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**RUWAIS REFINERY  
EXPANSION PROJECT**

**EPC-4 TANKAGE AND ASSOCIATED  
INTERCONNECTING PIPING**

**AGREEMENT No. 09-5578-E-4**

**DAEWOO E&C**

PROJECT No. 5578

Doc. No. 5578-E4-HSE-HU-00020

Rev. 0

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## **SUBCONTRACTOR'S SAFETY MANAGEMENT PROCEDURE**

**AGREEMENT NO. : 09-5578-E-4**

**PROJECT NAME : Ruwais Refinery Expansion Project  
EPC-4: Tankage & Associated  
Interconnecting Piping**

**COMPANY : Abu Dhabi Oil Refining Company (TAKREER)**

**PMC : Mott MacDonald Ltd.**

**CONTRACTOR : Daewoo Engineering & Construction Co., Ltd.**



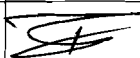
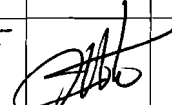
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- Revisions are denoted by a vertical line placed in the right-hand margin against the revised text.
- PREP = Prepared by, CHKD = Checked by, REVD = Reviewed by, APP'D = Approved by.
- In case of conflict between any requirements stipulated in this document with the contractual requirements, the contractual requirements shall prevail.



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## 1. INTRODUCTION

### 1.1 Purpose

The purpose of this procedure is to define DEC method of managing Subcontractor in relation to the HSE issues. Additional methods of management in more specific areas of HSE management are covered in associated procedures.

### 1.2 Scope

This procedure covers general HSE requirements that are mandated by DEC to his Subcontractor

## 2. GENERAL

It is the responsibility of all Subcontractors engaged in the Project to ensure that all requirements of the Acts and Regulations applicable to the host country are strictly adhered to at all times whilst carrying out their scope of work. Subcontractor shall adopt the DEC HSE Plan and Procedures.

Subcontractor's philosophy and general measures to promote safety, health and environmental harmony shall embrace the principles of Safety, Health and Environmental Management as outlined in Client HSE Plan.

Subcontractor will ensure all work process and procedures are established in accordance with the Client Documents and DEC HSE Plan and Procedures. All Client Documents will be made available to Subcontractor on request.

## 3. RESPONSIBILITIES

Each Subcontractor is responsible for seeing that a safe work place is maintained and that at all times both supervision and employees adhere to recognized safe work practices, in accordance with this Subcontract document and all relevant host country statutory requirements.

DEC is responsible for seeing that its own employees follow safe work practices and monitor the safe work practices by each Subcontractor and their employees.

DEC shall be responsible for issuing improvement and stand down notices in areas where Subcontractor fails to conform to the host country statutory requirement, Client HSE regulations or DEC HSE Plan.

Each Project employee is responsible on the work site for ensuring that they carry out their allocated tasks in a safe manner and that they immediately report any unsafe conditions, practices or near misses to their supervisor or to any representative of DEC.

Subcontractor shall maintain a standard of housekeeping that is acceptable to DEC at all times, on the work site and in associated lay-down, storage areas and camp facilities.

Failure to comply with the Project housekeeping requirements will result in DEC appointing a Third Party Subcontractor to rectify housekeeping problems with all associated costs being back charged to Subcontractor.

Any delay or stoppage of work by DEC or client due to safety reasons which affect the cost of manpower and equipment will be borne by the subcontractor.

#### 4. TRAINING

Subcontractor shall establish a procedure for the education of its employees through the following:

- General HSE Induction for new employees and site visitor to the project site
- Refresher orientation for returnees to project site after home leave or absence from job site for long periods of time
- Refresher course for Safety violators and accident-prone individuals
- On the job HSE orientation conducted by employees' front line supervisors
- Weekly training for supervisor to ensure employee understanding of their HSE responsibilities
- Weekly HSE meeting that address general HSE issues or accident trends
- Daily toolbox meeting/talk on HSE issues relating to tasks to be performed
- Job specific trainings

Subcontractors shall adopt / follow the HSE Training Procedure of DEC

#### 5. POTABLE WATER AND SANITATION

Subcontractor shall provide an adequate supply of potable water and sanitary facilities for the workforce at various locations on the Site. Locations will vary, depending on the progress of the work. Drinking water shall be provided in sealed containers. Paper or individual cups shall be used. Common cups shall not be permitted.

If potable water is not supplied in sealed containers, but in bulk, a weekly test shall be performed to ensure the quality of the water. Water at the camp will be supplied from an existing well and treated. Tests to verify the quality of the water will be carried out monthly.

Toilets shall be located at designated areas only. All toilet facilities shall be cleaned and disposal services for the toilets provided on a continuous basis. One toilet shall be provided for each 30 workers and located within a reasonable distance to each work area. Hand soap or other cleaning agent and individual paper hand towels shall be provided.

All potable water and sanitation facilities shall conformed to project health management requirements and local health regulations.

## 6. MEAL AREAS

Subcontractor shall provide a covered area away from the main construction area for its workforce and that of its lower tier Subcontractor(s) workforce to use for morning, lunch and afternoon breaks. Personnel will not be allowed to remain in the construction area to consume meals or rest during breaks.

Subcontractor will also provide at every meal area, hygienic conditions and amenities to enable its workforce to wash their hands, and tables and/or benches chairs to enable the workforce to relax during their breaks.

Subcontractor will provide adequate waste can in each area and all rubbish will be deposited in these waste can. Subcontractor will remove all rubbish from these areas after each break, to a place where they can be collected by DEC. Subcontractor will provide sufficient staff to maintain these facilities in a clean and hygienic condition at all times.

Meal areas are to meet Takreer Standards as per ADNOC – COPV3-07 Occupational Health Risk Management- Food Safety & Welfare

## 7. ALCOHOL AND NARCOTICS

Alcoholic beverages, narcotics or similar substances shall not be brought onto the work site.

Subcontractor's personnel, if found to be under the influence of alcohol, narcotics or other similar substances, shall not be permitted to enter the work site.

Subcontractor's personnel will also be subject to random drug screening throughout the term of the Project.

Subcontractor's personnel who are tested positive, or otherwise found to be under the influence of alcohol, narcotics or similar substances will be terminated from the Project with immediate effect, in accordance with the Project Disciplinary Procedures.

## 8. PERSONAL PROTECTIVE EQUIPMENT (PPE)

All Subcontractor employees must attend the Employees Induction Program, which discusses the Project's Personal Protective Equipment requirement as defined in PPE Management Procedure (DTMS-HSE-PG004).

As project requires, all subcontractor personnel will receive a Project Construction Safety Handbook and must sign a declaration agreeing to comply with the Safety Handbook requirements.

The following Personal Protective Equipment will be required:

### **8.1 Mandatory PPE**

- A safety helmet manufactured in accordance with the KOSHA / International standards.
- Appropriate safety footwear suitable to the nature of the work being carried out.

- Safety spectacles / glasses

### **8.2 PPEs for specific job or activities**

Face protection shall be worn when:

- Welding, cutting, burning or chipping
- Operating a grinder, drill, metal cutter, masonry saw or drill or similar piece of equipment
- Operating an explosive powered tool
- Striking metal against metal
- Operating compressed air activated tools or hose lines
- Handling corrosive dust or chemicals
- In any other circumstances where a recognizable eye and face hazard exists.

Industrial hearing protection devices shall be provided for and worn by employees where a noise hazard exists, above 85 dB (A) or where noise is irritating, or causes discomfort to the ear.

It is the Subcontractors responsibility to ensure that noise emitted by machines, plant, and equipment is reduced to the minimum level practicable.

Suitable gloves shall be provided and their use enforced when handling:

- Sheet metal
- Reinforcing or structural steel
- Wire or wire mesh
- Rough or sawn timbers
- Cement products, acids, chemicals or hot work
- Any material or substance where hands could be subjected to harmful or injurious contact
- Cotton gloves shall not be use as replacement for leathered working gloves or specific gloves for the job; lots of incident involving finger injury resulting from improper usage of cotton gloves.

Subcontractor shall provide all of its employees required to work in areas, which are classified by DEC as operational areas with a pair of overalls for the duration of the necessary work. All overalls issued shall be manufactured from 100% cotton fabric, long sleeve overalls, or long sleeve shirt and pants which shall be worn by Subcontractor's employees at all times while within the operations area.

DEC may at its discretion specify additional items of PPE such as flame retardant materials, to further ensure the safety of individuals where unusual circumstances prevail.

Subcontractor will provide, maintain and ensure the use of such additional PPE as described at Subcontractor's cost. All safety equipment as described will be issued to employees by Subcontractor at no cost to the employee.

Respiratory Protection

Respiratory protection of a type approved by DEC is required for all of the following activities carried out in areas that may be contaminated:

- Dust Contaminated Areas - Minimum requirement - dust filter mask
- Filterable Toxic Vapor and Gases (as long as the atmosphere contains sufficient oxygen to support life) - Minimum requirement - charcoal filter mask either half face or full face.
- Oxygen Deficient Atmospheres/Sand Blasting - Minimum requirement is a self-contained breathing apparatus (SCBA) set or air-fed hood. Whenever a self-contained breathing apparatus is used for entry into a contaminated area a fully charged standby air cylinder shall be available for immediate use at the work location. Only fully trained personnel shall use this equipment.

#### Safety Harness

Safety harnesses (full body type) manufactured in accordance with appropriate standard design specifications shall be provided and use enforced when required carrying out work in or at a position that would be considered a hazardous location (working aloft). Such persons shall be provided with a safety harness with 2 lanyards and if necessary, a static line or other secure anchorage covering the extent of the work area

## 9. SAFETY HAZARDS PROCEDURE

Where a safety hazards related to an immediate danger arises, employees shall be removed from that work area until such time as the safety matter is resolved. Employees that have been removed from the immediate area where the safety hazard exists may be allocated alternative work in another area.

Where work in an area is stopped or the hazards are of an immediate nature, the following shall apply:

- The management of the Subcontractor, the employee(s), the Subcontractor safety representative for that area and the DEC HSE Supervisor (or his nominee) shall meet and inspect the work area to ascertain a resolution to the safety unsafe situation.
- Work in the area shall not recommence until such time as a resolution to the problem has been agreed and corrective action has been carried out to resolve the problem.
- Every employee has the right to refuse to work in an area or manner that may jeopardize his or her safety or the safety of others.

## 10. SAFEGUARDS BY SUBCONTRACTOR

Subcontractor shall safeguard the works and shall:

- Provide proper safeguards for the property of others at or about the work site. Provide and maintain work places, plant and systems of work such that as low as reasonably practical (ALARP) employees are not exposed to hazards.
- Provide information, instruction and training to, and supervision of, its employees as are necessary to enable them to perform their work in a manner that restricts their exposure to hazards.

- Where it is not possible to avoid the presence of hazards at the workplace Subcontractor will provide adequate personal protective clothing and equipment to protect its employees from such hazards.
- Eliminate fire hazards at the work site.
- Ensure that all machinery directly or indirectly under its control conforms to DEC standards and Clients requirements.
- Ensure that noise emitted by machines, plant and equipment is reduced to the minimum level possible in accordance with Clients requirements or DEC requirements. All mobile and portable equipment that constitutes a noise hazard shall be marked with an approved mark before use on the Project.
- Consult and cooperate with health and safety representatives and other employees at its workplace regarding health and safety issues that may arise.
- Make arrangements to ensure the use, maintenance transportation and disposal of plant and the use, handling, processing, storage, transportation and disposal of substances at the workplace are carried in a manner such that its employees are not exposed to hazards.
- Provide adequate lighting for workmen where necessary.
- Not at any time leave any work or partly completed work in an unsafe condition.
- Provide a Material Safety Data Sheet (MSDS) to DEC for every hazardous chemical or substance at least 10 days prior to those substances being brought to site. Provide and ensure the understanding of material safety data sheets to employees allocated a task that involves the use of any such hazardous material.
- Subcontractor will also ensure that the storage, use and disposal of hazardous materials are carried out in a manner acceptable to DEC and are in strict conformance with applicable host country statutory requirements.
- Non-compliance with the foregoing may result in immediate withdrawal of permission for Subcontractor to work on the site.

## **11. FIRE PREVENTION**

### **Fire Fighting Equipment**

- Subcontractor shall, if directed by DEC, supply plant, equipment and personnel to assist in control or prevention of a fire. All such equipment to be furnished by Subcontractor will be of a nature associated with its work.
- The equipment pre-selected as potential fire brigade equipment will be advised when Subcontractor commences work on the work site.

### **Fire Prevention**

- All flammable liquids used on the work site shall be stored and dispensed only from approved type containers. Flammable liquids shall not be permitted to enter any drainage systems.

- Smoking shall be prohibited in areas where flammable liquids or materials are stored or in use. Such areas shall be well defined by notices indicating prohibitions and displayed in conspicuous positions adjacent to prohibited areas.
- No fires shall be lit on the work site without prior permission from DEC.

DEC, HSE Department shall carry out regular documented inspections of the work site amenities, offices, store sheds, etc. and take appropriate action following observation of any potential fire hazard. Such hazards include accumulation of combustible materials such as newspapers, old clothing, oil rags; storage of flammable liquids under prohibited conditions, damaged electrical fittings and wires or irresponsible practices, etc.

#### Tarpaulins / Wind Breakers

All tarpaulins/wind breakers used on the work site for either weather protection, confinement of grit blasting or wet blasting material, screens for welding, protection of insulation or personnel shall be constructed from a fire retardant material.

#### Fire Controls

- Where a major emergency becomes apparent within the Client operational area, which could affect personnel in the work site, sirens, or other means of communication, situated within the work site, will be activated and employees will evacuate to predetermined assembly areas.
- Under normal circumstances, sirens activated in any operational area will only affect personnel within this area. Action for these workers is detailed in the operational Safety Regulations for Construction Employees.
- Subcontractor shall ensure all personnel in its employ are familiar with the emergency alarm/evacuation procedures applicable at their workplace.
- The area of any fires occurring in the construction area (after being extinguished) shall remain out of bounds to all personnel until that area is released for further work by DEC.

#### Fire Training

Subcontractor shall ensure that all Constructions Supervisors and Safety Supervisors in its employ are made familiar with the location points and correct use and operation of all fire fighting equipment at the work site.

#### Fire Extinguishers

Subcontractor shall ensure that it has provided a sufficient number of appropriate fire extinguishers.

- In its site office(s) and workshops and other areas where a fire hazard exists.
- On all fuel services.
- At all fuel or flammable liquid transfer points.
- Where flammable liquids are stored, handled or used.
- Where oil or gas fired heating equipment is used.
- Where tar or asphalt is heated

- (At all work areas where welding and/or cutting operations are carried out.

DEC reserves the right at no cost, to instruct Subcontractor to increase the number of fire extinguishers where DEC considers the number supplied to be inadequate.

**NOTE:** The use of fire extinguishers, which contain any chlorofluorocarbons (CFCs), shall not be provided for or used on the Project.

Electrical Fire

Conductive extinguishing agents such as water or foam shall not be used on electrically induced fires. CO<sub>2</sub>, extinguishers shall be placed in or around electrical fire risk areas such as substations and distribution boards.

## 12. USE OF ASBESTOS PRODUCTS

There are no exceptions to the asbestos policy as per agreement zero tolerance!

## 13. SUBCONTRACTOR MEDICAL AND FIRST AID FACILITIES

Subcontractor shall provide its own first aid facility at the work maintained and equipped to the satisfaction of DEC Such facility shall comply with minimum and provide for all the risks involved in Subcontractor's normal operations at the work site.

Subcontractor's First Aid Facilities shall make available at all times while work is in progress at the work site, a person trained in first aid who is the holder of a current first aid certificate will be permanently assigned in First Aid Facilities.

Injuries treated by the Subcontractors first aider will be limited to only treatment of minor injuries and redressing.

The first-aid boxes and devices shall be adequately provided by Subcontractors for their use at the work area and camps. Subcontractor shall ensure that at least 1 in every 50 of subcontractor's employees will be trained in first aid and has immediate access to a first aid box at the work place.

All first aid treatments shall be recorded and reported to HSE Department.

## 14. WORKERS REHABILITATION PROGRAM

Subcontractor shall, provide and maintain an injury rehabilitation program to assist with on site rehabilitation of employees that may have suffered an injury.

The creation of non-productive work shall be avoided however alternative work shall be provided which is within the capacity of the injured worker, subject to the advice of the medical practitioner involved.

## 15. REPORTING OF INJURIES, INCIDENTS AND NEAR MISSES

In ALL cases of serious injury, minor injury, incidents or near misses, the Subcontractor supervisor or employee present shall immediately notify DEC HSE Supervisor, either personally or by message and

shall file a report with the DEC HSE Manager. (Refer Incident Investigation & reporting procedure 5578-E4-HSE-HU-00026)

Subcontractor shall render all possible means of assistance at the scene of any serious injury or incident as and when requested. A serious injury is defined as any injury, which requires treatment beyond the scope of normal first aid. A serious incident is defined as any incident which could have resulted in any injury requiring treatment beyond the scope of normal first aid or which may have resulted in damage to equipment.

#### **16. ENFORCEMENT OF PROJECT REGULATIONS BY DEC**

DEC or its representative may at any time enter and remain upon any Subcontractor's work area or premises for the purpose of inspection as may in any circumstances, be necessary.

Where DEC is of the opinion that Subcontractor is contravening one or more of DEC safety rules/regulations, DEC will issue a safety "Improvement Notice" specifying any contravention and the time and date by which remedial action shall be taken.

Where DEC representative is of the opinion that the contravention involves or may involve, a risk of serious personal injury or damage to equipment, he or she may issue a safety "Stand down Notice" which shall specify the matters causing or likely to cause such risk and direct the activities, which shall not be carried out

"Stand down Notice" and/or "Improvement Notice" will be delivered to Subcontractor's supervisor at the work site or, in his absence, to Subcontractors HSE representative.

When Subcontractor is of the opinion that the contravention(s) is remedied it shall inform Contractor. Provided that DEC is satisfied with the remedial action, "Improvement Notice" and/or "Stand down Notice" will be withdrawn or amended as circumstances may require.

Should DEC request that Subcontractor provide materials or equipment as per project standards and Subcontractor failed to comply with project's HSE standards and codes within a reasonable time, DEC may remedy such failure and Subcontractor shall reimburse DEC for all expenses resulting there from.

Non-compliance with the safety requirements of this procedure hereof by Subcontractor's personnel and those of its lower tier Subcontractors will be considered misconduct for which DEC will have the right to request Subcontractor to remove such personnel from the work site. DEC may issue "Improvement Notice", "Stand down Notice", or attach "Out of Service" tags to remedy any circumstance which involves a risk, or will give rise to a risk of injury or damage, irrespective of any rule contained herein.

Personnel ignoring or disregarding DEC instruction in areas of HSE concerns or should any person remove an "Out of Service" tag placed by DEC to remedy a HSE concern shall be removed from the work site with immediate effect, in accordance with the Project Disciplinary Procedures.