout.

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.

PROCEDURE

1. Initiating COLD WORK PERMIT — The Mechanical Person assigned to perform mechanical work in a processing area must fill in the date, time, area, equipment, and description of work on the blue COLD WORK PERMIT. He will then contact the Chief Operator and secure approval before starting to work.

EXCEPTIONS: Blue COLD WORK PERMITS are not required:

a. When Process Personnel are performing mechanical work.

b. When the Dock Connection Crew is working in the dock area under instructions from the Chief Operator.

c. When instrument technicians and electricians who are regularly assigned to the processing area perform routine work authorized by the Chief Operator.

NOTICE: A COLD WORK PERMIT is required to work on energized electrical instruments and electrical power circuits above 100 volts.

d. When Technical or Laboratory personnel perform sampling and/or test work authorized by the Chief Operator.

e. When janitors perform janitorial-type work in the processing area.

f. *When contractor employees take work direction from Process Personnel.*

g. When Mechanical performs cold work in preparation for the issuance of other work permits on the same shift. Samples of such work are covering sewers, hooking up hoses, securing fire-fighting or safety equipment, hanging tarps, electrical lockout, etc.

h. When oil, gas and chemical lines are blinded at unit limits during unit turnarounds and work is being performed in accordance with the turnaround procedure.

EXX 003791

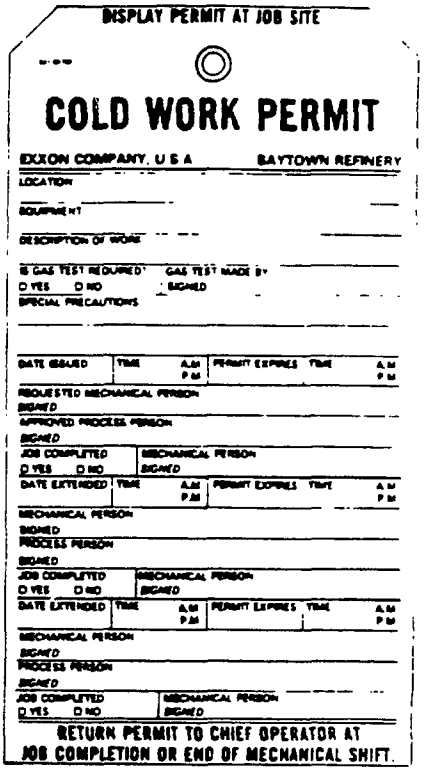
2. Making Safety Inspection — The Process Person designated to approve the permit must assure himself that the conditions at the job site are safe for the work. He must determine if a gas test is required and may make the gas test himself.

3. Issuing Permit — When both Process and Mechanical Persons are satisfied that the work can be safely performed in the area, each must sign the permit.

4. Posting Permit — The Mechanical person must display the cardboard portion in a conspicuous place at the job site. The Process Person must file the original portion in the permit file.

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. No permit shall be extended beyond 24 hours' total duration.


DISPLAY PERMIT AT JOB SITE

COLD WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

IS GAS TEST REQUIRED? GAS TEST MADE BY

☐ YES ☐ NO SIGNED

SPECIAL PRECAUTIONS

DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

REQUESTED MECHANICAL PERSON

SIGNED

APPROVED PROCESS PERSON

SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

MECHANICAL PERSON

SIGNED

PROCESS PERSON

SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

MECHANICAL PERSON

SIGNED

PROCESS PERSON

SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Light Blue Tag

EXX 003792

SECTION 9

SECURITY REGULATIONS

1. 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.

2. 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 job site. Contractor shall make arrangements so that vehicle drivers will know which gate to enter and the appropriate job site location.

3. Walks and Roadways

Walks and roadways will be designated for the use of Contractor when entering or leaving the job site, 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.

4. Contractor Employee Badges

Contractor's employees shall wear their Contractor's badge 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.

EXX 003793

5. 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.

6. 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 Contract Administrator. The Contract Administrator 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.

7. 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.

8. Gambling

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

9. 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 job site. Plant Security will obtain authorization from one of these people before passing such individuals into the

EXX 003794

Plant. Special permission shall be obtained from the Contract Administrator to admit union business agents or safety inspectors other than contractor employed into the Plant.

10. 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 shall be called in to 427-5711, extension 3600. 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.

11. Inspection of Lunch Boxes, Packages, Motor Vehicles, etc.

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

12. 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.

13. 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.

14. 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.

15. Fingerprinting

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

SECTION 10

GENERAL REGULATIONS

1. Authorization to Start Work

Contractor and Subcontractors shall not start work until authorized by the Contract Administrator at the job site. Such authorization does not constitute authority to proceed with any work involving special permits as outlined in Exxon Refinery's Safety Manual. Contractor shall also secure approval from Contract Administrator before any materials are delivered to job site when material deliveries precede Contractor's arrival on site.

2. Contractor's Equipment

All Contractors moving trailer-type equipment within the Plant 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.

3. Explosives

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

4. 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 Contract Administrator.

5. 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 equipment without written approval of the Contract Administrator.

6. Damage to Owner's Property

If Contractor damages any of Owner's property, or property of any other contractor

EXX 003796

or subcontractor, the damage shall immediately be reported to the Contract Administrator.

7. 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 Contract Administrator.

8. 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 Contract Administrator. No tracked equipment having flat pavement treads shall be operated on a paved street without approval of the Contract Administrator.

9. 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 overnight.

10. Welding

Contractor shall 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 there is sufficient metal, as approved by the Contract Administrator, 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 downstream 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.

EXX 003797

11. Securing of Temporary Buildings

All temporary buildings shall be tied down by the Contractor in accordance with the Contract Administrator's instructions, and applicable Baytown Engineering Standards.

12. Exit from the Plant

Contract employees, except for the driver, must dismount and walk through the gate when leaving the Refinery.

13. Non-English-Speaking Personnel

The ability to communicate with Contractor employees is essential to safe job execution. When the contract employee cannot speak English, the job foreman must be able to speak both English and the employee's language fluently. If there is reason to doubt the foreman's ability in this regard, a practical demonstration is in order. When the foreman cannot speak both English and the employee's language, the employee must either be placed under a foreman who can, or he must be prohibited from working in the Baytown Refinery.

14. Hurricane Precautions

The period between June 15 and October 15 is recognized as the hurricane season. Prior to this time, all material that is not needed for the job and that might become wind-borne in hurricane winds should be removed. That material still needed should be piled as compactly as possible. Provision should be made for tying down lightweight objects should the need arise. Scaffolds and some open-type structures should be dismantled if a hurricane approaches. Thus, there should be a plan formulated in advance to handle necessary actions, particularly in terms of the time and manpower required.

15. Contractor Accident Reporting

The contractor is responsible for notifying the Contract Administrator immediately:

a. Any time an ambulance is called;

b. In the event of any injury which could possibly result in lost time;

c. In the event of any incident which had serious potential, such as mobile equipment overturning, equipment contacting electric supply lines, etc.

EXX 003798

All injuries shall be reported on the Industrial Accident Board Standard Form for Employee's First Report of Injury or Illness — latest revision.

16. Emergency Evacuation Procedure

An emergency evacuation procedure form shall be completed by each Contractor prior to starting a contract. An assembly point should be chosen to provide a relatively safe, open area, in the event an emergency occurs that requires evacuation of all or part of the Refinery.

17. Contractor Safety Meetings

Each Contractor is strongly encouraged to hold a weekly safety meeting for his employees. Either a combined meeting of all the Contractor's employees in the Refinery or smaller meetings for each job or each foreman is suitable.

EXX 003799

27-5743
Contract File
BRC

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

December 20, 1978

Contract No. D-00-0794-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

We will perform the additional work described by Design Change #2 for a lump sum price of $3,646.00. This additional work will necessitate 0 days extension to the original contract schedule, provided we are authorized to proceed immediately. The above is subject to the following qualification:

1. Exxon to replace one (1) 6" valve furnished on original contract with a 6" 150# full port valve suitable for hot tapping.

Yours very truly,

BROWN & ROOT, INC.

B. M. Holt

BMH/lja

Labor + 43%	$1,523.00
Materials + 10%	1,005.00
Subcontracts + 5%	884.00
Equipment + 40% F.O.G.	234.00
Total	$3,646.00

CONTRACT CHANGE ORDER NO. 6
CONTRACT NO. D-00-0794-A DATE: 9-27-78
ADDITION/(DELETION) $ 3,646.00
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: C E Bird
DATE: 1-9-79
EXCERPTS CA
PROJ. ENG: E W Bradley TYPE: A1

EXX 003895

27-5743
Contract File
BRC

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

December 20, 1978

Contract No. D-00-0794-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

We will perform the additional work described by Design Change #1 for a lump sum price of $13,075.00. This additional work will necessitate 13 days extension to the original contract schedule, provided we are authorized to proceed immediately.

Very truly yours,

BROWN & ROOT, INC.

B. M. Holt

BMH/lja

Breakdown:

Labor + 43	$8,968.00
Materials + 10	1,277.00
Subcontracts + 5	1,360.00
Equipment + 40% F.O.G.	1,470.00
Total	$13,075.00

CONTRACT CHANGE ORDER NO. 5
CONTRACT NO. D-00-0794-A DATE: 9-27-78
ADDITION/~~(DELETION)~~ $ 13,075.00
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED:
DATE: 1-4-79
EXCERPTS CA
PROJ. ENG: E.W. Bradley

EXX 003896

27-5743
Contract File
BMH

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

December 19, 1978

Contract No. D-00-0794-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

Enclosed are the field changes listed below. It is requested that a contract change order be issued accordingly.

FIELD CHANGE	AMOUNT	FIELD CHANGE	AMOUNT
#4	$1,895.51		

Total this change $1,895.51.

Very truly yours,

BROWN & ROOT, INC.

B. M. Holt

BMH/lja

Attachment

CONTRACT CHANGE ORDER NO. 4
CONTRACT NO. D-00-0794-A DATE: 9-27-78
ADDITION/(~~DELETION~~) $ 1,895.51
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED:
DATE: 12-19-78
EXCERPTS —
PROJ. ENG: E W Bradley TYPE: A

BJW
12/19/78

EXX 003897

21-5743
Contract File
BRE

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

December 8, 1978

Contract No. D-00-0794-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

Enclosed are the field changes listed below. It is requested that a contract change order be issued accordingly.

FIELD CHANGE	AMOUNT	FIELD CHANGE	AMOUNT
#3	$691.42		

Total this change $691.42.

Very truly yours,

BROWN & ROOT, INC.

B. M. Holt

BMH/lja

Attachment

CONTRACT CHANGE ORDER NO. 3
CONTRACT NO. D-00-0794-A DATE: 9-27-78
ADDITION/(~~DELETION~~) $ 691.42
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: C E Bu
DATE: 12-18-78
EXCERPTS —
PROJ. ENG: E W Bradley TYPE: A

BJW 12/15/78

27-5743
Contract File
BME

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

November 22, 1978

Contract No. D-00-0794-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

Enclosed are the field changes listed below. It is requested that a contract change order be issued accordingly.

FIELD CHANGE	AMOUNT	FIELD CHANGE	AMOUNT
#2	$489.89		

Total this change $489.89.

Very truly yours,

BROWN & ROOT, INC.

B M Holt
B. M. Holt

BMH/lja

Attachment

CONTRACT CHANGE ORDER NO. 2
CONTRACT NO. D-00-0794-A DATE: 9-27-78
ADDITION/~~(DELETION)~~ $ 489.89
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: C E Burd
DATE: 11-22-78
EXCERPTS —
PROJ. ENG: E W Bradley TYPE: A

BJW 11-7-78

EXX 003899

27-5743
Contract File
BRL

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

November 1, 1978

Contract No. D-00-0794-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

Enclosed are the field changes listed below. It is requested that a contract change order be issued accordingly.

FIELD CHANGE	AMOUNT	FIELD CHANGE	AMOUNT
#1	$537.20		

Total this change $537.20.

Very truly yours,

BROWN & ROOT, INC.

B M Holt
B. M. Holt

BMH/lja

Attachment

CONTRACT CHANGE ORDER NO. 1
CONTRACT NO. D-00-0794-A DATE: 9-27-78
ADDITION/(~~DELETION~~) $ 537.20
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: C E Bud
DATE: 11-7-78
EXCERPTS —
PROJ. ENG: E W Bradley TYPE: A-1

BJW
11/6/78

EXX 003900

Brown & Root, Inc.

GENE KERNAN

TO:		
	Baker	Paulson
	Dees	Scarbrough
	DeHart	Stuessy
	Hayes	Don Baugh
	Lamar	
	McCauley	

****

( ) For you to handle
( ) For your information
( ) Investigate and report to me
( ) For your approval/signature, please return
( ) Read and file
( ) Make corrections

Please have this contract dated (on 1ST page - 1ST line) and return to me for our files.

As Requested

Date: 11/3/78

EXX 003901

27-5743
Contract File
BRQ

542-0060

Appropriation 00666 Contract No. D-00-0794-A

THIS CONTRACT, entered into this 28Th day of September 1978, by and between Exxon Company, U.S.A. (a division of Exxon Corporation), hereinafter referred to as "Exxon," and BROWN & ROOT, INC. hereinafter referred to as "Contractor," WITNESSETH:

That in consideration of the covenants and agreements set out herein and the payments provided for herein Exxon and Contractor agree as follows:

1. Contractor agrees to begin immediately and press with due diligence until completion in a careful and workmanlike manner, with the necessary labor, supervision, tools, equipment, and materials, furnished and maintained by Contractor at its own cost and expense except as hereinafter provided, certain work briefly described as follows:

Perform all work in accordance with the specifications and exhibits listed below, a copy of said specifications and exhibits and of each drawing and Baytown Engineering Standard referred to therein being attached hereto and made a part hereof.

Designation	Title	Date
Specifications	Specifications for Offsite Piping Associated with Baytown Olefins Plant	August 8, 1978
Exhibit "A"	Offsite Pipe Associated with Baytown Olefins Plant	August 8, 1978
Addendum I	List of Engineering Drawings	August 16, 1978

All pipe to be furnished by Exxon, including preinsulated pipe, will be furnished in double-random lengths when possible.

Insulation for line Number 0-119-6", will be mineral fiber with aluminum jacket, with the valves and instruments not insulated.

Contractor agrees to begin work immediately upon award of Contract, and will make every effort to complete the work on or before December 15, 1978.

2. As consideration for the satisfactory performance and completion of this Contract by Contractor, Exxon agrees to pay Contractor the lump sum of THREE HUNDRED SIXTY-ONE THOUSAND NINETY-SIX DOLLARS AND NO/100 ($361,096).

Slide plates required as shown on Drawing SK-997-CTH (Addendum 1) shall be invoiced at a net price of $8 each, including installation.

Spark-proof boxes required but not shown on drawings shall be invoiced at a net price of $500 each.

Invoices will be paid thirty days after receipt of invoice.

3. Contractor shall comply with all of the terms and conditions contained in Exxon's publication entitled "Contractors' Responsibilities for Safety, Plant Security, and Traffic Regulations," dated April 1, 1978, said publication being made a part of this contract by reference. Exxon will furnish copies of this publication to the Contractor. The rules and regulations contained in the "Contractors' Responsibilities" shall apply to all subcontractors and their employees as well as to the prime contractor and its employees. Before starting work under this Contract, Contractor shall obtain from Exxon copies of these regulations. Contractor shall notify its employees, its subcontractors, and the employees of its subcontractors of the provisions of said regulations and shall secure compliance therewith by all such parties; and Contractor shall not allow any of such persons to begin work inside Exxon's Baytown Refinery until such notification has been given them.

Said "Contractors' Responsibilities" 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. Neither compliance with such regulations by Contractor nor Exxon'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 hereunder.

4. Although Contractor shall provide its own representative or representatives to supervise and inspect all materials and workmanship entering into this job, Exxon reserves the right to have an inspector on the job. Any material which Exxon considers unsatisfactory shall be removed and replaced at Contractor's expense. Neither inspection, waiving of inspection, nor acceptance by Exxon shall relieve Contractor of its obligation to furnish all materials and workmanship in accordance with specifications.

5. It is understood and agreed that all work performed by Contractor hereunder shall meet with the approval of Exxon's engineers or inspectors but that the detailed manner and method of doing same shall be under the control of Contractor, Exxon being interested only in the result obtained, and that Contractor is an independent contractor as to all work performed hereunder. In this connection, Contractor and Exxon agree as follows:

A. Contractor agrees to indemnify and hold Exxon harmless from all claims, actions, demands, loss and causes of actions arising:

(1) From injury, including death, to its employees and those of its subcontractors, except such as may result solely from the negligence or willful acts of Exxon or its employees.

(2) From (a) injuries to or deaths of persons, including employees and representatives of Exxon, which result in whole or in part from the willful acts or negligence of Contractor, its employees, agents, or subcontractors, or (b) damage to property of Exxon and all other persons, which results in whole or in part from the negligence or willful acts of Contractor, its employees, agents, or subcontractors, except that Contractor shall not be responsible for damage to Exxon's property resulting from fire or explosion.

(3) From damage to property or injury to or death of persons which result in whole or in part from willful acts or the negligence of Contractor, its employees, agents or subcontractors, in connection with the handling and use of utilities furnished by Exxon except that Contractor shall not be responsible or liable for such damage to Exxon's property resulting from fire or explosion.

B. In addition, Contractor agrees to carry insurance as follows:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto.

(2) Comprehensive General Liability Insurance (including Contractors' Protective Liability when subcontractors are used), covering

(a) Bodily injury liability with a limit of not less than $ 100,000 for one person injured or killed and, subject to such limit, $ 300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $ 100,000 for each accident, and $ 100,000 aggregate.

(3) Automobile Liability Insurance on owned, non-owned and hired automotive equipment covering

(a) Bodily injury liability with a limit of not less than $100,000 for one person injured or killed and, subject to such limit, $300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $50,000 for each accident.

C. Prior to commencing work hereunder, Contractor shall produce evidence in a form satisfactory to Exxon that all insurance required under this Contract is in force and carried with companies acceptable to Exxon and that such insurance will not be materially altered or canceled while the work covered hereby is in progress without a reasonable prior written notice to Exxon. Upon request of Exxon, Contractor shall furnish certified copies of all such insurance policies. Should Contractor at any time neglect, or refuse to provide, or should it cancel the insurance required herein, Exxon shall have the right to procure same and deduct the cost thereof from the consideration to be paid Contractor hereunder.

6. Contractor agrees to pay off and satisfy all claims for labor and material employed or used in anywise by it in connection with the work performed hereunder, and to permit no liens of any kind to be fixed upon or against the property of Exxon by Contractor's laborers, mechanics or materialmen, and agrees to indemnify, protect and save Exxon harmless from and against all such claims and liens.

7. Contractor agrees that if, in the opinion of Exxon, Contractor should fail at any time during the performance hereof, to provide the necessary labor, supervision, tools, equipment or materials for the prompt performance of the work herein contractor for, or should breach this Contract in whole or in part or fail to use due diligence in the performance thereof, or should not be performing this Contract in the manner herein provided, Exxon may, at its election, take over and perform or obtain another contractor to take over and perform all or any part of the work then remaining unperformed. In the event Exxon should exercise such right, it shall have the right to use all or any part of Contractor's tools or equipment then in use on the job but shall pay Contractor a reasonable rental for the use of such tools and equipment during the period use by Exxon and shall return same to Contractor upon the completion of the job in as good condition as when taken over by Exxon, ordinary wear and tear excepted. Should Exxon take over the completion of said job, or obtain another contractor to do so Exxon shall pay Contractor for the work then completed, subject to the later provisions hereof, unless the compensation for the completed work cannot be readily determined, in which latter event Exxon shall pay Contractor the full contract price less all costs and expenses incurred by it in the completion of the work.

8. Contractor agrees that upon the completion by it and acceptance by Exxon of the work herein contracted for it will furnish Exxon with proof satisfactory to the latter that all claims for labor and material have been satisfied and paid and that there are no unsatisfied claims for injuries to persons or property, and thereupon the amount due as herein provided shall be paid by Exxon to Contractor within 30 calendar days after receipt of final invoice, subject, however, to the right in Exxon to withhold payments in accordance with the provisions of Article 5469, Texas Revised Civil Statutes of 1925, and all amendments thereto or other provisions of law applicable. It is

agreed that upon request of Contractor and upon showing to the satisfaction of Exxon that all claims for labor and material and for damages to persons and property, as above provided, have been satisfied, Exxon, in the event it considers it safe to do so, will advance at approximately fifteen (15) day intervals up to ninety percent (90%) of the value of the work then completed, based upon estimates by Exxon's engineers or inspectors, in which event the balance will be paid upon completion and acceptance of the work and compliance with the terms and provisions hereof. Payment pursuant to the terms of this paragraph shall not preclude the right of Exxon from thereafter disputing any of the items involved.

Contractor agrees that in the event any lien or liens are fixed or attempted to be fixed, secured or claimed against Exxon or Exxon's property by any person or firm, lumber dealer or corporation, artisan, laborer, mechanic or subcontractor who furnished services or materials in connection with the performance of this Contract, Contractor will, within ten (10) days following notification by Exxon that such lien or liens have been fixed or attempted to be fixed, secured or claimed, furnish Exxon a bond in an amount equal to twice the value of the lien or liens. Such bond shall be executed by a corporate surety authorized to do business under the laws of the State of Texas and shall comply in all respects with the requirements of Article 5472c, Vernon's Annotated Texas Statutes. Contractor further agrees to file such bond with the County Clerk of Harris County, Texas, and to take all steps necessary to assure that prompt notice of such filing is given to the obligees named therein. Contractor further agrees that the giving of such bond shall be in addition to any other rights of Exxon or obligations of Contractor under this Contract and shall in no way be construed as abrogating or qualifying such rights and obligations.

9. In the event there is a conflict between any of the provisions hereof and any of the proposals, general conditions, specifications, or any documents, agreements, or papers of any kind which have been incorporated herein by other provisions hereof, it is understood and agreed that the provisions hereof shall be controlling.

The making, execution and delivery of this Contract by the parties hereto have been induced by no representations, statements, warranties or agreements other than those herein expressed. This Contract embodies the entire understanding of the parties hereto and there are no further or other agreements or understandings, written or oral, except as mentioned herein.

10. In performing its obligations hereunder, Contractor shall comply with all applicable federal, state, and municipal laws, and all applicable orders, rules and regulations of constituted authority.

11. If Contractor fails or refuses to pay any taxes or governmental charges, state or federal, relating to the employees of Contractor, and Exxon may be required or deems it necessary to pay such taxes or charges, Contractor agrees to furnish Exxon with information required to enable it to make the necessary reports and to pay such taxes or charges. Contractor agrees to reimburse Exxon on demand at Houston, Texas, for all such taxes or governmental charges, state or federal, which Contractor fails or refuses to pay and which Exxon may be required or deems it necessary to pay. In addition, Exxon, at its election, is authorized to deduct all sums so paid for taxes and governmental charges from any payment due Contractor hereunder.

12. In connection with the work provided for hereunder, Contractor (1) guarantees and warrants all material and equipment fabricated by it against defects and agrees to replace, without cost to Exxon, any such material or equipment which may become defective within one (1) year from Exxon's acceptance of the work except when such defects are the result of corrosion, erosion, normal wear and tear; (2) guarantees its field workmanship and agrees without cost or charge to Exxon to replace or repair any defects in the work covered by this Contract resulting from its field workmanship if such defects are reported to Contractor within one year from date of Exxon's acceptance of the work; (3) will to the extent reasonably possible secure from the vendors of materials and equipment guarantees substantially the same as the guarantees of Contractor set out in (1) and (2) above.

13. In the event Exxon loans or furnishes tools or equipment to Contractor in connection with its work covered hereunder, Contractor agrees:

A. To make its own determination before commencing work that such tools and equipment are adequate for the safe performance of the work by Contractor;

B. That such tools or equipment will be loaned or furnished and accepted by Contractor without warranty or representation by Exxon as to their condition.

C. To return such tools or equipment to Exxon at the conclusion of such use in as good condition as when received, ordinary wear and tear excepted; and;

D. To indemnify and hold Exxon harmless from all claims, demands, causes of action, damages and injuries resulting from Contractor's use of said tools or equipment.

For the purpose of this paragraph 13, tools and equipment shall be defined to include scaffolds, lights, and all other types of apparatus, facilities or services which Exxon may loan or furnish. In addition, all of the provisions of this paragraph shall be applicable to any lighting or illumination loaned or furnished to Contractor by Exxon.

14. Exxon may from time to time, by written instructions or drawings issued to Contractor, require additional work and services directly in connection with or incidental to the work covered by this Contract; and Exxon may by such instructions or drawings, require Contractor to alter, change, accelerate, or omit any work covered by this Contract. In the event Exxon desires any such additions, changes, alterations, accelerations or omissions which will materially increase or decrease the total contract price referred to in paragraph 2 above, Contractor shall submit to Exxon an estimate of such increase or decrease. Should Exxon desire to proceed in accordance with such estimate, Exxon shall issue to Contractor a Contract Change Order describing the work to be added or deleted and the corresponding price addition or deduction therefor. If Contractor has not obtained a Contract Change Order, signed by Exxon's appointed representative, no claim for additional compensation will be allowed. The provisions of this Contract except as may be otherwise provided shall apply to all such additions, changes or alterations as if they were embodied in the original drawings and specifications.

15. Contractor shall procure Exxon's prior written approval as to any subcontract covering any portion of the work provided for hereunder. No such approval shall relieve Contractor from any of the obligations of this Contract, and, as between the parties hereto, Contractor shall be and remain liable as if no such subcontract had been made. No subcontract shall bind or purport to bind Exxon but shall contain a provision permitting assignment thereof by Contractor to Exxon.

16. Contractor agrees to hold in confidence any and all technical information disclosed to Contractor by Exxon, including technical information included in or on tracings, drawings, field notes, calculations, specifications, and engineering data, except:

A. Technical information which at the time of disclosure by Exxon to Contractor is in the public domain;

B. Technical information which, after disclosure by Exxon to Contractor, becomes part of the public domain by publication or otherwise; and

C. Technical information which Contractor can show was in Contractor's possession at the time of Exxon's disclosure to Contractor and was not acquired, directly or indirectly, from Exxon.

Contractor agrees that Contractor will not, without the written permission of Exxon, use the technical information which Contractor is required to keep confidential under this Contract for any purpose other than the accomplishment of work under this Contract.

17. If Contractor or Contractor's personnel make any inventions based upon technical information which Contractor is required to keep confidential under this Contract, Contractor shall promptly disclose said inventions to Exxon. Contractor agrees to grant and hereby grants to Exxon an irrevocable, nonexclusive, royalty-free license and the irrevocable right to grant nonexclusive licenses, without accounting therefor to Contractor, to use said inventions under Contractor's Patent Rights. The licensing right herein granted by Contractor to Exxon is assignable by Exxon to any of its Affiliates. For the purpose of this Contract only, the term "Contractor's Patent Rights" shall mean patents and patent applications based on inventions made by Contractor or Contractor's personnel which inventions are based upon information which Contractor is required to keep confidential under this Contract and which are conceived during the life of this Contract and two (2) years thereafter. The term "Affiliate," as used in this paragraph, shall mean and include any company of which Exxon Corporation now or hereafter owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof. For the purpose of this definition, the stock owned or controlled by Exxon Corporation shall be deemed to include all stock owned or controlled, directly or indirectly, by any other company of which Exxon Corporation owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof.

18. It is expressly understood by Contractor that Exxon accepts no obligation of confidence with respect to any information disclosed to Exxon by Contractor under this Contract unless specifically covered by a separate, written confidentiality agreement. In the absence of such separate confidentiality agreement, Contractor agrees that it will not place any restrictive notices on the tracings, drawings, field notes, specifications, and any other documents embodying engineering or professional data developed by Contractor for Exxon pursuant to this Contract and that Exxon is hereby authorized to nullify, obliterate, or otherwise remove any such restrictive clauses; and that Exxon shall be free to use or disclose any or all of the information contained therein to third parties without accounting to Contractor therefor.

19. It is understood and agreed that Exxon may, upon written notice to Contractor, terminate the work provided for hereunder. In the event of such termination, Contractor shall be reimbursed for actual costs incurred to the date of such notice of termination in connection with the execution of the described work, and for actual costs thereafter incurred by Contractor in connection with such termination, plus applicable overhead and a reasonable profit based on such costs. However, in no event shall such reimbursement include prospective profits for work unperformed.

20. Contractor's obligations under paragraphs 16 and 17 of this Contract shall survive any termination of this Contract.

21. It is agreed as a condition of the Contract as follows:

A. That in the performance of this Contract, Contractor shall not engage in any conduct or practice which violates any applicable law, order or regulation prohibiting discrimination against any person by reason of race, color, religion, national origin, sex or age.

B. This order is XX is not _____ subject to Executive Order 11246, as amended. The Equal Opportunity Supplement is made a part hereof and either is attached hereto for your signature and return or has been previously filed with Exxon. This contract also includes and is subject to Executive Order 11738 requiring certification of compliance with the affirmative action clauses concerning disabled veterans and veterans of the Vietnam era (41 CFR 60-250) and employment of the handicapped (41 CFR 60-741), and the appropriate clauses are either attached hereto or incorporated herein by reference.

C. Contractor agrees to comply with all laws and lawful regulations applicable to any activities carried out in the name of or on behalf of Exxon under the provisions of this agreement and/or any amendments to it.

D. Contractor agrees that all financial settlements, billings, and reports rendered to Exxon, as provided for in this agreement and/or any amendments to it, will reflect properly the facts about all activities and transactions handled for the account of Exxon, which data may be relied upon as being complete and accurate in any further recording and reporting made by Exxon, for whatever purpose.

E. Contractor agrees to notify Exxon promptly upon discovery of any instance where the Contractor fails to comply with Provisions C and D above.

IN WITNESS WHEREOF, the parties hereto have executed this Contract in duplicate originals as of the day and year first above written.

BROWN & ROOT, INC.

By _____
Vice President

Exxon Company, U.S.A.
(a division of Exxon Corporation)

By _____
Purchasing Head
Materials Department

EEB:dcc

(E. W. Bradley)

August 8, 1978
Appropriation 00666

SPECIFICATIONS FOR OFFSITE PIPING ASSOCIATED WITH BAYTOWN OLEFINS PLANT EXXON COMPANY, U.S.A. (A DIVISION OF EXXON CORPORATION) BAYTOWN, TEXAS

SCOPE OF SPECIFICATIONS

1.1 These specifications shall apply to the installation of pipe and structural steel associated with the Baytown Olefins Plant.

SCOPE OF WORK

2.1 The work shall consist of essentially the following:

A. Fabrication, inspection, erection, and testing of pipe.

B. Fabrication and erection of galvanized structural steel.

C. Concrete footings.

D. Erection of pre-insulated pipe.

E. Painting.

2.2 Work shall be performed in accordance with the drawings and engineering standards listed in Tables I and II, both dated August 8, 1978.

DIVISION OF WORK

3.1 The materials furnished and services performed by Exxon shall be as specifically listed in Exhibit "A," dated August 8, 1978.

MECHANICAL SPECIFICATIONS

4.1 Piping fabrication and installation shall be per Baytown Engineering Standard (BTES) 3-19-1C unless otherwise modified by these specifications.

INSPECTION

5.1 In addition to the visual examination required, random radiographs shall be taken to maintain piping weld quality. A minimum of 5 percent of the welds made off Exxon's premises shall be radiographed at the expense of Contractor. Exxon will radiograph, at its expense, approximately 5 percent of all welds made on its premises. Exxon reserves the right to and will, depending on the weld quality received, radiograph any number of additional welds at its expense. Exxon will be reimbursed by Contractor for all radiographic expense for those welds that must be replaced.

5.2 The welds shall be radiographed 100 percent of their length.

5.3 All welds to be radiographed, including those taken at Contractor's expense, shall be selected and interpreted by Exxon.

FOAM PIG CLEANING

6.1 Only the piping, two inches and larger, installed by Contractor shall be cleaned with a soft urethane pig as follows:

- Pig shall be displaced through the line with air at a velocity of two to seven feet per second after hydrostatic testing is completed and just prior to making final connections.
- Only one pass through the line is required unless Exxon's inspector observed excessive amounts of foreign material present. In such cases, additional pig cleaning shall be required.
- Contractor shall furnish foam pigs in the sizes and types approved by Exxon and provide slip blinds and blind flanges required for pigging operations.

6.2 Material and labor required for pigging of any additional lines other than those installed by Contractor shall be negotiated as a separate item.

PAINTING

7.1 Painting of metal surfaces not coated, insulated, or galvanized shall be in accordance with Exxon Engineering Standard (EXES) 19-1-1-1C, System 2-2 B Severe.

- Prime Coat: RB-188 (3.0 mils DFT).
- Intermediate Coat: Ex Finish 6671.
- Finish Coat: None.

MATERIALS

8.1 Pipe and Valves

- Exxon will furnish all gate and check valves four inches and larger.
- Exxon intends to furnish all pipe four inches and larger.

8.2 Additional Pipe

- In the event additional pipe will be required in excess of that pipe in sizes listed in the attached Bill of Materials, Contractor shall submit with his quote a list of pipe only with Contractor cost to furnish. Exxon shall have the option to furnish or not to furnish any additional pipe.

EXX 003910

8.3 Pipe Fittings

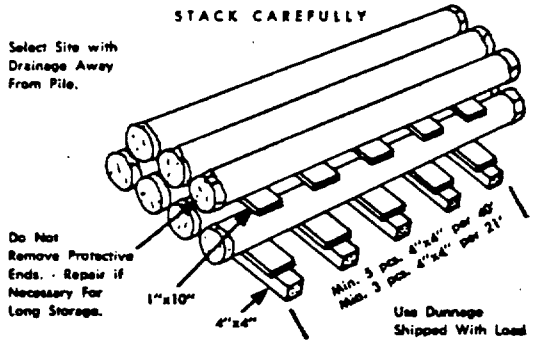
- Exxon shall furnish no fittings except those as listed in Exhibit "A," the attached Bill of Materials list, and as noted in Paragraph 9.1 of these specifications.

SPECIAL MATERIALS

9.1 Exxon shall furnish piping and fitting materials for Line Number 0-120-6" and Line Number 0-124-6". These two lines will be furnished fabricated and insulated.

9.2 Handling and Welding of Pre-Fabricated and Insulated Lines

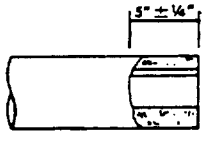
- Pipe sections will be shipped to the job site carefully braced on trucks. Two nylon slings and a spreader bar shall be used to unload and erect piping. Nylon slings and spreader bars shall be furnished by Exxon. Pipe can be stacked using the procedure shown in the drawing. Do not exceed a stack height of six feet. Be careful not to damage pipe ends. Keep all units off the ground and at a level above where possible flooding can occur. It is important to keep not only the insulation dry but also all water out of the heat tube.



9.3 Field Joint Welding and Insulation Procedure

- A step-by-step procedure as outlined shall be followed to insure proper field connections.

- Field alterations of heat tubes.



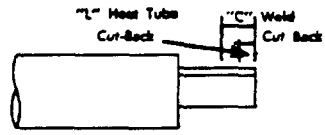
STEP NO. 1

Cut jacket and insulation and remove end.

NOTE: Unit connecting to a field cut unit must be a factory end with STD. Bare pipe projection.

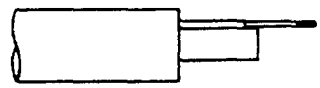
Cut end - tube and pipe may be torch cut.

EXX 003911



STEP NO. 2

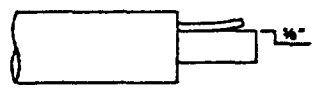
Cut tube back a min. of 2" from carrier pipe ("L") — NOTE: Cut off tube from carrier pipe with a hack saw, not a torch, back 2" greater than "L". ("C")



STEP NO. 3

Pry Bar
Pry bar must be round and a close fit in tube.

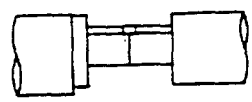
Bend heat tube away from carrier.



STEP NO. 4

Use stone or tapered reamer and file to remove edge on I.D.

NOTE: Remove any roughness on tube I.D. that might damage wire.



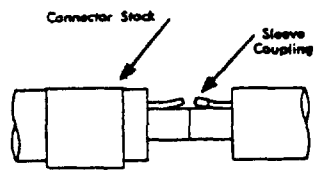
STEP NO. 5

Coupling length equals gap between tube ends.

NOTE: Sleeve coupling made from std coupling stock.
See welding joint instructions.

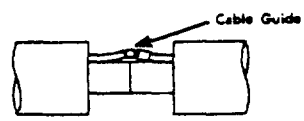
9.4 Field Joint Procedure--Heating Tube

- Sleeve couplings and cable guides shall be furnished by Exxon.



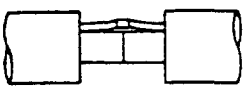
STEP NO. 1

Place connector stock and sleeve coupling onto unit prior to welding carrier pipe — weld pipe and X-ray joint (if required).



STEP NO. 2

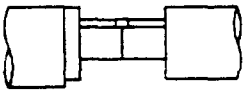
Place cable guide between sect tube.



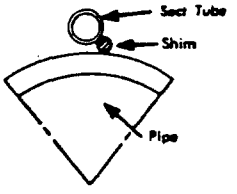
STEP NO. 3

Center sleeve coupling over cable guide and full weld to one end of sect tube. Weld must be air-tight.

STEP NO. 4



Force sect tube down with hammer and wood block or come-along to contact with carrier pipe. Weld sect tube sleeve coupling to other end of sect tube. Weld must be air-tight. Weld sleeve coupling and sect tube to carrier pipe at least 50% of length. Max. unweld length = 2".



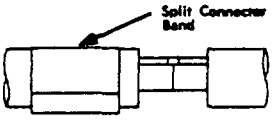
Weld can be on either side of sect tube.

Sect tube sleeve coupling weld must be air-tight as it is to be air pressure tested (10-15 psi) and soaped before foaming.

If the heat tube will not contact pipe, use a mild steel shim to fill the gap.

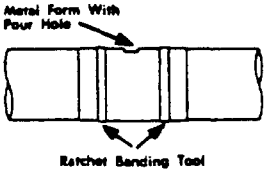
9.5 Field Joint Procedure--Metal Jacket and Insulation

- An installation kit for each field connection shall be furnished by Exxon. Metal forms will not be furnished for each connection but will be in sufficient quantities.



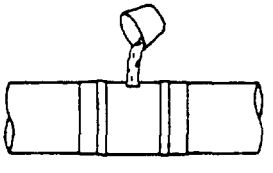
STEP NO. 1

Split connector band must be slid over end of unit prior to welding of pipes. Weld and test carrier pipe as specified and make sect tube connection. (per instructions)



STEP NO. 2

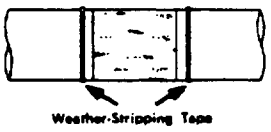
Center metal mold over exposed pipe with pour hole on top and draw down tight with ratchet banding tools. (Tools furnished by RICWIL).



STEP NO. 3

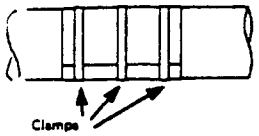
Mix urethane foam per directions and pour through pour hole. After foam has set, remove all overflow and metal mold.

EXX 003913



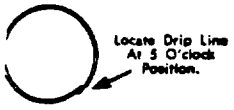
STEP NO. 4

Wrap each end of metal jacket with 1" wide adhesive backed weather-stripping tape. (Tape furnished by RICWIL in rolls to be field cut to length.)



STEP NO. 5

Center split connector band over weather-stripping and tighten down with ½" wide stainless steel hose-type clamps. (Clamps furnished by RICWIL.)



Connector band overlap to be positioned as shown.

9.6 All heat tube joints shall be tested by applying 10 psi air pressure and inspected for leaks by applying soap suds to the weld.

EWB:drc

EXX 003914

August 8, 1978
Appropriation 00666

TABLE I

LIST OF ENGINEERING DRAWINGS

Drawing No.	Revision	Date	Title or Scope
567-140-481	3	7/17/78	Key Piping Plan
567-140-482	2	7/17/78	Key Piping Plan
567-140-484	1	7/17/78	Key Piping Plan
567-140-485	1	7/17/78	Key Piping Plan
567-199-185	3	7/17/78	Line Schedule
567-190-3410	1	7/17/78	Piping-Route FO, D, DO, N, O (Tar Line)
567-190-3414	1	7/17/78	Piping-Route O and N (Tar Line)
567-190-3412	3	7/17/78	General Notes and Reference Drawing
567-190-3441	3	7/17/78	Piping-Route DI and DQ (Tar Line)
567-190-3442	0	7/17/78	Piping--2-Inch Caustic and 10-Inch Gas
567-190-3443	1	7/17/78	Piping-Waste Clay Disposal Area and Route CC
567-190-3444	5	7/17/78	Piping-Route CM, AC, and DQ
567-190-3445	0	7/17/78	Piping-Route B, AK, and AI (HCU 1)
567-190-3446	0	7/17/78	Piping-Route B (San Jacinto Street)
567-190-3447	0	7/17/78	Piping-Route BA (Fannin Street)
567-190-3448	0	7/17/78	Piping-Route BA (Treater Area)
567-190-3449	1	7/17/78	Piping-Route BM
567-190-3450	1	7/17/78	Piping-Route BM
567-190-3451	1	7/17/78	Piping-ACN Line, East Avenue
567-190-3452	0	7/17/78	Piping at BOP Interface
567-190-3440	3	7/17/78	Piping-Route DQ (Tar Line)
567-190-3462	0	7/17/78	Piping-Route A
567-190-3463	0	7/17/78	Piping-Route A
567-190-3464	1	7/17/78	Line No. 0-120-6" and 0-124-6" Expansion Loops
567-190-3461	0	7/17/78	Gasoline Blend Manifold
567-192-148	3	7/17/78	Route CH--2-Inch Caustic Line
471-190-598	1	7/17/78	Piping Pump Slab 208
567-192-152	1	7/17/78	Route BB--2-Inch Caustic Line Tar Line Elevations
567-190-186	0	7/17/78	Piping-Route CC
567-31-30	0	8/1/78	Gasoline Blend Manifold, Slab, Platform, and Pipe Supports

EWB:drc

August 8, 1978
Appropriation 00666

TABLE II

LIST OF ENGINEERING STANDARDS

Standard No.*	Revision	Date	Title
BTES 3-2-3.7D	3	9/74	Hose Reel, Installation
EXES 3-6-1-1C	1	4/76	Piping for Instruments, Installation
EXES 3-6-1-5C	1	4/76	Piping for Instruments, Thermowell Connections
EXES 3-6-2-1E	0	4/75	Piping at Control Valve Stations, Arrangements
EXES 3-6-4-1A	0	9/76	Vents and Drains, Flushing and Cleaning Connections, Design
BTES 3-7-0.8C	0	6/71	Pressure Taps, Construction
BTES 3-7-1.1D	0	6/71	Integral Pipe Supports
EXES 3-7-1-2C	0	12/77	Small Pipe Connections, Installation
BTES 3-7-1.2D	0	6/71	Pipe Anchors and Guides
EXES 3-17-1-1B	0	4/76	Orifice Flanges
EXES 3-17-1-2B	0	4/77	Orifice Meter Tubes, AGA Construction, Purchase
BTES 3-18-1B	2	2/75	Fabricated Piping, Purchase
BTES 3-19-1C	1	12/73	Fabricated Piping, Erection
BTMS 3-20-1-1C	0	12/77	Piping Materials, Class 125A-2
BTMS 3-20-1-16C	0	12/77	Piping Materials, Class 150A-6
BTMS 3-20-1-18C	0	12/77	Piping Materials, Class 150A-8
BTPD 3-21-3-1B	0	12/77	Gate Valves, Purchase Descriptions
BTES 4-2-0.1B	2	3/74	Fabricated Structural Steel, Purchase
EXES 4-2-1-1A	0	12/76	Auxiliary Structures for Operation and Maintenance, Design
EXES 4-2-1-2C	0	12/77	Fabricated Structural Steel, Erection
EXES 4-2-2-3D	0	4/78	Pipe Hangers, Fabrication (Baytown Only)
EXES 4-6-1-1B	0	12/77	Concrete, Purchase (Baytown Only)
BTES 4-6-1.3D	0	5/70	Anchor Bolt Fabrication Details
EXES 4-6-1-9B	0	7/77	Fabricated Reinforcing Steel, Purchase (Baytown Only)
EXES 4-10-1-1C	1	12/77	Concrete Construction
EXES 4-10-2-3C	0	4/77	Cement Grouting for Machinery
EXES 16-13-1-1C	0	7/76	Field Installation and Testing of Electrical Equipment
EXES 18-1-1-1B	1	12/76	Permissible Substitutes for U.S.A. Specification Materials
EXES 18-7-1-1B	1	4/77	Welding Procedures
EXES 19-1-1-1C	0	7/77	Paint and Protective Coatings, Application
EXES 19-1-1-5B	0	7/77	Galvanized Coatings
EXES 20-1-1-1B	1	11/75	Inspection of Equipment and Materials
EXES 20-1-2-1B	3	7/77	Administrative Procedures for Obtaining ERE Inspection

TABLE II (CONTINUED)

Standard No.*	Revision	Date	Title
EXES 20-1-3-1B	0	7/77	Administrative Procedures for Obtaining Outside Inspection and Expediting
BTES 50-5-1.1C	3	1/77	Construction Requirements, Instructions
BTES 50-5-5.1C	0	2/70	Field Welding Qualifications, Instructions
BTES 50-6-5.1D	1	1/73	Invoicing for Lump-Sum Contracts, Instructions

* BTES = Baytown Engineering Standards
  EXES = Exxon Engineering Standards
  BTMS = Baytown Material Specifications
  BTPD = Baytown Purchase Descriptions

EBWr:jc
8/8/78
00666

EXHIBIT "A"

August 8, 1978
Appropriation 00666

OFFSITE PIPE ASSOCIATED WITH
BAYTOWN OLEFINS PLANT

EXXON WILL FURNISH ONLY THE FOLLOWING:

1.1 Copies of applicable drawings, specifications, and standards reasonably needed for work execution.

1.2 The following utilities, if required and requested by Contractor, in quantities available at existing outlets, which will not be extended by Exxon, each to be used at Contractor's risk:

A. Drinking water, not cooled.

B. Industrial water at 60 psig.

C. Electrical power at 110/220 volts, 60 Hertz, single-phase and 440 volts, 60 Hertz, three-phase.

1.3 The following materials to be received and loaded by Contractor at locations in the Baytown Refinery to be designated by Exxon:

A. Instruments furnished by Exxon:

Item	Description	Purchase Order No.	Quantity
1	3-Inch, 150-Pound Camflex Control Valves - FICV 0138, 0238, and 0338	91TH52833G59012	3
2	6-Inch, 150-Pound Camflex Control Valves - FICA 0138A, 0238A, and 0338A	91TH52833G59012	3
3	6-Inch, 150-Pound Brooks D-6-150 Strainers	63MH58160D21468	3
4	6-Inch, 150-Pound Turbine Flow Meters - FRIC 0138A, 0238A, and 0338A	37SH00225A37824 Release 211U	3
5	4-Inch, 150-Pound Turbine Flow Meters - FRIC 0138B, 0238B, and 0338B	37SH00224A37824 Release 211U	3
6	Pressure Relief Valve PH0740	91SH00024J28250 Release 004G	1
7	3/4-Inch Roto-Meter FJ88	63TH58160U71758	1
8	2-Inch Turbine Meter F-448	37TH00225A37824 Release 274U	1

EXHIBIT "A" (CONTINUED)

Item	Description	Purchase Order No.	Quantity
9	2-Inch, 300-Pound Control Valve FICV - 311	91TH58074G71006	1
10	2-Inch, 300-Pound Brodie B1-Rotor Meter Model B-53H	37SH58075U21468	1
11	Orifice Plate FR 58 I-0-265	60SH00057A37297 Release 037D	1
12	Orifice Plate F 764 I-1060	60SH00057A37297 Release 038D	1

B. Valves and pipe furnished by Exxon:

As listed in the attached Bill of Materials.

EXXON WILL PERFORM ONLY THE FOLLOWING:

2.1 Designate a site in the Baytown Refinery to which Contractor shall haul all dismantled or surplus material and debris.

2.2 Designate material storage area and areas on which Contractor may locate temporary sanitary facilities, shops, and offices.

2.3 Indicate a reference Bench Mark (monument) and provide Contractor the elevation and coordinates of this reference point. Also, Contractor will be provided the azimuth from the first Bench Mark to a second Bench Mark.

2.4 Electrical and instrument work except Contractor shall install those instruments and motor valves furnished in Exhibit "A" and the Bill of Materials.

EWBr:jc
8/8/78
00666

BILL OF MATERIALS
TABLE A-1 - LISTING OF PIPE

Purchase Order No MATERIAL RESERVED FOR B.O.P.
Date Needed 10-1-78 Rel. No.

☐ For Forecast
☐ For Purchasing
☑ Job Specification

Title OFFSITE PIPING ASSOCIATED WITH BOP
Charge Material To 52002-0067G Sub 390 Contract of

Page 1 of
Date 8-1-78 By

Code No. (Per BTES 3-51-1.1B)	Size	Wall Thick. or Schedule	BE PE TE	Special	Symbol No.	Linear Feet	Unit Price	Total Price
	4"	SCH. 40		GRADE A 53B ERW	BARE	11000		
	6"	SCH. 40		GRADE A 53B ERW	BARE	7200		
	8"	SCH. 20		.250 WALL X42 ERW	COATED	2400		
	8"	SCH 30		.277 WALL SMLS	BARE	3200		
	8"	SCH 40		.322 WALL SMLS	BARE	1300		
	10"			0.279-INCH WALL SEAMLESS, COATED		5700		
	12"	SCH. 20		X52	BARE	200		
	8"	SCH. 20		X42 ERW BARE		600		
	8	SCH 40		SEAMLESS BARE		1300	MR #	32626
	EXXON WILL FURNISH FABRICATED AND INSULATED 6" PIPE							
	FOR LINES NUMBERS 0-120-6" AND 0-124-6"							
	0-120-6"							
	0-124-6"					5700		

EXX 003620

Notes:

BILL OF MATERIALS
TABLE A-4 - LISTING OF VALVES

Purchase Order No. MR # 32625
Date Needed 10-1-78 Rel. No.

☐ For Forecast
☐ For Purchasing
☒ Job Specification

Title OFFSITE PIPING ASSOCIATED WITH BOP
Charge Material To 50000-00676 Sub 390 Contract of

Page 2 of
Date 8-1-78 By

Code No. (Per BTESs)	Size	Rating	Special	Symbol No.	Quantity	Unit Price	Total Price
	4	150		92054-405	14		
	4	150	FOR HOT TAP	92054-405	2		
	6	150		92054-409	11		
	6	300	FOR HOT TAP	92064-337	1		
	8	150		92054-410	5		
	4	150	SWING CHECK C.S. FLG 150LB	92053-356	3		
	6	150	BUTTER FLY CHECK		2		

Notes: (1) For Purchase Descriptions of Valves, See BTESs 3-51-22.1B, 3-51-23.1B, 3-51-24.1B, and 3-51-25.1B.

EXX 003921

OFFICE MEMO
BROWN & ROOT, INC.

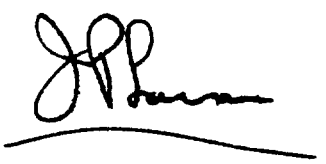
TO: THOSE CONCERNED

FROM: J. P. LAMAR OCTOBER 11, 1978

SUBJECT: NEW JOB ASSIGNMENTS--INDUSTRIAL-CIVIL DEPARTMENT

THE FOLLOWING JOB NUMBERS HAVE BEEN ASSIGNED TO THE INDUSTRIAL-CIVIL DEPARTMENT TO COVER THE FOLLOWING NEW CONTRACTS:

JOB NO.	JOB DESCRIPTION
27-4172	ALUMINUM COMPANY OF AMERICA - MISCELLANEOUS VESSEL REPAIR AT POINT COMFORT, TEXAS
27-4173	GULF COAST PORTLAND CEMENT - INSTALLATION OF THE NO. 3 FINISH MILL IN HOUSTON, TEXAS
27-5741	WASHINGTON NATIONAL INSURANCE COMPANY - CONSTRUCT PAVING, DRAINAGE AND ELECTRICAL FACILITIES FOR THE PLAZA DEL ORO PARKING LOT, HARRIS COUNTY, TEXAS
27-5742	EXXON COMPANY, U.S.A. - CONSTRUCT ADDITIONS TO THE CONTROL CENTER BUILDING NO. 731 IN BAYTOWN, TEXAS
27-5743	EXXON COMPANY, U.S.A. - CONSTRUCT OFFSITE PIPING AT BAYTOWN, TEXAS



EXX 003923

BROWN & ROOT, INC.
NEW JOB ASSIGNMENT

☒ ORIGINAL
☐ REVISION

DATE 10-2-78

1-2 CO. CODE: 01

3-11 JOB NUMBER: DEPT. 27 | NUMBER 5743 | SUFFIX

STATE CODE: ☐☐

CITY CODE: ☐☐

12 CONTRACT TYPE
- 1 ☒ FIXED PRICE
- 2 ☐ COST PLUS
- 3 ☐ JOINT VENTURE
- 9 ☐ ASSOC. CO'S

13 ACCOUNTING LOCATION
- 1 ☒ HOME OFFICE
- 2 ☐ PROJECT OFFICE
- 9 ☐ OTHER

14 OWNER
- 1 ☒ BROWN & ROOT
- 2 ☐ ASSOC. CO'S
- 3 ☐ JOINT VENTURE
- 9 ☐ OTHER

15 SPECIAL CODES
- 2 ☐ JOB SUFFIX
- 3 ☐ SPECIAL SUFFIX

INDUSTRY TYPE
- 20-21 PREFIX: 01
- 22-23 NUMBER: 04
- 24-25 SUFFIX: ☐☐

26-27 DIVISION: 27

28-33 SECONDARY JOB: 27-0002

35-36 SECONDARY DIV.: 12

16 JOB CLASSIFICATION.
- 1 ☐ MARINE
- 2 ☒ OTHER

34 CONTRACT AMOUNT TYPE
- 1 ☒ DOLLAR AMOUNT
- 2 ☐ CONTINUOUS WORK
- 9 ☐ OTHER

74 JOB STATUS
- ☒ ACTIVE
- 1 ☐ CLOSED & REOPENED
- ☐ COMPLETED

YEAR | MONTH

YEAR | MONTH

JOB TITLE

79-80 CARD CODE

EXXON COMPANY, U.S.A. - CONSTRUCT OFFSITE PIPING AT BAYTOWN, TEXAS

RD

REQUEST FOR ASSIGNMENT OF JOB NUMBER
BROWN & ROOT, INC. AND ASSOCIATED COMPANIES

FROM: ACCOUNTING DEPARTMENT — 9/28/78 (DATE)

SUBJECT: JOB NUMBER ASSIGNMENT – Brown & Root, Inc. (COMPANY) – Industrial-Civil (DEPARTMENT)

JOB INDUSTRY TYPE: Industrial--Piping SUB-DIVISION: Baytown Field Office

PLEASE ASSIGN A JOB NUMBER TO BE USED FOR RECORDING OF INCOME AND COSTS RELATING TO THE CONTRACT DETAILED BELOW:

OWNER: Exxon Company, U. S. A.

PRIME CONTRACTOR: Brown & Root, Inc.

CONTRACT DATE: September 28, 1978

DESCRIPTION OF WORK AND LOCATION: Offsite Piping, Exxon Company, U. S. A., Baytown, TX

TYPE OF CONTRACT: UNIT PRICE ( ), LUMP SUM (XX), FORCE ACCOUNT ( ), COST PLUS FEE ( ), JOINT VENTURE ( ), OTHER ( ), _____ (EXPLAIN)

ESTIMATED COMPLETION DATE: January 15, 1978 OR CONTINUOUS ( ).

CONTRACT AMOUNT: $ 361,096.00 ACTUAL (XX), ESTIMATED ( ).

TERMS OF PAYMENT: PROGRESS BILLINGS - MONTHLY (XX), WEEKLY ( ), BIWEEKLY ( ). SEMIMONTHLY ( ), REVOLVING FUND ( ), OTHER ( ),: _____ (EXPLAIN)

PERCENT RETAINED: 10 % OF progress billing amount

OTHER ( ),: _____ (EXPLAIN)

TO BE COMPLETED ONLY FOR JOINT VENTURES:

PARTNERS AND PARTICIPATION:

SPONSOR: _____, _____ %

_____, _____ % _____, _____ %

_____, _____ % _____, _____ %

ATTACH FINANCING CURVE OR CASH FORECAST:

JOB NUMBER ASSIGNED: 27-5743 Copy of contract attached

B K Carpenter (SIGNATURE OF EMPLOYEE REQUESTING JOB NUMBER)

Carpenter/Baugh

CC: ORIGINAL — ACCOUNTING
DUPLICATE — RETAINED
TRIPLICATE — TREASURY/CREDIT
QUADRUPLICATE - PURCHASING

Form A-56 (1/76)

EXX 003924

December 15, 1978

S & C Construction Company, Inc.
P.O. Box 96240
Houston, Texas 77015

Attn: Mr. Robert Lavin

Subject: Subcontract No. 27-5743-5003
Underground Utilities
Roll-on-Roll-Off Transit Shed
Port of Houston Authority
Houston, Texas

Gentlemen:

We enclose herewith one fully executed copy of our Subcontract Number 27-5743-5003 dated October 30, 1978 for your permanent file.

Should you at any time have any further questions in regards to this Subcontract please contact the undersigned at (713) 676-3758.

Sincerely yours,

BROWN & ROOT, INC.

ORIGINAL SIGNED BY
J. E. FUTCHER

John Futcher
Subcontract Administrator
Subcontracts Department
Procurement Division

JF/jb

Enclosure

bcc: E.E. Kernan (w/original attached)
R.R. Cadwell (w/one copy attached)
J.H. Williams (w/one copy attached)
RF/RMB
RF/CIRC
RF/JEF
File - S/C 27-5743-5003

Form P-50 1-76

BROWN & ROOT, INC.

JEF/yde

SUBCONTRACT

Job Number 27-5747(5)

Port of Houston Authority
Roll-On-Roll-Off Transit Shed
Barbours Cut Terminal

Subcontract No. 27-5747-5003

(Project)

Underground Utilities

(Sublet Work)

October 30, 1978

(Effective Date)

THIS SUBCONTRACT, by and between BROWN & ROOT, INC., a Texas Corporation, P. O. BOX 3, HOUSTON, TEXAS 77001, "GENERAL CONTRACTOR" and,

S & C CONSTRUCTION CO., INC.,

a Corporation (Corporation, Proprietorship, Partnership) under laws of Texas (State)

whose address is P. O. Box 96240, Houston, Texas 77020 (713) 453-7207,

"SUBCONTRACTOR," whose contractor's license number under laws of Not Applicable

is Not Applicable, entered into as of the EFFECTIVE DATE stated above,

WITNESSETH:

In consideration of the mutual promises herein contained General Contractor and Subcontractor agree, promise, and obligate themselves as follows:

1. Subcontractor promises to perform the Sublet Work for the Project in accordance with the Contract Documents.

2. General Contractor promises to pay Subcontractor, for full, accurate and timely performance of the Sublet Work in accordance herewith, the Price and other payments, and promises to perform all of the other obligations of General Contractor, as set forth in the Contract Documents.

3. The Contract Documents constituting this Subcontract consist of:

a. "Subcontract Terms" and exhibits thereto.

~~"Special Conditions" and exhibits thereto~~

c. "General Conditions" Form P-50 (1/77)

d. "Affidavit for Subcontractor" (2)

e.

f.

Project Account Code 27-5747
Vendor Code No. 1122271
Net Price: $ 250,443.05
Terms:

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Subcontract No. 27-5747-5003

The foregoing constitutes the entire contract, and supersede all prior proposals, negotiations, agreements, awards, letter of intent and written or oral statements, representations or agreements.

4. The Effective Date set forth above is the date as to which all Contract Documents and provisions thereof have reference for purposes of coordination of their meaning and effect. The price relates to the Sublet Work as described in drawings, specifications and other Contract Documents in their condition on that date. Changes after the effective date will be dealt with in accordance with the provision for changes. Any work commenced and any payments made pursuant to an Award or Letter of Intent prior to the execution hereof shall be deemed to have been done and paid after the Effective Date under the terms of this Subcontract.

GENERAL CONTRACTOR:

BROWN & ROOT, INC.

By: Thomas C Todd for D. E. Newton, Jr.

Title: Vice President - Procurement

Date: 12/18/78

SUBCONTRACTOR:

S & C CONSTRUCTION CO., INC.

By: [signature]

Title: President

Date: 12/11/78

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SUBCONTRACT TERMS

UNDERGROUND UTILITIES
PORT OF HOUSTON AUTHORITY

SUBCONTRACT NO. 27-5747-5003

1. SUBLET WORK

1.1 The Sublet Work is to install underground utilities for the Port of Houston Authority located in Houston, Texas.

1.2 More specifically, the Subcontractor agrees to perform the Sublet Work which consists of furnishing all labor, materials, tools, equipment, transportation, supervision, taxes, insurance and all other items necessary (except for those items described hereunder in Subcontract Term No. 3) to install the drainage system, sanitary sewer system, and potable water system for the Roll-On Roll-Off Transit Shed at Barbours Cut Terminal, Port of Houston.

1.3 Subcontractor shall perform all work described herein in accordance with the directions of the General Contractor's Project Manager or his duly authorized representative.

2. TIME OF PERFORMANCE

2.1 Subcontractor shall commence performance of the Sublet Work, described herein, on or about November 15, 1978 and shall perform all work in a diligent manner until all aspects of the Sublet Work are completed, which shall be on or before February 15, 1979.

2.2 Subcontractor shall perform the Sublet Work in accordance with the schedule of the General Contractor's Project Manager or his duly authorized representative.

2.3 Subcontractor shall maintain contact with the General Contractor's Project Manager, or his duly authorized representative for the purpose of scheduling and coordinating the Sublet Work.

3. SERVICES AND MATERIALS PROVIDED BY GENERAL CONTRACTOR

General Contractor shall provide the following items at no charge to Subcontractor for the performance of the Sublet Work described herein:

3. SERVICES AND MATERIALS PROVIDED BY GENERAL CONTRACTOR - (Continued)

3.1 Furnish and place the four-inch (4") asphaltic concrete surfacing at the sewage sump.

3.2 The performance of any field engineering and layout of the project.

3.3 Disposal of all excess dirt.

4. SUBCONTRACT PRICE

4.1 General Contractor agrees to pay Subcontractor for complete, satisfactory and timely performance of the Sublet Work strictly in accordance with all requirements of the Subcontract Documents. Payments shall be based upon Firm Unit Prices including all applicable sales and use taxes and are estimated in the aggregate to be the following amount:

TWO HUNDRED FIFTY THOUSAND THREE HUNDRED THREE DOLLARS AND FIVE CENTS
(Words)

$ 250,303.05
(Figures)

4.2 The following firm unit prices shall apply to the Sublet Work of this Subcontract and the basis for establishing the final dollar value of this Subcontract shall be determined from the final Owner measured quantities of the installed listed items.

4.2.1 Base Bid Items

Item	Description	Estimated Quantity	Unit	Unit Price	Total Amount
	Drainage:				
a.	Reinforced Concrete Pipe, ASTM. C-76 Class III (All Cuts):				
	(1) 54"	35	L.F.	$ 88.00	$ 3,080.00
	(2) 48"	100	L.F.	$ 75.00	$ 7,500.00
	(3) 30"	532	L.F.	$ 40.00	$21,280.00
	(4) 27"	140	L.F.	$ 37.50	$ 5,250.00
	(5) 24"	736	L.F.	$ 33.00	$24,288.00
	(6) 18"	45	L.F.	$ 30.00	$ 1,350.00

4. SUBCONTRACT PRICE - (Continued)

4.2 (Continued)

4.2.1 (Continued)

Item	Description	Estimated Quantity	Unit	Unit Price	Total Amount
b.	Reinforced Concrete Pipe, ASTM C-76 Class IV (All Cuts):				
	(1) 30"	40	L.F.	$ 42.00	$ 1,680.00
	(2) 24"	20	L.F.	$ 34.00	$ 680.00
c.	Grate Inlet	15	Each	$3,250.00	$48,750.00
d.	Type "C" Manhole	1	Each	$1,000.00	$ 1,000.00
e.	Type "A" Manhole	1	Each	$2,500.00	$ 2,500.00
f.	Corrugated Metal Pipe, 14 Gage				
	(1) 30"	80	L.F.	$ 35.00	$ 2,800.00
	(2) 24"	55	L.F.	$ 34.00	$ 1,870.00
g.	Corrugated Metal Pipe Underdrain, 16 Gage:				
	(1) 18"	470	L.F.	$ 27.00	$12,690.00
	(2) 15"	630	L.F.	$ 25.00	$15,750.00
	(3) 12"	88	L.F.	$ 23.00	$ 2,024.00
	(4) 10"	487	L.F.	$ 18.00	$ 8,766.00
	(5) 8"	160	L.F.	$ 17.00	$ 2,720.00
h.	Concrete Pipe Encasement	80	L.F.	$ 65.00	$ 5,200.00
i.	Plug End of Storm Sewer	9	Each	$ 100.00	$ 900.00
j	Modify Type "E" Inlet	1	Each	$1,000.00	$ 1,000.00
k.	Modify Existing Manhole	1	Each	$ 300.00	$ 300.00
l.	Remove Existing Culverts	30	L.F.	$ 12.50	$ 375.00

4. SUBCONTRACT PRICE - (Continued)

4.2 (Continued)

4.2.1 (Continued)

Item	Description	Estimated Quantity	Unit	Unit Price	Total Amount
	Sanitary Sewer:				
a.	Type 1 Manhole	4	Each	$ 780.00	$ 3,120.00
b.	4" V.C. Sewer Pipe, All Cuts	580	L.F.	$ 6.50	$ 3,770.00
c.	Class "A" Bedding for 4" Sewer	580	L.F.	$ 3.25	$ 1,885.00
d.	2" Fiberglass Force Main	1,930	L.F.	$ 6.90	$13,317.00
e.	Sump with Pump		L.S.		$15,860.00
f.	3" Schedule 40 Steel Pipe Casing in Open Trench	145	L.F.	$ 11.25	$ 1,631.25
g.	3" Schedule 40 Steel Pipe Casing in Bored Hole	50	L.F.	$ 25.00	$ 1,250.00
	Potable Water System:				
a.	6" Cast Iron Water Line	1,046	L.F.	$ 11.30	$11,819.80
b.	2-1/2" Galvanized Steel Water Line	532	L.F.	$ 8.50	$ 4,522.00
c.	Gate Valves with Valve Boxes:				
	(1) 6" Flanged	2	Each	$ 315.00	$ 630.00
	(2) 2-1/2" Threaded	2	Each	$ 200.00	$ 400.00
d.	6" Check Valves	3	Each	$1,350.00	$ 4,050.00
e.	Fire Hydrants	2	Each	$1,000.00	$ 2,000.00
f.	Relocate Existing Fire Hydrant	1	Each	$ 390.00	$ 390.00
g.	Relocate Existing 6" Gate Valve	2	Each	$ 200.00	$ 400.00
h.	Relocate Existing Water Meter	1	Each	$ 300.00	$ 300.00
i.	Concrete Thrust Blocks	2	Each	$ 75.00	$ 150.00

4. SUBCONTRACT PRICE - (Continued)

4.2 (Continued)

4.2.1 (Continued)

Item	Description	Estimated Quantity	Unit	Unit Price	Total Amount
j.	Miscellaneous Iron Fittings	0.4	N.T.	$1,700.00	$ 680.00
k.	Concrete Valve Box	3	Each	$3,250.00	$ 9,750.00
l.	Remove Existing 6" C I. Water Line		L.S.		$ 2,500.00
m.	Reconnect Existing 1-1/2" Plastic Water Line		L.S.		$ 125.00

5. PAYMENT AND PERFORMANCE BONDS

In accordance with General Condition 19, Subcontractor hereby agrees to furnish separate 100% Payment and Performance Bonds, each in the amount of the total dollar value of the Subcontract. The combined premium cost of said bonds is included in the unit prices listed in Subcontract Term No. 4.

6. PAYMENT

6.1 The following paragraph supplements Paragraph Number 32 of the General Conditions:

Subcontractor shall be paid in monthly progress payments the value of the Sublet Work satisfactorily performed during the preceding month based upon the firm unit price described in Subcontract Term No. 4 less 10% of such value as retainage until final completion and acceptance of the Sublet Work by the General Contractor. Subcontractor shall prepare and submit supporting documents and proof of payment of all bills for labor and materials, as may be requested by General Contractor. Subcontractor's invoice for proposed monthly progress payments with requested supporting documents and proof of payment of all bills will be submitted for approval by General Contractor and, when approved, payment shall be made within thirty days thereafter. Final payment and release of retainage shall be made when the Sublet Work has been satisfactorily completed and accepted and Subcontractor has submitted the Affidavit as called for in Subcontract Term No. 7.

6.2 The price stated in paragraph 5.1 is based upon estimated quantities required to accomplish the Sublet Work and is used for the purpose of establishing an order of magnitude for pricing. The General Contractor reserves the right to

6. PAYMENT - (Continued)

6.2 (Continued)

purchase more or less quantity than that estimated, as governed by construction requirements, without penalty; and the Subcontractor shall be paid all amounts due for work performed hereunder, but shall have no claim for work not performed or anticipated profit.

7. AFFIDAVITS

Two copies of the General Contractor's "Affidavit For Subcontractor" (Form P-7) are attached for use in implementing the provisions of General Condition 32. Subcontractor shall execute and return one copy with his final or retainage invoice to the address shown in Subcontract Term No. 8.

8. INVOICES

Subcontractor shall render all invoices to the following address:

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: Bob LaRose

9. INSURANCE

Subcontractor shall forward his Certificate of Insurance stating the names of its Insurance Carriers and certifying that its insurance coverages meet the requirements set forth in General Condition No. 21 herein to the following address, in addition to the address shown in Subcontract Term No. 8.

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: J. E. Futcher
(01-116)

10. SUBMITTALS

Subcontractor shall send all shop drawings and certificates of analysis of materials as may be required by the Port of Houston Authority to the following address:

10. SUBMITTALS - (Continued)

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: James Williams

11. LABOR RELATIONS

The following supplements paragraph number 14 of the General Conditions:

Subcontractor represents that its pre-hiring collective bargaining agreements, if any, contain or will contain provisions that, or Subcontractor has entered into or will enter into a project agreement modifying such collective bargaining agreement to provide that, there shall be no strikes, slowdowns, picketing, secondary boycotts, or work stoppages during the performance of the Sublet Work. Subcontractor will further subcontract only to lower-tier Subcontractors having similar provisions in their collective bargaining agreements, if any.

GENERAL CONDITIONS

1. INVESTIGATION OF SITE AND PROJECT CONDITIONS

Subcontractor represents that he is familiar with the site and the physical conditions, the availability of labor and materials and all other matters at the site or in the vicinity of the site which affects the Sublet Work. Subcontractor represents that he has examined the subcontract document and familiarized himself with the Project, the laws, rules and regulations relating to the Project; the environmental considerations affecting the Project and the Sublet Work; the participants in the Project; and the contractual and regulatory provisions of governmental agencies, the Owner and General Contractor affecting the participants in the Project and the Sublet Work. No allowance will be made to Subcontractor for not having made such examination and review or for requirements which a reasonable examination, inquiry and review would have disclosed.

2. RESPONSIBILITY

a. Subcontractor agrees to perform the Sublet Work in accordance with good construction practices and the plans, specifications and other requirements of this Subcontract, and to furnish all supervision, labor, supplies, tools, construction equipment, facilities, storage, permanent equipment and materials (except as specified herein to be furnished by Owner or General Contractor) and all other things and services necessary or desirable to perform the Sublet Work.

b. Subcontractor shall be responsible for the correctness of the positions, levels and dimensions of the Sublet Work, notwithstanding the Subcontractor may have been assisted by the General Contractor or any other Contractor in setting out the same; and if at any time during the performance of the Sublet Work, any error shall appear or arise therein, the Subcontractor shall immediately advise the General Contractor's Site Representative and await instructions for removal and replacement or performance of corrective work, before proceeding with that portion of the Sublet Work.

c. All work which is manifestly necessary to carry out the intent of the drawings and specifications pertaining to the Sublet Work, or which is customarily done in performing this type of work for the Owner or General Contractor, shall be performed by the Subcontractor as a part of the Sublet Work.

3. COORDINATION OF THE PROJECT

General Contractor is charged with the responsibility of accomplishing the work of the entire Project, or a significant portion thereof, in accordance with drawings, specifications, permits, licenses, rules and regulations, laws and ordinances, and requirements of the Owner. The contract price provisions, and the definition of requirements of the Sublet Work, as of the effective date, are coordinated and identified in the Subcontract Terms. General Contractor is charged with the responsibility of coordinating the efforts of all, or a significant portion of, the participants in the Project, including various subcontractors, specialty service contractors, suppliers, and other workmen, and the direct employees of General Contractor. Subcontractor agrees to perform the Sublet Work as part of the team of participants in the Project in cooperation with all other participants, and subject to all reasonable rules, regulations, and directives of General Contractor (a) for the coordination of the work of all participants, (b) for the maintenance of safety, efficiency, security and good order on the Project as a whole, (c) for compliance with the terms hereof, and (d) for the protection of the environment and the rights of the public.

4. SCHEDULING SUBLET WORK

Subcontractor agrees to commence the Sublet Work promptly when directed by General Contractor and to prosecute the Sublet Work diligently to completion. Subcontractor agrees to provide adequate number and types of: (a) laborers, skilled craftsmen and technicians, supervisors, administrators, and managers, (b) construction equipment in good condition, (c) materials, permanent equipment, and supplies, except for items specified to be supplied by General Contractor or Owner, to accomplish the work and maintain the Schedule or restore the Sublet Work to the Schedule. Subcontractor shall provide General Contractor a detailed Schedule for performance of the Sublet Work and shall revise and update such Schedule from time to time as the work on the Project progresses. The Schedule for the Sublet Work shall be subject to revision or approval by General Contractor to coordinate the Sublet Work with the over-all rate of progress of General Contractor and other participants in the Project as a whole, and to expedite performance of critical items of work on the schedule. General Contractor will schedule and coordinate the use by Subcontractor and others of jointly used facilities, construction equipment, and space, and Subcontractor shall accomodate its Schedule to such shared use. General Contractor will determine the normal working hours for the Project as a whole, and any special working hours for the Sublet Work on a normal shift or overtime basis will be subject to prior approval of General Contractor.

5. INTEGRATION WITH WORK OF OTHERS

Subcontractor shall inform itself regarding the nature, condition and state of progress of work of others which affects or connects with the Sublet Work. Before connecting Sublet Work to work of others, Subcontractor shall ascertain that such work of others is ready, properly aligned, and in suitable condition for such connection and integration with the Sublet Work, and shall report any discrepancies to General Contractor for adjustment prior to proceeding. Subcontractor is not charged with notice of latent defects in the work of others of which he has no actual knowledge.

6. ALLOCATION OF FACILITIES

General Contractor will designate for use by Subcontractor, entrances, parking areas, storage areas, office and work areas, and such facilities and construction equipment as General Contractor is to provide. General Contractor will allocate, and schedule the use of, such common facilities and utilities as are provided by General Contractor for use of Subcontractor and other participants in the Project. Temporary interruption of services, utilities and use of facilities are anticipated and shall not justify a claim for additional compensation.

7. INSPECTION AND QUALITY CONTROL

The Sublet Work shall be performed to the specified standards of workmanship and strictly in accordance with drawings, specifications, procedures, and other requirements of this Subcontract. General Contractor shall have the right to inspect the Sublet Work and Subcontractor's equipment, tools, records and facilities at all times. No work shall be covered until inspected and released in accordance with established inspection procedures, and any work improperly covered shall be uncovered and exposed by Subcontractor for inspection on request. Inspection and approval shall not relieve Subcontractor of the obligation to complete the entire Sublet Work in strict compliance with the requirements of this Subcontract. Any defective Sublet Work shall be discontinued, removed and replaced or corrected in accordance with specifications and directions of General Contractor. Subcontractor shall furnish for the Sublet Work all Quality Assurance and Quality Control documentation, as required by General Contractor for the Project as a whole or for the specific part thereof affected by the Sublet Work.

8. SAFETY, CLEANLINESS AND SANITATION

Subcontractor shall comply with all applicable laws, rules and regulations relating to safety. Subcontractor

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shall comply with all safety standards, rules and regulations relating to safety, cleanliness and sanitation established by General Contractor for the Project as a whole. Subcontractor shall immediately stop work and take corrective action when directed by General Contractor because of any unsafe condition or practice. Subcontractor shall be responsible for the safety of its workmen and the Sublet Work and shall not create hazards for others or the work of others. Subcontractor shall provide first aid and ambulance facilities for its workmen to the extent sufficient facilities are not provided for the Project as a whole by General Contractor. General Contractor shall provide for safety of the Project as a whole. In case of emergency, General Contractor may direct Subcontractor's personnel and resources for the protection of life and property.

9. DELAYS

If Subcontractor's performance of the Sublet Work is delayed by Owner's or General Contractor's failure to perform their obligations hereunder, or by orders of the General Contractor delaying or suspending the work, or by changes in the work, Subcontractor shall be entitled to an equitable adjustment in the price and time for performance in accordance with the provision for Changes in Article 12; but no price adjustment shall be due for delays or inconvenience to Subcontractor from the scheduling and coordination of the Sublet Work with the rate of progress made by all participants in the Project. In the event Subcontractor is delayed by force majeure. Subcontractor shall be entitled to an equitable extension of time but no adjustment in the price; provided, that inadequate manpower or failure of Subcontractor's workmen to prosecute their work because of strikes, boycott, picketing, or other form of labor dispute shall not be deemed force majeure unless there is clear and substantial danger of bodily harm or property damage if the employees undertook to enter the work site and perform their work, as determined by General Contractor or the chief local law enforcement officer. Subcontractor shall notify General Contractor in writing within 48 hours after the commencement of a delay, if Subcontractor claims an extension of time or an adjustment of price because of such delay, or the right to such extension or adjustment shall be waived.

10. SUPPLEMENTING OR TAKING OVER BY GENERAL CONTRACTOR

If, after seven (7) days written notice by General Contractor to Subcontractor specifying any deficiency in the Sublet Work or the promptness with which it is being performed, Subcontractor has not promptly commenced to correct, and within a reasonable time corrected, such deficiency to the satisfaction of General Contractor, General Contractor may supplement the work of Subcontractor, or take over performance of the Sublet Work temporarily or completely, with General Contractor's own forces or by contract with others. General Contractor may use all or part of Subcontractor's construction equipment, tools and facilities at the project site, and any materials, permanent equipment and supplies, in the performance of the Sublet Work, without payment to Subcontractor otherwise than by the extent such use of Subcontractor's items causes a reduction of cost of completing the Sublet Work. All costs incurred by General Contractor in performing all or part of the Sublet Work, including a mark-up of 10% of such cost, shall be deducted from the price payable to Subcontractor and if such sum plus all payments previously made to Subcontractor shall exceed the price, Subcontractor shall refund to General Contractor the excess within ten (10) days after submittal of a properly documented invoice. If the price is on a cost reimbursable basis, Subcontractor will be reimbursed for use of construction equipment at the lowest applicable rate provided for herein or at prevailing rental rates if no rate is specified, and the cost of Subcontractor's materials used. Upon notice from General Contractor to Subcontractor, Subcontractor shall resume and complete the Sublet Work, but this right to supplement or take over the Sublet Work may again be exercised if necessary. The determination of General Contractor's project manager to invoke the provisions of this Article 10 shall be final and conclusive; provided Subcontractor may within said seven day period, appeal to an executive officer designated by the President of General Contractor, whose decision shall be final absent actual fraud.

11. DEFERMENT OR TERMINATION

In the event the Project is deferred or terminated by Owner, or if General Contractor shall elect to defer or terminate the Sublet Work, Subcontractor shall be paid: (1) the price earned for work completed and accepted, (2) a proportionate part of the price allocated to the portion of the work partially completed, (3) the reasonable cost incurred by Subcontractor in securing and protecting the work in progress against loss, damage or deterioration, and (4) unamortized mobilization and demobilization costs; standby costs, cancellation or deferment charges of suppliers; the cost of materials and equipment not sold or disposed of; and other special costs for terminating or suspending work or preserving the work accomplished and turning it over to General Contractor but (5) no compensation for the portion of the Sublet Work not performed. General Contractor shall notify Subcontractor whether the Sublet work is terminated or deferred to an indefinite or specified date and the deferment shall not exceed six months (or other limits expressed in the Subcontract Terms) without the consent of Subcontractor. If deferred, the Sublet Work may thereafter be terminated and shall be terminated upon expiration of the maximum period of deferment without notice to resume. Following deferment and notice to resume given by General Contractor to Subcontractor in writing, Subcontractor shall resume the Sublet Work in accordance with the terms hereof with an equitable adjustment, if required, in the price and time of completion, determined as in the case of changes. In case of any such termination or deferment, Subcontractor shall, as directed by General Contractor, secure, safeguard, remove or deliver to General Contractor all material, equipment, supplies, work in progress, and contract rights.

12. CHANGES

General Contractor reserves the right to make changes in the Sublet Work or the manner of its performance. No change shall be made by Subcontractor in the Sublet Work or its manner of performance, without prior written instructions from General Contractor, in a written Change Order specifying the change in plans, specifications, procedures, time, sequence, or other requirement of this subcontract, and specifying whether there is to be an adjustment in the price or time for performance and how any such adjustment shall be determined. No adjustment in price or time of performance shall be made for changes in arrangement, aesthetics, substitution of equivalent materials or equipment or other changes, unless such changes significantly affect Subcontractor's cost of performing the Sublet Work or extend the time that Subcontractor's equipment and forces are required at the project site. An equitable adjustment will be made in price or time of performance or both, if the change ordered by General Contractor substantially increases or decreases the cost to Subcontractor of the Sublet Work or the time that Subcontractor's equipment and forces are required at the project site. The method of determining the equitable adjustment shall be specified, and if possible, the price fixed at the time of the issuance of written direction for the change. Unless a lump sum is established by agreement or another method of pricing is established by agreement, General Contractor may direct determination of the equitable adjustment in price, whether an increase or decrease, by any of the following methods: (a) agreed or established fixed unit prices, (b) force account, or (c) cost plus fee. If the force account method is directed by General Contractor, the force account rates for equipment use, manhour labor rate including payroll burden and markup for overhead and profit, with reimbursement of actual cost of materials, as established in the Subcontract Terms or by other agreements, shall be used to determine the ad-

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justment. If the cost plus fee method is directed by General Contractor the adjustment will be based on the direct cost of the change in the work using the formula established in the Subcontract Terms or by other agreement. In the absence of agreement, Subcontractor shall be paid all actual, direct additional cost incurred, without allocation of home office general and administrative expense, plus 10% of such costs, and Subcontractor shall maintain and furnish General Contractor accurate and detailed records daily segregating the cost of the change in the Sublet Work. In case of deletion or reduction of the Sublet Work by such change, Subcontractor shall not be entitled to anticipated contribution to home office overhead and profit from any portion of the Sublet Work not performed.

13. WORKMEN AND EMPLOYMENT PRACTICES

Subcontractor shall provide competent and adequately trained and skilled personnel. Subcontractor shall, on request, remove from the Project any person found by General Contractor to be incompetent, unsafe, disorderly, unreliable, or unwilling to comply with regulations. Subcontractor shall provide badges, color codes, or other symbols or identification for its employees, tools and equipment, in accordance with the system specified by General Contractor. Subcontractor shall cooperate in security measures for the prevention of theft, pilferage, and waste. Subcontractor shall not discriminate against any employee or applicant for employment because of race, color, national origin, religion, sex, age, or for any reason prohibited by law. Subcontractor agrees to participate and cooperate in the implementation of any Affirmative Action Plan for equal employment opportunity adopted for the Project as a whole. To the extent applicable to the Sublet Work on this Project, Subcontractor shall comply with Executive Order 11246, or any amendment, replacement or counterpart thereof, and the parties mutually represent that they are familiar with such provisions and agree that a full copy thereof may be incorporated herein by either party by attachment at any time.

14. LABOR RELATIONS

Subcontractor shall comply with the National Labor Relations Act, any applicable Right to Work law, and any other applicable law related to labor relations. Subcontractor shall give General Contractor notice and full information regarding any existing or impending labor dispute affecting the Sublet Work or any part of the work on the Project as a whole. Subcontractor shall cooperate in any effort by General Contractor to mediate or otherwise attempt to resolve work stoppages, slowdowns, boycotts, disturbances, strikes, picketing or labor disputes affecting any participant in the Project or affecting any part of the Project as a whole, but Subcontractor shall have exclusive control and responsibility for its own labor relations. No such condition shall excuse Subcontractor from the obligation to diligently prosecute the work, unless, in the opinion of General Contractor, or if so determined by the chief local law enforcement officer, there is clear and substantial danger of bodily harm or property damage to Subcontractor's employees if they should undertake to enter the project site and perform their work. If Subcontractor has pre-hiring collective bargaining agreements, Subcontractor represents that they contain or have been modified to contain provisions prohibiting any strike, slow down, picketing, secondary boycotts or work stoppage during performance of the Sublet Work, and that the acceptance of the Sublet Work from General Contractor on this project does not violate such agreement.

15. LIENS

To the extent permitted by law, Subcontractor, for itself and all of its lower tier subcontractors and all laborers, mechanics and materialmen hereby waive and agree not to claim any lien against the Sublet Work, but shall rely solely upon the general credit of General Contractor. Subcontractor shall pay or cause to be paid when due, all bills for labor, materials, equipment or services connected with the Sublet Work, and shall not itself assert any lien or permit any lien to be asserted or maintained against the Project or any funds or land involved in the Project. General Contractor may pay directly any such valid obligation of Subcontractor, and Subcontractor shall indemnify General Contractor against any such obligation.

16. TITLE TO AND RESPONSIBILITY FOR SUBLET WORK AND MATERIALS

The Sublet Work in progress and all of the Owner and General Contractor-furnished items and all of Subcontractor-furnished material, equipment, plant, facilities, fabricated items, supplies, drawings, data, and contract rights intended for the Sublet Work shall be the property of General Contractor from the earliest moment of identification to the Sublet Work, subject to General Contractor's obligation to pay the price in accordance with the Subcontract. Notwithstanding General Contractor's or Owner's title thereto, Subcontractor shall be responsible for the care, custody, control and safekeeping and preservation of all Owner-furnished, General Contractor-furnished, or Subcontractor-furnished labor, materials, plant equipment, supplies and other things to promptly repair or replace any such which is damaged or lost, and to complete the Sublet Work and to deliver the Sublet Work complete and in accordance with all provisions and requirements hereof at the time specified. Except as otherwise provided in the Subcontract Terms or the Special Conditions, Subcontractor shall bear, without right of reimbursement, the full risk of loss or damage to the Sublet Work and all materials, equipment and other things.

17. SUBCONTRACTING OR ASSIGNMENT

Subcontractor shall not assign this subcontract or any funds due hereunder. Subcontractor shall not subcontract any portion of the Sublet Work without the prior written approval by General Contractor of the lower tier subcontractor and of the form, terms and conditions of the lower tier subcontract. No assignment or subcontracting, even with General Contractor's approval, shall relieve Subcontractor of any obligations hereunder, or create any contractual relationship between such sub-subcontractor and General Contractor or Owner. Any lower tier subcontractor shall assume unto General Contractor all of the obligations of Subcontractor as they relate to such portion of the Sublet Work.

18. RECORDS AND ACCOUNTS

Subcontractor shall maintain good accounting and personnel records reflecting performance of the Sublet Work and shall preserve such records for a period of two years after completion and acceptance of the Project as a whole. General Contractor shall have the right to inspect and audit such part of the records as relate to cost reimbursement or performance of labor related provisions. Copies of documents and records supporting requests for payment or compliance with labor related provisions shall be furnished General Contractor with such request or at such other times as General Contractor directs.

19. BONDS

If instructed by General Contractor in writing, Subcontractor shall provide a Performance Bond and a Payment Bond in form and with corporate surety satisfactory to General Contractor, at any time required by General Contractor, whether before commencement of the Sublet Work or at any time prior to completion and acceptance of the Sublet Work. General Contractor will separately reimburse Subcontractor the premium cost thereof set forth in the Subcontract Terms unless otherwise expressly provided. General Contractor may terminate this Subcontract for default or exercise the rights provided in Paragraph 10 of these General Conditions if Subcontractor should fail to provide such bond when requested.

20. INDEMNITY

Subcontractor hereby indemnifies and holds harmless General Contractor and Owner from any loss, cost, damage

EXX 003937

or liability from injury or death of any person, including Subcontractor or its employees, or damage or destruction of any property, arising from or in connection with the Sublet Work whether or not there be concurring negligence by General Contractor or Owner, but Subcontractor does not hereby assume responsibility for the sole negligence of General Contractor or Owner.

21. INSURANCE

Subcontractor shall provide insurance, with provisions against cancellation without thirty (30) days prior written notice, for the benefit of Subcontractor, General Contractor and Owner and with waiver of subrogation against all participants in the Project, in form and with underwriters satisfactory to General Contractor, with minimum coverages and limits as follows:

(a) Workmen's Compensation	Statutory
(b) Employer's Liability (If marine operations are involved, the limits shall be $250,000 per person and $500,000 per accident)	$ 100,000
(c) Comprehensive General and Automobile Liability	
Bodily Injury - per person	$ 100,000
- per accident	$ 300,000
Property Damage with blanket contractual, products and completed operations liability endorsements, and with xcu exclusion deleted.	$ 100,000
(d) Hull and protection and indemnity for any marine vessels, with General Contractor, Owner and their affiliates being co-insured.	Full Value, but not less than $1,000,000
(e) Such other available insurance or increased limits as General Contractor may request, the premium cost of which shall be directly reimbursable unless otherwise specified in the Subcontract Terms.	

22. INSURANCE ON CONSTRUCTION EQUIPMENT

Subcontractor shall fully insure, or self-insure and assumes all risk of loss of, or damage to, Subcontractor's construction equipment and tools, facilities and structures, however caused, including losses caused by vandals or theft, or by the negligence of others, including General Contractor or Owner. Subcontractor agrees to indemnify and hold harmless Owner and General Contractor from any such loss or liability regardless of any provision for reimbursement of uninsured losses.

23. USE OF GENERAL CONTRACTOR'S OR OWNER'S EQUIPMENT

If any construction equipment, tools, marine vessels, facilities, or services of General Contractor or Owner be furnished to Subcontractor or used by Subcontractor, on an exclusive or joint use basis, Subcontractor shall inspect and satisfy itself as to the safety and condition thereof and shall return same to General Contractor or Owner after such use in good order and condition and in at least as good condition as that in which received, fair wear and use excepted. Subcontractor shall at its own cost and without right of reimbursement, insure or self-insure all risks associated with such use and shall indemnify General Contractor and Owner against any liability or cost for injury to, or death of, persons or damage or destruction of property connected with such use even if General Contractor or Owner should be negligent in relation to such equipment or items used.

24. PERMITS, LICENSES, LAND RIGHTS

General Contractor will provide all licenses and permits required for the Project as a whole to be constructed. Subcontractor shall provide all licenses and permits required for Subcontractor to perform the Sublet Work, including [without limitation], contractors' licenses, specialty permits required by law to be issued to Subcontractor, and transportation permits. General Contractor will provide access to the work site and easements or land rights in the work site, but Subcontractor shall comply with all restrictions, limitations, terms and conditions relative thereto and Subcontractor shall obtain such additional easements and land rights as Subcontractor may require.

25. PATENTS AND PROPRIETARY RIGHTS

Subcontractor shall pay all royalties and obtain all licenses required for items specified to be furnished by Subcontractor, and for all items and methods selected by Subcontractor for the Sublet Work. General Contractor shall pay all royalties and obtain all licenses required for the Project as a whole or for Owner-furnished or General Contractor-furnished items. Subcontractor shall give prompt notice to General Contractor of any claim of infringement of any patent or proprietary right, and Subcontractor and General Contractor shall cooperate in the defense and disposition of any such claim or suit. The party obligated to furnish the license shall defend and indemnify the other party.

26. WARRANTY

Subcontractor guarantees and warrants that all materials furnished by Subcontractor and workmanship furnished by Subcontractor shall comply with the specifications and other requirements of the contract and shall be free of defects for a period of one year after completion and acceptance of the Project as a whole by the Owner, or one year after placement of the Sublet Work in service, whichever is earlier. With respect to items of manufactured equipment specified by General Contractor and purchased by Subcontractor from others, Subcontractor warrants that the equipment is as specified, and agrees to pass on and assign to General Contractor (or to Owner if directed by General Contractor) the manufacturer's warranty and Subcontractor shall prosecute the enforcement thereof in cooperation with General Contractor, but Subcontractor shall have no further quality or performance warranty responsibility with respect to such items of manufactured equipment.

27. PARTIAL OCCUPANCY AND USE

General Contractor and Owner shall have access to the Sublet Work at all times. General Contractor and Owner may occupy and use any portion of the Sublet Work which is sufficiently completed to permit such occupancy and use, provided there is no substantial interference with performance of the balance of the Sublet Work. Such partial occupancy and use shall not relieve Subcontractor of the obligation to complete all of the Sublet Work strictly in accordance with the requirements of this Subcontract.

28. CONFIDENTIALITY

Subcontractor shall not publicize, publish, or photograph the Project, the Sublet Work, or this Subcontract, except by consent of General Contractor and in compliance with General Contractor's regulations for the Project. Subcontractor will maintain in confidence and not use or disclose any confidential proprietary information of General Contractor or Owner. Subcontractor will execute, and if requested will cause its employees or agents to execute, such form of written secrecy agreement, further defining this confidentiality agreement, as is required of other participants in the Project. All plans, specifications, data and other material relating to the Project shall be delivered to General Contractor, on request, when no longer required by Subcontractor for performance of the Sublet Work.

29. INDEPENDENT CONTRACTOR

Subcontractor shall perform the Sublet Work as an independent contractor with exclusive control of the manner and means of performing the Sublet Work in accordance with the requirements of the Contract, unless

EXX 003938

an agency or other relationship is specified in the Subcontract Terms. Subcontractor has no authority to act or make any agreements or representation on behalf of General Contractor or Owner, and no contractual relationship exists between Subcontractor and Owner. No employee or agent engaged by Subcontractor shall be, or shall be deemed to be, an employee or agent of General Contractor or Owner. In the event General Contractor should, at the request of Subcontractor, furnish workmen to Subcontractor for any purpose to work under the direction and supervision of Subcontractor, such employees of General Contractor shall be deemed to be the borrowed servants of Subcontractor and Subcontractor shall be responsible for their actions while so engaged.

30. LAWS

This Subcontract is entered into in Houston, Texas, and shall be construed and governed by the laws of the State of Texas. Subcontractor shall comply with all laws, statutes, ordinances, rules and regulations of any governmental entity, having jurisdiction, and Subcontractor shall indemnify and hold harmless the Owner and General Contractor from any fines, penalties, costs or liability arising from Subcontractor's failure to comply therewith.

31. DISPUTES

All questions arising under this Subcontract shall be resolved in the first instance by General Contractor's project manager. No claim for additional compensation or extension of time shall be considered unless presented to General Contractor's project manager in writing within ten (10) days after the occurrence giving rise to the dispute. Any claim not satisfactorily resolved by General Contractor's project manager in the first instance, and which is presented in writing within the time provided, may be appealed by notice in writing to the project manager within ten (10) days after the project manager's initial decision, (a) to the engineer for the Project if the issue is interpretation of the drawings or specifications, or compliance of the Sublet Work therewith, in which event the engineer's decision shall be final, (b) to an Executive Officer of General Contractor as provided under Article 10 if the claim arises under Article 10., or (c) to an Executive Officer of General Contractor if any other question under the Subcontract is involved. Such review shall be a prerequisite to any further relief.

32. PROGRESS PAYMENTS AND FINAL PAYMENT

Progress payments will be made by General Contractor to Subcontractor monthly or at other intervals specified, in accordance with the Subcontract Terms. All progress payments are Trust Funds to be applied by Subcontractor to payment for labor, materials, equipment, services and supplies for the Sublet Work. With each request for progress payment, Subcontractor shall submit proper evidence, including affidavits and certificates, as may be requested by General Contractor showing: (a) the portion of the Sublet Work completed, (b) compliance with all requirements of this Subcontract, (c) payment of all bills, and (d) that no lien exists or could be claimed arising from the Sublet Work. General Contractor may withhold from progress payments ten percent (10%) of the amount earned, as retainage until final completion and acceptance (unless otherwise provided in the Subcontract terms), and in addition may withhold such amount as may be reasonably required to assure compliance by Subcontractor with the terms of this Subcontract. General Contractor may pay directly any obligation of Subcontractor arising under this Subcontract and withhold such payment from amounts otherwise due Subcontractor. Subcontractor shall submit with his request for final payment similar evidence and such expressions of warranty and indemnity as are required herein and a release of further claims against Owner or General Contractor. Subcontractor indemnifies General Contractor and Owner against any cost or liability, including attorney's fees, for failure of Subcontractor to perform all its obligations and pay all of its bills as required by this Subcontract.

33. APPLICATION TO COST REIMBURSEMENT TERMS

These General Conditions define the obligations, responsibilities and relationships of Subcontractor and General Contractor, and apply without change whether the terms for payment are fixed price or cost reimbursable or a combination thereof. The price and other payments to be made to Subcontractor for performance of the obligations of these General Conditions are provided for in the Subcontract Terms or other portions of this Subcontract.

34. NOTICES

Notices of changes, deficiencies, delays, claims or disputes shall be in writing, and shall furnish full information to the extent available. The party notified will acknowledge receipt by endorsement of a copy if requested, or will otherwise confirm receipt in writing. Ordinarily, notice will be given by delivery to the General Contractor's project manager, or Subcontractor's designated representative at the site, respectively, and mailing a copy to the address shown in the Subcontract Terms. To avoid difficulty in delivery of Notice, sufficient Notice shall be deemed to have been given by mailing by Registered or Certified Mail or equivalent, to the address shown in the Subcontract Terms.

35. INTEGRATION

The entire agreement between General Contractor and Subcontractor and all negotiations, proposals, representations and interpretations have been integrated into and superseded by the written provisions of this Subcontract. This Subcontract shall be valid and in force when signed by both parties and delivered and the parties understand that thereafter no person is authorized to amend this Subcontract except by agreement in writing and signed with equal formality. These General Conditions may be modified by the Special Conditions for the Project or by the Subcontract terms; and the Special Conditions for the Project may be modified by the Subcontract Terms, and as so modified it is intended that all terms and provisions of this Subcontract shall be construed in harmony and with equal dignity and effect.

EXX 003939

NOTE: This Affidavit is to be exe ed and returned with final or retainag

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT
NO. 27-5747-5003

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

Title: _____ Name: _____
For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19_____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC

County of _____

State of _____

EXX 003940

NOTE: This Affidavit is to be exe ted and returned with final or retainag invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT
NO. 27-5747-5003

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

Title: Name:

For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC

County of _____

State of _____

EXX 003941

27-5746 EXXON COMPANY, U.S.A.
CONTRACT FILES

EXX 003942

27-5751
Contract File
BRC

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

notified Burkett
1/3/79

December 27, 1978

Contract No. H-00-0802-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

We will perform the revised work described by Design Change #2 for no increase in price. This revised work will necessitate 0 days extension to the original contract schedule, provided we are authorized to proceed immediately.

Very truly yours,

BROWN & ROOT, INC.

B. M. Holt

BMH/lja

CONTRACT CHANGE ORDER NO. 3
CONTRACT NO. H-00-0802-A DATE: 11-16-78
ADDITION/(DELETION) $ - 0 -
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: C E Burd
DATE: 1-3-79
EXCERPTS CA
PROJ. ENG: W C Atherton TYPE: A

27-5751
Contract File
BMH

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

December 19, 1978

Contract No. H-00-0802-A

Exxon Company, U. S. A.
P. O. Box 4019
Baytown, TX 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

Enclosed are the field changes listed below. It is requested that a contract change order be issued accordingly.

FIELD CHANGE	AMOUNT	FIELD CHANGE	AMOUNT
#1	$741.57		

Total this change $741.57.

Very truly yours,

BROWN & ROOT, INC.

B. M. Holt

BMH/lja

Attachment

CONTRACT CHANGE ORDER NO. 2
CONTRACT NO. H-00-0802-A DATE: 11-16-78
ADDITION/(~~DELETION~~) $ 741.57
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: [signature]
DATE: 12-22-78
EXCERPTS —
PROJ. ENG: WC Attuston TYPE: A

BJW
12/22/78

EXX 004054

27-5751
Contract File
BMH

Brown & Root, Inc. Post Office Box Three, Houston, Texas 77001

notified Burkett
12/18/78

CONTRACT H-00-0802-A

Exxon Company U. S. A.
P. O. Box 4019
Baytown, Texas 77520

ATTENTION: MS. BETTY T. WRIGHT

Gentlemen:

We will perform the revised work described by Design Change # 1 for no price difference. This revised work will necessitate 0 days extension to the original contract schedule, provided we are authorized to proceed immediately.

Yours very truly,

BROWN & ROOT, INC.

B. M. Holt

B. M. Holt

BMH/lw

CONTRACT CHANGE ORDER NO. 1
CONTRACT NO. H-00-0802-A DATE: 11-16-78
ADDITION/(DELETION) $ -0-
EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION
APPROVED: C E Burd
DATE: 12-18-78
EXCERPTS CA
PROJ. ENG: WC Atherton TYPE: A

EXX 004055

27-5751
Contract File
BRC

542-0060

Appropriation 00716

Contract No. H-00-0802-A

THIS CONTRACT, entered into this 16TH day of November 19 78, by and between Exxon Company, U.S.A. (a division of Exxon Corporation), hereinafter referred to as "Exxon," and BROWN & ROOT, INC. hereinafter referred to as "Contractor," WITNESSETH:

That in consideration of the covenants and agreements set out herein and the payments provided for herein Exxon and Contractor agree as follows:

1. Contractor agrees to begin immediately and press with due diligence until completion in a careful and workmanlike manner, with the necessary labor, supervision, tools, equipment, and materials, furnished and maintained by Contractor at its own cost and expense except as hereinafter provided, certain work briefly described as follows:

Perform all work in accordance with the specifications and exhibits listed below, a copy of said specifications and exhibits and of each drawing and Baytown Engineering Standard referred to therein being attached hereto and made a part hereof.

Designation	Title	Date
Specifications	Specifications for Air Preheater at CLEU 2	August 10, 1978
Exhibit "A"	Construction of Air Preheater	August 10, 1978

Contractor agrees to begin work immediately upon award of Contract, and will make every effort to complete the work on or before May 31, 1979.

2. As consideration for the satisfactory performance and completion of this Contract by Contractor, Exxon agrees to pay Contractor the lump sum of FIVE HUNDRED NINETEEN THOUSAND SIX HUNDRED ELEVEN DOLLARS AND NO/100 ($519,611).

Invoices will be paid thirty days after receipt of invoice.

EXX 004056

3. Contractor shall comply with all of the terms and conditions contained in Exxon's publication entitled "Contractors' Responsibilities for Safety, Plant Security, and Traffic Regulations," dated April 1, 1978, said publication being made a part of this contract by reference. Exxon will furnish copies of this publication to the Contractor. The rules and regulations contained in the "Contractors' Responsibilities" shall apply to all subcontractors and their employees as well as to the prime contractor and its employees. Before starting work under this Contract, Contractor shall obtain from Exxon copies of these regulations. Contractor shall notify its employees, its subcontractors, and the employees of its subcontractors of the provisions of said regulations and shall secure compliance therewith by all such parties; and Contractor shall not allow any of such persons to begin work inside Exxon's Baytown Refinery until such notification has been given them.

Said "Contractors' Responsibilities" 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. Neither compliance with such regulations by Contractor nor Exxon'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 hereunder.

4. Although Contractor shall provide its own representative or representatives to supervise and inspect all materials and workmanship entering into this job, Exxon reserves the right to have an inspector on the job. Any material which Exxon considers unsatisfactory shall be removed and replaced at Contractor's expense. Neither inspection, waiving of inspection, nor acceptance by Exxon shall relieve Contractor of its obligation to furnish all materials and workmanship in accordance with specifications.

5. It is understood and agreed that all work performed by Contractor hereunder shall meet with the approval of Exxon's engineers or inspectors but that the detailed manner and method of doing same shall be under the control of Contractor, Exxon being interested only in the result obtained, and that Contractor is an independent contractor as to all work performed hereunder. In this connection, Contractor and Exxon agree as follows:

A. Contractor agrees to indemnify and hold Exxon harmless from all claims, actions, demands, loss and causes of actions arising:

(1) From injury, including death, to its employees and those of its subcontractors, except such as may result solely from the negligence or willful acts of Exxon or its employees.

(2) From (a) injuries to or deaths of persons, including employees and representatives of Exxon, which result in whole or in part from the willful acts or negligence of Contractor, its employees, agents, or subcontractors, or (b) damage to property of Exxon and all other persons, which results in whole or in part from the negligence or willful acts of Contractor, its employees, agents, or subcontractors, except that Contractor shall not be responsible for damage to Exxon's property resulting from fire or explosion.

(3) From damage to property or injury to or death of persons which result in whole or in part from willful acts or the negligence of Contractor, its employees, agents or subcontractors, in connection with the handling and use of utilities furnished by Exxon except that Contractor shall not be responsible or liable for such damage to Exxon's property resulting from fire or explosion.

B. In addition, Contractor agrees to carry insurance as follows:

(1) Workmen's Compensation Insurance in compliance with the Texas Employers' Liability Act and all amendments thereto.

(2) Comprehensive General Liability Insurance (including Contractors' Protective Liability when subcontractors are used), covering

(a) Bodily injury liability with a limit of not less than $ 100,000 for one person injured or killed and, subject to such limit, $ 300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $ 100,000 for each accident, and $ 100,000 aggregate.

(3) Automobile Liability Insurance on owned, non-owned and hired automotive equipment covering

(a) Bodily injury liability with a limit of not less than $100,000 for one person injured or killed and, subject to such limit, $300,000 for more than one person injured or killed in any one accident, and

(b) Property damage liability with limits of not less than $50,000 for each accident.

C. Prior to commencing work hereunder, Contractor shall produce evidence in a form satisfactory to Exxon that all insurance required under this Contract is in force and carried with companies acceptable to Exxon and that such insurance will not be materially altered or canceled while the work covered hereby is in progress without a reasonable prior written notice to Exxon. Upon request of Exxon, Contractor shall furnish certified copies of all such insurance policies. Should Contractor at any time neglect, or refuse to provide, or should it cancel the insurance required herein, Exxon shall have the right to procure same and deduct the cost thereof from the consideration to be paid Contractor hereunder.

6. Contractor agrees to pay off and satisfy all claims for labor and material employed or used in anywise by it in connection with the work performed hereunder, and to permit no liens of any kind to be fixed upon or against the property of Exxon by Contractor's laborers, mechanics or materialmen, and agrees to indemnify, protect and save Exxon harmless from and against all such claims and liens.

7. Contractor agrees that if, in the opinion of Exxon, Contractor should fail at any time during the performance hereof, to provide the necessary labor, supervision, tools, equipment or materials for the prompt performance of the work herein contractor for, or should breach this Contract in whole or in part or fail to use due diligence in the performance thereof, or should not be performing this Contract in the manner herein provided, Exxon may, at its election, take over and perform or obtain another contractor to take over and perform all or any part of the work then remaining unperformed. In the event Exxon should exercise such right, it shall have the right to use all or any part of Contractor's tools or equipment then in use on the job but shall pay Contractor a reasonable rental for the use of such tools and equipment during the period use by Exxon and shall return same to Contractor upon the completion of the job in as good condition as when taken over by Exxon, ordinary wear and tear excepted. Should Exxon take over the completion of said job, or obtain another contractor to do so Exxon shall pay Contractor for the work then completed, subject to the later provisions hereof, unless the compensation for the completed work cannot be readily determined, in which latter event Exxon shall pay Contractor the full contract price less all costs and expenses incurred by it in the completion of the work.

8. Contractor agrees that upon the completion by it and acceptance by Exxon of the work herein contracted for it will furnish Exxon with proof satisfactory to the latter that all claims for labor and material have been satisfied and paid and that there are no unsatisfied claims for injuries to persons or property, and thereupon the amount due as herein provided shall be paid by Exxon to Contractor within 30 calendar days after receipt of final invoice, subject, however, to the right in Exxon to withhold payments in accordance with the provisions of Article 5469, Texas Revised Civil Statutes of 1925, and all amendments thereto or other provisions of law applicable. It is

agreed that upon request of Contractor and upon showing to the satisfaction of Exxon that all claims for labor and material and for damages to persons and property, as above provided, have been satisfied, Exxon, in the event it considers it safe to do so, will advance at approximately fifteen (15) day intervals up to ninety percent (90%) of the value of the work then completed, based upon estimates by Exxon's engineers or inspectors, in which event the balance will be paid upon completion and acceptance of the work and compliance with the terms and provisions hereof. Payment pursuant to the terms of this paragraph shall not preclude the right of Exxon from thereafter disputing any of the items involved.

Contractor agrees that in the event any lien or liens are fixed or attempted to be fixed, secured or claimed against Exxon or Exxon's property by any person or firm, lumber dealer or corporation, artisan, laborer, mechanic or subcontractor who furnished services or materials in connection with the performance of this Contract, Contractor will, within ten (10) days following notification by Exxon that such lien or liens have been fixed or attempted to be fixed, secured or claimed, furnish Exxon a bond in an amount equal to twice the value of the lien or liens. Such bond shall be executed by a corporate surety authorized to do business under the laws of the State of Texas and shall comply in all respects with the requirements of Article 5472c, Vernon's Annotated Texas Statutes. Contractor further agrees to file such bond with the County Clerk of Harris County, Texas, and to take all steps necessary to assure that prompt notice of such filing is given to the obligees named therein. Contractor further agrees that the giving of such bond shall be in addition to any other rights of Exxon or obligations of Contractor under this Contract and shall in no way be construed as abrogating or qualifying such rights and obligations.

9. In the event there is a conflict between any of the provisions hereof and any of the proposals, general conditions, specifications, or any documents, agreements, or papers of any kind which have been incorporated herein by other provisions hereof, it is understood and agreed that the provisions hereof shall be controlling.

The making, execution and delivery of this Contract by the parties hereto have been induced by no representations, statements, warranties or agreements other than those herein expressed. This Contract embodies the entire understanding of the parties hereto and there are no further or other agreements or understandings, written or oral, except as mentioned herein.

10. In performing its obligations hereunder, Contractor shall comply with all applicable federal, state, and municipal laws, and all applicable orders, rules and regulations of constituted authority.

11. If Contractor fails or refuses to pay any taxes or governmental charges, state or federal, relating to the employees of Contractor, and Exxon may be required or deems it necessary to pay such taxes or charges, Contractor agrees to furnish Exxon with information required to enable it to make the necessary reports and to pay such taxes or charges. Contractor agrees to reimburse Exxon on demand at Houston, Texas, for all such taxes or governmental charges, state or federal, which Contractor fails or refuses to pay and which Exxon may be required or deems it necessary to pay. In addition, Exxon, at its election, is authorized to deduct all sums so paid for taxes and governmental charges from any payment due Contractor hereunder.

12. In connection with the work provided for hereunder, Contractor (1) guarantees and warrants all material and equipment fabricated by it against defects and agrees to replace, without cost to Exxon, any such material or equipment which may become defective within one (1) year from Exxon's acceptance of the work except when such defects are the result of corrosion, erosion, normal wear and tear; (2) guarantees its field workmanship and agrees without cost or charge to Exxon to replace or repair any defects in the work covered by this Contract resulting from its field workmanship if such defects are reported to Contractor within one year from date of Exxon's acceptance of the work; (3) will to the extent reasonably possible secure from the vendors of materials and equipment guarantees substantially the same as the guarantees of Contractor set out in (1) and (2) above.

13. In the event Exxon loans or furnishes tools or equipment to Contractor in connection with its work covered hereunder, Contractor agrees:

A. To make its own determination before commencing work that such tools and equipment are adequate for the safe performance of the work by Contractor;

B. That such tools or equipment will be loaned or furnished and accepted by Contractor without warranty or representation by Exxon as to their condition.

C. To return such tools or equipment to Exxon at the conclusion of such use in as good condition as when received, ordinary wear and tear excepted; and;

D. To indemnify and hold Exxon harmless from all claims, demands, causes of action, damages and injuries resulting from Contractor's use of said tools or equipment.

For the purpose of this paragraph 13, tools and equipment shall be defined to include scaffolds, lights, and all other types of apparatus, facilities or services which Exxon may loan or furnish. In addition, all of the provisions of this paragraph shall be applicable to any lighting or illumination loaned or furnished to Contractor by Exxon.

14. Exxon may from time to time, by written instructions or drawings issued to Contractor, require additional work and services directly in connection with or incidental to the work covered by this Contract; and Exxon may by such instructions or drawings, require Contractor to alter, change, accelerate, or omit any work covered by this Contract. In the event Exxon desires any such additions, changes, alterations, accelerations or omissions which will materially increase or decrease the total contract price referred to in paragraph 2 above, Contractor shall submit to Exxon an estimate of such increase or decrease. Should Exxon desire to proceed in accordance with such estimate, Exxon shall issue to Contractor a Contract Change Order describing the work to be added or deleted and the corresponding price addition or deduction therefor. If Contractor has not obtained a Contract Change Order, signed by Exxon's appointed representative, no claim for additional compensation will be allowed. The provisions of this Contract except as may be otherwise provided shall apply to all such additions, changes or alterations as if they were embodied in the original drawings and specifications.

15. Contractor shall procure Exxon's prior written approval as to any subcontract covering any portion of the work provided for hereunder. No such approval shall relieve Contractor from any of the obligations of this Contract, and, as between the parties hereto, Contractor shall be and remain liable as if no such subcontract had been made. No subcontract shall bind or purport to bind Exxon but shall contain a provision permitting assignment thereof by Contractor to Exxon.

16. Contractor agrees to hold in confidence any and all technical information disclosed to Contractor by Exxon, including technical information included in or on tracings, drawings, field notes, calculations, specifications, and engineering data, except:

A. Technical information which at the time of disclosure by Exxon to Contractor is in the public domain;

B. Technical information which, after disclosure by Exxon to Contractor, becomes part of the public domain by publication or otherwise; and

C. Technical information which Contractor can show was in Contractor's possession at the time of Exxon's disclosure to Contractor and was not acquired, directly or indirectly, from Exxon.

Contractor agrees that Contractor will not, without the written permission of Exxon, use the technical information which Contractor is required to keep confidential under this Contract for any purpose other than the accomplishment of work under this Contract.

17. If Contractor or Contractor's personnel make any inventions based upon technical information which Contractor is required to keep confidential under this Contract, Contractor shall promptly disclose said inventions to Exxon. Contractor agrees to grant and hereby grants to Exxon an irrevocable, nonexclusive, royalty-free license and the irrevocable right to grant nonexclusive licenses, without accounting therefor to Contractor, to use said inventions under Contractor's Patent Rights. The licensing right herein granted by Contractor to Exxon is assignable by Exxon to any of its Affiliates. For the purpose of this Contract only, the term "Contractor's Patent Rights" shall mean patents and patent applications based on inventions made by Contractor or Contractor's personnel which inventions are based upon information which Contractor is required to keep confidential under this Contract and which are conceived during the life of this Contract and two (2) years thereafter. The term "Affiliate," as used in this paragraph, shall mean and include any company of which Exxon Corporation now or hereafter owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof. For the purpose of this definition, the stock owned or controlled by Exxon Corporation shall be deemed to include all stock owned or controlled, directly or indirectly, by any other company of which Exxon Corporation owns or controls, directly or indirectly, fifty percent (50%) or more of the stock having the right to vote for directors thereof.

18. It is expressly understood by Contractor that Exxon accepts no obligation of confidence with respect to any information disclosed to Exxon by Contractor under this Contract unless specifically covered by a separate, written confidentiality agreement. In the absence of such separate confidentiality agreement, Contractor agrees that it will not place any restrictive notices on the tracings, drawings, field notes, specifications, and any other documents embodying engineering or professional data developed by Contractor for Exxon pursuant to this Contract and that Exxon is hereby authorized to nullify, obliterate, or otherwise remove any such restrictive clauses; and that Exxon shall be free to use or disclose any or all of the information contained therein to third parties without accounting to Contractor therefor.

19. It is understood and agreed that Exxon may, upon written notice to Contractor, terminate the work provided for hereunder. In the event of such termination, Contractor shall be reimbursed for actual costs incurred to the date of such notice of termination in connection with the execution of the described work, and for actual costs thereafter incurred by Contractor in connection with such termination, plus applicable overhead and a reasonable profit based on such costs. However, in no event shall such reimbursement include prospective profits for work unperformed.

20. Contractor's obligations under paragraphs 16 and 17 of this Contract shall survive any termination of this Contract.

21. It is agreed as a condition of the Contract as follows:

A. That in the performance of this Contract, Contractor shall not engage in any conduct or practice which violates any applicable law, order or regulation prohibiting discrimination against any person by reason of race, color, religion, national origin, sex or age.

B. This order is XX is not _____ subject to Executive Order 11246, as amended. The Equal Opportunity Supplement is made a part hereof and either is attached hereto for your signature and return or has been previously filed with Exxon. This contract also includes and is subject to Executive Order 11738 requiring certification of compliance with the affirmative action clauses concerning disabled veterans and veterans of the Vietnam era (41 CFR 60-250) and employment of the handicapped (41 CFR 60-741), and the appropriate clauses are either attached hereto or incorporated herein by reference.

C. Contractor agrees to comply with all laws and lawful regulations applicable to any activities carried out in the name of or on behalf of Exxon under the provisions of this agreement and/or any amendments to it.

D. Contractor agrees that all financial settlements, billings, and reports rendered to Exxon, as provided for in this agreement and/or any amendments to it, will reflect properly the facts about all activities and transactions handled for the account of Exxon, which date may be relied upon as being complete and accurate in any further recording and reporting made by Exxon, for whatever purpose.

E. Contractor agrees to notify Exxon promptly upon discovery of any instance where the Contractor fails to comply with Provisions C and D above.

IN WITNESS WHEREOF, the parties hereto have executed this Contract in duplicate originals as of the day and year first above written.

BROWN & ROOT, INC.

By _____

Sr. Vice President

Exxon Company, U.S.A.
(a division of Exxon Corporation)

By _____ 11/16/98

Materials Department Head
Baytown Refinery

CEB:dcc

(W. C. Atherton)

August 10, 1978
Appropriation 00716

SPECIFICATIONS FOR AIR PREHEATER AT CLEU 2 EXXON COMPANY, U.S.A. (A DIVISION OF EXXON CORPORATION) BAYTOWN, TEXAS

SCOPE OF WORK

1.1 These specifications cover the scope of work and minimum material and construction requirements, necessary for or incidental to, installation of an air preheater on Furnace F-1 at CLEU 2 in Exxon's Baytown, Texas, Refinery. The work consists essentially of, but is not limited to, the following:

A. Foundations and structural steel.

B. Erection of air preheater and installation of ducts to and from Furnace F-1.

C. Installation of plenum chamber, floor, burners, and stack on Furnace F-1.

D. Instruments, controls, and associated electrical work.

E. Revision of existing piping to burners and furnace.

1.2 Work shall be performed in accordance with these specifications, drawings, and standards listed in the following attached tables:

A. Table I - List of Engineering Drawings, dated August 10, 1978.

B. Table II - List of Engineering Standards, dated August 10, 1978.

C. Table III - List of Instrument Specifications, dated August 10, 1978.

DIVISION OF WORK

2.1 The materials furnished and the services performed by Exxon shall be as listed in the attached Exhibit "A." All other material and work described by the drawings, standards, or in these specifications is to be furnished by Contractor. Contractor will install all material furnished by Exxon.

2.2 Contractor shall install all wiring to "home-run" junction boxes. Control center wiring will be installed by Others.

JOB INSTRUCTIONS

3.1 Construction and accounting shall be in strict accordance with the engineering standards listed in Table II.

3.2 The construction site is near operating equipment. Contractor shall exercise special care in performing this work and shall furnish adequate and substantial protection for existing installations, such as process equipment, pipelines, and power line, against damage caused by Contractor's equipment.

3.3 Within ten days of contract award, Contractor will furnish Exxon a critical path schedule and manning of the work with particular emphasis on the furnace "downtime" length and date. The critical path schedule must be approved by Exxon and strictly adherred to by Contractor.

3.4 Contractor will confirm to Exxon the desired furnace "downtime" schedule two weeks in advance for Exxon's concurrence. When the furnace is removed from service, Contractor will work 24 hours per day, seven days per week to complete furnace modifications and return it to service. The furnace can operate with "natural" draft, provided damper, Valve "A," and fresh air door in preheater to plenum duct are operable.

3.5 The DEKA air preheater is stored in Exxon's Baytown Refinery in sections--three main tube sections and two air crossover ducts. Contractor shall load, transport to jobsite, and erect the preheater. Contractor shall furnish and install all necessary nuts, bolts, and gaskets.

PAINT APPLICATION

4.2 Protective Coatings

Unless otherwise noted on the drawings, all aboveground, ungalvanized and uninsulated piping, and ungalvanized steel parts shall be painted per Exxon Engineering Standard (EXES) 19-1-1-1C and the drawings.

INSTRUMENTS AND ELECTRICAL

5.1 Storage and Protection

A. Indoor storage of instruments and motor-operated equipment is required. Equipment shall be stored in a dry, warm place.

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5.1 Storage and Protection (Continued)

B. Contractor shall provide dry storage* for instruments, electrical equipment that houses electrical control devices such as motor-operated valves, lighting panels, starters not on switch racks, etc. Shipping plugs and seals shall be maintained in each unit until connected. After units have been mounted in field, all covers and plugs, including conduit covers, shall be installed to prevent moisture from entering housing until unit has been wired and energized.

5.2 All material not otherwise specified on the drawings or not completely described on the drawings shall be in accordance with the following:

A. Polyvinyl-Chloride-Insulated Cables for 440-Volt and 120-240-Volt Circuits -- Cable, single-conductor, stranded, soft-annealed copper, insulated for 600 volts with 90°C polyvinyl chloride, General Electric Specification S158175 "Flamenol," Okonite Company "Okoseal 200," Anaconda "Densheath 900," Rome "Synthinol 902," or Simplex "Plastex 90." No insulation thickness shall be less than 3/64-inch.

B. Nonexplosion-proof -- Fittings shall be standard threaded-type equal to Crouse-Hinds Mark 9, Appleton, Pyle National, or Killark. Both fittings and covers shall be copper-free aluminum. All screws shall be of 18-8 stainless steel.

C. Explosion-proof -- Fittings shall be type described in Crouse-Hinds Catalog, Section 3000. Threaded, screw-type covers shall be used wherever practicable in preference to the ground-surface or flanged-type cover. Fittings, covers, and unions shall be of copper-free aluminum except cast iron will be acceptable when aluminum is not available.

D. All straps, nuts, clamps, bolts, and washers used to support conduit shall be hot-dipped galvanized steel, copper-free aluminum, or 18-8 stainless steel.

DISMANTLEMENT

6.1 All dismantled equipment and materials shall be the property of Exxon Company, U.S.A. and will be transferred to storage or disposal areas designated by Exxon.

WCA:jc

* Dry storage may be a portable building, trailer, or aboveground platform with cover, traps, or plastic wrap. Contractor and Exxon shall coordinate material ordering and delivery so Contractor's storage area can be kept to a minimum.

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TABLE I

LIST OF ENGINEERING DRAWINGS

Drawing No.	Revision	Date	Title
96-31-102	0	5-15-78	CLEU 2, F-1 Preheater Structure Plan at Elevation 50', 6-3/4" and 60', 6-3/4"
96-31-103	0	5-15-78	CLEU 2, Air Preheater Structure Plan at Elevation 70', 4-7/8"; 40', 6-3/4"; and 32', 9"
96-31-104	0	5-15-78	CLEU 2, F-1 Preheater Structure Plans at Elevation 90', 1-1/8" and 80', 3"
96-31-105	0	5-15-78	CLEU 2, F-1 Preheater Structure Plans at Elevation 118', 5"; 106', 9"; and 103', 5"
96-31-106	0	5-15-78	CLEU 2, F-1 Preheater Structure Elevation at Stairs and Column Rows "A" and "B"
96-31-107	0	5-15-78	CLEU 2, F-1 Preheater Structure Elevation at Column Rows "1" and "2"
96-31-108	0	5-15-78	CLEU 2, F-1 Preheater Structure, Typical Connection Details
96-120-117	2	4-24-78	CLEU 2, F-1 Furnace Stack Elevation and Details
96-120-118	0	7-6-77	CLEU 2, F-1 Furnace Explosion Door
96-120-120	-	-	Air Preheater Connection Block 1, 2, and 3
96-120-121	2	8-29-77	Enpro Butterfly Damper Valve "A"
96-120-122	2	8-29-77	Enpro Butterfly Damper Valves "B" and "C"
96-120-123	1	9-12-77	John Zink VYD-PC-18 Raw Gas Burner
96-120-124	3	5-30-78	John Zink Plenum for VYD-PC-18 Burners
96-120-125	-	-	DEKA Air Preheater General Arrangement for Field Erection
96-120-126	0	5-15-78	CLEU 2, F-1 Preheater Project, General Notes and Reference List
96-120-127	1	2-18-78	CLEU 2, F-1 Preheater Damper Modification at Shaft Details
96-120-128	0	5-15-78	CLEU 2, F-1 Preheater Project Layout Plan and Section
96-120-129	0	5-15-78	CLEU 2, F-1 Preheater Project Equipment Erection Details
96-120-130	1	5-4-78	CLEU 2, F-1 Preheater Project Duct Expansion Joints, Details
96-120-131	0	5-15-78	CLEU 2, F-1 Preheater Duct D-1 and D-15 Details
96-120-132	0	5-15-78	CLEU 2, F-1 Preheater Duct D-2 and D-3 Details
96-120-133	0	5-15-78	CLEU 2, F-1 Preheater Duct D-4, 13, 14, and 16 Details
96-120-134	0	5-15-78	CLEU 2, F-1 Preheater Duct D-5 and D-6 Details

TABLE I (CONTINUED)

Drawing No.	Revision	Date	Title
96-120-135	0	5-15-78	CLEU 2, F-1 Preheater Duct D-7 and D-8 Details
96-120-136	0	5-15-78	CLEU 2, F-1 Preheater Duct D-9, 10, 11, and 12 Details
96-120-137	0	5-15-78	CLEU 2, F-1 Preheater Damper Operator; Duct Supports; and Stack Platform Plan, Section, and Details
96-120-138	0	5-15-78	CLEU 2, F-1 Preheater Emergency Air Door Details
96-120-139	0	5-15-78	CLEU 2, F-1 Preheater Blind Flanges, Damper Operator Details
96-120-140	0	5-15-78	CLEU 2, F-1 Preheater Emergency Air Intake Door Opening Linkage Plan and Details
96-120-141	0	5-15-78	CLEU 2, F-1 Preheater Damper Operator, Duct Support, and Platform Plan and Section at TOS Elevation 104', 7-1/4"
96-120-142	0	5-15-78	CLEU 2, Bailey Operator at F-1
96-120-143	-	-	Westinghouse Fan Assembly
96-120-144	-	-	Westinghouse Fan Assembly
96-120-146	C	8-2-78	24" Diameter Fabric Expansion Joint, EJ-1
96-120-147	C	8-2-78	73-1/2" x 102" Rectangular Fabric Expansion Joint, EJ-2
96-120-148	0	7-3-78	Flange Drilling EJ-2
96-120-149	C	8-2-78	39" x 69" Rectangular Fabric Expansion Joint, EJ-3
96-120-150	0	7-31-78	Flange Drilling, EJ-3
96-120-151	C	8-2-78	39" x 69" Rectangular Fabric Expansion Joint, EJ-4
96-120-152	C	8-2-78	40" x 72" Rectangular Fabric Expansion Joint, EJ-5
96-120-153	0	7-31-78	Flange Drilling, EJ-5
96-120-154	C	8-2-78	40" x 72" Rectangular Fabric Expansion Joint, EJ-6
96-120-155	0	7-3-78	Flange Drilling, EJ-6
96-120-156	C	8-2-78	17" x 60" Rectangular Fabric Expansion Joint, EJ-7
96-120-157	0	7-31-78	Flange Drilling, EJ-7
96-120-158	C	8-2-78	26" x 35" Rectangular Fabric Expansion Joint, EJ-8
96-120-159	0	7-31-78	Flange Drilling, EJ-8
96-120-160	C	8-2-78	33" x 48" Rectangular Fabric Expansion Joint, EJ-9
96-120-161	0	7-31-78	Flange Drilling, EJ-9
96-120-162	0	7-31-78	CLEU 2, F-1 Preheater Emergency Air Door Shield

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TABLE I (CONTINUED)

Drawing No.	Revision	Date	Title
96-120-163	0	7-31-78	CLEU 2, F-1 Preheater Emergency Air Door Latch
96-121-4	0	5-15-78	CLEU 2, F-1 Preheater Paving, Drainage, and Fdn. Obstruction
96-121-5	0	5-15-78	CLEU 2, F-1 Preheater, Fdn. Plan and Sections
96-121-6	0	5-15-78	CLEU 2, F-1 Burner Floor Plan, Section, and Details
96-121-7	0	5-15-78	CLEU 2, F-1 Column Fdn. and Trench Plan and Sections
96-190-91	0	5-16-78	CLEU 2, F-1 Pilot Gas Piping Plan and Sections
			ELECTRICAL DRAWINGS
96-101-6	0	5-16-78	CLEU 2, F-1 Preheater Lighting Details
96-102-15	7	5-16-78	CLEU 2, Power Junction Box, PJB-203, Wiring Diagram
96-102-18	0	5-16-78	CLEU 2, F-1 Preheater Electrical Details
96-102-19	0	5-16-78	CLEU 2, F-1 Preheater Elctrical Plan
96-103-15	6	5-16-78	CLEU 2, IJB-201, Thermocouple Wiring Diagram
96-103-82	0	5-16-78	CLEU 2, F-1 Preheater Shutdown Schematic
96-103-83	0	5-16-78	CLEU 2, Instruction Junction Box, NP-201, Wiring Diagram, Sheet 2

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TABLE II

LIST OF ENGINEERING STANDARDS

Standard No.*	Revision	Date	Title
			JOB INSTRUCTIONS
BTES 50-5-1.1C	3	1/77	Construction Requirements, Instructions
BTES 50-5-5.1C	0	2/70	Field Welding Qualifications, Instructions
BTES 50-6-5.1D	1	1/73	Invoicing for Lump-Sum Contracts, Instructions
			MECHANICAL STANDARDS
BTES 3-2-1.12D	0	12/70	Catch Basin, Type B
EXES 3-6-1-1C	1	4/76	Piping for Instruments, Installation
EXES 3-6-1-1D	1	4/76	Piping for Instruments, Material Listing
EXES 3-6-1-4C	0	7/76	Pressure Instrument Piping
EXES 3-6-1-5C	1	4/76	Piping for Instruments, Thermowell Connections
EXES 3-6-1-7C	1	4/76	Piping for Instruments, Instrument Air Systems
BTES 3-7-1.1D	0	6/71	Integral Pipe Supports
EXES 3-7-1-2C	0	12/77	Small Piping Connections, Installation
BTES 3-18-1B	2	2/75	Fabricated Piping, Purchase
BTES 3-19-1C	1	12/73	Fabricated Piping, Erection
BTMS 3-20-1-11C	0	12/77	Piping Materials, Class 150A-1
BTMS 3-20-1-15C	0	12/77	Piping Materials, Class 150A-5
BTPD 3-21-7-2B	0	12/77	Butterfly Valves, Purchase Descriptions
BTPD 3-21-9-1B	0	12/77	Tubing Fittings, Purchase Descriptions
BTES 4-2-0.1B	2	3/74	Fabricated Structural Steel, Purchase
BTES 4-2-1A	2	3/74	Auxiliary Structures, Design
EXES 4-2-1-1A	0	12/76	Auxiliary Structures for Operation and Maintenance, Design
EXES 4-2-1-2C	0	12/77	Fabricated Structural Steel, Erection
BTES 4-6-1.1A	0	9/70	Reinforced Concrete Structures, Design
EXES 4-6-1-1B	0	12/77	Concrete, Purchase (Baytown Only)
BTES 4-6-1.3D	0	5/70	Anchor Bolt, Fabrication Detail
EXES 4-6-1-9B	0	7/77	Fabricated Reinforcing Steel, Purchase (Baytown Only)
EXES 4-9-1-1C	1	4/78	Site Preparation and Earth Work
BTES 4-9-1.2C	1	1/77	Excavating, Backfilling, and Grading, Construction
EXES 4-9-1-3B	0	10/77	Fill Clay and Aggregates, Purchase (Baytown Only)
EXES 4-10-1-1C	1	12/77	Concrete Construction
EXES 4-10-2-3C	0	4/77	Cement Grouting for Machinery
EXES 14-3-1-1C	1	7/76	Concrete Fireproofing

TABLE II (CONTINUED)

Standard No.*	Revision	Date	Title
EXES 15-1-1-1D	0	12/76	Fired Heater Sample Connections
EXES 15-12-1-1B	0	9/76	Instrument and Thermocouple Cable
EXES 15-12-1-1D	0	4/75	Instrument Field Wiring Connections (Baytown Only)
EXES 15-12-1-3D	0	9/76	Instrument Supports
EXES 15-14-1-1C	0	9/76	Inspection, Testing, and Calibration of Instruments
EXES 15-15-1-1C	0	7/77	Instrumentation Field Installation
EXES 16-13-1-1C	0	7/76	Field Installation and Testing of Electrical Equipment
EXES 19-1-1-1C	0	7/77	Paint and Protective Coatings, Application
EXES 19-1-1-5B	0	7/77	Galvanized Coatings
EXES 19-3-2-1B	0	9/76	Castable Linings
EXES 19-3-3-1B	0	9/76	Fired Heater Castable Linings

* BTES = Baytown Engineering Standards
EXES = Exxon Engineering Standards
BTMS = Baytown Material Specifications
BTPD = Baytown Purchase Descriptions

WCA:jc

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TABLE III

LIST OF INSTRUMENT SPECIFICATIONS

Specification No.	Revision	Date	Title
I-167-2	3	5-18-78	Thermocouple Assembly, Tabulation Sheet
I-168	10	5-18-78	Switches
I-213	0	5-18-78	F-1, FD Fan Damper
I-214	0	5-18-78	F-1, ID Fan Damper
I-215	0	5-18-78	F-1, Fresh Air Duct Control Valve
I-217	0	5-18-78	F-1, Preheater Bypass
I-218	0	5-18-78	F-1, FD Shutdown Alarm
I-219	0	5-18-78	F-1, ID Cutoff Alarm
I-220	0	5-18-78	F-1, Draft (Plenum Pressure)
I-221	0	5-18-78	F-1, High Firebox Pressure Shutdown
I-222	0	5-18-78	F-1, Draft
I-223	0	5-18-78	Solenoid Valves, Stack Damper and Fresh Air Door
IS-1077	0	5-18-78	Damper Control for F-1 Stack
IS-1078	0	5-18-78	F-1, Preheater Air Door Release Actuator
IS-1079	0	5-18-78	Preheater Temperature Control
IS-1080	0	5-18-78	F-1, FD Fan Down, Furnace and Preheater Cutoff
IS-1081	0	5-18-78	F-1, ID Fan Down, Preheater Cutoff
IS-1082	0	5-18-78	F-1, Plenum Pressure
IS-1083	0	5-18-78	F-1, High Firebox Pressure Shutdown
IS-1085	0	5-18-78	Support for Local Draft Gauges (Dual)
IS-1086	0	5-18-78	Support for Local Draft Gauges (Single)
IS-1087	0	5-18-78	F-1, Furnace, SD Air Door, Air Switch Hookup
I-158	6	5-18-78	F-1, Stack Damper

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EXHIBIT "A"

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CONSTRUCTION OF AIR PREHEATER

EXXON WILL FURNISH ONLY THE FOLLOWING:

1.1 Copies of applicable drawings, specifications, and standards reasonably necessary for work execution.

1.2 The following utilities, if required and requested by Contractor, at existing outlets, which will not be extended by Exxon, and in quantities available at those outlets, each to be used at Contractor's risk:

A. Drinking water, not cooled.

B. Compressed air at approximately 80 psig.

C. Electrical power at 2,300 volts and 440 volts, 60 Hertz, three-phase and 120/240 volts, 60 Hertz, single-phase.

1.3 Nitrogen trailer complete with nitrogen bottles, hoses, connectors for blowing three cables at one time, plastic bags, and heat-shrink cable end seals.

1.4 The following equipment and materials to be received and loaded by Contractor at locations in the Baytown Refinery as designated by Exxon.

Item No.	Description	Material Request, Purchase Order, or Symbol No.	Quantity
1	DEKA Air Preheater, Not Assembled Per Drawing 96-120-125	04TH08022W30700	1
2	Valve 24-Inch NPS, Butterfly 150-Pound USAS Raised-Face Flanged	93MH56639D87097	1
3	Plenum, Furnace, Not Assembled Per Drawing 96-120-124	80TH08015W97608	1
4	John Zink Burners Per Drawing 96-120-123	80TH08015W97608	8
5	Expansion Joints Per Tabulation on Drawing 96-120-130	63TH08066D67262	10
6	Damper Assembly, Valves "A," "B," and "C" Per Drawings 96-120-121 and 96-120-122	80TH08016W35106	3
7	Furnace Stack, Transition Section and Ladder Per Drawing 96-120-117, Not Assembled, Exxon Fabricated	-	1 Lot

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EXHIBIT "A" (CONTINUED)

Item No.	Description	Material Request, Purchase Order, or Symbol No.	Quantity
8	Bailey AC0816A1, Model 219T, Positioner	37TH19583X17270	1
9	Bailey AC0608A1, Model 219T, Positioner	37TH65615J17270	3
10	Pneumatic Consotrol Subpanel, Foxboro 57SRG2H	37SH00225A37824 Rel. 172U	3
11	Pneumatic D/P Cell, Foxboro 15A1LK2, Ref. DS9S2H	37SH00225A37824 Rel. 172U	2
12	Electronic Pressure Transmitter, Rosemount 115IGPSB22FB	37SH52584M75049	3
13	Electronic Pressure Transmitter, Rosemount 115IGPSB22FB	37SH00224A75049 Rel. 009X	2
14	Actuator, Honeywell, Type 01-9 Air-O-Motor	91TH52585G28250	1
15	Draft Pressure Transmitter, Moore 175V	37SH00216A62640 Rel. 007X	1
16	Draft Pressure Transmitter, Moore 175P	37SH52586U62640	1
17	Manometer, Meriam LLOGD10WM	37SH52589U60533	7
18	Thermocouple Alarm Unit, Transmation 610A	37TH52588U89120	1
19	Thermowell 1-Inch NPT, 10-Inches Long	Sym. 37910-925	1
20	Thermowell 1-Inch NPT, 12-1/4-Inches Long	Sym. 37910-938	5
21	Thermocouple Assemblies With Head	37TH52592U39187	4
22	Thermocouple Assemblies With Head, (Dual)	37TH52592U39187	1
23	Air Valve, 3-Way Limit, Numatics LR3-0201	37SH52599U65440	1
24	Pressure Switches Neo-Dyne 300P42C6	37TH52563X10209	3
25	Valve, Solenoid ASCO FT8320A189	37SH00205A49104 Rel. 062X	2
26	Air Switch, Foxboro	Sym. 13904-940	1
27	Filter Regulator, Fisher, 30-60-Pound Spring	Sym. 91103-220	4
28	Filter Regulator, Fisher, 5-30-Pound Spring	Sym. 91103-226	9
29	Manometer, Meriam 40GD10WM	37TH17823X60533	1
30	Push-Button, Start-Stop, Explosion-Proof, Crouse-Hinds OFC 3133	Sym. 21235-575	4

EXX 004073

EXHIBIT "A" (CONTINUED)

Item No.	Description	Material Request, Purchase Order, or Symbol No.	Quantity
31	Motor Starter, Size 3, Explosion-Proof, Crouse-Hinds EPC	01SH00021A39470 Rel. 882J	1
32	Motor Starter, Size 2, Explosion-Proof, Crouse-Hinds EPC	01SH00021A39470 Rel. 882J	1
33	2/C Number 18 Shielded, Type SRNV	Sym. 20960-635	4,000 Feet*
34	Six Pair Number 19, Overall Shielded, PVC Jacket	Sym. 20960-183	100 Feet*
35	T/C Cable, I-C PVC Jacket	Sym. 37901-927	1,400 Feet*
36	Lighting Panel, 4-Circuit, Crouse-Hinds N2PB-1018-420 Special	Sym. 21204-936	1
37	Receptacles, 30A, 2-Wire, 3-Pole Delayed-Action, Explosion-Proof, Crouse-Hinds CES2213	Sym. 22832-502	3
38	Lighting Fixture, 150-Watt Lucalox, Crouse-Hinds Catalog Number VMVSA150GP/120-LX	MR 56580	7
39	Lighting Fixture, 150-Watt Lucalox, 25° Angle, Crouse-Hinds Catalog Number VMVSJ150GP/120-LX	MR 56580	1
40	Lamps, 150-Watt, Lucalox, LU150/BU	MR 56580	8
41	Push-Button Supports	Sym. 21326-615	2
42	Instrument Cable 2/C Number 16 Type MI With Stainless Steel Connectors	Sym. 20908-950	10

EXXON WILL PERFORM ONLY THE FOLLOWING:

2.1 Designate a site or sites in the Baytown Refinery to which Contractor shall haul all used and surplus materials, debris, and surplus excavated soil.

2.2 Designate material storage areas and areas on which Contractor may locate temporary sanitary facilities, shops, or offices.

2.3 Perform all instrument calibration including the complete instrument loop after all wiring is completed

* As Required

WCA:jc

EXX 004074

OFFICE MEMO
BROWN & ROOT, INC.

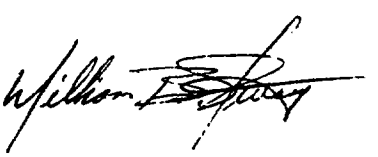
TO: THOSE CONCERNED

FROM: WILLIAM B. STUESSY DECEMBER 8, 1978

SUBJECT: NEW JOB ASSIGNMENTS--INDUSTRIAL-CIVIL DEPARTMENT

THE FOLLOWING JOB NUMBERS HAVE BEEN ASSIGNED TO THE INDUSTRIAL-CIVIL DEPARTMENT TO COVER THE FOLLOWING NEW CONTRACTS:

JOB NO.	JOB DESCRIPTION
27-5750	MERCEDES-BENZ OF NORTH AMERICA, INC. - CONSTRUCT ASPHALT PAVING AND RELATED WORK AT 9550 NORTH LOOP EAST, HARRIS COUNTY, TEXAS
27-5751	EXXON COMPANY, U.S.A. - CONSTRUCT AN AIR PREHEATER IN THE CLEU 2 UNIT, BAYTOWN, TEXAS
27-5752	PHILLIPS PETROLEUM COMPANY - CONSTRUCT A ROADWAY TO SERVE THE REFINERY AT SWEENY, TEXAS
27-5753	EXXON COMPANY, U.S.A. - INSTALL PIPE SUPPORTS ASSOCIATED WITH THE COAL LIQUEFACTION PLANT IN BAYTOWN, TEXAS
27-5754	EXXON CHEMICAL CO., U.S.A. - CONSTRUCT OFFSITE LINES INTERFACE AT THE COAL LIQUEFACTION PLANT, BAYTOWN, TEXAS



BROWN & ROOT, INC.
NEW JOB ASSIGNMENT

☒ ORIGINAL
☐ REVISION

DATE 11-30-78

1-2 [01] CO. CODE

3-11 JOB NUMBER 27 | 5751 | (DEPT. NUMBER SUFFIX)

STATE CODE ☐☐ CITY CODE ☐☐

12 CONTRACT TYPE
- 1 ☒ FIXED PRICE
- 2 ☐ COST PLUS
- 3 ☐ JOINT VENTURE
- 9 ☐ ASSOC. CO'S

13 ACCOUNTING LOCATION
- 1 ☒ HOME OFFICE
- 2 ☐ PROJECT OFFICE
- 9 ☐ OTHER

14 OWNER
- 1 ☒ BROWN & ROOT
- 2 ☐ ASSOC. CO'S
- 3 ☐ JOINT VENTURE
- 9 ☐ OTHER

15 SPECIAL CODES
- 2 ☐ JOB SUFFIX
- 3 ☐ SPECIAL SUFFIX

INDUSTRY TYPE
- 20-21 [01] PREFIX
- 22-23 [04] NUMBER
- 24-25 ☐☐ SUFFIX

26-27 DIVISION [27]

28-33 SECONDARY JOB 27-0002

35-36 SECONDARY DIV. [12]

16 JOB CLASSIFICATION
- 1 ☐ MARINE
- 2 ☒ OTHER

CONTRACT AMOUNT TYPE
- 1 ☒ DOLLAR AMOUNT
- 2 ☐ CONTINUOUS WORK
- 9 ☐ OTHER

74 JOB STATUS
- ☒ ACTIVE
- 1 ☐ CLOSED & REOPENED — YEAR | MONTH
- ☐ COMPLETED — YEAR | MONTH

JOB TITLE — 79-80 CARD CODE

12-20	21-30	31-40	41-50	51-60	61-70	71-72	
EXXON COMPANY, U.S.A. - CONSTRUCT AN AIR PREHEATER AT CLEU						2,	(12)
BAYTOWN, TEXAS							(13)
							(14)

PREPARED BY [signature]

EXX 004076

Form P-50 1-76

BROWN & ROOT, INC.

JEF/dc

SUBCONTRACT

Job Number 27-5751

Subcontract No. 27-5751-5001

EXXON COMPANY U.S.A.
CLEU NO. 2
BAYTOWN, TEXAS
(Project)

SANDBLASTING AND PAINTING
(Sublet Work)

DECEMBER 12, 1978
(Effective Date)

THIS SUBCONTRACT, by and between BROWN & ROOT, INC., a Texas Corporation, P. O. BOX 3, HOUSTON, TEXAS 77001, "GENERAL CONTRACTOR" and,

SERVICE PAINTING COMPANY,

a Corporation under laws of Texas
(Corporation, Proprietorship, Partnership) (State)

whose address is P. O. Box 2353, Beaumont, Texas 7770 Tel: (713) 228-7866,

"SUBCONTRACTOR," whose contractor's license number under laws of Not Applicable

is Not Applicable, entered into as of the EFFECTIVE DATE stated above,

WITNESSETH:

In consideration of the mutual promises herein contained General Contractor and Subcontractor agree, promise, and obligate themselves as follows:

1. Subcontractor promises to perform the Sublet Work for the Project in accordance with the Contract Documents.

2. General Contractor promises to pay Subcontractor, for full, accurate and timely performance of the Sublet Work in accordance herewith, the Price and other payments, and promises to perform all of the other obligations of General Contractor, as set forth in the Contract Documents.

3. The Contract Documents constituting this Subcontract consist of:

a. "Subcontract Terms" and exhibits thereto.

b. "S~~pecial Conditions and exhibits thereto~~XXX

c. "General Conditions" P-50 (1-77)

d. "Affidavit for Subcontractor" (Form P-7)

e. "Contractor's Responsibilities for Safety, Plant Security and Traffic Regulations" (April 1, 1978)

f.

027-5751(5)-082
11408598
14,611.00
Gen. Cond. 32 with 10% retainage

EXX 004079

Subcontract No. 27-5751-5001

The foregoing constitutes the entire contract, and supersede all prior proposals, negotiations, agreements, awards, letter of intent and written or oral statements, representations or agreements.

4. The Effective Date set forth above is the date as to which all Contract Documents and provisions thereof have reference for purposes of coordination of their meaning and effect. The price relates to the Sublet Work as described in drawings, specifications and other Contract Documents in their condition on that date. Changes after the effective date will be dealt with in accordance with the provision for changes. Any work commenced and any payments made pursuant to an Award or Letter of Intent prior to the execution hereof shall be deemed to have been done and paid after the Effective Date under the terms of this Subcontract.

GENERAL CONTRACTOR:

BROWN & ROOT, INC.

By: L. S. Mather
for D. E. Newton, Jr.
Title: Vice President, Procurement

Date: January 05, 1979

SUBCONTRACTOR:

SERVICE PAINTING COMPANY

By: Gus Waits
Gus Waits
Title: Vice President

Date: 12-29-78

EXX 004080

SUBCONTRACT TERMS

CLEU NO. 2
EXXON COMPANY U.S.A.
SUBCONTRACT NO. 25-5751-5001

1. SUBLET WORK

1.1 The Sublet Work, in general, is to perform the sandblasting and painting work required for the Exxon Company Facilities located in Baytown, Texas.

1.2 More specifically, the Subcontractor agrees to perform the Sublet Work which consists of furnishing all labor, supervision, materials, tools, equipment, taxes, insurance, and incidentals necessary to sandblast and paint piping and ducts and paint stacks, fan motor and housing at the location described above, all of which work shall be performed in accordance with and pursuant to the requirements of the drawings and specifications listed in Subcontract Term No. 2 hereunder and all other provisions of the Subcontract Documents.

1.3 Subcontractor shall perform all work described herein in accordance with the directions of the General Contractor's Project Manager or his duly authorized representative.

2. DRAWINGS AND SPECIFICATIONS

The Sublet Work shall be performed in accordance with, and all materials furnished by the Subcontractor shall comply with and conform to the following drawings and specifications:

1) "Specifications for Air Preheater at CLEU 2 Exxon Company, U.S.A. (Appropriation 00716) dated August 10, 1978.

2) "Table I - List of Engineering Drawings" (appropriation 00716), dated August 10, 1978.

3. SERVICES AND MATERIALS PROVIDED BY GENERAL CONTRACTOR

General Contractor shall provide the Subcontractor with drinking water, portable sanitary facilities to be shared with others and electrical power for use while performing the Sublet Work described herein.

4. TIME OF PERFORMANCE

4.1 Subcontractor shall commence the Sublet Work on or about January 30, 1979 and shall perform all work in a diligent manner until all aspects of the Sublet Work are complete which shall be on or before April 1, 1979.

4.2 Subcontractor shall perform the Sublet Work in accordance with the schedule of the General Contractor's Project Manager or his duly authorized representative.

4.3 Subcontractor shall maintain contact with the General Contractor's Project Manager, or his duly authorized representative, for the purpose of scheduling and coordinating the Sublet Work.

5. SUBCONTRACT PRICE

General Contractor agrees to pay Subcontractor for complete, satisfactory, and timely performance of the Sublet Work strictly in accordance with the drawings, specifications, and requirements of all of the Subcontract Documents the following Firm Lump Sum Price, inclusive of all sales and use taxes.

FOURTEEN THOUSAND SIX HUNDRED ELEVEN DOLLARS AND NO CENTS
(Words)

$ 14,611.00
(Figures)

6. PAYMENT AND PERFORMANCE BONDS

There is no requirement at this time to furnish separate 100% Payment and Performance Bonds. However General Contractor may at any time require seperate Payment and Performance Bonds in accordance with the provisions of General Condition No. 19.

7. PAYMENT

7.1 The following paragraph supplements Paragraph Number 32 of the General Conditions:

Subcontractor shall be paid in monthly progress payments the value of the Sublet Work satisfactorily performed during the preceding month based upon the firm lump sum price detailed and described in Subcontract Term No. 5 less 10% of such value as retainage until final completion and acceptance of the Sublet Work by General Contractor. Subcontractor shall prepare and submit an invoice for the proposed monthly progress payments and shall submit supporting documents and proof of payment of all bills for labor and materials, as may be requested by General Contractor. Subcontractor's invoice for proposed

7. PAYMENT -(continued)

monthly progress payments with requested supporting documents and proof of payment of all bills will be submitted for approval by General Contractor and when approved, payment shall be made within thirty days thereafter. Final payment and release of retainage shall be made when the Sublet Work has been satisfactorily completed and accepted and Subcontractor has submitted the affidavit as called for in Subcontract Term No. 8.

8. AFFIDAVITS

Two copies of the General Contractor's "Affidavit for Subcontractor" (Form P-7) are attached for use in implementing the provisions of General Condition No. 32. Subcontractor shall execute and return one copy with his final or retainage invoice to the address shown in Subcontract Term No. 9.

9. INVOICES

Subcontractor shall render all invoices to the following address:

Brown & Root, Inc.
P. O. Box 4060
Baytown, Texas 77520

Attn: B. M. Holt

10. INSURANCE

Subcontractor shall forward his Certificate of Insurance stating the names of its Insurance Carriers and certifying that its insurance coverages meet the requirements set forth in General Condition No. 21 herein to the following address, in addition to the address shown in Subcontract Term No. 9.

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: J. E. Futcher
(01-116)

11. LABOR RELATIONS

The following supplements Paragraph 14 of the General Conditions:

Subcontractor represents that its pre-hiring collective bargaining agreements, if any, contain or will contain provisions that, or Subcontractor has entered into or will enter into a project agreement modifying such collective bargaining agreement to provide that, there shall be no strikes, slowdowns, picketing, secondary boycotts, or work stoppages during the performance of the Sublet Work. Subcontractor will further subcontract only to lower-tier subcontractors having similar provisions in their collective bargaining agreements, if any.

12. ASSIGNMENT OF SUBCONTRACT TO OWNER

The following paragraph hereby supplements paragraph number 17 of the General Conditions:

Subcontractor agrees that this subcontract may be assigned by General Contractor to Owner at any time without affecting the Subcontractor's obligations hereunder. Prior to assignment no contractual relationship exists between Subcontractor and Owner.

13. SAFETY AND SECURITY

Subcontractor shall perform the Sublet Work in strict accordance with the provisions set forth in the attached document entitled "Contractor's Responsibilities for Safety, Plant Security, and Traffic Regulations", dated January 1, 1977, which is hereby incorporated as part of this Subcontract by reference.

NOTE: This Affidavit is to be executed and returned with final or retainage invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT
NO. 27-575-5001

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

Title: _____ Name: _____
For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19 _____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC

County of _____

State of _____

EXX 004085

NOTE: This Affidavit is to be executed and returned with final or retainage invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT
NO. 27-575/500/

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

Title: Name:

For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19_____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC

County of _____

State of _____

EXX 004086

CONTRACTORS' RESPONSIBILITIES FOR SAFETY, PLANT SECURITY, AND TRAFFIC REGULATIONS

BAYTOWN REFINERY

APRIL 1, 1978

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Foreword
SAFETY POLICY

GENERAL

Safety is an integral part of the planning and execution of every job. It is the hallmark of efficient operations. An interested management, a knowledgeable and responsible supervisory staff, and a conscientious, well-trained work force, all concerned with the elimination of accidents in the overall performance of our work, will combine to make our organization safe and effective.

Exxon Management recognizes its responsibility for healthful and safe working conditions and, through its technical and supervisory personnel and through various committee assignments, strives to provide those conditions. This is accomplished through safe working rules based on experience, safety knowledge, and competent work direction

Each employee has a personal responsibility for his own safety and for the safety of his fellow employees. He is expected to exercise good judgment, properly use and maintain the tools provided, adhere to the established working rules, and follow the directions of well-grounded supervision.

Information on the application of safety rules and procedures is available in this Safety Manual, Exxon Engineering Standards, and various Process and Mechanical manuals. Technical help in the application of safety principles and safety equipment to specific situations is available through the Safety Coordinator, Industrial Hygienists, the Technical Division, and the Safe Operations Committee

The safety rules contained in this manual apply to all employees of Exxon Company, U.S.A. and all *contractor employees* working in the Baytown Refinery. These rules specify minimum safety requirements that must be followed. Willful or negligent violation of any of these safety rules may result in disciplinary action, including discharge without notice *or in the case of contractor, cancellation of the contract.*

Overlapping Permits

Work permit procedures are established to promote effective communications and to insure that work is performed in a safe environment. Since the permit is issued for the job, only one work permit should be in effect for one job in one area at one time. When more than one work group is involved on the same job in the same area, the "One Work Permit Rule" may lead to some confusion. Therefore, the Chief Operator will determine which of the two following alternatives is better for controlling the work in his area.

1. Issue one work permit for the job and have each Maintenance Supervisor who will perform work on the job sign the permit. The last work group to finish or the last Maintenance Supervisor to sign must turn in the work permit.

2. Issue a permit for the work each work group is to perform; but in absolutely no instance, must the permits conflict (i.e., work on one permit making work by another permit unsafe). For example: a permit to perform hot work and a permit to perform opening and blinding work.

PROCEDURE FOR DEVIATING FROM THIS SAFETY MANUAL IN SPECIAL SITUATIONS

Where special conditions or situations exist that make the requirements stipulated in this manual impractical to follow on a routine basis, an alter-

EXX 004089

nate procedure may be developed. This alternative must be written, reviewed with the Safety Coordinator and approval obtained from the Process and/or Mechanical Superintendent before implementing. The approved alternate procedure must be filed in the Unit Area Section of the Process Unit Instructions Manual and/or the Mechanical Safety Notebook.

PROCEDURE FOR MAKING CHANGES TO THIS SAFETY MANUAL

It is the prerogative of Management to set aside any of these rules. However, before doing so, the approval of the Superintendent in charge must be obtained and the situation discussed with the Safety Coordinator *and with the Contract Administrator in case of contractors.*

The Refinery Safety Coordinator is responsible for keeping this Safety Manual up to date, and he should be notified of desired additions or revisions. He will arrange for the preparation of additions or changes and obtain Management approval before inclusion into the Safety Manual.

EXX 004090

Section 1
GENERAL DEFINITIONS FOR SAFETY MANUAL

PERSONS

1. Chief Operator — The Process person who is responsible for Process operations in a processing area and has the authority to supervise Process personnel and issue work permits.

2. Contract Administrator — The Exxon Mechanical or Process supervisor assigned by the owner to assure that the contractor adheres to the plans, specifications, and Refinery safety rules.

3. Contractor — *The firm under contract to Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors by the prime contractor.*

4. Department Head — The person in charge of a Process department, i.e., Fuels, Specialties, Oil Movements, Utilities and Environmental Control, or Baytown Fuels Expansion.

5. Maintenance Supervisor — The Mechanical person, either Exxon or *contractor*, who has the authority to supervise the Mechanical work crew and is responsible for their work execution.

6. Mechanical Personnel or Person — Any of the Mechanical work crew (Supervisor, Craftsman, Trainee), either Exxon or *contractor*, performing work in the Refinery.

7. Owner — Exxon Company, U.S.A., Baytown Refinery.

8. Operating Supervisor — The second-line supervisor in Process and the immediate supervisor of the Chief Operators.

9. Process Personnel or Person — Any of the Process work crew (Chief Operator, Process Technician, or Process Technician Trainee) who has job responsibility for the assigned processing area.

10. Designated Representative — An Exxon Process Person, if designated by Chief Operator, or an Exxon Mechanical Person if designated by Maintenance Supervisor.

11. Standby — The person designated by the Chief Operator and or the maintenance supervisor to warn persons of hazardous or emergency conditions that could affect their safety.

PLACES

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of personnel working are below the top of the confined space.

2. Processing Area — Any area under the jurisdiction of Process personnel.

3. Refinery — The manufacturing facilities of Exxon Company, U.S.A. located in Baytown, Texas.

ACTIVITIES — CONDITIONS

1. Cold Work — Any mechanical work that does not involve hot work or opening, blinding, and entering processing equipment.

2. Hot Work — Any work requiring the use of burning or welding and brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete

EXX 004091

busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion actuated tools, electric hot plates, or any other flame- or spark-producing equipment.

3. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

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

5. Blinding — Installing temporary slip blinds into piping or blind flanges onto equipment for the purpose of isolating or closing processing equipment.

6. Flammable Material — Any material that will ignite and continue to burn in air.

7. Explosive Mixture — Any mixture of gas or vapor that will ignite (explode) when exposed to a source of ignition. Hot work or entry must not be permitted if tests indicate that the atmosphere contains greater than five percent of the lower explosive concentration of the combustible material (five percent of lower explosive limit).

8. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

9. Toxic Materials — Any substance (other than a radioactive substance) that has the capacity to produce personal injury or illness to man through ingestion, inhalation, or absorption through any body surface. If test for toxic vapors shows a

concentration greater than 10 percent of the published eight-hour limit for the substance, entry without protective equipment must not be permitted.

10. Must and May — "Must" is used in the manual to indicate mandatory compliance. "May" is used to indicate that good judgment shall be exercised.

EXX 004092

Section 2
SAFETY RULES

PURPOSE
The purpose of these personnel, equipment, and traffice safety rules is to specify minimum safety requirements that must be followed to prevent injury or death to persons and damage to property. These rules in their entirety apply to all persons, *including the contractor employees* working in Exxon Company, U.S.A.'s Baytown Refinery. *Additional requirements for contractors and their employees are shown in italic type throughout the manual.*

DEFINITIONS
Definitions of terms used throughout this manual will be found in Section 1. Special definitions that apply to a specific permit or work procedure are in the applicable section of this manual.

RESPONSIBILITIES
1. **Supervisors** are responsible for the health and safety of the people under their work direction. They must:

a. Set a good example.

b. Provide adequate instruction in and require compliance with:

(1) Accident prevention aspects of each job.

(2) Use and application of appropriate protective clothing, equipment, and devices.

(3) Use or application of tools and equipment.

c. Cooperate with others where the safety aspects of a job require coordinating the efforts of one or more work groups. This includes, but is not limited to, the securing and/or issuing of a yellow PERMIT TO ENTER, green HOT WORK PERMIT, white OPENING AND/OR BLINDING PERMIT, blue COLD WORK PERMIT, *or* ELECTRICAL LOCKOUT PROCEDURES.

d. Develop a safe work plan for the job to be done and see that the plan is well understood and followed.

e. Require additional accident prevention measures, other than those contained in this safety manual, if, in any supervisor's opinion, they are necessary. In instances or situations not specifically covered herein, it is expected that they will be handled within the guidelines contained in this manual. **Safety is not to be sacrificed for production.**

2. **Individuals,** Exxon *and contractor,* working in the Baytown Refinery are responsible for their own safey and for the safety of other workers and for reporting injuries to themselves or others to their appropriate supervisor. Each person must assure himself that his work situation is safe and that he has adequate instructions, proper tools, and proper protective clothing and equipment. He must also make sure that necessary work permits have been obtained and are valid over the term of his shift.

As a minimum, each person must adhere to the following safety regulations:

a. Clothing and Protective Equipment

(1) Clothing contaminated with oil, hazardous liquids, or chemicals must not be worn. If a person is inadvertently sprayed or contacted by oils, hazardous liquid, or chemicals, the clothing must be removed as quickly as practical, the affected parts washed with soap and water, and the situation reported to the supervisor *and to the Exxon supervisor in charge or Contract Administrator in case of contractors*

(2) Protective clothing that fully covers the

EXX 004093

body (arms, legs, shoulders, feet, etc.) must be worn in work areas. This includes long sleeves unless wearing long sleeves creates a greater hazard than not wearing them — such as Machinists around rotating equipment or Linemen working on overhead electrical lines on poles. The wearing of canvas-type shoes, thongs, and similar type footwear in work areas is prohibited. Exceptions must be approved by the Department Head after consultation with the Safety Coordinator.

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

(4) Safety hats and safety glasses must be worn in all areas of the Refinery except at certain locations specified by the Department Head after consultation with the Safety Coordinator.

EXCEPTION: Welders need not wear safety hats while welding.

(5) Contact lenses must not be worn inside the Refinery. Employees with unusual visual problems requiring the wearing of contact lenses must use appropriate eye protection as recommended by a medical doctor depending on occupational exposure. (For Exxon employees, the Medical Department will recommend appropriate eye protection.)

(6) Goggles and/or safety glasses with side shields must be worn in those areas where the possibility of flying objects exists.

(7) Chemical goggles must be worn in those areas where exposure to chemicals or liquid hazards exist.

(8) Respiratory protection must 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).

(9) Special protective clothing for the particular hazard must be worn where there is a possibility of exposure to acid, caustic, or other hazardous material.

(10) Bright-colored vests or equivalent highly visible attire must be worn by members of survey parties when working on or adjacent roads.

(11) Safety belts attached to an independently supported line must be worn:

(a) When working from scaffolds, platforms, or any other surfaces that 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.

(12) Approved ear protection such as ear plugs, disposable plugs, Swedish wool (cotton is unacceptable), or ear muffs must be worn when working in areas designated with warning signs as "high noise area." Ear protection is required when using tools marked "caution-hearing protection required when using this tool" and in areas where equipment or tools generate sufficient noise to make normal conversation difficult.

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b. Entering Processing Area

No person shall enter a processing area (including firewalls of operating tanks) without the permission of the Chief Operator or his designated representative. Chief Operator permission is also required when motorized equipment initially enters a closed processing area (radio or telephone approval by dispatcher is acceptable). No further permission is required as long as mechanical work is continuous. Once work is interrupted, such as for lunch breaks, permission must again be obtained. Vehicles entering these areas may be required to have sparkproof mufflers or their equivalent as required by the Chief Operator *or the Contract Administrator in the case of contractor vehicles*.

c. Working Over or Near Water

The U.S. Coast Guard approved life preservers must be worn when working on barges or directly over water, such as under the docks, from a boat, above pits, etc.

d. Working On or Over Machinery

(1) Do not work on moving machinery or above open operating machinery unless it is impractical to shut down the equipment. In such instances, secure Maintenance Supervisor's and or Chief Operator's approval and take necessary precautions before proceeding.

(2) Do not start up machinery unless all guards are in place.

EXCEPTION: In temporary situations where guards must be removed to make running adjustments, secure Maintenance Supervisor's and/or Chief Operator's approval before proceeding.

e. Guarding

(1) Temporary openings in floors, handrails, etc., **must be guarded** to prevent falling. Restore permanent handrails and guardrails immediately after need for opening has ended.

(2) Open excavations or manholes must be guarded or covered before leaving the job and during the job if practical.

(3) Areas into which materials or tools are to be deliberately dropped or thrown must be guarded or protected.

f. Housekeeping

(1) Aisles, passageways, stairs, platforms, and ladders must be kept clear of all unnecessary obstructions.

(2) Protruding nails that present a snag or puncture hazard must be removed or bent down.

(3) Worksite must be kept clean and orderly.

(4) Debris (including mud from wheels) that falls from transporting vehicles must be picked up.

g. Smoking and Matches

Smoking in the Refinery except at approved locations is prohibited. "Strike-anywhere" matches must not be brought into the Refinery.

h. Hand and Power Tools — Portable Machinery

(1) Defective tools must not be used.

(2) Tools must not be subject to undue stress or used for purposes for which they are not designed. Makeshift tools must not be used.

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(3) Portable Machinery must be shut down for repair work. If it is impractical to stop or shut the equipment down before working on it, secure Maintenance Supervisor's approval before proceeding.

(4) Abrasive wheel tool rests must be adjusted to within ⅛-inch maximum of the wheel. Do not use abrasive wheels that are visibly in bad order.

(5) High-speed abrasive wheels must be properly guarded as required. Do not stand in line of unguarded wheels.

(6) Tools must not be started or used unless all required guards are in place.

i. Electrical Tools and Equipment

(1) Electrical switches must not be operated without full knowledge that the results will not constitute a safety hazard.

(2) Portable electrical tools, metal buildings with electrical service, and electrical equipment (including motor-driven welding machines and portable generators) must be grounded. Report them to the Maintenance Supervisor if they are found to be defective.

EXCEPTION: Double insulated tools and engine driven welding machines may be used without grounding.

(3) General purpose two- or three-cell flashlights (1.5 volts per cell) may be used everywhere except where use is prohibited by governmental agencies, such as at the docks.

(4) Explosionproof, approved portable lights (Underwriters Laboratory or Bureau of Mines approved) must be used where hot work is not authorized. This includes portable explosionproof hand lamps, portable explosionproof floodlights, and extension cords (plug boards) with explosionproof fixtures.

EXCEPTION: Fixed-mount, take-up, reel-type mechanic's lamp or other special appliances that have been specifically approved by the Department Head.

(5) Vaporproof globes must not be removed except for cleaning, repairing, or replacing lamps. Explosionproof fixtures shall be opened only by authorized persons.

j. Ladders and Scaffolds

(1) Ladders must be checked to insure that they are in good condition before use. Portable ladders must either be held or lashed securely while in use. Where practical, the siderails shall extend at least 36 inches above the landing.

(2) Ladders must be located where possible where they cannot be bumped. When located in areas such as in front of a door, in the street or aisles, etc., adequate precautions must be taken to protect both the climber and others who may be in the area.

(3) Good working techniques must be used when climbing, working from, or descending a ladder, such as holding with both hands and keeping the body within the siderails of the ladder.

(4) Scaffolds must be constructed to support at least four times the maximum intended load without failure.

(5) Platform planks must be laid with their edges close together so that there are no spaces large enough for tools or fragments of materials to fall through.

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(6) Swing scaffolds must be lowered and lashed at the end of the shift.

(7) Access ladders or other safe means of access to all scaffolds must be provided.

(8) Standard handrails and toe boards must be provided on all scaffolds 10 feet or more in height.

(9) Tools or materials on scaffold platforms must be placed in such a manner that they will not create a tripping hazard or become dislodged and fall.

(10) Alterations to scaffolds must be reported to the appropriate supervisor.

(11) Non Conductive ladders or scaffolds must be used when working on open energized electrical circuits.

k. Excavations

(1) Do not enter or work in excavations that will require a person's head to be below the level of the ground until:

(a) Obtaining a yellow PERMIT TO ENTER,

(b) Shoring or sloping the excavation to prevent sloughing of earth,

(c) Effectively storing or retaining excavated material at least two feet from the edge of the excavation and

(d) A ladder or ramp for safe entrance and exit has been provided.

(2) Guard or cover all excavations before leaving job, and during the job if practical.

(3) RED CONCRETE UNDERGROUND signifies the presence of an electrical circuit. Stop excavating and notify the Maintenance Supervisor *and the Contract Administrator in case of contractor employees.*

1. Connections Into Existing Pipelines, Equipment, or Service

After a tie-in has been made connecting new construction to existing lines, equipment, or sewers, the whole pipeing equipment or sewer system involved must be considered the same as existing lines and equipment; and applicable work permits must be obtained from the Chief Operator before additional work can be done on any of these lines or equipment. After new sewers have been tied into the sewer system, any hot work in the area of the new sewer must terminate. Any further hot work requires a new HOT WORK PERMIT.

m. Railroad

(1) Constructing or placing any permanent or temporary obstructions closer than eight feet six inches horizontally from the centerline of the track or 22 feet vertically from any top of rail is prohibited without specific authorization from the Exxon Supervisor responsible for railroad trackage.

(2) Riding on railroad equipment is prohibited.

(3) Tank car ladders and hand irons must be used. Do not jump from loading rack to tank car, from car to car, or from car to ground.

n. Hoisting Equipment

(1) Keep clear of suspended loads.

(2) Hoisting equipment must be operated so as not to endanger other people or damage equipment in the operating area.

(3) Blocks, hooks, balls, or crane loads must not be ridden. Approved sling or bosun chair must be used.

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(4) Loads suspended from mobile equipment must be secured to prevent swinging and the hoisting operator must remain at the controls.

(5) Guy lines, mooring lines, or load lines must not be placed in such a position that they will tighten against operating equipment, pipelines, tanks, or machinery.

(6) Insulating swivels must be used on all bosun chairs or baskets when supporting a welder.

o. Hazardous Materials

(1) Note locations of eyewash fountains and safety showers and know how they work.

(2) Labeled containers must be used for handling hazardous materials.

(3) Dismantled or relocated equipment that has been in "hazardous material" service must be identified by tagging or other physical marking.

(4) Solvents for cleaning purposes must be varsol, or other approved materials.

(5) High boiling point materials (above 700°F) from catalytic cracking operations or other highly aromatic or toxic materials are hazardous and precautions must be taken to prevent breathing of vapor or contacting the skin. If these oils do come in contact with the skin, they must be washed off promptly with soap and water.

(6) Appropriate Process Unit Instructions (PUI) or Mechanical Operating Practices (MOP) must be followed when working in areas where toxic materials are present.

p. Compressed Air — Yard System

(1) Compressed yard air must not be used to clean clothing or personnel except at outlets that are especially equipped to permit a maximum pressure of 30 psi.

(2) Compressed air must not be used to open plugged sewers.

(3) Compressed yard air must not be used for breathing purposes.

q. Warning Signs

Caution and warning signs must be obeyed including use of specified protective or safety equipment.

r. Compressed Gas Cylinders — Transportation, Storage, and Use

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

(1) Protective caps must be in place when cylinders not in use.

(2) Full cylinders (except chlorine) must be stored and transported in vertical position with caps on. Chlorine cylinders must be transported in the horizontal position. Separate oxygen cylinders in storage from fuel gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least five feet high, having a fire-resistance rating of at least one-half hour.

(3) Holders, chains, or keepers must be used to prevent overturning.

(4) Empty cylinders, except acetylene, may be stored and transported in a horizontal position. Acetylene cylinders must be vertical at all times.

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(5) Cylinders in a vertical position must be secured with a suitable keeper while connected to equipment.

(6) Pure oxygen and chlorine must not be allowed to contact hydrocarbons in any form.

(7) Rough handling of cylinders must be avoided.

(8) Oxygen or acetylene must not be used for testing purposes.

(9) Hazardous compressed gases must not be released into enclosed spaces.

(10) Compressed bottled gases must not be used to clean clothing or personnel.

(11) Oxygen or acetylene cylinders must not be taken into enclosed spaces except into storage tanks where door sheet has been removed.

(12) Repair of leaking compressed gas cylinders must not be attempted. If cylinder can be moved, move to a safe location and allow to depressure itself. If it cannot be moved safely, clear area and allow the cylinder to depressure. If the cylinder is chlorine, evacuate the area and initiate procedure outlined in MOP-C4. *If leak involves contractor cylinders, the Contract Administrator must be immediately notified.*

s. Fire Prevention — Fire Fighting

(1) No one shall go to the scene of a fire unless directly involved or assigned to fire-fighting activities. Others not having operating duties shall evacuate the fire area. *Contractor employees must proceed to a prearranged assembly area.*

(2) Fire-fighting equipment access must not be blocked by traffic or other equipment.

(3) Electrical fires must not be fought with a solid stream of water. Water fog may be applied to an electrical fire only by an Exxon fire fighter.

t. Working in the Vicinity of Electric Lines

When it is necessary to operate cranes or derricks or perform other work within 10 feet of open electric lines (measured radially), the Maintenance Supervisor must consult the Utilities Chief Operator *or the Contract Administrator in the case of contractor work* to determine whether the electric lines can be deenergized. No work can proceed until the electric lines have been deenergized or until guards have been installed. Install approved guards when it is necessary to install guy lines across any electric lines to prevent guy lines from coming in contact with the electric lines. All work on open electric lines must be done in accordance with Mechanical Safety Procedure No. 8.

u. Refueling Vehicles and Equipment

Dispensing gasoline and fuel must be done through a pump and hose. If not possible, approved (Underwriters Laboratory or Factor Manual approved container for flammable liquid) safety cans with flexible spouts must be used. Vehicles and equipment engines must be turned off during refueling.

v. Potable Water

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

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w. Asbestos Cement Roof
When installing or working on an asbestos cement roof, workers must use a spreader board or roofer ladder to distribute their weight over a minimum of two purlins.

TRAFFIC SAFETY REGULATIONS

Unless covered by a specific regulation in this Safety Manual, traffice regulations for safe driving inside the Refinery are the same as the regulations of the State of Texas Motor Vehicle Laws.

1. Equipment and Identification Required on Motor Vehicles
All motor vehicles in the Refinery must be in safe operating condition. When entering the Refinery, 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: (a) brakes; (b) lights — two headlights, tail lights, brake lights; (c) horn; (d) muffler; (e) safety glass; (f) windshield wiper and rear-view mirror; and (g) 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. *Contractors' self-propelled, rubber-tired equipment must have contractor's name or insignia prominantly displayed on both sides of the vehicle.*

2. Driver's License
Persons operating motor vehicles in the Refinery must have a valid operator's (automobile) license as a minimum.

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

4. 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.

5. "Road Closed" Signs
Areas blocked by traffic barriers and/or "road closed" signs are closed to all traffic. Follow procedure specified in PUI-S5 for blocking Refinery streets.

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

7. 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.

8. 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.

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9. Passengers

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

b. 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.

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

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

10. Vehicles Prohibited

Motor bicycles or motorcycles are not permitted inside the Refinery except to and from the designated "motorcycle only" parking areas provided near gates. Campers and recreational vehicles are not permitted in the Refinery 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 Refinery.

11. Vehicle Entry into Processing Areas

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.

12. 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 Refinery. All vehicles must be equipped with adequate rear-view devices.

13. 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

EXX 004101

Section 3

CONTRACTOR'S SAFETY RESPONSIBILITIES

PURPOSE

The purpose of the personnel and equipment safety regulations contained in this section is to set out safety requirements for contractors, which are in addition to those contained in other sections of this manual. Each contractor must take any additional precautions necessary or proper under the circumstances to prevent injury or death to persons or damage to property

SPECIAL DEFINITIONS

1. *Owner* – *For purposes of these safety regulations, "owner" shall mean Exxon Company, U.S.A. (a division of Exxon Corporation).*

2. *Contract Administrator* – *The person assigned by the owner to assure contractor adherence to the contract provisions.*

3. *Contractor* – *The firm that has been contracted by the Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors to the prime contractor.*

4. *Maintenance Supervisor* – *The Mechanical person, either Exxon or contractor, who has the authority to supervise the Mechanical work crew and the responsibility for their work execution. As used in this section, the Maintenance Supervisor refers specifically to the contractor first line supervisor.*

RESPONSIBILITIES

1. *Contractor,* *as an independent contractor, is responsible for performing work under the contract in a healthful and safe manner including protecting the safety and welfare of other contractors and the owner's personnel and equipment. 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.

a. *The contractor is responsible for informing his employees of the required safety rules and that the employees adhere to said rules.*

b. *The prime contractor is responsible for assuring compliance with these regulations by all subcontractors and their employees. Contractor must notify its employees, its subcontractors, and the employees of its subcontractors of these provisions of the regulations and shall secure compliance therewith by all such parties; and contractor must not allow any of such persons to begin work inside the Baytown Refinery until such notification has been given them.*

c. *Contractor must observe and comply with the Texas Occupational Safety Act (Article 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 apply to all subcontractors and their employees as well as to the contractor and its employees.*

d. *Nothing contained in these regulations shall be interpreted to enlarge the legal duty of the owner to the contractor, his agents, employees, or subcontractors.*

2. Maintenance Supervisors *are responsible for the safe conduct of their jobs and for the safety of the persons under their direction. Specific supervisory responsibilities are contained in Section 1-2 of this manual. Each Maintenance Supervisor is responsible for assuring that each individual under his direction un-*

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derstands and adheres to the safety rules contained in Section 1-2 of this manual.

3. Individual *person doing work in the Refinery must assure himself that the work situation is safe and that he has the proper instructions, tools, and protective equipment. Each person must become familiar with and adhere to the safety rules contained in Section 1-2 of this manual.*

4. Contract Administrator *will monitor the contractor's performance to assure safe execution of the work specified in the contract. He will, on proper request, assist the contractor in dealing with other owner personnel to obtain safety permits and to implement other safety related procedures. He will insure that all contractor's Maintenance Supervisors are properly indoctrinated in the relevant safety regulations.*

PROCEDURES

1. Work Execution

All work in processing areas must be performed with the approval of the Chief Operator responsible for the area. The Maintenance Supervisor must coordinate his work through the Chief Operator and must keep him informed as to the number, location, and activities of contract personnel. Any work performed after normal working hours and on weekends and holidays requires authorization by the owner. Such authorization will be obtained by the Contract Administrator.

2. Required Work Permits and Procedures

Before beginning any work in processing areas, an appropriate permit must be obtained from the Chief Operator or his designated representative. Required work permits and procedures are:

- **a.** *Electrical Lockout Procedures – Section 4.*
- **b.** *Hot Work Permits – Section 5.*
- **c.** *Permit to Enter Enclosed Spaces – Section 6.*

- **d.** *Opening or Blinding Permit – Section 7.*
- **e.** *Cold Work Permit – Section 8.*

Other work procedures may be specified in specialized work situations such as hot tap procedure, procedure for cleaning tanks, etc.

3. Oil and Chemical Spills

Any hydrocarbon or chemical spill, whether accidental or otherwise, must be reported to the Chief Operator and the Contract Administrator.

4. Connections Into Owner's Utilities Systems

Permission must be obtained from Contract Administrator prior to connecting into owner's utility system such as, but not limited to, water, air, nitrogen, and steam systems. Each connection shall be guarded by a check valve. When taking water from fire hydrants, the center valve must be opened completely.

5. Contractor's Equipment

a. All equipment brought into the Refinery *by contractors must be in safe operating condition. Authorized owner personnel may at any time inspect contractor's equipment. Such inspection or failure to inspect does not relieve the contractor of its responsibilities for the safe condition of its equipment.*

b. Equipment must be operated *only by properly licensed persons.*

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

6. Working Over or Near Water

a. Ring Buoys *with at least 90 feet of line must be readily available for rescue operations. Distance between ring buoys must not exceed 200 feet.*

b. A life saving skiff *must be immediately available*

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at locations where persons are working over or adjacent water.

7. Work Involving Use of Ionizing Radiation

Contractors must not perform any work involving the use of ionizing radiation without notification to the Exxon Supervisor in charge or the Contract Administrator. A COLD WORK PERMIT must be obtained if radio isotopes are used, a HOT WORK PERMIT is required if an Industrial Xray Unit is used to perform this type work in processing areas. Contractors must comply with "Texas Regulations for Control of Radiation," latest edition, Texas State Department of Health, Division of Occupational 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 enenergy surveys of contractor's equipment and their uses on owner's premises.

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Section 4

ELECTRICAL LOCKOUT PROCEDURES

ELECTRICAL CIRCUITS AND ELECTRICALLY POWERED EQUIPMENT

PURPOSE

The purpose of these procedures is to protect anyone who works on either electrical circuits or electrically powered equipment from injury or death.

SPECIAL DEFINITIONS

Electrical circuits and electrically powered equipment do not include (1) lighting circuits for the purpose of relamping, (2) circuits of less than 100 volts, or (3) circuits that must remain energized. For circuits that must remain energized, a blue COLD WORK PERMIT may be required (see section 8).

RESPONSIBILITIES

1. Process person is responsible for isolating and preparing the equipment to assure it is in safe condition for mechanical work.

2. Person performing work is responsible for assuring himself that the equipment is safe for him to do his prescribed work, and that he has tagged and locked out the equipment in accordance with the electrical lockout procedures.

3. *Contractor Administrator* *is the contractor's contact with Process personnel for performing work under the electrical lockout procedure.*

PROCEDURE

1. Lockout Procedures — Before anyone works on electrical circuits or electrically powered equipment where they could be endangered, the electrical supply must be turned off and locked out in accordance with the following procedures:

a. Shut Equipment Down — The Process person must shut the equipment down at the local start-stop switch or local "Hand-Off-Auto" switch. In case there are remote start-stop switches on this equipment, he must notify other operating personnel responsible for operating the remote start-stop switches and request that a white DO NOT OPERATE tag be placed on the start-stop switches. If the start-stop switch is located on a control panel, then it must be covered with a section of DO NOT OPERATE pressure-sensitive tape.

b. Lock and Tag Disconnect Switch — The Process person must turn the disconnect switch to the off position, lock it with a Process lock, and tag it with the white DO NOT OPERATE tag. If a Process or another person is to work on the equipment, the Process person must use a multiple lockout adapter. The Process operations lock must be in the position closest to the switch. All Process locks will be identical, and the same key will unlock all of them.

c. Check Disconnect and Tag — The Process person must try the local pushbutton station to be sure the correct disconnect switch is locked out. When the local control station is a "Hand-Off-Auto" selector switch the process person must lock the switch in the "Off" position. He must then tag the pushbutton or selector switch with a white DO NOT OPERATE tag.

d. Enter in Log — The Process person must enter the "lockout" in the Process log book.

e. Apply Mechanical Lock — Before mechanical work is performed on equipment, a mechanical lock must be applied by the person performing the work.

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(1) Mechanical Person — Each Mechanical person who works on the equipment must first add his own lock and a red DO NOT OPERATE tag on which he will write his name, skill, and the date. It is the responsibility of each person working on the equipment to assure his own safety by keeping his tag and individual lock on the disconnect switch while he works on the equipment. If two or more people in the same craft are working together on the equipment, only one mechanical lock and red DO NOT OPERATE tag are required. *If a contractor employee is doing the work, he must use an Exxon mechanical-type lock and the appropriate electrical lockout procedures tag obtained from the Contract Administrator. He must write on the tag his name and the name of the contractor firm.*

(2) Process Person — When a Process person is to perform work on the equipment, he must obtain his individual mechanical-type lock and key from the supply in the control room or center and then follow the above procedures in e(1).

f. Remove Lock and Tag — Locks and DO NOT OPERATE tags must be removed as follows:

(1) Remove Mechanical Lock and Tag — As each person finishes his work, he must remove his own lock and red DO NOT OPERATE tag. At the end of his work shift, he must remove his lock and tag whether his work is finished or not. This does not include the original Process lock or white DO NOT OPERATE tag.

(2) Remove Process Lock or Locks and Tags — The Process lock or locks must be the last to be removed. When the local control station is a "Hand-off-Auto" selector switch the lock on this selector switch must be the last removed. The Process person, after determining that it is safe to do so, must remove the Process lock or locks and white DO NOT OPERATE tags and must notify other operating personnel to remove the white DO NOT OPERATE tags or DO NOT OPERATE pressure-sensitive tape from remote start-stop switches. He must then enter the lock removal in the log book.

(3) Emergency Lock Removal — If it becomes necessary to remove a lock by other than the Mechanical person who installed it, only the Shift Superintendent is allowed to remove it. Upon removal of the lock, the Shift Superintendent must send a note to the Department Heads of the Process and Mechanical Departments stating whose lock was removed, where it was located, and why it was removed. A log of the same information must be maintained in the Shift Superintendent's office. A master key for the mechanical person's locks must be kept at the Shift Superintendent's office only.

2. Wiring Disconnect Procedures — For some types of work, the lockout procedure alone is not adequate. Such work includes, but is not restricted to, the following: (1) work on fans inside cooling towers, (2) work inside confined spaces containing electrically powered equipment such as mixers or filters or electrodes (desalters), and (3) work on equipment where the switch controls more than the one piece of equipment. In such cases, this wiring disconnect procedure must be followed:

a. Lockout Equipment — The disconnect switch must be locked out in accordance with the electrical lockout procedure in Paragraph 4a of this section.

b. Check and Disconnect Circuit — After making sure the circuit is clear by checking with a

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voltage tester, the Mechanical or Process person must disconnect the wires and tape them together.

c. Tag Circuit— The Mechanical or Process person must tag the disconnect switch with a yellow WIRING DISCONNECTED tag. On the tag, he must note where the wiring is disconnected and must sign and date the tag.

d. Remove Lock and Red DO NOT OPERATE Tag — After the wiring has been disconnected, and taped together, the Mechanical or Process person must remove his individual lock and red DO NOT OPERATE tag unless he must do other work on the equipment. Do not remove the yellow WIRING DISCONNECTED tag.

e. Wiring Reconnect — The Mechanical or Process person who reconnects the wiring must place his individual lock and red DO NOT OPERATE tag on the disconnect switch, reconnect the wiring, and then remove his lock and the red DO NOT OPERATE and yellow WIRING DISCONNECTED tags. *If a contactor employee is doing the work, he must obtain the required tags from the Contract Administrator and follow the above wiring disconnect procedures a through e. He must also include on the tags the name of the contractor's firm.*

3. Abnormal Condition Procedures — Conditions may exist that appear normal but actually are not. The following are examples of such abnormal conditions that require use of the pink ABNORMAL ELECTRICAL CONDITION tag. Such abnormal conditions include but are not limited to the following: (1) temporary power to equipment; (2) inside plastic handle broken off switch so outside handle will not operate switch; (3) one pushbutton inoperative but another will operate equipment; (4) a switch is left energized but a part of the equipment supplied by it is disconnected,

(MOVs) supplied by one circuit breaker; and (5) a switch is off and tagged out but a separate circuit is still supplying power to the switch housing for controls, lights, heaters, etc.

a. Application of Pink ABNORMAL ELECTRICAL CONDITION Tag — Before a Mechanical Person leaves electrical equipment with temporary wiring connected or with any other abnormal condition existing, he must tag the equipment with pink ABNORMAL ELECTRICAL CONDITION tags; he must place one tag on the outside of the equipment and one inside on the wiring if it is practical to do so. He must describe the abnormal condition on the tags and must sign and date them. The abnormal condition must be entered in the log book. *If a contractor employee is doing the work, he must obtain the tags from the Contract Administrator and proceed according to a and b. In addition, he must also include on the tag the name of the contractor's firm.*

b. Removal of ABNORMAL ELECTRICAL CONDITION Tags — The tags must remain in place until the equipment has been returned to its normal condition. The Mechanical person who removed the temporary wiring or eliminates the abnormal condition must remove the tags and notify the Chief Operator responsible for the equipment, who must enter the action in the log book.

POWER LINES

PURPOSE

The purpose of these procedures is to protect anyone who works on or near power lines and on direct-connected Process equipment from injury or death.

SPECIAL DEFINITIONS

l. Power Lines — Those electrical lines that radiate

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from generating stations and distribution substations.

2. Direct-Connected Process Equipment — A piece of electrical equipment on a Process unit supplied by a single power line having its electrical disconnect switch at an electrical substation or at a power plant.

3. Electrical Maintenance Supervisor — The Line Crew Supervisor or the Power Systems Maintenance Supervisor or their designated representative.

4. Utilities Chief Operator — The Process person responsible for the operation of the power system.

5. Electrical Mechanical Person — Any lineman, electrician, or Mechanical person working on the power system or on the direct-connected Process equipment.

6. Power Plant Process Person — The Process person who operates the power plant.

RESPONSIBILITIES

1. Electrical Maintenance Supervisor is responsible for requesting that power lines be removed from service and returned to service and for determining that the lines to be worked on are deenergized and tagged out.

2. Process Chief Operator or His Designated Representative is responsible for the removal and return to service of direct connected process equipment. He is also responsible for requesting the Utilities Chief Operator to deenergize the circuit serving the equipment and tag out.

3. Utilities Chief Operator is responsible for authorizing the removal and return to service of the power lines to be worked on.

4. Electrical Mechanical person is responsible for assuring himself that the equipment is safe for

him to do the prescribed work and that the following provisions of these procedures for which he is responsible are carried out.

5. Power Plant Process person is responsible for removing from service and returning to service power lines to be worked on and for properly tagging.

PROCEDURES

Procedure for Removing Power Lines or Direct-Connected Process Equipment from Service.

a. Request for Removal of Power Lines or Direct-Connected Process Equipment from Service: For power lines, the Electrical Maintenance Supervisor must make his request in person to the Utilities Chief Operator. For direct-connected Process equipment, the Process Chief Operator or his designated representative must request the Utilities Chief Operator for removal of these particular power lines from service. *If a contractor employee is to work on power lines or do electrical work on Process equipment, the Contract Adminstrator must make the arrangements for removing the lines from service and for returning them to service.*

b. Removal of Power Lines or Direct-Connected Process Equipment from Service: The Utilities Chief Operator must make the necessary arrangements with the Power Plant Process person to remove the power lines or the direct-connected Process equipment from service.

c. Check Circuit Removal before Work Begins: For power lines, the Utilities Chief Operator, the Electrical Maintenance Supervisor, and a representative of the group actually doing the work must personally observe that the line has been removed from service by lowering the circuit breaker or opening the dis-

EXX 004108

connect switches at each substation and power plant involved. They must then tag on the equipment by attaching the red POWER LINE DISCONNECT tags filled out and signed by the Utilities Chief Operator and signed by the Electrical Maintenance Supervisor on the equipment at each substation or power plant involved.

If work is being done on a line by more than one group, then each group must be protected by separate red POWER LINE DISCONNECT tags.

For direct connected process equipment, the Process Chief Operator or his designated representative shall notify the Utilities Chief Operator that this equipment has been removed from service and is ready for tagging. The Utilities Chief Operator will proceed to the site of the direct connected equipment, where he will meet the Process Chief Operator or his designated representative and a representative of the group which will actually work on the equipment. The Process Chief Operator or his designated representative will fill out and sign a red POWER LINE DISCONNECT tag and personally give that tag to the Utilities Chief Operator, verifying the equipment is ready for tagging on. The Utilities Chief Operator will keep that tag, and along with the representative of the group which will actually work on the equipment he must then proceed to the electrical substation and observe that the circuit serving the equipment has been removed from service by lowering the circuit breaker or opening the disconnect switches. They must then tag on the appropriate circuit breaker with a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and the representative of the group which will actually work on the equipment. After completing that step, they must proceed to the Power Plant and tag on a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and a representative of the group actually doing the work on the equipment to the remote switch serving the equipment. Finally, the Utilities Chief Operator and the representative of the group actually doing the work will return to the site of the direct connected process equipment and sign and tag on to the local start-stop switches the red POWER LINE DISCONNECT tag originally signed by the Process Chief Operator or his designated representative. After completing this procedure the work can begin.

In the case of contractor personnel the contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign on the disconnect tags.

Before any work is done on an open power line up to and including 13,800 volts, the line must be checked with a voltage tester and a ground chain must be pulled across the line to assure that it is deenergized.

d. Return Power Lines or Direct-Connected Process Equipment to Service: To return a power line to service, the Electrical Maintenance Supervisor must personally report to the Utilities Chief Operator that the work has been completed and accompany the Utilities Chief Operator to the substations and main power plants and properly tag off the power lines by signing and removing the red POWER DISCONNECT tags at the electrical substations and at the main power plants. The lines may

EXX 004109

then be energized by the Power Plant Process Operator.

In the case of direct connected process equipment, the Process Chief Operator or his designated representative must report to the Utilities Chief Operator that the work has been completed. The Utilities Chief Operator and a representative of the group actually working on the equipment will proceed to the site of the equipment and personally meet with the Process Chief Operator or his designated representative who will tag off the local start-stop switches by signing and removing the red POWER LINE DISCONNECT tag. He will give the tag to the Utilities Chief Operator who will also sign it, along with the representative of the group actually working on the equipment. The Utilities Chief Operator and the representative of the group actually doing the work must then proceed to the electrical substation and properly tag off the disconnect switches by signing and removing the red POWER LINE DISCONNECT tags. Finally, they must proceed to the Power Plant and tag off the remote control switch by signing and removing the red POWER LINE DISCONNECT tag from the remote control switch. The Utilities Chief Operator will keep the signed tags and notify the Process Chief Operator or his designated representative that the tag off procedure has been completed.

In the case of Contractor personnel the Contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign off the disconnect tags.

2. Procedure for Working on or Adjacent 2,300-Volt Power Lines

a. Tag Power Lines — Before beginning work on live uninsulated 2,300-volt power lines or working adjacent to any live uninsulated power line, the Maintenance Supervisor or his designated representative must notify the Utilities Chief Operator about the nature and location of the work to be performed.

The Utilities Chief Operator must request the appropriate Power Plant Process person to attach a yellow CAUTION-PEOPLE WORKING ON THIS CIRCUIT tag to the switch or switches controlling the power lines. *In the case of contractor lineman the Contract Administrator must contact the Utilities Chief Operator*

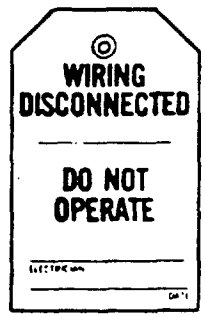
b. In Case of Circuit Trouble — In the event of circuit trouble at the jobsite, the Mechanical Supervisor must immediately notify the Power Plant Process person. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.* If any switch to which a tag is attached is tripped, it must not be reclosed until the Power Plant Process person is notified that it is safe to reclose.

c. Removal of Tags — Upon completion of the job, the Maintenance Supervisor who made the original request must notify the Power Plant Process person to remove the tags. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.*

EXX 004110

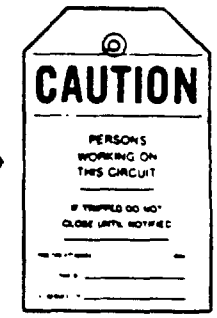
Red Lettering
On White Tag

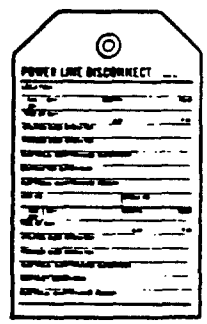
Red Tag



Yellow Tag

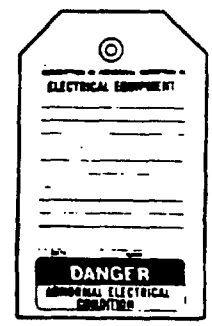
Yellow Tag





Red Tag

Pink Tag



Section 5
HOT WORK PERMIT

PURPOSE
The purpose of this permit procedure is to protect personnel and equipment from fires and/or explosions that could result from hot work performed in a hazardous area. This section outlines **minimum** precautions for safety when performing hot work in any location not designated as a routine hot work area. In all such areas, a green HOT WORK PERMIT is required for all hot work.

SPECIAL DEFINITIONS
1. **Hot Work** — Any work requiring the use of burning, welding, or brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion-actuated tools, electric hot plates, or any other flame- or spark-producing equipment.
EXCEPTION: work on energized intriniscally safe circuits, electrical instruments and electrical power circuits covered under Cold Work Permits in Section 8.

2. **Hot Tap** — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

RESPONSIBILITIES
1. **Chief Operator** is responsible for issuing the green HOT WORK PERMIT for his equipment. He or his designated representative must designate boundaries within which the permit applies and must insure that all necessary safety precautions have been completed prior to the Chief Operator signing the permit.

When hot work is to be performed on equipment passing through or adjacent one processing area, but controlled from another, the Chief Operators from both processing areas are responsible for issuing the permit. This rule applies if the hot work to be performed is within approximately 50 feet of operating equipment. (Example: Oil Movements line in pipe rack adjacent a process unit.)

When hot work is to be performed on equipment in a non-processing area adjacent a processing area both the Chief Operator from the adjacent processing area and the Basic Equipment Owner of the non-processing area or his authorized representative are responsible for issuing the green HOT WORK PERMIT. (Example: road work adjacent a process unit.)

2. **Maintenance Supervisor** is primarily responsible for seeing that only the type of work covered by the permit is performed, and that conditions at the jobsite are safe for the scheduled work; also that hot work is confined to the area covered by the permit.

3. **Mechanical personnel** performing the work are responsible for checking the green HOT WORK PERMIT to be sure it is current, valid, and properly signed by the Chief Operator and Mechanical Supervisor. If any of the signatures are missing, work must not begin.

4. **All persons** at or near the hot work site must be constantly alert for any condition that could make hot work hazardous. If such a condition develops, all hot work and machines **must be stopped at once.** All personnel must immediately vacate the area and notify the Chief Operator or the nearest Process person of the hazardous condition. The green HOT WORK PERMIT is no longer valid and

EXX 004112

must be removed. All persons associated with the work must be notified. Before work may resume, a new green HOT WORK PERMIT must be issued. When Mechanical personnel leave the job (such as lunch break), they must check to see that conditions have not changed and the permit has not been removed before resuming hot work.

PROCEDURES

1. Area Other than Enclosed Spaces and on Marine Docks — For performing hot work in any area not designated as safe for routine performance of hot work, the following requirements apply:

a. Hot Work Planning — The Maintenance Supervisor will advise the Chief Operator of the nature and location of the hot work to be performed as well as the proposed timing. Normally this should be done at least one day before hot work is scheduled to begin.

b. Preparing for Hot Work — The Chief Operator will work with the Maintenance Supervisor to see that the area is prepared properly for hot work. The Chief Operator will see that the following work is completed:

(1) Clearing and Blinding — Check to make sure all blinding and clearing of equipment necessary for execution of hot work is completed. Equipment which has been removed from service for hot work and has contained flammable material or is connected to equipment that contains flammable material must be (1) blinded inerted and vented (2) blinded and cleaned or (3) disconnected and cleaned before issuing a green hot work permit. Opening and blinding of equipment requires a white opening or blinding permit as stipulated in Section 7.

(2) Remove Flammable Material — Check to make sure that no flammable liquids or solids

are spilled or trapped in or around equipment at the site of the proposed hot work.

(3) Prepare Sewers — Cover all sewer catch basins and manholes in vicinity of hot work. Catch basins containing flammable material must be flushed with water before covering. Also, check for and seal off sewer vents in the area that may present a hazard.

(4) Remove Trash — Remove other flammable materials such as trash, wood, or dry grass. Where hot work is to be carried out over dry grass, the area must be saturated with water before performing hot work, and a water hose left connected and readily accessible.

(5) Provide Fire-Fighting Equipment — Make sure that adequate fire-fighting equipment is at the jobsite. At least one fully charged fire extinguisher of a type and size designated as suitable must be provided where hot work is to be performed.

(6) Make Surrounding Area Safe — Check surrounding area for possible release of flammable vapors in the hot work area. Such things as safety valve discharges, leaks from pumps and or compressors, valve packing leaks, etc., must be identified and necessary corrective action taken.

(7) Prepare for Hot Taps — For hot taps or other jobs requiring hot work on equipment in service, all requirements of the "Hot Tap Procedure Safety Standard" (Mechanical Division Safety Procedure No. 11) must be satisfied. Before the green HOT WORK PERMIT can be issued, the checklist attached to the above mentioned standard must be completed. The Chief Operator must make sure that his Operating Supervisor has ap-

EXX 004113

proved the work to be done and so note in the space provided on the back of the permit. Also, he must see that the Mechanical Engineering Department Inspector has checked for adequate metal thickness and initialed the space provided on the back side of the tag.

(8) Check Other Work in Area — The Chief Operator must check for active white OPENING AND/OR BLINDING PERMITS in the area of the hot work. A HOT WORK PERMIT must not be issued if work associated with existing white OPENING AND/OR BLINDING PERMIT could create a hazard by spill or gas release. All openings from which release of flammable material could occur are to be considered hazardous. The area of concern must cover the geographical limits where there is a remote possibility that sparks from hot work could come in contact with flammable materials from any opening. If such a possibility exists in the proposed hot work area, the white OPENING AND/OR BLINDING PERMIT must be killed. The green HOT WORK PERMIT shall not be issued until all openings from which flammable material could be released are blinded, and the area is cleared of flammable liquid or vapor.

(9) Provide for Overhead Hot Work — When hot work is to be performed in overhead locations, a suitable method for catching hot metal, electrode stubs, etc., must be provided where these materials would cause a fire hazard or when they would create a safety hazard when work is going on below.

(10) Safe Location of Welding Equipment — When electric welding is to be performed, the ground lead connection must be attached at a point within the area covered by the permit. The welding machine must be in the same area or an adjacent area approved

for nonrestricted movement of motorized equipment.

(11) Perform Gas Tests — The Chief Operator shall perform gas tests for explosivity, oxygen deficiency and toxic materials depending on the nature of the job.

c. Filling Out Green Card — After completion of all items covered in b above, the Chief Operator must double check the hot worksite. He and the Maintenance Supervisor will determine if a standby man or other special precautions are necessary. The Chief Operator or his designated representative will then fill out the green HOT WORK PERMIT and the checklist on the back side of the tag.

d. Maintenance Supervisor Site Inspection — The Maintenance Supervisor must also inspect the site to make sure all necessary work and checks have been completed. His signature on the green HOT WORK PERMIT indicates he checked the work area and agrees all is safe for hot work.

e. Chief Operator Site Inspection — When all is considered ready by both the Chief Operator and Maintenance Supervisor, and the Maintenance Supervisor has signed the permit, the Chief Operator will make a final site inspection and if all is safe for hot work, he will sign the permit signifying that hot work can begin.

f. Permit Duration and Disposition — Before the green HOT WORK PERMIT is issued, the Chief Operator and Maintenance Supervisor must agree on the expiration time and note same in the space provided on the permit. This decision on duration as well as disposition of the permit copies must be in accordance with the following guidelines:

(1) Eight-Hour Permit — Permits to do hot

EXX 004114

work in or around processing areas where flammable or toxic materials exist are normally eight-hour permits. Such a permit is good for the shift in which it was issued. It can be continued into the next mechanical shift only after the Chief Operator and Maintenance Supervisor for the new shift have inspected the site and are confident no changes have taken place. If there is any question, the Chief Operator must make a new gas test. Hot work on the new shift must not begin until the Chief Operator and the Maintenance Supervisor have signed the cardboard portion of the green permit. They must also sign the control center copy. If work continues into the third shift, the same procedure must be followed. Eight-hour permits are void at the end of 24 hours, and a new permit must be obtained if work is to continue.

When a green HOT WORK PERMIT is issued the cardboard portion must be placed in a conspicuous location at the jobsite by the Chief Operator or his designated representative. The original is to be kept in the Process Permit file. At the end of the Mechanical shift or at job completion, whichever comes first, the Mechanical Person must sign the carboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. Both copies must be retained for at least 24 hours after expiration and then discarded.

(2) Job Completion — Under certain conditions, a green HOT WORK PERMIT may be issued for the job duration. In general, it is when the job conditions at and surrounding the work area will not change and create a flammable or toxic material hazard. Examples of such jobs are: (1) construction of a new

Process unit; (2) a field pipe fabrication shop in an open area; (3) construction of a new tank in an open area; (4) during turnarounds when oil, gas, and chemical lines are blinded at the unit limits; and (5) no job completion cards can be issued inside an operating Process unit. The cardboard portion of the permit must be placed at the Maintenance Supervisor's jobsite office. The Chief Operator will keep the original on file in the Process permit file. Upon job completion, the Maintenance Supervisor must sign the cardboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. The Operating Supervisor must approve all job completion permits including *contract jobs*.

g. Hot Work Authorization — **Only after all of the above items have been completed and green HOT WORK PERMIT has been signed by the Chief Operator and Maintenance Supervisor is hot work authorized.** After the Chief Operator or his designated representative has personally hung the carboard portion of the permit in a conspicuous location at the job site, hot work can begin.

2. Marine Docks — For performing hot work on or under Marine Docks, all provisions given in the basic procedure above shall apply. In addition, the following work shall be completed and checks made before a green HOT WORK PERMIT can be issued.

a. Safe Tide Level — When hot work is to be performed under a dock, the tide level must be below any pipelines at the water level to prevent trapping oil between the pipelines, thus eliminating a possible source of combustible material.

b. Avoid Falling Materials — The hot work

EXX 004115

area must be isolated to prevent molten metal and/or any combustible material from falling into the water.

c. Remove Grating — Grating in the fender system must be removed in the hot work area when work is to be performed under a dock.

d. Secure Coast Guard Approval — The Docks' Operating Supervisor must secure approval of the Houston Coast Guard Port Captain prior to any hot work.

e. No hot work can be performed on any dock while a ship is berthed at that dock.

EXCEPTION: At Dock No. 1, hot work will be permitted 150 feet or more from vessels handling materials with a flash point of above 150F.

3. Enclosed Spaces — For performing hot work in enclosed spaces, all provisions given in the basic procedure above apply. In addition, the following work must be completed and/or checks made before a green HOT WORK PERMIT can be issued:

a. Obtain Yellow PERMIT TO ENTER — It may be necessary to enter an enclosed space to prepare for hot work. Before entering, a yellow "Permit to Enter" must be secured (see Section 6). Once the enclosed space has been prepared for hot work and a green "Hot Work Permit" has been issued, no yellow Permit to Enter tag is required for entering as long as the hot work permit is valid.

b. Other Requirements for Hot Work in Enclosed Spaces — After entry is made into the enclosed space, applicable portions of the basic Procedure above can be completed. In addition, the following must be performed and/or checks made before a green HOT WORK PERMIT can be issued:

(1) No Cylinders In Enclosed Spaces — Cylinders containing any type of flammable material must not be placed in an enclosed space where hot work is to be done.
EXCEPTION: In storage tanks where door sheets have been removed.

(2) Thoroughly Clean — The enclosed space, including all internals, must be thoroughly cleaned and made safe for hot work. This includes freeing the container of all flammable gases, liquids, and solids as well as inert atmospheres and toxic materials.

(3) Provide Adequate Ventilation — A fresh air ventilation system must be provided and shall be adequate to remove fumes and gases created by the proposed hot work. If adequate ventilation is not possible, suitable respiratory protection must be used.

SPECIAL REQUIREMENTS

1. Work on Tank Cars — Hot work must not be done on tank cars while located at a loading rack.

2. 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 that has been in service of any kind, the vessel or equipment must be properly vented (unless the operation is performed under controlled conditions so that any over-pressuring will be avoided).

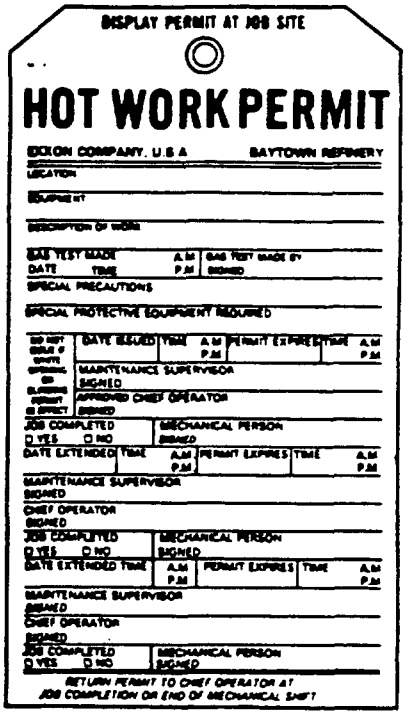
3. Gas Hoses In Confined Spaces — When gas hoses are used in connection with welding and/or burning in an enclosed space, the hoses must either (1) be removed from the enclosed space or (2) disconnected at the regulators at any time when positive ventilation is discontinued. A torch or other gas-consuming device must never be removed from a hose while inside a confined space. When torches are left unattended (such as lunch

EXX 004116

period, shift change, etc.), the gas supply must be positively shut off at a point outside the enclosed space or the hoses disconnected at the regulators.

4. Establishment of Smoking Permits — Requires written approval by the appropriate Department Head. Procedures for obtaining this approval are given in the Mechanical Operating Procedures Manual (S-13) and the Process Operating Practice Manual (S-6).

5. Hot Work by Process — When hot work is to be performed by Process personnel, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the green Hot Work Permit in space marked Maintenance Supervisor.


DISPLAY PERMIT AT JOB SITE

HOT WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. | GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED TIME | A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT

Green Tag

EXX 004117

Section 6
PROCEDURE FOR ENTERING ENCLOSED SPACES

PURPOSE

This procedure is designed to protect personnel against such hazards as oxygen deficiency, toxic materials, flammable substances, and power-driven equipment when working in enclosed spaces. A yellow PERMIT TO ENTER tag is required to initially enter any enclosed space. If hot work is to be performed in an enclosed space, a yellow PERMIT TO ENTER tag is required to initially enter the enclosed space. This procedure is to be considered the minimum precautions for the safety of personnel entering enclosed spaces.

SPECIAL DEFINITIONS

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of workmen are below the top of the confined space.

2. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

3. Standby — The person designated by the Chief Operator and/or the Maintenance Supervisor to warn persons in enclosed spaces of hazardous or emergency conditions that could affect their safety.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the yellow PERMIT TO ENTER for entry into enclosed spaces in his processing area. He or his designated representative is responsible for insuring that all necessary safety precautions have

been completed prior to issuance of the permit. The Chief Operator must make the necessary gas tests for explosivity, oxygen content and toxic materials depending upon the nature of the job. After the Maintenance Supervisor has signed the yellow Permit to Enter tag the Chief Operator must sign the permit signifying that all is safe for entry.

2. Maintenance Supervisor is responsible for obtaining the yellow PERMIT TO ENTER and assisting in final preparation of the enclosed space for entry. He must inspect the area and sign the tag to indicate his approval of the required safety precautions. He must see that all proper job safety precautions are followed and be alert for changing conditions that might affect the safety of the job.

3. Individual, before entering an enclosed space, shall assure himself that the necessary safety preparations have been made and that a current yellow PERMIT TO ENTER, properly filled out and signed by the Chief Operator and the Maintenance Supervisor has been posted at the job site.

4. Standby is responsible for assuring the well-being of persons working in enclosed spaces when breathing equipment is in use or when conditions are such that outside warning may be necessary.

PROCEDURE

1. Entering an Enclosed Space Without Protective Equipment

a. Preparing Enclosed Spaces for Entry — The Chief Operator will see that the enclosed space is emptied and purged in preparation for opening. Process personnel may also physically disconnect or blind the enclosed space in accordance with Section 7.

b. Requesting PERMIT TO OPEN AND/OR

EXX 004118

BLIND — The Maintenance Supervisor will request a white OPENING AND/OR BLINDING PERMIT from the Chief Operator in accordance with provisions of Section 7.

c. Isolating the Enclosed Space — If not already done by Process, the Maintenance Supervisor will insure that all connecting lines to the enclosed space are physically disconnected or blinded at a point as near to the enclosed space as is safely practical. Double block valves with an intervening bleeder are not considered equivalent to a blind where personnel bodily enter the space.

EXCEPTION: In steam, water, and air service, the use of double block valves with an intervening bleeder is acceptable provided the bleeder is open and clear and is at least one inch in size for lines four inches and larger. The double block valves shall be locked closed and the intervening bleeder locked open. Mechanical-type locks must be used.

d. Immobilizing of Power-Driven Equipment — Before entry, the Maintenance Supervisor will arrange for electrical equipment to be immobilized in accordance with the electrical lockout procedure. The power supply to other equipment driven by air, steam, internal combustion engines, or hydraulic fluid shall be blinded or disconnected.

e. Cleaning and Establishing Ventilation of Enclosed Space — The Maintenance Supervisor will clean the space if necessary and establish and place in operation a fresh air ventilating system.

EXCEPTION: No forced ventilation system is required where a natural draft is established and the Chief Operator and Maintenance Supervisor agree that entry is safe.

f. Gas Testing the Atmosphere of the Enclosed Space — The Chief Operator must satisfactorily test for explosivity, oxygen deficiency, and toxic materials.

(1) **Explosivity** — Entry will not be permitted unless the test indicates a safe range.

(2) **Oxygen Deficiency** — Entry will not be permitted unless oxygen concentration is greater than 19.5 percent.

(3) **Toxic Materials** — Entry will not be permitted unless test indicates a safe range.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes or depletion of oxygen exists.

g. Standby Requirement — A standby must be required and noted on the yellow PERMIT TO ENTER when the Chief Operator and/or the Maintenance Supervisor determines that an unsafe condition may develop during the course of the work. The standby must be equipped with a claxon horn and a unit radio for communications. A complete standby kit is required if the Chief Operator and/or the Maintenance Supervisor believe that a breathing hazard may develop.

h. Issuance of PERMIT TO ENTER — When the Maintenance Supervisor is satisfied that all requirements and safety precautions have been completed satisfactorily, he must complete applicable portions of the checklist and sign the permit. The Chief Operator will complete the permit, including the checklist, and sign the permit signifying that entry can be made. He or his designated representative will then post the cardboard portion of the permit in a conspicuous location at the jobsite and file the original paper portion in the Process permit file.

EXX 004119

l. Permit Duration and Disposition — A yellow PERMIT TO ENTER will have the same requirements for duration and disposition as a green HOT WORK PERMIT except that no Job Completion type permits will be allowed. 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 the appropriate box as to job completion, and return it to the Chief Operator.

2. Entering an Enclosed Space with Protective Equipment

Enclosed spaces to be entered with protective equipment must be emptied, cleaned of hazardous materials, and purged, insofar as practical, prior to entry. It must be physically isolated and all power-driven equipment immobilized as required in Part 1.

a. Required Tests — A yellow PERMIT TO ENTER will be issued only when the atmosphere in the enclosed space meets the following tests:

(1) Explosivity — Entry will not be permitted unless the test indicates a safe range.

(2) Oxygen Deficiency — If oxygen level is below 19.5 percent, entry will be permitted only with a pressure-demand, hose-line air mask.

(3) Toxic Materials — Entry will be permitted only with appropriate protective equipment.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes exists.

b. Required Protective Equipment — All personnel entering enclosed spaces 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 closed spaces is to be determined by the Chief Operator and the Maintenance Supervisor and indicated on the yellow PERMIT TO ENTER permit. The cardboard section of the permit must be posted at a conspicuous location at the jobsite. In the case of oxygen-deficient atmospheres, pressure-demand, hose-line air masks with self-contained life lines must be used and Operating Supervisor approval obtained for entry.

A standby is required when personnel are required to wear pressure-demand, hose-line air masks inside an enclosed space or the situation is such that outside warning is necessary. Scott Air-Paks are permissible in place of the pressure-demand, hose-line air masks for emergency or rescue use where life is in immediate danger.

3. Duties of Standby

a. Accounting for personnel working in the enclosed space.

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 the enclosed space in case of fire or disaster alarm.

f. Being well trained in the operation of respiratory equipment and administering of artificial respiration.

g. Maintaining an adequate air supply.

h. The standby should never attempt to enter the enclosed space even in an emergency until help has arrived.

EXX 004120

In order for standby equipment to be available for use, standby kits shall be checked out at the Refinery Storehouse at the same time the pressure-demand, hose-line unit is checked out for enclosed space entry.

SPECIAL REQUIREMENTS

1. Entry to Prepare for Hot Work — A yellow PERMIT TO ENTER is required to initially enter an enclosed space where hot work is to be performed. Once the necessary requirements have been met and a green HOT WORK PERMIT has been issued, no yellow PERMIT TO ENTER is required as long as a valid green HOT WORK PERMIT is in effect.

2. Entry by Process without Mechanical Involvement — When entry is made by Process personnel without mechanical personnel involvement, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the yellow PERMIT TO ENTER in the space marked Maintenance Supervisor.

3. Entry by Process Into Enclosed Pump Pits — A Process person may enter enclosed pump pits for Process functions without a written permit, provided the Process person performs a gas test to determine that the atmosphere is safe prior to entry.

4. Entry Into Boilers, Steam Generators, and Furnaces — For boilers, steam generators, and furnaces, the limits of the enclosed space must be clearly defined and agreed to by both Chief Operator and Maintenance Supervisor and so indicated on the permit tag. The limits of the enclosed space must be physical barriers which separate the enclosed space from other parts of the boiler, steam generator, or furnace. All the provisions of Section 6 "Procedure for Entering Enclosed Spaces" of the Safety Manual must be met for the defined enclosed space and, in addition, the provisions of Section 6-1C "Isolating the Enclosed Space" must be met for the entire boiler, steam generator, or furnace.

DISPLAY PERMIT AT JOB SITE

PERMIT TO ENTER

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS | IS BREATHING EQUIPMENT REQUIRED? ☐ YES ☐ NO

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DATE ISSUED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Yellow Tag

EXX 004121

Section 7
OPENING AND/OR BLINDING PERMIT

PURPOSE
This permit procedure is designed to prevent accidents by insuring adequate communications between Process and Mechanical Personnel when opening and/or blinding equipment in a processing area. A white OPENING AND/OR BLINDING PERMIT shall be obtained before beginning such work.

SPECIAL 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.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the white OPENING AND/OR BLINDING PERMIT. He or his designated representative has the responsibility for preparing the equipment, determining if the surrounding area is safe for the proposed work, and listing any special safety precautions required.

2. Maintenance Supervisor is responsible for seeing that a permit is secured to perform work involving opening or blinding. He is also responsible to see that Mechanical Personnel work within the limits of the permit and that all stipulated safety precautions are taken.

PROCEDURES
1. Requesting Permit — The Maintenance Supervisor or his designated representative must request a permit from the Chief Operator.

2. Initiating Safety Inspection — The Chief Operator or his designated representative must perform a safety inspection of the area. He must check for other active permits, prepare the equipment, and identify all locations to be opened. If blinding is required, he must also prepare a blinding list.

3. Blinding Requirements — Generally all opened equipment must be blinded for hot work (see Section 5), for entering (see Section 6), and piping left unattended. The installation and removal of slip blinds and blind flanges (except daily closure blinds) shall be recorded on the blinding list.

Specific blinding requirements and exceptions are as follows:

a. Pumps — Minor repairs, such as small piping and seal replacement, may be performed without blinding provided (1) the suction and discharge valves 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 compited 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"

EXX 004122

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 4).

(2) Gas engines must be blinded and the fly wheel blocked.

(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. Piping — Unattended open Piping must be isolated with slip blinds or closed with blind flanges.

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

e. 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.

f. 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 must be secured with a "DANGER — DO NOT OPEN" tag attached by Process and a Mechanical lock placed on the valve by the Mechanical person 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.

g. 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, Process Personnel must prepare a blinding list indicating the size and location for all slip blinds and blind flanges to be installed.

5. Issuing Permit — Process and Mechanical Personnel must make a safety tour of the job site, 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 on the back of the cardboard section. When both Process and Mechanical Persons are satisfied that the provisions of Section 5 Item b(8) have been met and the task

EXX 004123

can be safely accomplished, then both will sign the permit.

The Process person must post the cardboard portion in a conspicuous place at the job site and file the original copy in the permit file.

EXCEPTIONS:

Process Personnel — Mechanical work by Process may be done without a written permit provided the Chief Operator has authorized the work.

Dock Personnel — Marine hookups on the dock may be performed by the Dock Connection Crew working under the direction of the Chief Operator without a written OPENING AND/OR BLINDING permit.

Unit Turnaround — During a unit turnaround, cleared items of equipment may be opened by verbal authorization of the Process Person designated as the Process-Mechanical contact coordinator, provided the following conditions are met:

a. All hydrocarbon and chemical lines are blinded at the unit limits.

b. Opening of equipment will not create a safety hazard for other work in progress.

c. All hot work in the area must be suspended while the equipment is being opened.

(1) If no hazard was created by the opened equipment, the Process contact coordinator may authorize the resumption of the hot work under the existing hot work permit.

(2) If a hazard was created (spill of hydrocarbons, flammable gas release, etc.), the hot work permit must be terminated. To resume work after the hazard has been eliminated, a new hot work permit must be issued.

6. Blinding — The Mechanical Person must re-

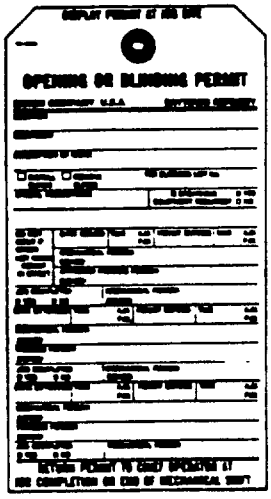
cord each slip blind installed by signing and dating the blinding list. At the end of the mechanical shift or at completion of the blinding list, whichever comes first, the Mechanical Person must return the blinding list to the Chief Operator.

7. Permit Duration and Disposition — The permit is issued for one Mechanical shift. It may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours. 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 may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours.

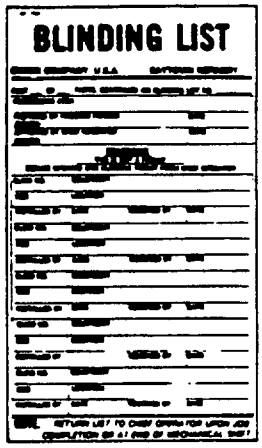
8. Removing Blinds — The removal of blinds requires a new permit unless the work at the job site is continuous and is completed in 24 hours. The Process Person issuing the permit and the Mechanical Person accepting the permit must tour the area and physically identify the blinds to be removed. The Mechanical Person must sign and date the blinding list as each slip blind and blind flange is removed. After the last blind has been removed or at the end of the Mechanical shift, the Mechanical Person must sign and date the cardboard portion and return both the permit and blinding list to the Chief Operator.

9. Filing of Permits and Blinding Lists — Each permit must be filed for 24 hours after its expiration and then discarded. Blinding lists must be filed until all blinds have been removed. The blinding list may be discarded 24 hours after the last blind is removed.

EXX 004124



White Tag



Buff Tag

Section 8
COLD WORK PERMIT

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 completed before work is started in a Process area.

SPECIAL DEFINITIONS

1. **Cold Work** — Any mechanical work on processing equipment including work on intrinsically safe circuits and energized electrical instruments and electrical power circuits that does not involve opening, blinding, entering, hot work, or electrical lockout.

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.

PROCEDURE

1. **Initiating COLD WORK PERMIT** — The Mechanical Person assigned to perform mechanical work in a processing area must fill in the date, time, area, equipment, and description of work

on the blue COLD WORK PERMIT. He will then contact the Chief Operator and secure approval before starting to work.

EXCEPTIONS: Blue COLD WORK PERMITS are not required:

a. When Process Personnel are performing mechanical work.

b. When the Dock Connection Crew is working in the dock area under instructions from the Chief Operator.

c. When instrument technicians and electricians who are regularly assigned to the processing area perform routine work authorized by the Chief Operator.

NOTICE: A COLD WORK PERMIT is required to work on energized electrical instruments and electrical power circuits above 100 volts.

d. When Technical or Laboratory personnel perform sampling and/or test work authorized by the Chief Operator.

e. When janitors perform janitorial-type work in the processing area.

f. *When contractor employees take work direction from Process Personnel.*

g. When Mechanical performs cold work in preparation for the issuance of other work permits on the same shift. Samples of such work are covering sewers, hooking up hoses, securing fire-fighting or safety equipment, hanging tarps, electrical lockout, etc.

h. When oil, gas and chemical lines are blinded at unit limits during unit turnarounds and work is being performed in accordance with the turnaround procedure.

EXX 004126

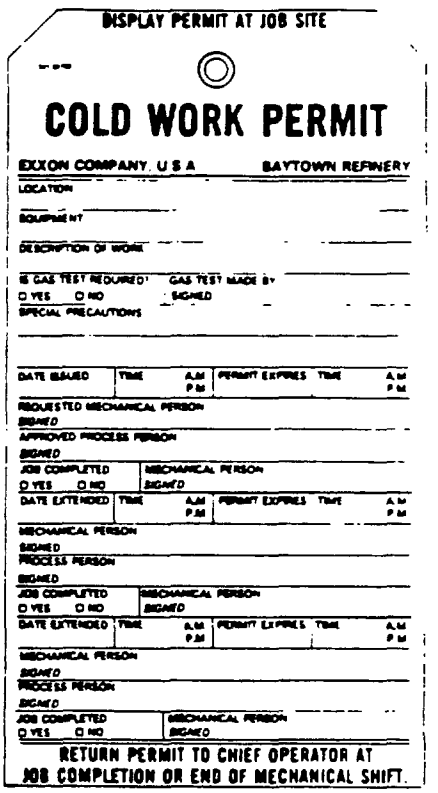
2. Making Safety Inspection — The Process Person designated to approve the permit must assure himself that the conditions at the job site are safe for the work. He must determine if a gas test is required and may make the gas test himself.

3. Issuing Permit — When both Process and Mechanical Persons are satisfied that the work can be safely performed in the area, each must sign the permit.

4. Posting Permit — The Mechanical person must display the cardboard portion in a conspicuous place at the job site. The Process Person must file the original portion in the permit file.

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 appropnate 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 determuning that the job conditions remain unchanged and by both Process and Mechanical signing the permit. No permit shall be extended beyond 24 hours' total duration.



DISPLAY PERMIT AT JOB SITE

COLD WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

IS GAS TEST REQUIRED? GAS TEST MADE BY

☐ YES ☐ NO SIGNED

SPECIAL PRECAUTIONS

DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

REQUESTED MECHANICAL PERSON

SIGNED

APPROVED PROCESS PERSON

SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

MECHANICAL PERSON

SIGNED

PROCESS PERSON

SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

MECHANICAL PERSON

SIGNED

PROCESS PERSON

SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Light Blue Tag

EXX 004127

SECTION 9

SECURITY REGULATIONS

1. 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.

2. 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 job site. Contractor shall make arrangements so that vehicle drivers will know which gate to enter and the appropriate job site location.

3. Walks and Roadways

Walks and roadways will be designated for the use of Contractor when entering or leaving the job site, 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.

4. Contractor Employee Badges

Contractor's employees shall wear their Contractor's badge 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.

EXX 004128

5. 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.

6. 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 Contract Administrator. The Contract Administrator 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.

7. 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.

8. Gambling

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

9. 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 job site. Plant Security will obtain authorization from one of these people before passing such individuals into the

EXX 004129

Plant. Special permission shall be obtained from the Contract Administrator to admit union business agents or safety inspectors other than contractor employed into the Plant.

10. 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 shall be called in to 427-5711, extension 3600. 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.

11. Inspection of Lunch Boxes, Packages, Motor Vehicles, etc.

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

12. 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.

13. 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.

14. 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.

15. Fingerprinting

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

SECTION 10

GENERAL REGULATIONS

1. Authorization to Start Work

Contractor and Subcontractors shall not start work until authorized by the Contract Administrator at the job site. Such authorization does not constitute authority to proceed with any work involving special permits as outlined in Exxon Refinery's Safety Manual. Contractor shall also secure approval from Contract Administrator before any materials are delivered to job site when material deliveries precede Contractor's arrival on site.

2. Contractor's Equipment

All Contractors moving trailer-type equipment within the Plant 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.

3. Explosives

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

4. 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 Contract Administrator.

5. 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 equipment without written approval of the Contract Administrator.

6. Damage to Owner's Property

If Contractor damages any of Owner's property, or property of any other contractor

EXX 004131

or subcontractor, the damage shall immediately be reported to the Contract Administrator.

7. 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 Contract Administrator.

8. 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 Contract Administrator. No tracked equipment having flat pavement treads shall be operated on a paved street without approval of the Contract Administrator.

9. 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 overnight.

10. Welding

Contractor shall 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 there is sufficient metal, as approved by the Contract Administrator, 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 downstream 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.

11. Securing of Temporary Buildings

All temporary buildings shall be tied down by the Contractor in accordance with the Contract Administrator's instructions, and applicable Baytown Engineering Standards.

12. Exit from the Plant

Contract employees, except for the driver, must dismount and walk through the gate when leaving the Refinery.

13. Non-English-Speaking Personnel

The ability to communicate with Contractor employees is essential to safe job execution. When the contract employee cannot speak English, the job foreman must be able to speak both English and the employee's language fluently. If there is reason to doubt the foreman's ability in this regard, a practical demonstration is in order. When the foreman cannot speak both English and the employee's language, the employee must either be placed under a foreman who can, or he must be prohibited from working in the Baytown Refinery.

14. Hurricane Precautions

The period between June 15 and October 15 is recognized as the hurricane season. Prior to this time, all material that is not needed for the job and that might become wind-borne in hurricane winds should be removed. That material still needed should be piled as compactly as possible. Provision should be made for tying down lightweight objects should the need arise. Scaffolds and some open-type structures should be dismantled if a hurricane approaches. Thus, there should be a plan formulated in advance to handle necessary actions, particularly in terms of the time and manpower required.

15. Contractor Accident Reporting

The contractor is responsible for notifying the Contract Administrator immediately:

a. Any time an ambulance is called;

b. In the event of any injury which could possibly result in lost time;

c. In the event of any incident which had serious potential, such as mobile equipment overturning, equipment contacting electric supply lines, etc.

EXX 004133

All injuries shall be reported on the Industrial Accident Board Standard Form for Employee's First Report of Injury or Illness — latest revision.

16. Emergency Evacuation Procedure

An emergency evacuation procedure form shall be completed by each Contractor prior to starting a contract. An assembly point should be chosen to provide a relatively safe, open area, in the event an emergency occurs that requires evacuation of all or part of the Refinery.

17. Contractor Safety Meetings

Each Contractor is strongly encouraged to hold a weekly safety meeting for his employees. Either a combined meeting of all the Contractor's employees in the Refinery or smaller meetings for each job or each foreman is suitable.

EXX 004134

August 10, 1978
Appropriation 00716

TABLE I

LIST OF ENGINEERING DRAWINGS

Drawing No.	Revision	Date	Title
96-31-102	0	5-15-78	CLEU 2, F-1 Preheater Structure Plan at Elevation 50', 6-3/4" and 60', 6-3/4"
96-31-103	0	5-15-78	CLEU 2, Air Preheater Structure Plan at Elevation 70', 4-7/8"; 40', 6-3/4"; and 32', 9"
96-31-104	0	5-15-78	CLEU 2, F-1 Preheater Structure Plans at Elevation 90', 1-1/8" and 80', 3"
96-31-105	0	5-15-78	CLEU 2, F-1 Preheater Structure Plans at Elevation 118', 5"; 106', 9"; and 103', 5"
96-31-106	0	5-15-78	CLEU 2, F-1 Preheater Structure Elevation at Stairs and Column Rows "A" and "B"
96-31-107	0	5-15-78	CLEU 2, F-1 Preheater Structure Elevation at Column Rows "1" and "2"
96-31-108	0	5-15-78	CLEU 2, F-1 Preheater Structure, Typical Connection Details
96-120-117	2	4-24-78	CLEU 2, F-1 Furnace Stack Elevation and Details
96-120-118	0	7-6-77	CLEU 2, F-1 Furnace Explosion Door
96-120-120	-	-	Air Preheater Connection Block 1, 2, and 3
96-120-121	2	8-29-77	Enpro Butterfly Damper Valve "A"
96-120-122	2	8-29-77	Enpro Butterfly Damper Valves "B" and "C"
96-120-123	1	9-12-77	John Zink VYD-PC-18 Raw Gas Burner
96-120-124	3	5-30-78	John Zink Plenum for VYD-PC-18 Burners
96-120-125	-	-	DEKA Air Preheater General Arrangement for Field Erection
96-120-126	0	5-15-78	CLEU 2, F-1 Preheater Project, General Notes and Reference List
96-120-127	1	2-18-78	CLEU 2, F-1 Preheater Damper Modification at Shaft Details
96-120-128	0	5-15-78	CLEU 2, F-1 Preheater Project Layout Plan and Section
96-120-129	0	5-15-78	CLEU 2, F-1 Preheater Project Equipment Erection Details
96-120-130	1	5-4-78	CLEU 2, F-1 Preheater Project Duct Expansion Joints, Details
96-120-131	0	5-15-78	CLEU 2, F-1 Preheater Duct D-1 and D-15 Details
96-120-132	0	5-15-78	CLEU 2, F-1 Preheater Duct D-2 and D-3 Details
96-120-133	0	5-15-78	CLEU 2, F-1 Preheater Duct D-4, 13, 14, and 16 Details
96-120-134	0	5-15-78	CLEU 2, F-1 Preheater Duct D-5 and D-6 Details

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Drawing No.	Revision	Date	Title
96-120-135	0	5-15-78	CLEU 2, F-1 Preheater Duct D-7 and D-8 Details
96-120-136	0	5-15-78	CLEU 2, F-1 Preheater Duct D-9, 10, 11, and 12 Details
96-120-137	0	5-15-78	CLEU 2, F-1 Preheater Damper Operator; Duct Supports; and Stack Platform Plan, Section, and Details
96-120-138	0	5-15-78	CLEU 2, F-1 Preheater Emergency Air Door Details
96-120-139	0	5-15-78	CLEU 2, F-1 Preheater Blind Flanges, Damper Operator Details
96-120-140	0	5-15-78	CLEU 2, F-1 Preheater Emergency Air Intake Door Opening Linkage Plan and Details
96-120-141	0	5-15-78	CLEU 2, F-1 Preheater Damper Operator, Duct Support, and Platform Plan and Section at TOS Elevation 104', 7-1/4"
96-120-142	0	5-15-78	CLEU 2, Bailey Operator at F-1
96-120-143	-	-	Westinghouse Fan Assembly
96-120-144	-	-	Westinghouse Fan Assembly
96-120-146	C	8-2-78	24" Diameter Fabric Expansion Joint, EJ-1
96-120-147	C	8-2-78	73-1/2" x 102" Rectangular Fabric Expansion Joint, EJ-2
96-120-148	0	7-3-78	Flange Drilling EJ-2
96-120-149	C	8-2-78	39" x 69" Rectangular Fabric Expansion Joint, EJ-3
96-120-150	0	7-31-78	Flange Drilling, EJ-3
96-120-151	C	8-2-78	39" x 69" Rectangular Fabric Expansion Joint, EJ-4
96-120-152	C	8-2-78	40" x 72" Rectangular Fabric Expansion Joint, EJ-5
96-120-153	0	7-31-78	Flange Drilling, EJ-5
96-120-154	C	8-2-78	40" x 72" Rectangular Fabric Expansion Joint, EJ-6
96-120-155	0	7-3-78	Flange Drilling, EJ-6
96-120-156	C	8-2-78	17" x 60" Rectangular Fabric Expansion Joint, EJ-7
96-120-157	0	7-31-78	Flange Drilling, EJ-7
96-120-158	C	8-2-78	26" x 35" Rectangular Fabric Expansion Joint, EJ-8
96-120-159	0	7-31-78	Flange Drilling, EJ-8
96-120-160	C	8-2-78	33" x 48" Rectangular Fabric Expansion Joint, EJ-9
96-120-161	0	7-31-78	Flange Drilling, EJ-9
96-120-162	0	7-31-78	CLEU 2, F-1 Preheater Emergency Air Door Shield

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TABLE I (CONTINUED)

Drawing No.	Revision	Date	Title
96-120-163	0	7-31-78	CLEU 2, F-1 Preheater Emergency Air Door Latch
96-121-4	0	5-15-78	CLEU 2, F-1 Preheater Paving, Drainage, and Fdn. Obstruction
96-121-5	0	5-15-78	CLEU 2, F-1 Preheater, Fdn. Plan and Sections
96-121-6	0	5-15-78	CLEU 2, F-1 Burner Floor Plan, Section, and Details
96-121-7	0	5-15-78	CLEU 2, F-1 Column Fdn. and Trench Plan and Sections
96-190-91	0	5-16-78	CLEU 2, F-1 Pilot Gas Piping Plan and Sections
			ELECTRICAL DRAWINGS
96-101-6	0	5-16-78	CLEU 2, F-1 Preheater Lighting Details
96-102-15	7	5-16-78	CLEU 2, Power Junction Box, PJB-203, Wiring Diagram
96-102-18	0	5-16-78	CLEU 2, F-1 Preheater Electrical Details
96-102-19	0	5-16-78	CLEU 2, F-1 Preheater Elctrical Plan
96-103-15	6	5-16-78	CLEU 2, IJB-201, Thermocouple Wiring Diagram
96-103-82	0	5-16-78	CLEU 2, F-1 Preheater Shutdown Schematic
96-103-83	0	5-16-78	CLEU 2, Instruction Junction Box, NP-201, Wiring Diagram, Sheet 2

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CONTRACTORS' RESPONSIBILITIES FOR SAFETY, PLANT SECURITY, AND TRAFFIC REGULATIONS

BAYTOWN REFINERY

APRIL 1, 1978

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Foreword
SAFETY POLICY

GENERAL

Safety is an integral part of the planning and execution of every job. It is the hallmark of efficient operations. An interested management, a knowledgeable and responsible supervisory staff, and a conscientious, well-trained work force, all concerned with the elimination of accidents in the overall performance of our work, will combine to make our organization safe and effective.

Exxon Management recognizes its responsibility for healthful and safe working conditions and, through its technical and supervisory personnel and through various committee assignments, strives to provide those conditions. This is accomplished through safe working rules based on experience, safety knowledge, and competent work direction.

Each employee has a personal responsibility for his own safety and for the safety of his fellow employees. He is expected to exercise good judgment, properly use and maintain the tools provided, adhere to the established working rules, and follow the directions of well-grounded supervision.

Information on the application of safety rules and procedures is available in this Safety Manual, Exxon Engineering Standards, and various Process and Mechanical manuals. Technical help in the application of safety principles and safety equipment to specific situations is available through the Safety Coordinator, Industrial Hygienists, the Technical Division, and the Safe Operations Committee.

The safety rules contained in this manual apply to all employees of Exxon Company, U.S.A. and all *contractor employees* working in the Baytown Refinery. These rules specify minimum safety requirements that must be followed. Willful or negligent violation of any of these safety rules may result in disciplinary action, including discharge without notice *or in the case of contractor, cancellation of the contract.*

Overlapping Permits

Work permit procedures are established to promote effective communications and to insure that work is performed in a safe environment. Since the permit is issued for the job, only one work permit should be in effect for one job in one area at one time. When more than one work group is involved on the same job in the same area, the "One Work Permit Rule" may lead to some confusion. Therefore, the Chief Operator will determine which of the two following alternatives is better for controlling the work in his area.

1. Issue one work permit for the job and have each Maintenance Supervisor who will perform work on the job sign the permit. The last work group to finish or the last Maintenance Supervisor to sign must turn in the work permit.

2. Issue a permit for the work each work group is to perform; but in absolutely no instance, must the permits conflict (i.e., work on one permit making work by another permit unsafe). For example: a permit to perform hot work and a permit to perform opening and blinding work.

PROCEDURE FOR DEVIATING FROM THIS SAFETY MANUAL IN SPECIAL SITUATIONS

Where special conditions or situations exist that make the requirements stipulated in this manual impractical to follow on a routine basis, an alter-

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nate procedure may be developed. This alternative must be written, reviewed with the Safety Coordinator and approval obtained from the Process and/or Mechanical Superintendent before implementing. The approved alternate procedure must be filed in the Unit Area Section of the Process Unit Instructions Manual and/or the Mechanical Safety Notebook.

PROCEDURE FOR MAKING CHANGES TO THIS SAFETY MANUAL

It is the prerogative of Management to set aside any of these rules. However, before doing so, the approval of the Superintendent in charge must be obtained and the situation discussed with the Safety Coordinator *and with the Contract Administrator in case of contractors.*

The Refinery Safety Coordinator is responsible for keeping this Safety Manual up to date, and he should be notified of desired additions or revisions. He will arrange for the preparation of additions or changes and obtain Management approval before inclusion into the Safety Manual.

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Section 1
GENERAL DEFINITIONS FOR SAFETY MANUAL

PERSONS

1. Chief Operator — The Process person who is responsible for Process operations in a processing area and has the authority to supervise Process personnel and issue work permits.

2. Contract Administrator — The Exxon Mechanical or Process supervisor assigned by the owner to assure that the contractor adheres to the plans, specifications, and Refinery safety rules.

3. Contractor — *The firm under contract to Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors by the prime contractor.*

4. Department Head — The person in charge of a Process department, i.e., Fuels, Specialties, Oil Movements, Utilities and Environmental Control, or Baytown Fuels Expansion.

5. Maintenance Supervisor — The Mechanical person, either Exxon or *contractor*, who has the authority to supervise the Mechanical work crew and is responsible for their work execution.

6. Mechanical Personnel or Person — Any of the Mechanical work crew (Supervisor, Craftsman, Trainee), either Exxon or *contractor*, performing work in the Refinery.

7. Owner — Exxon Company, U.S.A., Baytown Refinery.

8. Operating Supervisor — The second-line supervisor in Process and the immediate supervisor of the Chief Operators.

9. Process Personnel or Person — Any of the Process work crew (Chief Operator, Process Technician, or Process Technician Trainee) who has job responsibility for the assigned processing area.

10. Designated Representative — An Exxon Process Person, if designated by Chief Operator, or an Exxon Mechanical Person if designated by Maintenance Supervisor.

11. Standby — The person designated by the Chief Operator and or the maintenance supervisor to warn persons of hazardous or emergency conditions that could affect their safety.

PLACES

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of personnel working are below the top of the confined space.

2. Processing Area — Any area under the jurisdiction of Process personnel.

3. Refinery — The manufacturing facilities of Exxon Company, U.S.A. located in Baytown, Texas.

ACTIVITIES — CONDITIONS

1. Cold Work — Any mechanical work that does not involve hot work or opening, blinding, and entering processing equipment.

2. Hot Work — Any work requiring the use of burning or welding and brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete

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busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion actuated tools, electric hot plates, or any other flame- or spark-producing equipment.

3. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

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

5. Blinding — Installing temporary slip blinds into piping or blind flanges onto equipment for the purpose of isolating or closing processing equipment.

6. Flammable Material — Any material that will ignite and continue to burn in air.

7. Explosive Mixture — Any mixture of gas or vapor that will ignite (explode) when exposed to a source of ignition. Hot work or entry must not be permitted if tests indicate that the atmosphere contains greater than five percent of the lower explosive concentration of the combustible material (five percent of lower explosive limit).

8. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

9. Toxic Materials — Any substance (other than a radioactive substance) that has the capacity to produce personal injury or illness to man through ingestion, inhalation, or absorption through any body surface. If test for toxic vapors shows a

concentration greater than 10 percent of the published eight-hour limit for the substance, entry without protective equipment must not be permitted.

10. Must and May — "Must" is used in the manual to indicate mandatory compliance. "May" is used to indicate that good judgment shall be exercised.

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Section 2
SAFETY RULES

PURPOSE

The purpose of these personnel, equipment, and traffice safety rules is to specify **minimum** safety requirements that must be followed to prevent injury or death to persons and damage to property. These rules in their entirety apply to all persons, *including the contractor employees* working in Exxon Company, U.S.A.'s Baytown Refinery. *Additional requirements for contractors and their employees are shown in italic type throughout the manual*

DEFINITIONS

Definitions of terms used throughout this manual will be found in Section 1. Special definitions that apply to a specific permit or work procedure are in the applicable section of this manual.

RESPONSIBILITIES

1. Supervisors are responsible for the health and safety of the people under their work direction. They must:

a. Set a good example.

b. Provide adequate instruction in and require compliance with:

(1) Accident prevention aspects of each job.

(2) Use and application of appropriate protective clothing, equipment, and devices.

(3) Use or application of tools and equipment.

c. Cooperate with others where the safety aspects of a job require coordinating the efforts of one or more work groups. This includes, but is not limited to, the securing and/or issuing of a yellow PERMIT TO ENTER, green HOT WORK PERMIT, white OPENING AND/OR BLINDING PERMIT, blue COLD WORK PERMIT, or ELECTRICAL LOCKOUT PROCEDURES.

d. Develop a safe work plan for the job to be done and see that the plan is well understood and followed.

e. Require additional accident prevention measures, other than those contained in this safety manual, if, in any supervisor's opinion, they are necessary. In instances or situations not specifically covered herein, it is expected that they will be handled within the guidelines contained in this manual. **Safety is not to be sacrificed for production.**

2. Individuals, Exxon *and contractor,* working in the Baytown Refinery are responsible for their own safey and for the safety of other workers and for reporting injuries to themselves or others to their appropriate supervisor. Each person must assure himself that his work situation is safe and that he has adequate instructions, proper tools, and proper protective clothing and equipment. He must also make sure that necessary work permits have been obtained and are valid over the term of his shift.

As a minimum, each person must adhere to the following safety regulations:

a. Clothing and Protective Equipment

(1) Clothing contaminated with oil, hazardous liquids, or chemicals must not be worn. If a person is inadvertently sprayed or contacted by oils, hazardous liquid, or chemicals, the clothing must be removed as quickly as practical, the affected parts washed with soap and water, and the situation reported to the supervisor *and to the Exxon supervisor in charge or Contract Administrator in case of contractors.*

(2) Protective clothing that fully covers the

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body (arms, legs, shoulders, feet, etc.) must be worn in work areas. This includes long sleeves unless wearing long sleeves creates a greater hazard than not wearing them — such as Machinists around rotating equipment or Linemen working on overhead electrical lines on poles. The wearing of canvas-type shoes, thongs, and similar type footwear in work areas is prohibited. Exceptions must be approved by the Department Head after consultation with the Safety Coordinator.

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

(4) Safety hats and safety glasses must be worn in all areas of the Refinery except at certain locations specified by the Department Head after consultation with the Safety Coordinator.

EXCEPTION: Welders need not wear safety hats while welding.

(5) Contact lenses must not be worn inside the Refinery. Employees with unusual visual problems requiring the wearing of contact lenses must use appropriate eye protection as recommended by a medical doctor depending on occupational exposure. (For Exxon employees, the Medical Department will recommend appropriate eye protection.)

(6) Goggles and/or safety glasses with side shields must be worn in those areas where the possibility of flying objects exists.

(7) Chemical goggles must be worn in those areas where exposure to chemicals or liquid hazards exist.

(8) Respiratory protection must 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).

(9) Special protective clothing for the particular hazard must be worn where there is a possibility of exposure to acid, caustic, or other hazardous material.

(10) Bright-colored vests or equivalent highly visible attire must be worn by members of survey parties when working on or adjacent roads.

(11) Safety belts attached to an independently supported line must be worn:

(a) When working from scaffolds, platforms, or any other surfaces that 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.

(12) Approved ear protection such as ear plugs, disposable plugs, Swedish wool (cotton is unacceptable), or ear muffs must be worn when working in areas designated with warning signs as "high noise area." Ear protection is required when using tools marked "caution-hearing protection required when using this tool" and in areas where equipment or tools generate sufficient noise to make normal conversation difficult.

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b. Entering Processing Area

No person shall enter a processing area (including firewalls of operating tanks) without the permission of the Chief Operator or his designated representative. Chief Operator permission is also required when motorized equipment initially enters a closed processing area (radio or telephone approval by dispatcher is acceptable). No further permission is required as long as mechanical work is continuous. Once work is interrupted, such as for lunch breaks, permission must again be obtained. Vehicles entering these areas may be required to have sparkproof mufflers or their equivalent as required by the Chief Operator *or the Contract Administrator in the case of contractor vehicles*.

c. Working Over or Near Water

The U.S. Coast Guard approved life preservers must be worn when working on barges or directly over water, such as under the docks, from a boat, above pits, etc.

d. Working On or Over Machinery

(1) Do not work on moving machinery or above open operating machinery unless it is impractical to shut down the equipment. In such instances, secure Maintenance Supervisor's and or Chief Operator's approval and take necessary precautions before proceeding.

(2) Do not start up machinery unless all guards are in place.

EXCEPTION: In temporary situations where guards must be removed to make running adjustments, secure Maintenance Supervisor's and/or Chief Operator's approval before proceeding.

e. Guarding

(1) Temporary openings in floors, handrails, etc., must be guarded to prevent falling. Restore permanent handrails and guardrails immediately after need for opening has ended.

(2) Open excavations or manholes must be guarded or covered before leaving the job and during the job if practical.

(3) Areas into which materials or tools are to be deliberately dropped or thrown must be guarded or protected.

f. Housekeeping

(1) Aisles, passageways, stairs, platforms, and ladders must be kept clear of all unnecessary obstructions.

(2) Protruding nails that present a snag or puncture hazard must be removed or bent down.

(3) Worksite must be kept clean and orderly.

(4) Debris (including mud from wheels) that falls from transporting vehicles must be picked up.

g. Smoking and Matches

Smoking in the Refinery except at approved locations is prohibited. "Strike-anywhere" matches must not be brought into the Refinery.

h. Hand and Power Tools — Portable Machinery

(1) Defective tools must not be used.

(2) Tools must not be subject to undue stress or used for purposes for which they are not designed. Makeshift tools must not be used.

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(3) Portable Machinery must be shut down for repair work. If it is impractical to stop or shut the equipment down before working on it, secure Maintenance Supervisor's approval before proceeding.

(4) Abrasive wheel tool rests must be adjusted to within ⅛-inch maximum of the wheel. Do not use abrasive wheels that are visibly in bad order.

(5) High-speed abrasive wheels must be properly guarded as required. Do not stand in line of unguarded wheels.

(6) Tools must not be started or used unless all required guards are in place.

i. Electrical Tools and Equipment

(1) Electrical switches must not be operated without full knowledge that the results will not constitute a safety hazard.

(2) Portable electrical tools, metal buildings with electrical service, and electrical equipment (including motor-driven welding machines and portable generators) must be grounded. Report them to the Maintenance Supervisor if they are found to be defective.

EXCEPTION: Double insulated tools and engine driven welding machines may be used without grounding.

(3) General purpose two- or three-cell flashlights (1.5 volts per cell) may be used everywhere except where use is prohibited by governmental agencies, such as at the docks.

(4) Explosionproof, approved portable lights (Underwriters Laboratory or Bureau of Mines approved) must be used where hot

work is not authorized. This includes portable explosionproof hand lamps, portable explosionproof floodlights, and extension cords (plug boards) with explosionproof fixtures.

EXCEPTION: Fixed-mount, take-up, reel-type mechanic's lamp or other special appliances that have been specifically approved by the Department Head.

(5) Vaporproof globes must not be removed except for cleaning, repairing, or replacing lamps. Explosionproof fixtures shall be opened only by authorized persons.

j. Ladders and Scaffolds

(1) Ladders must be checked to insure that they are in good condition before use. Portable ladders must either be held or lashed securely while in use. Where practical, the siderails shall extend at least 36 inches above the landing.

(2) Ladders must be located where possible where they cannot be bumped. When located in areas such as in front of a door, in the street or aisles, etc., adequate precautions must be taken to protect both the climber and others who may be in the area.

(3) Good working techniques must be used when climbing, working from, or descending a ladder, such as holding with both hands and keeping the body within the siderails of the ladder.

(4) Scaffolds must be constructed to support at least four times the maximum intended load without failure.

(5) Platform planks must be laid with their edges close together so that there are no spaces large enough for tools or fragments of materials to fall through.

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(6) Swing scaffolds must be lowered and lashed at the end of the shift.

(7) Access ladders or other safe means of access to all scaffolds must be provided.

(8) Standard handrails and toe boards must be provided on all scaffolds 10 feet or more in height.

(9) Tools or materials on scaffold platforms must be placed in such a manner that they will not create a tripping hazard or become dislodged and fall.

(10) Alterations to scaffolds must be reported to the appropriate supervisor.

(11) Non Conductive ladders or scaffolds must be used when working on open energized electrical circuits.

k. Excavations

(1) Do not enter or work in excavations that will require a person's head to be below the level of the ground until:

(a) Obtaining a yellow PERMIT TO ENTER,

(b) Shoring or sloping the excavation to prevent sloughing of earth,

(c) Effectively storing or retaining excavated material at least two feet from the edge of the excavation and

(d) A ladder or ramp for safe entrance and exit has been provided.

(2) Guard or cover all excavations before leaving job, and during the job if practical.

(3) RED CONCRETE UNDERGROUND signifies the presence of an electrical circuit. Stop excavating and notify the Maintenance Supervisor *and the Contract Administrator in case of contractor employees.*

l. Connections Into Existing Pipelines, Equipment, or Service

After a tie-in has been made connecting new construction to existing lines, equipment, or sewers, the whole pipeing equipment or sewer system involved must be considered the same as existing lines and equipment; and applicable work permits must be obtained from the Chief Operator before additional work can be done on any of these lines or equipment. After new sewers have been tied into the sewer system, any hot work in the area of the new sewer must terminate. Any further hot work requires a new HOT WORK PERMIT.

m. Railroad

(1) Constructing or placing any permanent or temporary obstructions closer than eight feet six inches horizontally from the centerline of the track or 22 feet vertically from any top of rail is prohibited without specific authorization from the Exxon Supervisor responsible for railroad trackage.

(2) Riding on railroad equipment is prohibited.

(3) Tank car ladders and hand irons must be used. Do not jump from loading rack to tank car, from car to car, or from car to ground.

n. Hoisting Equipment

(1) Keep clear of suspended loads.

(2) Hoisting equipment must be operated so as not to endanger other people or damage equipment in the operating area.

(3) Blocks, hooks, balls, or crane loads must not be ridden. Approved sling or bosun chair must be used.

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(4) Loads suspended from mobile equipment must be secured to prevent swinging and the hoisting operator must remain at the controls.

(5) Guy lines, mooring lines, or load lines must not be placed in such a position that they will tighten against operating equipment, pipelines, tanks, or machinery.

(6) Insulating swivels must be used on all bosun chairs or baskets when supporting a welder.

o. Hazardous Materials

(1) Note locations of eyewash fountains and safety showers and know how they work.

(2) Labeled containers must be used for handling hazardous materials.

(3) Dismantled or relocated equipment that has been in "hazardous material" service must be identified by tagging or other physical marking.

(4) Solvents for cleaning purposes must be varsol, or other approved materials.

(5) High boiling point materials (above 700°F) from catalytic cracking operations or other highly aromatic or toxic materials are hazardous and precautions must be taken to prevent breathing of vapor or contacting the skin. If these oils do come in contact with the skin, they must be washed off promptly with soap and water.

(6) Appropriate Process Unit Instructions (PUI) or Mechanical Operating Practices (MOP) must be followed when working in areas where toxic materials are present.

p. Compressed Air — Yard System

(1) Compressed yard air must not be used to clean clothing or personnel except at outlets **that are especially** equipped to permit a maximum pressure of 30 psi.

(2) Compressed air must not be used to open plugged sewers.

(3) Compressed yard air must not be used for breathing purposes.

q. Warning Signs

Caution and warning signs must be obeyed including use of specified protective or safety equipment.

r. Compressed Gas Cylinders — Transportation, Storage, and Use

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

(1) Protective caps must be in place when cylinders not in use.

(2) Full cylinders (except chlorine) must be stored and transported in vertical position with caps on. Chlorine cylinders must be transported in the horizontal position. Separate oxygen cylinders in storage from fuel gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least five feet high, having a fire-resistance rating of at least one-half hour.

(3) Holders, chains, or keepers must be used to prevent overturning.

(4) Empty cylinders, except acetylene, may be stored and transported in a horizontal position. Acetylene cylinders must be vertical at all times.

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(5) Cylinders in a vertical position must be secured with a suitable keeper while connected to equipment.

(6) Pure oxygen and chlorine must not be allowed to contact hydrocarbons in any form.

(7) Rough handling of cylinders must be avoided.

(8) Oxygen or acetylene must not be used for testing purposes.

(9) Hazardous compressed gases must not be released into enclosed spaces.

(10) Compressed bottled gases must not be used to clean clothing or personnel.

(11) Oxygen or acetylene cylinders must not be taken into enclosed spaces except into storage tanks where door sheet has been removed.

(12) Repair of leaking compressed gas cylinders must not be attempted. If cylinder can be moved, move to a safe location and allow to depressure itself. If it cannot be moved safely, clear area and allow the cylinder to depressure. If the cylinder is chlorine, evacuate the area and initiate procedure outlined in MOP-C4. *If leak involves contractor cylinders, the Contract Administrator must be immediately notified.*

s. Fire Prevention — Fire Fighting

(1) No one shall go to the scene of a fire unless directly involved or assigned to fire-fighting activities. Others not having operating duties shall evacuate the fire area. *Contractor employees must proceed to a prearranged assembly area.*

(2) Fire-fighting equipment access must not be blocked by traffic or other equipment.

(3) Electrical fires must not be fought with a solid stream of water. Water fog may be applied to an electrical fire only by an Exxon fire fighter.

t. Working in the Vicinity of Electric Lines

When it is necessary to operate cranes or derricks or perform other work within 10 feet of open electric lines (measured radially), the Maintenance Supervisor must consult the Utilities Chief Operator *or the Contract Administrator in the case of contractor work* to determine whether the electric lines can be deenergized. No work can proceed until the electric lines have been deenergized or until guards have been installed. Install approved guards when it is necessary to install guy lines across any electric lines to prevent guy lines from coming in contact with the electric lines. All work on open electric lines must be done in accordance with Mechanical Safety Procedure No. 8.

u. Refueling Vehicles and Equipment

Dispensing gasoline and fuel must be done through a pump and hose. If not possible, approved (Underwriters Laboratory or Factor Manual approved container for flammable liquid) safety cans with flexible spouts must be used. Vehicles and equipment engines must be turned off during refueling.

v. Potable Water

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

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w. Asbestos Cement Roof
When installing or working on an asbestos cement roof, workers must use a spreader board or roofer ladder to distribute their weight over a minimum of two purlins.

TRAFFIC SAFETY REGULATIONS

Unless covered by a specific regulation in this Safety Manual, traffice regulations for safe driving inside the Refinery are the same as the regulations of the State of Texas Motor Vehicle Laws.

1. Equipment and Identification Required on Motor Vehicles
All motor vehicles in the Refinery must be in safe operating condition. When entering the Refinery, 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: (a) brakes; (b) lights — two headlights, tail lights, brake lights; (c) horn; (d) muffler; (e) safety glass; (f) windshield wiper and rear-view mirror; and (g) 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. *Contractors' self-propelled, rubber-tired equipment must have contractor's name or insignia prominantly displayed on both sides of the vehicle.*

2. Driver's License
Persons operating motor vehicles in the Refinery must have a valid operator's (automobile) license as a minimum.

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

4. 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.

5. "Road Closed" Signs
Areas blocked by traffic barriers and/or "road closed" signs are closed to all traffic. Follow procedure specified in PUI-S5 for blocking Refinery streets.

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

7. 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.

8. 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.

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9. Passengers

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

b. 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.

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

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

10. Vehicles Prohibited

Motor bicycles or motorcycles are not permitted inside the Refinery except to and from the designated "motorcycle only" parking areas provided near gates. Campers and recreational vehicles are not permitted in the Refinery 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 Refinery.

11. Vehicle Entry into Processing Areas

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.

12. 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 Refinery. All vehicles must be equipped with adequate rear-view devices.

13. 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.

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Section 3

CONTRACTOR'S SAFETY RESPONSIBILITIES

PURPOSE

The purpose of the personnel and equipment safety regulations contained in this section is to set out safety requirements for contractors, which are in addition to those contained in other sections of this manual. Each contractor must take any additional precautions necessary or proper under the circumstances to prevent injury or death to persons or damage to property

SPECIAL DEFINITIONS

1. Owner – *For purposes of these safety regulations, "owner" shall mean Exxon Company, U.S.A. (a division of Exxon Corporation).*

2. Contract Administrator – *The person assigned by the owner to assure contractor adherence to the contract provisions.*

3. Contractor – *The firm that has been contracted by the Exxon Company, U.S.A. to perform work at the Baytown Refinery. The term also includes those firms employed as subcontractors to the prime contractor.*

4. Maintenance Supervisor – *The Mechanical person, either Exxon or contractor, who has the authority to supervise the Mechanical work crew and the responsibility for their work execution. As used in this section, the Maintenance Supervisor refers specifically to the contractor first line supervisor*

RESPONSIBILITIES

1. Contractor, *as an independent contractor, is responsible for performing work under the contract in a healthful and safe manner including protecting the safety and welfare of other contractors and the owner's personnel and equipment. 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.

a. *The contractor is responsible for informing his employees of the required safety rules and that the employees adhere to said rules.*

b. *The prime contractor is responsible for assuring compliance with these regulations by all subcontractors and their employees. Contractor must notify its employees, its subcontractors, and the employees of its subcontractors of these provisions of the regulations and shall secure compliance therewith by all such parties; and contractor must not allow any of such persons to begin work inside the Baytown Refinery until such notification has been given them.*

c. *Contractor must observe and comply with the Texas Occupational Safety Act (Article 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 apply to all subcontractors and their employees as well as to the contractor and its employees.*

d. *Nothing contained in these regulations shall be interpreted to enlarge the legal duty of the owner to the contractor, his agents, employees, or subcontractors.*

2. Maintenance Supervisors *are responsible for the safe conduct of their jobs and for the safety of the persons under their direction. Specific supervisory responsibilities are contained in Section 1-2 of this manual. Each Maintenance Supervisor is responsible for assuring that each individual under his direction un-*

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derstands and adheres to the safety rules contained in Section 1-2 of this manual.

3. Individual person doing work in the Refinery must assure himself that the work situation is safe and that he has the proper instructions, tools, and protective equipment. Each person must become familiar with and adhere to the safety rules contained in Section 1-2 of this manual.

4. Contract Administrator will monitor the contractor's performance to assure safe execution of the work specified in the contract. He will, on proper request, assist the contractor in dealing with other owner personnel to obtain safety permits and to implement other safety related procedures. He will insure that all contractor's Maintenance Supervisors are properly indoctrinated in the relevant safety regulations.

PROCEDURES

1. Work Execution

All work in processing areas must be performed with the approval of the Chief Operator responsible for the area. The Maintenance Supervisor must coordinate his work through the Chief Operator and must keep him informed as to the number, location, and activities of contract personnel. Any work performed after normal working hours and on weekends and holidays requires authorization by the owner. Such authorization will be obtained by the Contract Administrator.

2. Required Work Permits and Procedures

Before beginning any work in processing areas, an appropriate permit must be obtained from the Chief Operator or his designated representative. Required work permits and procedures are:

- **a.** Electrical Lockout Procedures – Section 4.
- **b.** Hot Work Permits – Section 5.
- **c.** Permit to Enter Enclosed Spaces – Section 6.

- **d.** Opening or Blinding Permit – Section 7.
- **e.** Cold Work Permit – Section 8.

Other work procedures may be specified in specialized work situations such as hot tap procedure, procedure for cleaning tanks, etc.

3. Oil and Chemical Spills

Any hydrocarbon or chemical spill, whether accidental or otherwise, must be reported to the Chief Operator and the Contract Administrator.

4. Connections Into Owner's Utilities Systems

Permission must be obtained from Contract Administrator prior to connecting into owner's utility system such as, but not limited to, water, air, nitrogen, and steam systems. Each connection shall be guarded by a check valve. When taking water from fire hydrants, the center valve must be opened completely.

5. Contractor's Equipment

a. All equipment brought into the Refinery by contractors must be in safe operating condition. Authorized owner personnel may at any time inspect contractor's equipment. Such inspection or failure to inspect does not relieve the contractor of its responsibilities for the safe condition of its equipment.

b. Equipment must be operated only by properly licensed persons.

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

6. Working Over or Near Water

a. Ring Buoys with at least 90 feet of line must be readily available for rescue operations. Distance between ring buoys must not exceed 200 feet.

b. A life saving skiff must be immediately available

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at locations where persons are working over or adjacent water.

7. Work Involving Use of Ionizing Radiation

Contractors must not perform any work involving the use of ionizing radiation without notification to the Exxon Supervisor in charge or the Contract Administrator. A COLD WORK PERMIT must be obtained if radio isotopes are used, a HOT WORK PERMIT is required if an Industrial Xray Unit is used to perform this type work in processing areas. Contractors must comply with "Texas Regulations for Control of Radiation," latest edition, Texas State Department of Health, Division of Occupational 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 enenergy surveys of contractor's equipment and their uses on owner's premises.

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Section 4

ELECTRICAL LOCKOUT PROCEDURES

ELECTRICAL CIRCUITS AND ELECTRICALLY POWERED EQUIPMENT

PURPOSE

The purpose of these procedures is to protect anyone who works on either electrical circuits or electrically powered equipment from injury or death.

SPECIAL DEFINITIONS

Electrical circuits and electrically powered equipment do not include (1) lighting circuits for the purpose of relamping, (2) circuits of less than 100 volts, or (3) circuits that must remain energized. For circuits that must remain energized, a blue COLD WORK PERMIT may be required (see section 8).

RESPONSIBILITIES

1. Process person is responsible for isolating and preparing the equipment to assure it is in safe condition for mechanical work.

2. Person performing work is responsible for assuring himself that the equipment is safe for him to do his prescribed work, and that he has tagged and locked out the equipment in accordance with the electrical lockout procedures.

3. *Contractor Administrator* *is the contractor's contact with Process personnel for performing work under the electrical lockout procedure.*

PROCEDURE

1. Lockout Procedures — Before anyone works on electrical circuits or electrically powered equipment where they could be endangered, the electrical supply must be turned off and locked out in accordance with the following procedures:

a. Shut Equipment Down — The Process person must shut the equipment down at the local start-stop switch or local "Hand-Off-Auto" switch. In case there are remote start-stop switches on this equipment, he must notify other operating personnel responsible for operating the remote start-stop switches and request that a white DO NOT OPERATE tag be placed on the start-stop switches. If the start-stop switch is located on a control panel, then it must be covered with a section of DO NOT OPERATE pressure-sensitive tape.

b. Lock and Tag Disconnect Switch — The Process person must turn the disconnect switch to the off position, lock it with a Process lock, and tag it with the white DO NOT OPERATE tag. If a Process or another person is to work on the equipment, the Process person must use a multiple lockout adapter. The Process operations lock must be in the position closest to the switch. All Process locks will be identical, and the same key will unlock all of them.

c. Check Disconnect and Tag — The Process person must try the local pushbutton station to be sure the correct disconnect switch is locked out. When the local control station is a "Hand-Off-Auto" selector switch the process person must lock the switch in the "Off" position. He must then tag the pushbutton or selector switch with a white DO NOT OPERATE tag.

d. Enter in Log — The Process person must enter the "lockout" in the Process log book.

e. Apply Mechanical Lock — Before mechanical work is performed on equipment, a mechanical lock must be applied by the person performing the work.

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(1) Mechanical Person — Each Mechanical person who works on the equipment must first add his own lock and a red DO NOT OPERATE tag on which he will write his name, skill, and the date. It is the responsibility of each person working on the equipment to assure his own safety by keeping his tag and individual lock on the disconnect switch while he works on the equipment. If two or more people in the same craft are working together on the equipment, only one mechanical lock and red DO NOT OPERATE tag are required. *If a contractor employee is doing the work, he must use an Exxon mechanical-type lock and the appropriate electrical lockout procedures tag obtained from the Contract Administrator. He must write on the tag his name and the name of the contractor firm.*

(2) Process Person — When a Process person is to perform work on the equipment, he must obtain his individual mechanical-type lock and key from the supply in the control room or center and then follow the above procedures in e(1).

f. Remove Lock and Tag — Locks and DO NOT OPERATE tags must be removed as follows:

(1) Remove Mechanical Lock and Tag — As each person finishes his work, he must remove his own lock and red DO NOT OPERATE tag. At the end of his work shift, he must remove his lock and tag whether his work is finished or not. This does not include the original Process lock or white DO NOT OPERATE tag.

(2) Remove Process Lock or Locks and Tags — The Process lock or locks must be the last to be removed. When the local control station is a "Hand-off-Auto" selector switch the lock on this selector switch must be the last removed. The Process person, after determining that it is safe to do so, must remove the Process lock or locks and white DO NOT OPERATE tags and must notify other operating personnel to remove the white DO NOT OPERATE tags or DO NOT OPERATE pressure-sensitive tape from remote start-stop switches. He must then enter the lock removal in the log book.

(3) Emergency Lock Removal — If it becomes necessary to remove a lock by other than the Mechanical person who installed it, only the Shift Superintendent is allowed to remove it. Upon removal of the lock, the Shift Superintendent must send a note to the Department Heads of the Process and Mechanical Departments stating whose lock was removed, where it was located, and why it was removed. A log of the same information must be maintained in the Shift Superintendent's office. A master key for the mechanical person's locks must be kept at the Shift Superintendent's office only.

2. Wiring Disconnect Procedures — For some types of work, the lockout procedure alone is not adequate. Such work includes, but is not restricted to, the following: (1) work on fans inside cooling towers, (2) work inside confined spaces containing electrically powered equipment such as mixers or filters or electrodes (desalters), and (3) work on equipment where the switch controls more than the one piece of equipment. In such cases, this wiring disconnect procedure must be followed:

a. Lockout Equipment — The disconnect switch must be locked out in accordance with the electrical lockout procedure in Paragraph 4a of this section.

b. Check and Disconnect Circuit — After making sure the circuit is clear by checking with a

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voltage tester, the Mechanical or Process person must disconnect the wires and tape them together.

c. Tag Circuit— The Mechanical or Process person must tag the disconnect switch with a yellow WIRING DISCONNECTED tag. On the tag, he must note where the wiring is disconnected and must sign and date the tag.

d. Remove Lock and Red DO NOT OPERATE Tag — After the wiring has been disconnected, and taped together, the Mechanical or Process person must remove his individual lock and red DO NOT OPERATE tag unless he must do other work on the equipment. Do not remove the yellow WIRING DISCONNECTED tag.

e. Wiring Reconnect — The Mechanical or Process person who reconnects the wiring must place his individual lock and red DO NOT OPERATE tag on the disconnect switch, reconnect the wiring, and then remove his lock and the red DO NOT OPERATE and yellow WIRING DISCONNECTED tags. *If a contactor employee is doing the work, he must obtain the required tags from the Contract Administrator and follow the above wiring disconnect procedures a through e. He must also include on the tags the name of the contractor's firm.*

3. Abnormal Condition Procedures — Conditions may exist that appear normal but actually are not. The following are examples of such abnormal conditions that require use of the pink ABNORMAL ELECTRICAL CONDITION tag. Such abnormal conditions include but are not limited to the following: (1) temporary power to equipment; (2) inside plastic handle broken off switch so outside handle will not operate switch; (3) one pushbutton inoperative but another will operate equipment; (4) a switch is left energized but a part of the equipment supplied by it is disconnected,

(MOVs) supplied by one circuit breaker; and (5) a switch is off and tagged out but a separate circuit is still supplying power to the switch housing for controls, lights, heaters, etc.

a. Application of Pink ABNORMAL ELECTRICAL CONDITION Tag — Before a Mechanical Person leaves electrical equipment with temporary wiring connected or with any other abnormal condition existing, he must tag the equipment with pink ABNORMAL ELECTRICAL CONDITION tags; he must place one tag on the outside of the equipment and one inside on the wiring if it is practical to do so. He must describe the abnormal condition on the tags and must sign and date them. The abnormal condition must be entered in the log book. *If a contractor employee is doing the work, he must obtain the tags from the Contract Administrator and proceed according to a and b. In addition, he must also include on the tag the name of the contractor's firm.*

b. Removal of ABNORMAL ELECTRICAL CONDITION Tags — The tags must remain in place until the equipment has been returned to its normal condition. The Mechanical person who removed the temporary wiring or eliminates the abnormal condition must remove the tags and notify the Chief Operator responsible for the equipment, who must enter the action in the log book.

POWER LINES

PURPOSE

The purpose of these procedures is to protect anyone who works on or near power lines and on direct-connected Process equipment from injury or death.

SPECIAL DEFINITIONS

1. Power Lines — Those electrical lines that radiate

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from generating stations and distribution substations.

2. Direct-Connected Process Equipment — A piece of electrical equipment on a Process unit supplied by a single power line having its electrical disconnect switch at an electrical substation or at a power plant.

3. Electrical Maintenance Supervisor — The Line Crew Supervisor or the Power Systems Maintenance Supervisor or their designated representative.

4. Utilities Chief Operator — The Process person responsible for the operation of the power system.

5. Electrical Mechanical Person — Any lineman, electrician, or Mechanical person working on the power system or on the direct-connected Process equipment.

6. Power Plant Process Person — The Process person who operates the power plant.

RESPONSIBILITIES

1. Electrical Maintenance Supervisor is responsible for requesting that power lines be removed from service and returned to service and for determining that the lines to be worked on are deenergized and tagged out.

2. Process Chief Operator or His Designated Representative is responsible for the removal and return to service of direct connected process equipment. He is also responsible for requesting the Utilities Chief Operator to deenergize the circuit serving the equipment and tag out.

3. Utilities Chief Operator is responsible for authorizing the removal and return to service of the power lines to be worked on.

4. Electrical Mechanical person is responsible for assuring himself that the equipment is safe for

him to do the prescribed work and that the following provisions of these procedures for which he is responsible are carried out.

5. Power Plant Process person is responsible for removing from service and returning to service power lines to be worked on and for properly tagging.

PROCEDURES

Procedure for Removing Power Lines or Direct-Connected Process Equipment from Service.

a. Request for Removal of Power Lines or Direct-Connected Process Equipment from Service: For power lines, the Electrical Maintenance Supervisor must make his request in person to the Utilities Chief Operator. For direct-connected Process equipment, the Process Chief Operator or his designated representative must request the Utilities Chief Operator for removal of these particular power lines from service. *If a contractor employee is to work on power lines or do electrical work on Process equipment, the Contract Adminstrator must make the arrangements for removing the lines from service and for returning them to service.*

b. Removal of Power Lines or Direct-Connected Process Equipment from Service: The Utilities Chief Operator must make the necessary arrangements with the Power Plant Process person to remove the power lines or the direct-connected Process equipment from service.

c. Check Circuit Removal before Work Begins: For power lines, the Utilities Chief Operator, the Electrical Maintenance Supervisor, and a representative of the group actually doing the work must personally observe that the line has been removed from service by lowering the circuit breaker or opening the dis-

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connect switches at each substation and power plant involved. They must then tag on the equipment by attaching the red POWER LINE DISCONNECT tags filled out and signed by the Utilities Chief Operator and signed by the Electrical Maintenance Supervisor on the equipment at each substation or power plant involved.

If work is being done on a line by more than one group, then each group must be protected by separate red POWER LINE DISCONNECT tags.

For direct connected process equipment, the Process Chief Operator or his designated representative shall notify the Utilities Chief Operator that this equipment has been removed from service and is ready for tagging. The Utilities Chief Operator will proceed to the site of the direct connected equipment, where he will meet the Process Chief Operator or his designated representative and a representative of the group which will actually work on the equipment. The Process Chief Operator or his designated representative will fill out and sign a red POWER LINE DISCONNECT tag and personally give that tag to the Utilities Chief Operator, verifying the equipment is ready for tagging on. The Utilities Chief Operator will keep that tag, and along with the representative of the group which will actually work on the equipment he must then proceed to the electrical substation and observe that the circuit serving the equipment has been removed from service by lowering the circuit breaker or opening the disconnect switches. They must then tag on the appropriate circuit breaker with a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and the representative of the group which will actually work on the equipment. After completing that step, they must proceed to the Power Plant and tag on a red POWER LINE DISCONNECT tag filled out and signed by the Utilities Chief Operator and a representative of the group actually doing the work on the equipment to the remote switch serving the equipment. Finally, the Utilities Chief Operator and the representative of the group actually doing the work will return to the site of the direct connected process equipment and sign and tag on to the local start-stop switches the red POWER LINE DISCONNECT tag originally signed by the Process Chief Operator or his designated representative. After completing this procedure the work can begin.

In the case of contractor personnel the contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign on the disconnect tags.

Before any work is done on an open power line up to and including 13,800 volts, the line must be checked with a voltage tester and a ground chain must be pulled across the line to assure that it is deenergized.

d. Return Power Lines or Direct-Connected Process Equipment to Service: To return a power line to service, the Electrical Maintenance Supervisor must personally report to the Utilities Chief Operator that the work has been completed and accompany the Utilities Chief Operator to the substations and main power plants and properly tag off the power lines by signing and removing the red POWER DISCONNECT tags at the electrical substations and at the main power plants. The lines may

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then be energized by the Power Plant Process Operator.

In the case of direct connected process equipment, the Process Chief Operator or his designated representative must report to the Utilities Chief Operator that the work has been completed. The Utilities Chief Operator and a representative of the group actually working on the equipment will proceed to the site of the equipment and personally meet with the Process Chief Operator or his designated representative who will tag off the local start-stop switches by signing and removing the red POWER LINE DISCONNECT tag. He will give the tag to the Utilities Chief Operator who will also sign it, along with the representative of the group actually working on the equipment. The Utilities Chief Operator and the representative of the group actually doing the work must then proceed to the electrical substation and properly tag off the disconnect switches by signing and removing the red POWER LINE DISCONNECT tags. Finally, they must proceed to the Power Plant and tag off the remote control switch by signing and removing the red POWER LINE DISCONNECT tag from the remote control switch. The Utilities Chief Operator will keep the signed tags and notify the Process Chief Operator or his designated representative that the tag off procedure has been completed.

In the case of Contractor personnel the Contractor's Supervisor and the Contract Administrator must accompany the Utilities Chief Operator in the inspection and the Contractor's Supervisor along with the Utilities Chief Operator must sign off the disconnect tags.

2. Procedure for Working on or Adjacent 2,300-Volt Power Lines

a. Tag Power Lines — Before beginning work on live uninsulated 2,300-volt power lines or working adjacent to any live uninsulated power line, the Maintenance Supervisor or his designated representative must notify the Utilities Chief Operator about the nature and location of the work to be performed.

The Utilities Chief Operator must request the appropriate Power Plant Process person to attach a yellow CAUTION-PEOPLE WORKING ON THIS CIRCUIT tag to the switch or switches controlling the power lines. *In the case of contractor lineman, the Contract Administrator must contact the Utilities Chief Operator.*

b. In Case of Circuit Trouble — In the event of circuit trouble at the jobsite, the Mechanical Supervisor must immediately notify the Power Plant Process person. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.* If any switch to which a tag is attached is tripped, it must not be reclosed until the Power Plant Process person is notified that it is safe to reclose.

c. Removal of Tags — Upon completion of the job, the Maintenance Supervisor who made the original request must notify the Power Plant Process person to remove the tags. *In the case of contractor lineman, the Contract Administrator must contact the Power Plant Process person.*

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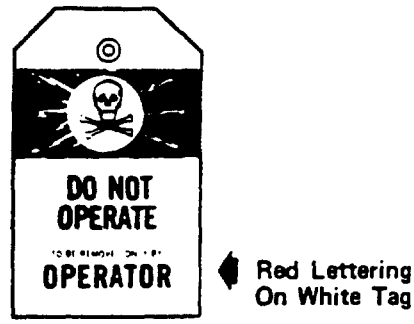
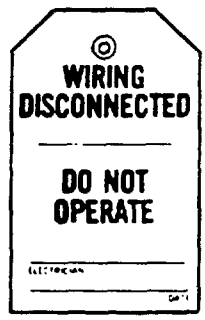


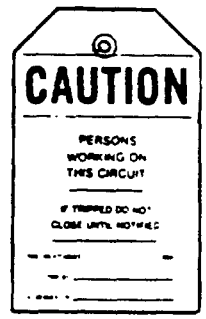
Red Lettering
On White Tag

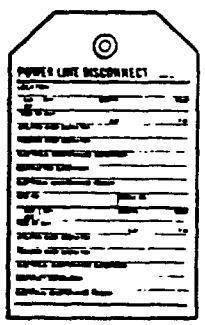
Red Tag



Yellow Tag

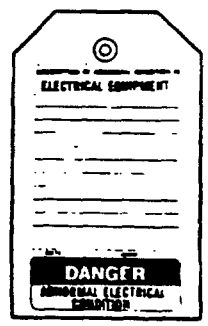
Yellow Tag





Red Tag

Pink Tag



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Section 5
HOT WORK PERMIT

PURPOSE
The purpose of this permit procedure is to protect personnel and equipment from fires and/or explosions that could result from hot work performed in a hazardous area. This section outlines **minimum** precautions for safety when performing hot work in any location not designated as a routine hot work area. In all such areas, a green HOT WORK PERMIT is required for all hot work.

SPECIAL DEFINITIONS
1. Hot Work — Any work requiring the use of burning, welding, or brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, nonexplosionproof electric motors (including motor chippers, drills, and saws), nonexplosionproof floor or string lights, sandblasting, explosion-actuated tools, electric hot plates, or any other flame- or spark-producing equipment.
EXCEPTION: work on energized intriniscally safe circuits, electrical instruments and electrical power circuits covered under Cold Work Permits in Section 8.

2. Hot Tap — Any connection made to a pipeline or other equipment that is under pressure or has not been cleared and prepared for tapping using conventional construction methods.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the green HOT WORK PERMIT for his equipment. He or his designated representative must designate boundaries within which the permit applies and must insure that all necessary safety precautions have been completed prior to the Chief Operator signing the permit.

When hot work is to be performed on equipment passing through or adjacent one processing area, but controlled from another, the Chief Operators from both processing areas are responsible for issuing the permit. This rule applies if the hot work to be performed is within approximately 50 feet of operating equipment. (Example: Oil Movements line in pipe rack adjacent a process unit.)

When hot work is to be performed on equipment in a non-processing area adjacent a processing area both the Chief Operator from the adjacent processing area and the Basic Equipment Owner of the non-processing area or his authorized representative are responsible for issuing the green HOT WORK PERMIT. (Example: road work adjacent a process unit.)

2. Maintenance Supervisor is primarily responsible for seeing that only the type of work covered by the permit is performed, and that conditions at the jobsite are safe for the scheduled work; also that hot work is confined to the area covered by the permit.

3. Mechanical personnel performing the work are responsible for checking the green HOT WORK PERMIT to be sure it is current, valid, and properly signed by the Chief Operator and Mechanical Supervisor. If any of the signatures are missing, work **must not begin**.

4. All persons at or near the hot work site must be constantly alert for any condition that could make hot work hazardous. If such a condition develops, all hot work and machines **must be stopped at once.** All personnel must immediately vacate the area and notify the Chief Operator or the nearest Process person of the hazardous condition. The green HOT WORK PERMIT is no longer valid and

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must be removed. All persons associated with the work must be notified. Before work may resume, a new green HOT WORK PERMIT must be issued. When Mechanical personnel leave the job (such as lunch break), they must check to see that conditions have not changed and the permit has not been removed before resuming hot work.

PROCEDURES

1. Area Other than Enclosed Spaces and on Marine Docks — For performing hot work in any area not designated as safe for routine performance of hot work, the following requirements apply:

a. Hot Work Planning — The Maintenance Supervisor will advise the Chief Operator of the nature and location of the hot work to be performed as well as the proposed timing. Normally this should be done at least one day before hot work is scheduled to begin.

b. Preparing for Hot Work — The Chief Operator will work with the Maintenance Supervisor to see that the area is prepared properly for hot work. The Chief Operator will see that the following work is completed:

(1) Clearing and Blinding — Check to make sure all blinding and clearing of equipment necessary for execution of hot work is completed. Equipment which has been removed from service for hot work and has contained flammable material or is connected to equipment that contains flammable material must be (1) blinded inerted and vented (2) blinded and cleaned or (3) disconnected and cleaned before issuing a green hot work permit. Opening and blinding of equipment requires a white opening or blinding permit as stipulated in Section 7.

(2) Remove Flammable Material — Check to make sure that no flammable liquids or solids

are spilled or trapped in or around equipment at the site of the proposed hot work.

(3) Prepare Sewers — Cover all sewer catch basins and manholes in vicinity of hot work. Catch basins containing flammable material must be flushed with water before covering. Also, check for and seal off sewer vents in the area that may present a hazard.

(4) Remove Trash — Remove other flammable materials such as trash, wood, or dry grass. Where hot work is to be carried out over dry grass, the area must be saturated with water before performing hot work, and a water hose left connected and readily accessible.

(5) Provide Fire-Fighting Equipment — Make sure that adequate fire-fighting equipment is at the jobsite. At least one fully charged fire extinguisher of a type and size designated as suitable must be provided where hot work is to be performed.

(6) Make Surrounding Area Safe — Check surrounding area for possible release of flammable vapors in the hot work area. Such things as safety valve discharges, leaks from pumps and or compressors, valve packing leaks, etc., must be identified and necessary corrective action taken.

(7) Prepare for Hot Taps — For hot taps or other jobs requiring hot work on equipment in service, all requirements of the "Hot Tap Procedure Safety Standard" (Mechanical Division Safety Procedure No. 11) must be satisfied. Before the green HOT WORK PERMIT can be issued, the checklist attached to the above mentioned standard must be completed. The Chief Operator must make sure that his Operating Supervisor has ap-

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proved the work to be done and so note in the space provided on the back of the permit. Also, he must see that the Mechanical Engineering Department Inspector has checked for adequate metal thickness and initialed the space provided on the back side of the tag.

(8) Check Other Work in Area — The Chief Operator must check for active white OPENING AND/OR BLINDING PERMITS in the area of the hot work. A HOT WORK PERMIT must not be issued if work associated with existing white OPENING AND/OR BLINDING PERMIT could create a hazard by spill or gas release. All openings from which release of flammable material could occur are to be considered hazardous. The area of concern must cover the geographical limits where there is a remote possibility that sparks from hot work could come in contact with flammable materials from any opening. If such a possibility exists in the proposed hot work area, the white OPENING AND/OR BLINDING PERMIT must be killed. The green HOT WORK PERMIT shall not be issued until all openings from which flammable material could be released are blinded, and the area is cleared of flammable liquid or vapor.

(9) Provide for Overhead Hot Work — When hot work is to be performed in overhead locations, a suitable method for catching hot metal, electrode stubs, etc., must be provided where these materials would cause a fire hazard or when they would create a safety hazard when work is going on below.

(10) Safe Location of Welding Equipment — When electric welding is to be performed, the ground lead connection must be attached at a point within the area covered by the permit. The welding machine must be in the same area or an adjacent area approved

for nonrestricted movement of motorized equipment.

(11) Perform Gas Tests — The Chief Operator shall perform gas tests for explosivity, oxygen deficiency and toxic materials depending on the nature of the job.

c. Filling Out Green Card — After completion of all items covered in b above, the Chief Operator must double check the hot worksite. He and the Maintenance Supervisor will determine if a standby man or other special precautions are necessary. The Chief Operator or his designated representative will then fill out the green HOT WORK PERMIT and the checklist on the back side of the tag.

d. Maintenance Supervisor Site Inspection — The Maintenance Supervisor must also inspect the site to make sure all necessary work and checks have been completed. His signature on the green HOT WORK PERMIT indicates he checked the work area and agrees all is safe for hot work.

e. Chief Operator Site Inspection — When all is considered ready by both the Chief Operator and Maintenance Supervisor, and the Maintenance Supervisor has signed the permit, the Chief Operator will make a final site inspection and if all is safe for hot work, he will sign the permit signifying that hot work can begin.

f. Permit Duration and Disposition — Before the green HOT WORK PERMIT is issued, the Chief Operator and Maintenance Supervisor must agree on the expiration time and note same in the space provided on the permit. This decision on duration as well as disposition of the permit copies must be in accordance with the following guidelines:

(1) Eight-Hour Permit — Permits to do hot

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work in or around processing areas where flammable or toxic materials exist are normally eight-hour permits. Such a permit is good for the shift in which it was issued. It can be continued into the next mechanical shift only after the Chief Operator and Maintenance Supervisor for the new shift have inspected the site and are confident no changes have taken place. If there is any question, the Chief Operator must make a new gas test. Hot work on the new shift must not begin until the Chief Operator and the Maintenance Supervisor have signed the cardboard portion of the green permit. They must also sign the control center copy. If work continues into the third shift, the same procedure must be followed. Eight-hour permits are void at the end of 24 hours, and a new permit must be obtained if work is to continue.

When a green HOT WORK PERMIT is issued the cardboard portion must be placed in a conspicuous location at the jobsite by the Chief Operator or his designated representative. The original is to be kept in the Process Permit file. At the end of the Mechanical shift or at job completion, whichever comes first, the Mechanical Person must sign the carboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. Both copies must be retained for at least 24 hours after expiration and then discarded.

(2) Job Completion — Under certain conditions, a green HOT WORK PERMIT may be issued for the job duration. In general, it is when the job conditions at and surrounding the work area will not change and create a flammable or toxic material hazard. Examples of such jobs are: (1) construction of a new

Process unit; (2) a field pipe fabrication shop in an open area; (3) construction of a new tank in an open area; (4) during turnarounds when oil, gas, and chemical lines are blinded at the unit limits; and (5) no job completion cards can be issued inside an operating Process unit. The cardboard portion of the permit must be placed at the Maintenance Supervisor's jobsite office. The Chief Operator will keep the original on file in the Process permit file. Upon job completion, the Maintenance Supervisor must sign the cardboard section of the permit, check appropriate box as to job completion, and return it to the Chief Operator. The Operating Supervisor must approve all job completion permits including *contract jobs*.

g. Hot Work Authorization — **Only after all of the above items have been completed and green HOT WORK PERMIT has been signed by the Chief Operator and Maintenance Supervisor is hot work authorized.** After the Chief Operator or his designated representative has personally hung the carboard portion of the permit in a conspicuous location at the job site, hot work can begin.

2. Marine Docks — For performing hot work on or under Marine Docks, all provisions given in the basic procedure above shall apply. In addition, the following work shall be completed and checks made before a green HOT WORK PERMIT can be issued.

a. Safe Tide Level — When hot work is to be performed under a dock, the tide level must be below any pipelines at the water level to prevent trapping oil between the pipelines, thus eliminating a possible source of combustible material.

b. Avoid Falling Materials — The hot work

EXX 004166

area must be isolated to prevent molten metal and/or any combustible material from falling into the water.

c. Remove Grating — Grating in the fender system must be removed in the hot work area when work is to be performed under a dock.

d. Secure Coast Guard Approval — The Docks' Operating Supervisor must secure approval of the Houston Coast Guard Port Captain prior to any hot work.

e. No hot work can be performed on any dock while a ship is berthed at that dock.

EXCEPTION: At Dock No. 1, hot work will be permitted 150 feet or more from vessels handling materials with a flash point of above 150F.

3. Enclosed Spaces — For performing hot work in enclosed spaces, all provisions given in the basic procedure above apply. In addition, the following work must be completed and/or checks made before a green HOT WORK PERMIT can be issued:

a. Obtain Yellow PERMIT TO ENTER — It may be necessary to enter an enclosed space to prepare for hot work. Before entering, a yellow "Permit to Enter" must be secured (see Section 6). Once the enclosed space has been prepared for hot work and a green "Hot Work Permit" has been issued, no yellow Permit to Enter tag is required for entering as long as the hot work permit is valid.

b. Other Requirements for Hot Work in Enclosed Spaces — After entry is made into the enclosed space, applicable portions of the basic Procedure above can be completed. In addition, the following must be performed and/or checks made before a green HOT WORK PERMIT can be issued:

(1) No Cylinders In Enclosed Spaces — Cylinders containing any type of flammable material must not be placed in an enclosed space where hot work is to be done.
EXCEPTION: In storage tanks where door sheets have been removed.

(2) Thoroughly Clean — The enclosed space, including all internals, must be thoroughly cleaned and made safe for hot work. This includes freeing the container of all flammable gases, liquids, and solids as well as inert atmospheres and toxic materials.

(3) Provide Adequate Ventilation — A fresh air ventilation system must be provided and shall be adequate to remove fumes and gases created by the proposed hot work. If adequate ventilation is not possible, suitable respiratory protection must be used.

SPECIAL REQUIREMENTS

1. Work on Tank Cars — Hot work must not be done on tank cars while located at a loading rack.

2. 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 that has been in service of any kind, the vessel or equipment must be properly vented (unless the operation is performed under controlled conditions so that any over-pressuring will be avoided).

3. Gas Hoses In Confined Spaces — When gas hoses are used in connection with welding and/or burning in an enclosed space, the hoses must either (1) be removed from the enclosed space or (2) disconnected at the regulators at any time when positive ventilation is discontinued. A torch or other gas-consuming device must never be removed from a hose while inside a confined space. When torches are left unattended (such as lunch

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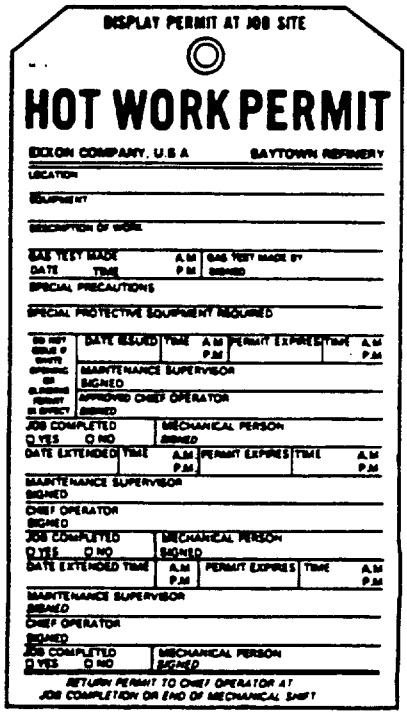
period, shift change, etc.), the gas supply must be positively shut off at a point outside the enclosed space or the hoses disconnected at the regulators.

4. Establishment of Smoking Permits — Requires written approval by the appropriate Department Head. Procedures for obtaining this approval are given in the Mechanical Operating Procedures Manual (S-13) and the Process Operating Practice Manual (S-6).

5. Hot Work by Process — When hot work is to be performed by Process personnel, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the green Hot Work Permit in space marked Maintenance Supervisor.


DISPLAY PERMIT AT JOB SITE

HOT WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. | GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DO NOT ISSUE IF WHITE OPENING OR CLOSING PERMIT IN EFFECT | DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED TIME | A.M. P.M. | PERMIT EXPIRES | TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT

Green Tag

EXX 004168

Section 6
PROCEDURE FOR ENTERING ENCLOSED SPACES

PURPOSE

This procedure is designed to protect personnel against such hazards as oxygen deficiency, toxic materials, flammable substances, and power-driven equipment when working in enclosed spaces. A yellow PERMIT TO ENTER tag is required to initially enter any enclosed space. If hot work is to be performed in an enclosed space, a yellow PERMIT TO ENTER tag is required to initially enter the enclosed space. This procedure is to be considered the minimum precautions for the safety of personnel entering enclosed spaces.

SPECIAL DEFINITIONS

1. Enclosed Space — Any space that can be closed or has restricted entry or exit, such as vessels, tanks, boilers, furnaces, etc. Also included are confined spaces, such as pits, sewers, excavations, where the heads of workmen are below the top of the confined space.

2. Oxygen Deficiency — Any atmosphere that has oxygen concentration of less than 19.5 percent.

3. Standby — The person designated by the Chief Operator and/or the Maintenance Supervisor to warn persons in enclosed spaces of hazardous or emergency conditions that could affect their safety.

RESPONSIBILITIES

1. Chief Operator is responsible for issuing the yellow PERMIT TO ENTER for entry into enclosed spaces in his processing area. He or his designated representative is responsible for insuring that all necessary safety precautions have

been completed prior to issuance of the permit. The Chief Operator must make the necessary gas tests for explosivity, oxygen content and toxic materials depending upon the nature of the job. After the Maintenance Supervisor has signed the yellow Permit to Enter tag the Chief Operator must sign the permit signifying that all is safe for entry.

2. Maintenance Supervisor is responsible for obtaining the yellow PERMIT TO ENTER and assisting in final preparation of the enclosed space for entry. He must inspect the area and sign the tag to indicate his approval of the required safety precautions. He must see that all proper job safety precautions are followed and be alert for changing conditions that might affect the safety of the job.

3. Individual, before entering an enclosed space, shall assure himself that the necessary safety preparations have been made and that a current yellow PERMIT TO ENTER, properly filled out and signed by the Chief Operator and the Maintenance Supervisor has been posted at the job site.

4. Standby is responsible for assuring the well-being of persons working in enclosed spaces when breathing equipment is in use or when conditions are such that outside warning may be necessary.

PROCEDURE

1. Entering an Enclosed Space Without Protective Equipment

a. Preparing Enclosed Spaces for Entry — The Chief Operator will see that the enclosed space is emptied and purged in preparation for opening. Process personnel may also physically disconnect or blind the enclosed space in accordance with Section 7.

b. Requesting PERMIT TO OPEN AND/OR

EXX 004169

BLIND — The Maintenance Supervisor will request a white OPENING AND/OR BLINDING PERMIT from the Chief Operator in accordance with provisions of Section 7.

c. Isolating the Enclosed Space — If not already done by Process, the Maintenance Supervisor will insure that all connecting lines to the enclosed space are physically disconnected or blinded at a point as near to the enclosed space as is safely practical. Double block valves with an intervening bleeder are not considered equivalent to a blind where personnel bodily enter the space.

EXCEPTION: In steam, water, and air service, the use of double block valves with an intervening bleeder is acceptable provided the bleeder is open and clear and is at least one inch in size for lines four inches and larger. The double block valves shall be locked closed and the intervening bleeder locked open. Mechanical-type locks must be used.

d. Immobilizing of Power-Driven Equipment — Before entry, the Maintenance Supervisor will arrange for electrical equipment to be immobilized in accordance with the electrical lockout procedure. The power supply to other equipment driven by air, steam, internal combustion engines, or hydraulic fluid shall be blinded or disconnected.

e. Cleaning and Establishing Ventilation of Enclosed Space — The Maintenance Supervisor will clean the space if necessary and establish and place in operation a fresh air ventilating system.

EXCEPTION: No forced ventilation system is required where a natural draft is established and the Chief Operator and Maintenance Supervisor agree that entry is safe.

f. Gas Testing the Atmosphere of the Enclosed Space — The Chief Operator must satisfactorily test for explosivity, oxygen deficiency, and toxic materials.

(1) **Explosivity** — Entry will not be permitted unless the test indicates a safe range.

(2) **Oxygen Deficiency** — Entry will not be permitted unless oxygen concentration is greater than 19.5 percent.

(3) **Toxic Materials** — Entry will not be permitted unless test indicates a safe range.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes or depletion of oxygen exists.

g. Standby Requirement — A standby must be required and noted on the yellow PERMIT TO ENTER when the Chief Operator and/or the Maintenance Supervisor determines that an unsafe condition may develop during the course of the work. The standby must be equipped with a claxon horn and a unit radio for communications. A complete standby kit is required if the Chief Operator and/or the Maintenance Supervisor believe that a breathing hazard may develop.

h. Issuance of PERMIT TO ENTER — When the Maintenance Supervisor is satisfied that all requirements and safety precautions have been completed satisfactorily, he must complete applicable portions of the checklist and sign the permit. The Chief Operator will complete the permit, including the checklist, and sign the permit signifying that entry can be made. He or his designated representative will then post the cardboard portion of the permit in a conspicuous location at the jobsite and file the original paper portion in the Process permit file.

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l. Permit Duration and Disposition — A yellow PERMIT TO ENTER will have the same requirements for duration and disposition as a green HOT WORK PERMIT except that no Job Completion type permits will be allowed. 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 the appropriate box as to job completion, and return it to the Chief Operator.

2. Entering an Enclosed Space with Protective Equipment

Enclosed spaces to be entered with protective equipment must be emptied, cleaned of hazardous materials, and purged, insofar as practical, prior to entry. It must be physically isolated and all power-driven equipment immobilized as required in Part 1.

a. Required Tests — A yellow PERMIT TO ENTER will be issued only when the atmosphere in the enclosed space meets the following tests:

(1) Explosivity — Entry will not be permitted unless the test indicates a safe range.

(2) Oxygen Deficiency — If oxygen level is below 19.5 percent, entry will be permitted only with a pressure-demand, hose-line air mask.

(3) Toxic Materials — Entry will be permitted only with appropriate protective equipment.

Additional checks are to be made as work proceeds in the enclosed space if a possibility of release of fumes exists.

b. Required Protective Equipment — All personnel entering enclosed spaces 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 closed spaces is to be determined by the Chief Operator and the Maintenance Supervisor and indicated on the yellow PERMIT TO ENTER permit. The cardboard section of the permit must be posted at a conspicuous location at the jobsite. In the case of oxygen-deficient atmospheres, pressure-demand, hose-line air masks with self-contained life lines must be used and Operating Supervisor approval obtained for entry.

A standby is required when personnel are required to wear pressure-demand, hose-line air masks inside an enclosed space or the situation is such that outside warning is necessary. Scott Air-Paks are permissible in place of the pressure-demand, hose-line air masks for emergency or rescue use where life is in immediate danger.

3. Duties of Standby

a. Accounting for personnel working in the enclosed space.

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 the enclosed space in case of fire or disaster alarm.

f. Being well trained in the operation of respiratory equipment and administering of artificial respiration.

g. Maintaining an adequate air supply.

h. The standby should never attempt to enter the enclosed space even in an emergency until help has arrived.

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In order for standby equipment to be available for use, standby kits shall be checked out at the Refinery Storehouse at the same time the pressure-demand, hose-line unit is checked out for enclosed space entry.

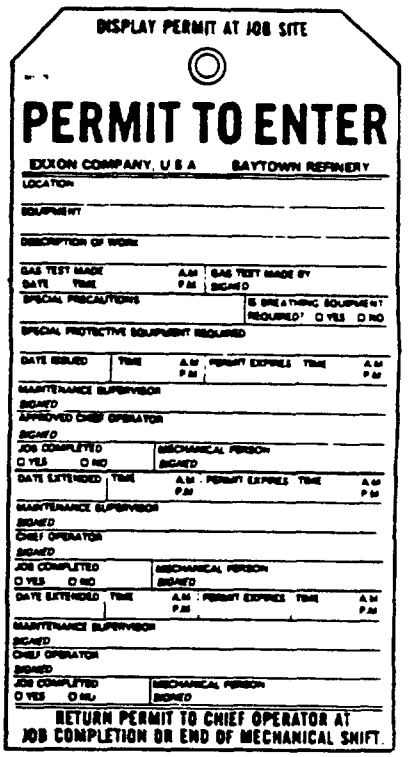
SPECIAL REQUIREMENTS

1. Entry to Prepare for Hot Work — A yellow PERMIT TO ENTER is required to initially enter an enclosed space where hot work is to be performed. Once the necessary requirements have been met and a green HOT WORK PERMIT has been issued, no yellow PERMIT TO ENTER is required as long as a valid green HOT WORK PERMIT is in effect.

2. Entry by Process without Mechanical Involvement — When entry is made by Process personnel without mechanical personnel involvement, the Chief Operator will assume the responsibilities and functions of the Maintenance Supervisor including signing the yellow PERMIT TO ENTER in the space marked Maintenance Supervisor.

3. Entry by Process Into Enclosed Pump Pits — A Process person may enter enclosed pump pits for Process functions without a written permit, provided the Process person performs a gas test to determine that the atmosphere is safe prior to entry.

4. Entry Into Boilers, Steam Generators, and Furnaces — For boilers, steam generators, and furnaces, the limits of the enclosed space must be clearly defined and agreed to by both Chief Operator and Maintenance Supervisor and so indicated on the permit tag. The limits of the enclosed space must be physical barriers which separate the enclosed space from other parts of the boiler, steam generator, or furnace. All the provisions of Section 6 "Procedure for Entering Enclosed Spaces" of the Safety Manual must be met for the defined enclosed space and, in addition, the provisions of Section 6-1C "Isolating the Enclosed Space" must be met for the entire boiler, steam generator, or furnace.


DISPLAY PERMIT AT JOB SITE

PERMIT TO ENTER

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

GAS TEST MADE DATE TIME A.M. P.M. GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS IS BREATHING EQUIPMENT REQUIRED? ☐ YES ☐ NO

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

DATE ISSUED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

APPROVED CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO MECHANICAL PERSON SIGNED

DATE EXTENDED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO MECHANICAL PERSON SIGNED

DATE EXTENDED TIME A.M. P.M. PERMIT EXPIRES TIME A.M. P.M.

MAINTENANCE SUPERVISOR SIGNED

CHIEF OPERATOR SIGNED

JOB COMPLETED ☐ YES ☐ NO MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Yellow Tag

EXX 004172

Section 7
OPENING AND/OR BLINDING PERMIT

PURPOSE
This permit procedure is designed to prevent accidents by insuring adequate communications between Process and Mechanical Personnel when opening and/or blinding equipment in a processing area. A white OPENING AND/OR BLINDING PERMIT shall be obtained before beginning such work.

SPECIAL 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.

RESPONSIBILITIES
1. Chief Operator is responsible for issuing the white OPENING AND/OR BLINDING PERMIT. He or his designated representative has the responsibility for preparing the equipment, determining if the surrounding area is safe for the proposed work, and listing any special safety precautions required.

2. Maintenance Supervisor is responsible for seeing that a permit is secured to perform work involving opening or blinding. He is also responsible to see that Mechanical Personnel work within the limits of the permit and that all stipulated safety precautions are taken.

PROCEDURES
1. Requesting Permit — The Maintenance Supervisor or his designated representative must request a permit from the Chief Operator.

2. Initiating Safety Inspection — The Chief Operator or his designated representative must perform a safety inspection of the area. He must check for other active permits, prepare the equipment, and identify all locations to be opened. If blinding is required, he must also prepare a blinding list.

3. Blinding Requirements — Generally all opened equipment must be blinded for hot work (see Section 5), for entering (see Section 6), and piping left unattended. The installation and removal of slip blinds and blind flanges (except daily closure blinds) shall be recorded on the blinding list.

Specific blinding requirements and exceptions are as follows:

a. Pumps — Minor repairs, such as small piping and seal replacement, may be performed without blinding provided (1) the suction and discharge valves 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 compited 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"

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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 4).

(2) Gas engines must be blinded and the fly wheel blocked.

(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. Piping — Unattended open Piping must be isolated with slip blinds or closed with blind flanges.

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

e. 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.

f. 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 must be secured with a "DANGER — DO NOT OPEN" tag attached by Process and a Mechanical lock placed on the valve by the Mechanical person 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.

g. 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, Process Personnel must prepare a blinding list indicating the size and location for all slip blinds and blind flanges to be installed.

5. Issuing Permit — Process and Mechanical Personnel must make a safety tour of the job site, 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 on the back of the cardboard section. When both Process and Mechanical Persons are satisfied that the provisions of Section 5 Item b(8) have been met and the task

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can be safely accomplished, then both will sign the permit.

The Process person must post the cardboard portion in a conspicuous place at the job site and file the original copy in the permit file.

EXCEPTIONS:

Process Personnel — Mechanical work by Process may be done without a written permit provided the Chief Operator has authorized the work.

Dock Personnel — Marine hookups on the dock may be performed by the Dock Connection Crew working under the direction of the Chief Operator without a written OPENING AND/OR BLINDING permit.

Unit Turnaround — During a unit turnaround, cleared items of equipment may be opened by verbal authorization of the Process Person designated as the Process Mechanical contact coordinator, provided the following conditions are met:

a. All hydrocarbon and chemical lines are blinded at the unit limits.

b. Opening of equipment will not create a safety hazard for other work in progress.

c. All hot work in the area must be suspended while the equipment is being opened.

(1) If no hazard was created by the opened equipment, the Process contact coordinator may authorize the resumption of the hot work under the existing hot work permit.

(2) If a hazard was created (spill of hydrocarbons, flammable gas release, etc.), the hot work permit must be terminated. To resume work after the hazard has been eliminated, a new hot work permit must be issued.

6. Blinding — The Mechanical Person must re-

cord each slip blind installed by signing and dating the blinding list. At the end of the mechanical shift or at completion of the blinding list, whichever comes first, the Mechanical Person must return the blinding list to the Chief Operator.

7. Permit Duration and Disposition — The permit is issued for one Mechanical shift. It may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours. 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 may be extended into the next shift by both Process and Mechanical signing the extension block. No blinding permit shall be valid for more than 24 hours.

8. Removing Blinds — The removal of blinds requires a new permit unless the work at the job site is continuous and is completed in 24 hours. The Process Person issuing the permit and the Mechanical Person accepting the permit must tour the area and physically identify the blinds to be removed. The Mechanical Person must sign and date the blinding list as each slip blind and blind flange is removed. After the last blind has been removed or at the end of the Mechanical shift, the Mechanical Person must sign and date the cardboard portion and return both the permit and blinding list to the Chief Operator.

9. Filing of Permits and Blinding Lists — Each permit must be filed for 24 hours after its expiration and then discarded. Blinding lists must be filed until all blinds have been removed. The blinding list may be discarded 24 hours after the last blind is removed.

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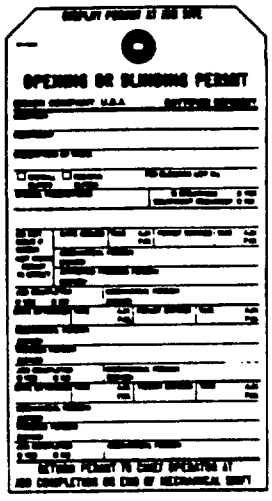

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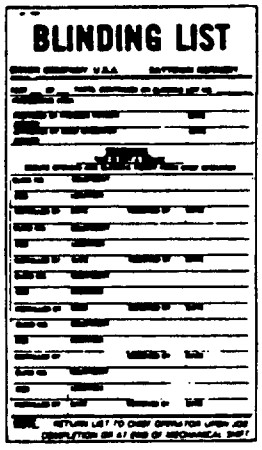


Buff Tag

Section 8
COLD WORK PERMIT

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 completed before work is started in a Process area.

SPECIAL DEFINITIONS
1. Cold Work — Any mechanical work on processing equipment including work on intrinsically safe circuits and energized electrical instruments and electrical power circuits that does not involve opening, blinding, entering, hot work, or electrical lockout.

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.

PROCEDURE
1. Initiating COLD WORK PERMIT — The Mechanical Person assigned to perform mechanical work in a processing area must fill in the date, time, area, equipment, and description of work on the blue COLD WORK PERMIT. He will then contact the Chief Operator and secure approval before starting to work.

EXCEPTIONS: Blue COLD WORK PERMITS are not required:

a. When Process Personnel are performing mechanical work.

b. When the Dock Connection Crew is working in the dock area under instructions from the Chief Operator.

c. When instrument technicians and electricians who are regularly assigned to the processing area perform routine work authorized by the Chief Operator.

NOTICE: A COLD WORK PERMIT is required to work on energized electrical instruments and electrical power circuits above 100 volts.

d. When Technical or Laboratory personnel perform sampling and/or test work authorized by the Chief Operator.

e. When janitors perform janitorial-type work in the processing area.

f. *When contractor employees take work direction from Process Personnel.*

g. When Mechanical performs cold work in preparation for the issuance of other work permits on the same shift. Samples of such work are covering sewers, hooking up hoses, securing fire-fighting or safety equipment, hanging tarps, electrical lockout, etc.

h. When oil, gas and chemical lines are blinded at unit limits during unit turnarounds and work is being performed in accordance with the turnaround procedure.

EXX 004177

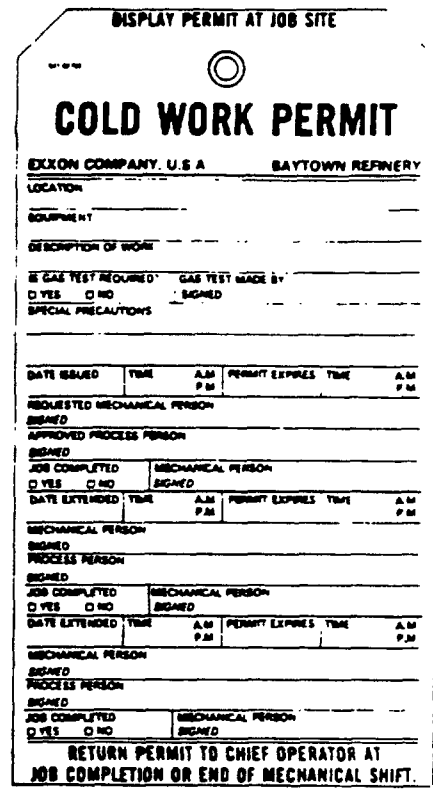
2. Making Safety Inspection — The Process Person designated to approve the permit must assure himself that the conditions at the job site are safe for the work. He must determine if a gas test is required and may make the gas test himself.

3. Issuing Permit — When both Process and Mechanical Persons are satisfied that the work can be safely performed in the area, each must sign the permit.

4. Posting Permit — The Mechanical person must display the cardboard portion in a conspicuous place at the job site. The Process Person must file the original portion in the permit file.

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. No permit shall be extended beyond 24 hours' total duration.



DISPLAY PERMIT AT JOB SITE

COLD WORK PERMIT

EXXON COMPANY, U.S.A. BAYTOWN REFINERY

LOCATION

EQUIPMENT

DESCRIPTION OF WORK

IS GAS TEST REQUIRED? ☐ YES ☐ NO GAS TEST MADE BY SIGNED

SPECIAL PRECAUTIONS

DATE ISSUED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

REQUESTED MECHANICAL PERSON SIGNED

APPROVED PROCESS PERSON SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

MECHANICAL PERSON SIGNED

PROCESS PERSON SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

DATE EXTENDED | TIME A.M. P.M. | PERMIT EXPIRES TIME A.M. P.M.

MECHANICAL PERSON SIGNED

PROCESS PERSON SIGNED

JOB COMPLETED ☐ YES ☐ NO | MECHANICAL PERSON SIGNED

RETURN PERMIT TO CHIEF OPERATOR AT JOB COMPLETION OR END OF MECHANICAL SHIFT.

Light Blue Tag

SECTION 9

SECURITY REGULATIONS

1. 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.

2. 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 job site. Contractor shall make arrangements so that vehicle drivers will know which gate to enter and the appropriate job site location.

3. Walks and Roadways

Walks and roadways will be designated for the use of Contractor when entering or leaving the job site, 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.

4. Contractor Employee Badges

Contractor's employees shall wear their Contractor's badge 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.

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5. 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.

6. 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 Contract Administrator. The Contract Administrator 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.

7. 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.

8. Gambling

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

9. 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 job site. Plant Security will obtain authorization from one of these people before passing such individuals into the

EXX 004180

Plant. Special permission shall be obtained from the Contract Administrator to admit union business agents or safety inspectors other than contractor employed into the Plant.

10. 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 shall be called in to 427-5711, extension 3600. 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.

11. Inspection of Lunch Boxes, Packages, Motor Vehicles, etc.

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

12. 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.

13. 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.

14. 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.

15. Fingerprinting

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

SECTION 10

GENERAL REGULATIONS

1. Authorization to Start Work

Contractor and Subcontractors shall not start work until authorized by the Contract Administrator at the job site. Such authorization does not constitute authority to proceed with any work involving special permits as outlined in Exxon Refinery's Safety Manual. Contractor shall also secure approval from Contract Administrator before any materials are delivered to job site when material deliveries precede Contractor's arrival on site.

2. Contractor's Equipment

All Contractors moving trailer-type equipment within the Plant 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.

3. Explosives

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

4. 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 Contract Administrator.

5. 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 equipment without written approval of the Contract Administrator.

6. Damage to Owner's Property

If Contractor damages any of Owner's property, or property of any other contractor

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or subcontractor, the damage shall immediately be reported to the Contract Administrator.

7. 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 Contract Administrator.

8. 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 Contract Administrator. No tracked equipment having flat pavement treads shall be operated on a paved street without approval of the Contract Administrator.

9. 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 overnight.

10. Welding

Contractor shall 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 there is sufficient metal, as approved by the Contract Administrator, 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 downstream 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.

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11. Securing of Temporary Buildings

All temporary buildings shall be tied down by the Contractor in accordance with the Contract Administrator's instructions, and applicable Baytown Engineering Standards.

12. Exit from the Plant

Contract employees, except for the driver, must dismount and walk through the gate when leaving the Refinery.

13. Non-English-Speaking Personnel

The ability to communicate with Contractor employees is essential to safe job execution. When the contract employee cannot speak English, the job foreman must be able to speak both English and the employee's language fluently. If there is reason to doubt the foreman's ability in this regard, a practical demonstration is in order. When the foreman cannot speak both English and the employee's language, the employee must either be placed under a foreman who can, or he must be prohibited from working in the Baytown Refinery.

14. Hurricane Precautions

The period between June 15 and October 15 is recognized as the hurricane season. Prior to this time, all material that is not needed for the job and that might become wind-borne in hurricane winds should be removed. That material still needed should be piled as compactly as possible. Provision should be made for tying down lightweight objects should the need arise. Scaffolds and some open-type structures should be dismantled if a hurricane approaches. Thus, there should be a plan formulated in advance to handle necessary actions, particularly in terms of the time and manpower required.

15. Contractor Accident Reporting

The contractor is responsible for notifying the Contract Administrator immediately:

a. Any time an ambulance is called;

b. In the event of any injury which could possibly result in lost time;

c. In the event of any incident which had serious potential, such as mobile equipment overturning, equipment contacting electric supply lines, etc.

EXX 004184

All injuries shall be reported on the Industrial Accident Board Standard Form for Employee's First Report of Injury or Illness — latest revision.

16. Emergency Evacuation Procedure

An emergency evacuation procedure form shall be completed by each Contractor prior to starting a contract. An assembly point should be chosen to provide a relatively safe, open area, in the event an emergency occurs that requires evacuation of all or part of the Refinery.

17. Contractor Safety Meetings

Each Contractor is strongly encouraged to hold a weekly safety meeting for his employees. Either a combined meeting of all the Contractor's employees in the Refinery or smaller meetings for each job or each foreman is suitable.

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GENERAL CONDITIONS

1. INVESTIGATION OF SITE AND PROJECT CONDITIONS

Subcontractor represents that he is familiar with the site and the physical conditions, the availability of labor and materials and all other matters at the site or in the vicinity of the site which affects the Sublet Work. Subcontractor represents that he has examined the subcontract document and familiarized himself with the Project, the laws, rules and regulations relating to the Project; the environmental considerations affecting the Project and the Sublet Work; the participants in the Project; and the contractual and regulatory provisions of governmental agencies, the Owner and General Contractor affecting the participants in the Project and the Sublet Work. No allowance will be made to Subcontractor for not having made such examination and review or for requirements which a reasonable examination, inquiry and review would have disclosed.

2. RESPONSIBILITY

a. Subcontractor agrees to perform the Sublet Work in accordance with good construction practices and the plans, specifications and other requirements of this Subcontract, and to furnish all supervision, labor, supplies, tools, construction equipment, facilities, storage, permanent equipment and materials (except as specified herein to be furnished by Owner or General Contractor) and all other things and services necessary or desirable to perform the Sublet Work.

b. Subcontractor shall be responsible for the correctness of the positions, levels and dimensions of the Sublet Work, notwithstanding the Subcontractor may have been assisted by the General Contractor or any other Contractor in setting out the same; and if at any time during the performance of the Sublet Work, any error shall appear or arise therein, the Subcontractor shall immediately advise the General Contractor's Site Representative and await instructions for removal and replacement or performance of corrective work, before proceeding with that portion of the Sublet Work.

c. All work which is manifestly necessary to carry out the intent of the drawings and specifications pertaining to the Sublet Work, or which is customarily done in performing this type of work for the Owner or General Contractor, shall be performed by the Subcontractor as a part of the Sublet Work.

3. COORDINATION OF THE PROJECT

General Contractor is charged with the responsibility of accomplishing the work of the entire Project, or a significant portion thereof, in accordance with drawings, specifications, permits, licenses, rules and regulations, laws and ordinances, and requirements of the Owner. The contract price provisions, and the definition of requirements of the Sublet Work, as of the effective date, are coordinated and identified in the Subcontract Terms. General Contractor is charged with the responsibility of coordinating the efforts of all, or a significant portion of, the participants in the Project, including various subcontractors, specialty service contractors, suppliers, and other workmen, and the direct employees of General Contractor. Subcontractor agrees to perform the Sublet Work as part of the team of participants in the Project in cooperation with all other participants, and subject to all reasonable rules, regulations, and directives of General Contractor (a) for the coordination of the work of all participants, (b) for the maintenance of safety, efficiency, security and good order on the Project as a whole, (c) for compliance with the terms hereof, and (d) for the protection of the environment and the rights of the public.

4. SCHEDULING SUBLET WORK

Subcontractor agrees to commence the Sublet Work promptly when directed by General Contractor and to prosecute the Sublet Work diligently to completion. Subcontractor agrees to provide adequate number and types of: (a) laborers, skilled craftsmen and technicians, supervisors, administrators, and managers, (b) construction equipment in good condition, (c) materials, permanent equipment, and supplies, except for items specified to be supplied by General Contractor or Owner, to accomplish the work and maintain the Schedule or restore the Sublet Work to the Schedule. Subcontractor shall provide General Contractor a detailed Schedule for performance of the Sublet Work and shall revise and update such Schedule from time to time as the work on the Project progresses. The Schedule for the Sublet Work shall be subject to revision or approval by General Contractor to coordinate the Sublet Work with the over-all rate of progress of General Contractor and other participants in the Project as a whole, and to expedite performance of critical items of work on the schedule. General Contractor will schedule and coordinate the use by Subcontractor and others of jointly used facilities, construction equipment, and space, and Subcontractor shall accomodate its Schedule to such shared use. General Contractor will determine the normal working hours for the Project as a whole, and any special working hours for the Sublet Work on a normal shift or overtime basis will be subject to prior approval of General Contractor.

5. INTEGRATION WITH WORK OF OTHERS

Subcontractor shall inform itself regarding the nature, condition and state of progress of work of others which affects or connects with the Sublet Work. Before connecting Sublet Work to work of others, Subcontractor shall ascertain that such work of others is ready, properly aligned, and in suitable condition for such connection and integration with the Sublet Work, and shall report any discrepancies to General Contractor for adjustment prior to proceeding. Subcontractor is not charged with notice of latent defects in the work of others of which he has no actual knowledge.

6. ALLOCATION OF FACILITIES

General Contractor will designate for use by Subcontractor, entrances, parking areas, storage areas, office and work areas, and such facilities and construction equipment as General Contractor is to provide. General Contractor will allocate, and schedule the use of, such common facilities and utilities as are provided by General Contractor for use of Subcontractor and other participants in the Project. Temporary interruption of services, utilities and use of facilities are anticipated and shall not justify a claim for additional compensation.

7. INSPECTION AND QUALITY CONTROL

The Sublet Work shall be performed to the specified standards of workmanship and strictly in accordance with drawings, specifications, procedures, and other requirements of this Subcontract. General Contractor shall have the right to inspect the Sublet Work and Subcontractor's equipment, tools, records and facilities at all times. No work shall be covered until inspected and released in accordance with established inspection procedures, and any work improperly covered shall be uncovered and exposed by Subcontractor for inspection on request. Inspection and approval shall not relieve Subcontractor of the obligation to complete the entire Sublet Work in strict compliance with the requirements of this Subcontract. Any defective Sublet Work shall be discontinued, removed and replaced or corrected in accordance with specifications and directions of General Contractor. Subcontractor shall furnish for the Sublet Work all Quality Assurance and Quality Control documentation, as required by General Contractor for the Project as a whole or for the specific part thereof affected by the Sublet Work.

8. SAFETY, CLEANLINESS AND SANITATION

Subcontractor shall comply with all applicable laws, rules and regulations relating to safety. Subcontractor

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shall comply with all safety standards, rules and regulations relating to safety, cleanliness and sanitation established by General Contractor for the Project as a whole. Subcontractor shall immediately stop work and take corrective action when directed by General Contractor because of any unsafe condition or practice. Subcontractor shall be responsible for the safety of its workmen and the Sublet Work and shall not create hazards for others or the work of others. Subcontractor shall provide first aid and ambulance facilities for its workmen to the extent sufficient facilities are not provided for the Project as a whole by General Contractor. General Contractor shall provide for safety of the Project as a whole. In case of emergency, General Contractor may direct Subcontractor's personnel and resources for the protection of life and property.

9. DELAYS

If Subcontractor's performance of the Sublet Work is delayed by Owner's or General Contractor's failure to perform their obligations hereunder, or by orders of the General Contractor delaying or suspending the work, or by changes in the work, Subcontractor shall be entitled to an equitable adjustment in the price and time for performance in accordance with the provision for Changes in Article 12; but no price adjustment shall be due for delays or inconvenience to Subcontractor from the scheduling and coordination of the Sublet Work with the rate of progress made by all participants in the Project. In the event Subcontractor is delayed by force majeure, Subcontractor shall be entitled to an equitable extension of time but no adjustment in the price; provided, that inadequate manpower or failure of Subcontractor's workmen to prosecute their work because of strikes, boycott, picketing, or other form of labor dispute shall not be deemed force majeure unless there is clear and substantial danger of bodily harm or property damage if the employees undertook to enter the work site and perform their work, as determined by General Contractor or the chief local law enforcement officer. Subcontractor shall notify General Contractor in writing within 48 hours after the commencement of a delay, if Subcontractor claims an extension of time or an adjustment of price because of such delay, or the right to such extension or adjustment shall be waived.

10. SUPPLEMENTING OR TAKING OVER BY GENERAL CONTRACTOR

If, after seven (7) days written notice by General Contractor to Subcontractor specifying any deficiency in the Sublet Work or the promptness with which it is being performed, Subcontractor has not promptly commenced to correct, and within a reasonable time corrected, such deficiency to the satisfaction of General Contractor, General Contractor may supplement the work of Subcontractor, or take over performance of the Sublet Work temporarily or completely, with General Contractor's own forces or by contract with others. General Contractor may use all or part of Subcontractor's construction equipment, tools and facilities at the project site, and any materials, permanent equipment and supplies, in the performance of the Sublet Work, without payment to Subcontractor otherwise than by the extent such use of Subcontractor's items causes a reduction of cost of completing the Sublet Work. All costs incurred by General Contractor in performing all or part of the Sublet Work, including a mark-up of 10% of such cost, shall be deducted from the price payable to Subcontractor and if such sum plus all payments previously made to Subcontractor shall exceed the price, Subcontractor shall refund to General Contractor the excess within ten (10) days after submittal of a properly documented invoice. If the price is on a cost reimbursable basis, Subcontractor will be reimbursed for use of construction equipment at the lowest applicable rate provided for herein or at prevailing rental rates if no rate is specified, and the cost of Subcontractor's materials used. Upon notice from General Contractor to Subcontractor, Subcontractor shall resume and complete the Sublet Work, but this right to supplement or take over the Sublet Work may again be exercised if necessary. The determination of General Contractor's project manager to invoke the provisions of this Article 10 shall be final and conclusive; provided Subcontractor may within said seven day period, appeal to an executive officer designated by the President of General Contractor, whose decision shall be final absent actual fraud.

11. DEFERMENT OR TERMINATION

In the event the Project is deferred or terminated by Owner, or if General Contractor shall elect to defer or terminate the Sublet Work, Subcontractor shall be paid: (1) the price earned for work completed and accepted, (2) a proportionate part of the price allocated to the portion of the work partially completed. (3) the reasonable cost incurred by Subcontractor in securing and protecting the work in progress against loss, damage or deterioration, and (4) unamortized mobilization and demobilization costs; standby costs, cancellation or deferment charges of suppliers; the cost of materials and equipment not sold or disposed of; and other special costs for terminating or suspending work or preserving the work accomplished and turning it over to General Contractor but (5) no compensation for the portion of the Sublet Work not performed. General Contractor shall notify Subcontractor whether the Sublet work is terminated or deferred to an indefinite or specified date and the deferment shall not exceed six months (or other limits expressed in the Subcontract Terms) without the consent of Subcontractor. If deferred, the Sublet Work may thereafter be terminated and shall be terminated upon expiration of the maximum period of deferment without notice to resume. Following deferment and notice to resume given by General Contractor to Subcontractor in writing, Subcontractor shall resume the Sublet Work in accordance with the terms hereof with an equitable adjustment, if required, in the price and time of completion, determined as in the case of changes. In case of any such termination or deferment, Subcontractor shall, as directed by General Contractor, secure, safeguard, remove or deliver to General Contractor all material, equipment, supplies, work in progress, and contract rights.

12. CHANGES

General Contractor reserves the right to make changes in the Sublet Work or the manner of its performance. No change shall be made by Subcontractor in the Sublet Work or its manner of performance, without prior written instructions from General Contractor, in a written Change Order specifying the change in plans, specifications, procedures, time, sequence, or other requirement of this subcontract, and specifying whether there is to be an adjustment in the price or time for performance and how any such adjustment shall be determined. No adjustment in price or time of performance shall be made for changes in arrangement, aesthetics, substitution of equivalent materials or equipment or other changes, unless such changes significantly affect Subcontractor's cost of performing the Sublet Work or extend the time that Subcontractor's equipment and forces are required at the project site. An equitable adjustment will be made in price or time of performance or both, if the change ordered by General Contractor substantially increases or decreases the cost to Subcontractor of the Sublet Work or the time that Subcontractor's equipment and forces are required at the project site. The method of determining the equitable adjustment shall be specified, and if possible, the price fixed at the time of the issuance of written direction for the change. Unless a lump sum is established by agreement or another method of pricing is established by agreement, General Contractor may direct determination of the equitable adjustment in price, whether an increase or decrease, by any of the following methods: (a) agreed or established fixed unit prices, (b) force account, or (c) cost plus fee. If the force account method is directed by General Contractor, the force account rates for equipment use, manhour labor rate including payroll burden and markup for overhead and profit, with reimbursement of actual cost of materials, as established in the Subcontract Terms or by other agreements, shall be used to determine the ad-

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justment. If the cost plus fee method is directed by General Contractor the adjustment will be based on the direct cost of the change in the work using the formula established in the Subcontract Terms or by other agreement. In the absence of agreement, Subcontractor shall be paid all actual, direct additional cost incurred, without allocation of home office general and administrative expense, plus 10% of such costs, and Subcontractor shall maintain and furnish General Contractor accurate and detailed records daily segregating the cost of the change in the Sublet Work. In case of deletion or reduction of the Sublet Work by such change, Subcontractor shall not be entitled to anticipated contribution to home office overhead and profit from any portion of the Sublet Work not performed.

13. WORKMEN AND EMPLOYMENT PRACTICES

Subcontractor shall provide competent and adequately trained and skilled personnel. Subcontractor shall, on request, remove from the Project any person found by General Contractor to be incompetent, unsafe, disorderly, unreliable, or unwilling to comply with regulations. Subcontractor shall provide badges, color codes, or other symbols or identification for its employees, tools and equipment, in accordance with the system specified by General Contractor. Subcontractor shall cooperate in security measures for the prevention of theft, pilferage, and waste. Subcontractor shall not discriminate against any employee or applicant for employment because of race, color, national origin, religion, sex, age, or for any reason prohibited by law. Subcontractor agrees to participate and cooperate in the implementation of any Affirmative Action Plan for equal employment opportunity adopted for the Project as a whole. To the extent applicable to the Sublet Work on this Project, Subcontractor shall comply with Executive Order 11246, or any amendment, replacement or counterpart thereof, and the parties mutually represent that they are familiar with such provisions and agree that a full copy thereof may be incorporated herein by either party by attachment at any time.

14. LABOR RELATIONS

Subcontractor shall comply with the National Labor Relations Act, any applicable Right to Work law, and any other applicable law related to labor relations. Subcontractor shall give General Contractor notice and full information regarding any existing or impending labor dispute affecting the Sublet Work or any part of the work on the Project as a whole. Subcontractor shall cooperate in any effort by General Contractor to mediate or otherwise attempt to resolve work stoppages, slowdowns, boycotts, disturbances, strikes, picketing or labor disputes affecting any participant in the Project or affecting any part of the Project as a whole, but Subcontractor shall have exclusive control and responsibility for its own labor relations. No such condition shall excuse Subcontractor from the obligation to diligently prosecute the work, unless, in the opinion of General Contractor, or if so determined by the chief local law enforcement officer, there is clear and substantial danger of bodily harm or property damage to Subcontractor's employees if they should undertake to enter the project site and perform their work. If Subcontractor has pre-hiring collective bargaining agreements, Subcontractor represents that they contain or have been modified to contain provisions prohibiting any strike, slow down, picketing, secondary boycotts or work stoppage during performance of the Sublet Work, and that the acceptance of the Sublet Work from General Contractor on this project does not violate such agreement.

15. LIENS

To the extent permitted by law, Subcontractor, for itself and all of its lower tier subcontractors and all laborers, mechanics and materialmen hereby waive and agree not to claim any lien against the Sublet Work, but shall rely solely upon the general credit of General Contractor. Subcontractor shall pay or cause to be paid when due, all bills for labor, materials, equipment or services connected with the Sublet Work, and shall not itself assert any lien or permit any lien to be asserted or maintained against the Project or any funds or land involved in the Project. General Contractor may pay directly any such valid obligation of Subcontractor, and Subcontractor shall indemnify General Contractor against any such obligation.

16. TITLE TO AND RESPONSIBILITY FOR SUBLET WORK AND MATERIALS

The Sublet Work in progress and all of the Owner and General Contractor-furnished items and all of Subcontractor-furnished material, equipment, plant, facilities, fabricated items, supplies, drawings, data, and contract rights intended for the Sublet Work shall be the property of General Contractor from the earliest moment of identification to the Sublet Work, subject to General Contractor's obligation to pay the price in accordance with the Subcontract. Notwithstanding General Contractor's or Owner's title thereto, Subcontractor shall be responsible for the care, custody, control and safekeeping and preservation of all Owner-furnished, General Contractor-furnished, or Subcontractor-furnished labor, materials, plant equipment, supplies and other things to promptly repair or replace any such which is damaged or lost, and to complete the Sublet Work and to deliver the Sublet Work complete and in accordance with all provisions and requirements hereof at the time specified. Except as otherwise provided in the Subcontract Terms or the Special Conditions, Subcontractor shall bear, without right of reimbursement, the full risk of loss or damage to the Sublet Work and all materials, equipment and other things.

17. SUBCONTRACTING OR ASSIGNMENT

Subcontractor shall not assign this subcontract or any funds due hereunder. Subcontractor shall not subcontract any portion of the Sublet Work without the prior written approval by General Contractor of the lower tier subcontractor and of the form, terms and conditions of the lower tier subcontract. No assignment or subcontracting, even with General Contractor's approval, shall relieve Subcontractor of any obligations hereunder, or create any contractual relationship between such sub-subcontractor and General Contractor or Owner. Any lower tier subcontractor shall assume unto General Contractor all of the obligations of Subcontractor as they relate to such portion of the Sublet Work.

18. RECORDS AND ACCOUNTS

Subcontractor shall maintain good accounting and personnel records reflecting performance of the Sublet Work and shall preserve such records for a period of two years after completion and acceptance of the Project as a whole. General Contractor shall have the right to inspect and audit such part of the records as relate to cost reimbursement or performance of labor related provisions. Copies of documents and records supporting requests for payment or compliance with labor related provisions shall be furnished General Contractor with such request or at such other times as General Contractor directs.

19. BONDS

If instructed by General Contractor in writing, Subcontractor shall provide a Performance Bond and a Payment Bond in form and with corporate surety satisfactory to General Contractor, at any time required by General Contractor, whether before commencement of the Sublet Work or at any time prior to completion and acceptance of the Sublet Work. General Contractor will separately reimburse Subcontractor the premium cost thereof set forth in the Subcontract Terms unless otherwise expressly provided. General Contractor may terminate this Subcontract for default or exercise the rights provided in Paragraph 10 of these General Conditions if Subcontractor should fail to provide such bond when requested.

20. INDEMNITY

Subcontractor hereby indemnifies and holds harmless General Contractor and Owner from any loss, cost, damage

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or liability from injury or death of any person, including Subcontractor or its employees, or damage or destruction of any property, arising from or in connection with the Sublet Work whether or not there be concurring negligence by General Contractor or Owner, but Subcontractor does not hereby assume responsibility for the sole negligence of General Contractor or Owner.

21. INSURANCE

Subcontractor shall provide insurance, with provisions against cancellation without thirty (30) days prior written notice, for the benefit of Subcontractor, General Contractor and Owner and with waiver of subrogation against all participants in the Project, in form and with underwriters satisfactory to General Contractor, with minimum coverages and limits as follows:

(a) Workmen's Compensation	Statutory
(b) Employer's Liability (If marine operations are involved, the limits shall be $250,000 per person and $500,000 per accident)	$ 100,000
(c) Comprehensive General and Automobile Liability	
Bodily Injury - per person	$ 100,000
- per accident	$ 300,000
Property Damage with blanket contractual, products and completed operations liability endorsements, and with xcu exclusion deleted.	$ 100,000
(d) Hull and protection and indemnity for any marine vessels, with General Contractor, Owner and their affiliates being co-insured.	Full Value, but not less than $1,000,000
(e) Such other available insurance or increased limits as General Contractor may request, the premium cost of which shall be directly reimbursable unless otherwise specified in the Subcontract Terms.	

Subcontractor shall forward its insurance certificate stating the names and addresses of its insurance carriers and certifying that its insurance coverages meet the requirements of General Condition 21.

22. INSURANCE ON CONSTRUCTION EQUIPMENT

Subcontractor shall fully insure, or self-insure and assumes all risk of loss of, or damage to, Subcontractor's construction equipment and tools, facilities and structures, however caused, including losses caused by vandals or theft, or by the negligence of others, including General Contractor or Owner. Subcontractor agrees to indemnify and hold harmless Owner and General Contractor from any such loss or liability regardless of any provision for reimbursement of uninsured losses.

23. USE OF GENERAL CONTRACTOR'S OR OWNER'S EQUIPMENT

If any construction equipment, tools, marine vessels, facilities, or services of General Contractor or Owner be furnished to Subcontractor or used by Subcontractor, on an exclusive or joint use basis, Subcontractor shall inspect and satisfy itself as to the safety and condition thereof and shall return same to General Contractor or Owner after such use in good order and condition and in at least as good condition as that in which received, fair wear and use excepted. Subcontractor shall at its own cost and without right of reimbursement, insure or self-insure all risks associated with such use and shall indemnify General Contractor and Owner against any liability or cost for injury to, or death of, persons or damage or destruction of property connected with such use even if General Contractor or Owner should be negligent in relation to such equipment or items used.

24. PERMITS, LICENSES, LAND RIGHTS

General Contractor will provide all licenses and permits required for the Project as a whole to be constructed. Subcontractor shall provide all licenses and permits required for Subcontractor to perform the Sublet Work, including [without limitation], contractors' licenses, specialty permits required by law to be issued to Subcontractor, and transportation permits. General Contractor will provide access to the work site and easements or land rights in the work site, but Subcontractor shall comply with all restrictions, limitations, terms and conditions relative thereto and Subcontractor shall obtain such additional easements and land rights as Subcontractor may require.

25. PATENTS AND PROPRIETARY RIGHTS

Subcontractor shall pay all royalties and obtain all licenses required for items specified to be furnished by Subcontractor, and for all items and methods selected by Subcontractor for the Sublet Work. General Contractor shall pay all royalties and obtain all licenses required for the Project as a whole or for Owner-furnished or General Contractor-furnished items. Subcontractor shall give prompt notice to General Contractor of any claim of infringement of any patent or proprietary right, and Subcontractor and General Contractor shall cooperate in the defense and disposition of any such claim or suit. The party obligated to furnish the license shall defend and indemnify the other party.

26. WARRANTY

Subcontractor guarantees and warrants that all materials furnished by Subcontractor and workmanship furnished by Subcontractor shall comply with the specifications and other requirements of the contract and shall be free of defects for a period of one year after completion and acceptance of the Project as a whole by the Owner, or one year after placement of the Sublet Work in service, whichever is earlier. With respect to items of manufactured equipment specified by General Contractor and purchased by Subcontractor from others, Subcontractor warrants that the equipment is as specified, and agrees to pass on and assign to General Contractor (or to Owner if directed by General Contractor) the manufacturer's warranty and Subcontractor shall prosecute the enforcement thereof in cooperation with General Contractor, but Subcontractor shall have no further quality or performance warranty responsibility with respect to such items of manufactured equipment.

27. PARTIAL OCCUPANCY AND USE

General Contractor and Owner shall have access to the Sublet Work at all times. General Contractor and Owner may occupy and use any portion of the Sublet Work which is sufficiently completed to permit such occupancy and use, provided there is no substantial interference with performance of the balance of the Sublet Work. Such partial occupancy and use shall not relieve Subcontractor of the obligation to complete all of the Sublet Work strictly in accordance with the requirements of this Subcontract.

28. CONFIDENTIALITY

Subcontractor shall not publicize, publish, or photograph the Project, the Sublet Work, or this Subcontract, except by consent of General Contractor and in compliance with General Contractor's regulations for the Project. Subcontractor will maintain in confidence and not use or disclose any confidential proprietary information of General Contractor or Owner. Subcontractor will execute, and if requested will cause its employees or agents to execute, such form of written secrecy agreement, further defining this confidentiality agreement, as is required of other participants in the Project. All plans, specifications, data and other material relating to the Project shall be delivered to General Contractor, on request, when no longer required by Subcontractor for performance of the Sublet Work.

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29. INDEPENDENT CONTRACTOR

Subcontractor shall perform the Sublet Work as an independent contractor with exclusive control of the manner and means of performing the Sublet Work in accordance with the requirements of the Contract, unless an agency or other relationship is specified in the Subcontract Terms. Subcontractor has no authority to act or make any agreements or representation on behalf of General Contractor or Owner, and no contractual relationship exists between Subcontractor and Owner. No employee or agent engaged by Subcontractor shall be, or shall be deemed to be, an employee or agent of General Contractor or Owner. In the event General Contractor should, at the request of Subcontractor, furnish workmen to Subcontractor for any purpose to work under the direction and supervision of Subcontractor, such employees of General Contractor shall be deemed to be the borrowed servants of Subcontractor and Subcontractor shall be responsible for their actions while so engaged.

30. LAWS

This Subcontract is entered into in Houston, Texas, and shall be construed and governed by the laws of the State of Texas. Subcontractor shall comply with all laws, statutes, ordinances, rules and regulations of any governmental entity, having jurisdiction, and Subcontractor shall indemnify and hold harmless the Owner and General Contractor from any fines, penalties, costs or liability arising from Subcontractor's failure to comply therewith.

31. DISPUTES

All questions arising under this Subcontract shall be resolved in the first instance by General Contractor's project manager. No claim for additional compensation or extension of time shall be considered unless presented to General Contractor's project manager in writing within ten (10) days after the occurrence giving rise to the dispute. Any claim not satisfactorily resolved by General Contractor's project manager in the first instance, and which is presented in writing within the time provided, may be appealed by notice in writing to the project manager within ten (10) days after the project manager's initial decision, (a) to the engineer for the Project if the issue is interpretation of the drawings or specifications, or compliance of the Sublet Work therewith, in which event the engineer's decision shall be final, (b) to an Executive Officer of General Contractor as provided under Article 10 if the claim arises under Article 10, or (c) to an Executive Officer of General Contractor if any other question under the Subcontract is involved. Such review shall be a prerequisite to any further relief.

32. PROGRESS PAYMENTS AND FINAL PAYMENT

Progress payments will be made by General Contractor to Subcontractor monthly or at other intervals specified, in accordance with the Subcontract Terms. All progress payments are Trust Funds to be applied by Subcontractor to payment for labor, materials, equipment, services and supplies for the Sublet Work. With each request for progress payment, Subcontractor shall submit proper evidence, including affidavits and certificates, as may be requested by General Contractor showing: (a) the portion of the Sublet Work completed, (b) compliance with all requirements of this Subcontract, (c) payment of all bills, and (d) that no lien exists or could be claimed arising from the Sublet Work. General Contractor may withhold from progress payments ten percent (10%) of the amount earned, as retainage until final completion and acceptance (unless otherwise provided in the Subcontract terms), and in addition may withhold such amount as may be reasonably required to assure compliance by Subcontractor with the terms of this Subcontract. General Contractor may pay directly any obligation of Subcontractor arising under this Subcontract and withhold such payment from amounts otherwise due Subcontractor. Subcontractor shall submit with his request for final payment similar evidence and such expressions of warranty and indemnity as are required herein and a release of further claims against Owner or General Contractor. Subcontractor indemnifies General Contractor and Owner against any cost or liability, including attorney's fees, for failure of Subcontractor to perform all its obligations and pay all of its bills as required by this Subcontract.

33. APPLICATION TO COST REIMBURSEMENT TERMS

These General Conditions define the obligations, responsibilities and relationships of Subcontractor and General Contractor, and apply without change whether the terms for payment are fixed price or cost reimbursable or a combination thereof. The price and other payments to be made to Subcontractor for performance of the obligations of these General Conditions are provided for in the Subcontract Terms or other portions of this Subcontract.

34. NOTICES

Notices of changes, deficiencies, delays, claims or disputes shall be in writing, and shall furnish full information to the extent available. The party notified will acknowledge receipt by endorsement of a copy if requested, or will otherwise confirm receipt in writing. Ordinarily, notice will be given by delivery to the General Contractor's project manager, or Subcontractor's designated representative at the site, respectively, and mailing a copy to the address shown in the Subcontract Terms. To avoid difficulty in delivery of Notice, sufficient Notice shall be deemed to have been given by mailing by Registered or Certified Mail or equivalent, to the address shown in the Subcontract Terms.

35. INTEGRATION

The entire agreement between General Contractor and Subcontractor and all negotiations, proposals, representations and interpretations have been integrated into and superseded by the written provisions of this Subcontract. This Subcontract shall be valid and in force when signed by both parties and delivered and the parties understand that thereafter no person is authorized to amend this Subcontract except by agreement in writing and signed with equal formality. These General Conditions may be modified by the Special Conditions for the Project or by the Subcontract terms; and the Special Conditions for the Project may be modified by the Subcontract Terms, and as so modified it is intended that all terms and provisions of this Subcontract shall be construed in harmony and with equal dignity and effect.

EXX 004190

Form P-50 1-76

BROWN & ROOT, INC.

JEF/sc
SUBCONTRACT
EXXON COMPANY U.S.A.
CLEU #2
BAYTOWN, TEXAS
(Project)

Job Number 27-5751

Subcontract No. 27-5751-5000

FIREPROOF STRUCTURAL STEEL AND INSTALL REFACTORY LINING
(Sublet Work)

DECEMBER 26, 1978
(Effective Date)

THIS SUBCONTRACT, by and between BROWN & ROOT, INC., a Texas Corporation, P. O. BOX 3, HOUSTON, TEXAS 77001, "GENERAL CONTRACTOR" and,

Industrial Gunite, Inc.,

a Corporation (Corporation, Proprietorship, Partnership) under laws of Texas (State)

whose address is P. O. Box 5810, Pasadena, Texas 77505 (713) 477-0331,

"SUBCONTRACTOR," whose contractor's license number under laws of Not Applicable

is Not Applicable, entered into as of the EFFECTIVE DATE stated above,

WITNESSETH:

In consideration of the mutual promises herein contained General Contractor and Subcontractor agree, promise, and obligate themselves as follows:

1. Subcontractor promises to perform the Sublet Work for the Project in accordance with the Contract Documents.

2. General Contractor promises to pay Subcontractor, for full, accurate and timely performance of the Sublet Work in accordance herewith, the Price and other payments, and promises to perform all of the other obligations of General Contractor, as set forth in the Contract Documents.

3. The Contract Documents constituting this Subcontract consist of:

a. "Subcontract Terms" and exhibits thereto. 027-5751(5)-0802

b. ~~Specifications and Drawings~~ 07072598

c. "General Conditions" P-50 (1/77) 74,553.00

d. "Affidavit for Subcontractor" (Form P-7) Gen Cond 32 with 10% Retainage

e. "Contractor's Responsibilities for Safety, Plant Security and Traffic Regulations" (April 1, 1978)

f.

EXX 004192

Form P-50 1-76

Subcontract No. 27-5751-5000

The foregoing constitutes the entire contract, and supersede all prior proposals, negotiations, agreements, awards, letter of intent and written or oral statements, representations or agreements.

4. The Effective Date set forth above is the date as to which all Contract Documents and provisions thereof have reference for purposes of coordination of their meaning and effect. The price relates to the Sublet Work as described in drawings, specifications and other Contract Documents in their condition on that date. Changes after the effective date will be dealt with in accordance with the provision for changes. Any work commenced and any payments made pursuant to an Award or Letter of Intent prior to the execution hereof shall be deemed to have been done and paid after the Effective Date under the terms of this Subcontract.

GENERAL CONTRACTOR:

BROWN & ROOT, INC.

By: Gerald R Aiton for
D. E. Newton, Jr.

Title: Vice President - Procurement

Date: 1/23/79

SUBCONTRACTOR:

INDUSTRIAL GUNITE, INC.

By: Robert M. Ferguson

Title: SALES MGR

Date: Jan 19, 1979

EXX 004193

SUBCONTRACT TERMS

CLEU #2
EXXON COMPANY U.S.A.
SUBCONTRACT NO. 27-5751-5000

1. SUBLET WORK

1.1 The Sublet Work, in general, is to fireproof structural steel and install a refractory lining at the Exxon Company Facilities located in Baytown, Texas.

1.2 More specifically, the Subcontractor agrees to perform the Sublet Work which consists of furnishing all labor, supervision, materials, tools, equipment, taxes, insurance, and incidentals necessary to install 2" fireproofing to structural steel and install the refractory linings in the floor of furnace F-1, the APH covers and in ducts marked 1 through 16, all of which work shall be performed in accordance with and pursuant to the requirements of the drawings specifications listed in Subcontract Term No. 2 hereunder and all other provisions of the Subcontract Documents.

1.3 Subcontractor shall perform all work described herein in accordance with the directions of the General Contractor's Project Manager or his duly authorized representative.

2. DRAWINGS AND SPECIFICATIONS

The Sublet Work shall be performed in accordance with, and all materials furnished by the Subcontractor shall comply with and conform to the following drawings and specifications:

1) "Specification for Air Preheater at CLEU 2 Exxon Company, U.S.A." dated August 10, 1978.

2) "Table I - List of Engineering Drawings" (appropriation 00716), dated August 10, 1978.

3) Exhibit "A" - Construction of Air Preheater (Appropriation 00716) dated August 10, 1978.

3. SERVICES AND MATERIALS PROVIDED BY GENERAL CONTRACTOR

General Contractor shall provide the following items at no charge to Subcontractor for the performance of the Sublet Work described herein.

3. SERVICES AND MATERIALS PROVIDED BY GENERAL CONTRACTOR - (Continued)

3.1 Sanitary facilities shared with others.

3.2 Space adjacent to unit (100') to set up and operate equipment.

3.3 Potable water within 100 ft.

3.4 Use of manned equipment to off-load and load equipment from truck.

4. TIME OF PERFORMANCE

4.1 Subcontractor shall commence the Sublet Work on or about January 30, 1979 and shall perform all work in a diligent manner until all aspects of the Sublet Work are complete which shall be on or before April 1, 1979.

4.2 Subcontractor shall perform the Sublet Work in accordance with the schedule of the General Contractor's Project Manager or his duly authorized representative.

4.3 Subcontractor shall maintain contact with the General Contractor's Project Manager, or his duly authorized representative, for the purpose of scheduling and coordinating the Sublet Work.

5. SUBCONTRACT PRICE

5.1 General Contractor agrees to pay Subcontractor for complete, satisfactory, and timely performance of the Sublet Work strictly in accordance with the drawings, specifications, and requirements of all of the Subcontract Documents the following Firm Lump Sum Price, inclusive of all sales and use taxes.

SEVENTY FOUR THOUSAND FIVE HUNDRED FIFTY THREE DOLLARS AND NO CENTS
(Words)

$ 74,553.00
(Figures)

5.2 More specifically, this Firm Lump Sum Price is comprised of the following Lump Sum Prices:

Item	Description	L/S Price
1	Fireproofing	$27,025.00
2	Refractory	$34,225.00
3	Plenum Section	$ 3,139.00
4	Anchors (Furnished & Installed)	$10,164.00

5.3 Any work performed by Subcontractor after April 1, 1979 is subject to reimbursable labor escalation. The reimbursable escalation factor is to be applied to the number of manhours actually worked. All new rates will include payroll taxes, workmen's compensation, and

5. SUBCONTRACT PRICE - (Continued)

5.3 Continued

comprehensive general liability insurance. No escalation shall be retroactively applied to payrolls prior to April 1, 1979.

5.3.1 This escalation fee is contingent upon delay being effectuated through no fault of Subcontractor.

6. PAYMENT AND PERFORMANCE BONDS

There is no requirement at this time to furnish separate 100% Payment and Performance Bonds. However, General Contractor may at any time require separate Payment and Performance Bonds in accordance with the provisions of General Condition No. 19. If Bonds are required, the premium of said bonds shall be reimbursable to the Subcontractor.

7. PAYMENT

7.1 The following paragraph supplements Paragraph Number 32 of the General Conditions:

Subcontractor shall be paid in monthly progress payments the value of the Sublet Work satisfactorily performed during the preceding month based upon the firm lump sum price detailed and described in Subcontract Term No. 5 less 10% of such value as retainage until final completion and acceptance of the Sublet Work by General Contractor. Subcontractor shall prepare and submit an invoice for the proposed monthly progress payments and shall submit supporting documents and proof of payment of all bills for labor and materials, as may be requested by General Contractor. Subcontractor's invoice for proposed monthly progress payments with requested supporting documents and proof of payment of all bills will be submitted for approval by General Contractor and when approved, payment shall be made within thirty days thereafter. Final payment and release of retainage shall be made when the Sublet Work has been satisfactorily completed and accepted and Subcontractor has submitted the affidavit as called for in Subcontract Term No. 8.

8. AFFIDAVITS

Two copies of the General Contractor's "Affidavit for Subcontractor" (Form P-7) are attached for use in implementing the provisions of General Condition No. 32. Subcontractor shall execute and return one copy with his final or retainage invoice to the address shown in Subcontract Term No. 9.

9. INVOICES

Subcontractor shall render all invoices to the following address:

Brown & Root, Inc.
P. O. Box 4060
Baytown, Texas 77520

Attn: B. M. Holt

10. INSURANCE

Subcontractor shall forward his Certificate of Insurance stating the names of its Insurance Carriers and certifying that its insurance coverages meet the requirements set forth in General Condition No. 21 herein to the following address, in addition to the address shown in Subcontract Term No. 9.

Brown & Root, Inc.
P. O. Box 3
Houston, Texas 77001

Attn: J. E. Futcher
(01-116)

11. LABOR RELATIONS

The following supplements Paragraph 14 of the General Conditions:

Subcontractor represents that its pre-hiring collective bargaining agreements, if any, contain or will contain provisions that, or Subcontractor has entered into or will enter into a project agreement modifying such collective bargaining agreement to provide that, there shall be no strikes, slowdowns, picketing, secondary boycotts, or work stoppages during the performance of the Sublet Work. Subcontractor will further subcontract only to lower-tier subcontractors having similar provisions in their collective bargaining agreements, if any.

12. ASSIGNMENT OF SUBCONTRACT TO OWNER

The following provisions hereby supplement General Condition Number 17:

Subcontractor agrees that General Contractor may assign this Subcontract to Owner at any time without affecting the Subcontractor's duties, rights, and obligations hereunder. Prior to assignment no contractual relationship exists between Subcontractor and Owner.

13. SAFETY AND SECURITY

Subcontractor shall perform the Sublet Work in strict accordance with the provisions set forth in the attached document entitled "Contractor's Responsibilities for Safety, Plant Security, and Traffic Regulations", dated April 1, 1978, which is hereby incorporated as part of this Subcontract by reference.

NOTE: This Affidavit is to be executed and returned with final or retainage invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT
NO. 27-575I-5000

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

Title: Name:
For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19 _____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC

County of _____

State of _____

EXX 004198

NOTE: This Affidavit is to be executed and returned with final or retainage invoice.

BROWN & ROOT, INC.

P.O. Box 3 Houston, Texas 77001

"AFFIDAVIT FOR SUBCONTRACTOR"

RE: SUBCONTRACT
NO. 27-575/-5000

Name of Subcontractor: _____

Date of Subcontract: _____

Name of Owner under General Contract: _____

WHEREAS, The above-named Subcontractor, heretofore, entered into the above-referenced Subcontract with BROWN & ROOT, INC., as a General Contractor for performance by Subcontractor of Sublet Work under the above-referenced General Contract; and

WHEREAS, Under said Subcontract certain monies are not due and payable unto Subcontractor until all bills for labor, material and other charges arising in the performance of the Sublet Work have been fully paid by the above Subcontractor;

NOWTHEREFORE, For the purpose of inducing BROWN & ROOT, INC., to pay over such monies unto the above Subcontractor, the undersigned affiant does depose, say, affirm and represent to BROWN & ROOT, INC., that all bills for labor, material, re-sublet work, equipment rental, taxes, insurance and all other charges arising in the performance of the Sublet Work have been fully paid by or for the above Subcontractor, except as follows:

_____

_____
Title: Name:
For Subcontractor

SUBSCRIBED AND SWORN TO before me this the _____ day of _____, 19____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC

County of _____

State of _____

EXX 004199