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By: *RL REAMS*

Signed

Richard Reams

Date *05/06/2011*

Review Code:

- 1. REJECTED : REVISE AND SUBMIT
- 2. COMMENTS AS NOTED : WORK MAY PROCEED SUBJECT TO COMPLIANCE WITH AND INCORPORATION OF COMMENTS
- 3. NO COMMENTS : WORK MAY PROCEED
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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-00016

Rev. 0

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DISEASE PREVENTION 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.

TAKREER	RUWAI'S REFINERY EXPANSION PROJECT	DAEWOO E&C	
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NOTES:

- (a) Revisions are denoted by a vertical line placed in the right-hand margin against the revised text.
- (b) PREP = Prepared by, CHKD = Checked by, REVD = Reviewed by, APP'D = Approved by.
- (c) 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. PURPOSE

The purpose of this procedure is to define the responsibility and obligations of **CONTRACTOR** and its Subcontractors regarding prevention of diseases affecting its employees stationed on the Ruwais Refinery Expansion Project, Ruwais, UAE.

The purpose of the Disease Prevention Procedure is to provide a mechanism by which job classifications where there is a **REASONABLY ANTICIPATED** potential for **OCCUPATIONAL EXPOSURE** to blood, or body fluids containing blood, are provided with processes, information, training and protection against exposure.

2. SCOPE

This document describes the Disease Prevention Procedure from Blood borne Pathogens Exposure to be used by **CONTRACTOR** and all its subcontractors during the construction of all buildings and Tanks with interconnecting pipe works, general facilities, storage and handling facilities, utilities and other services.

This procedure is specific to the construction, pre-commissioning and demobilization phases of this **SITE**.

This Disease Control Procedure shall be distributed to all organisations engaged in the works at **SITE**.. The procedure addresses the following types of Blood borne Pathogens such as:

- HIV
- HBV
- HCV
- Malaria
- Syphilis
- H5N1

3. TERMS AND DEFINITIONS

Terms and definitions specific of the current scope are the following:

SITE: Refers to the area of the RRE EPC4 Project

Subcontractor: means the entity engaged to perform the Construction/ (pre-commissioning) activities (Work).

D E&C: Means the Daewoo Engineering and Construction Company.

Blood borne Pathogens: Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not

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Contaminated	limited to, Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV). The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
Contaminated Laundry	Laundry that has been soiled with blood or other potentially infectious materials or laundry which may contain sharp objects.
Decontamination	The use of physical or chemical means to remove, inactivate, or destroy blood borne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.
Engineering Controls	e.g., sharps disposal containers, self-sheathing needles that isolate or control and remove the blood borne pathogens hazard from the workplace.
Exposure	A specific eye, mouth, other mucous membrane, non-intact skin, or parietal contact Incident with blood or other potentially infectious materials that results from the performance of personnel's duties.
Hand Washing Facilities	Facilities providing an adequate supply of running, potable water; soap; and single-use towels or hot air drying machines.
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
H5N1	Avian Influenza (Bird Flu)
Licensed Healthcare Professional	A person whose scope of practice allows him or her to independently perform activities required for Hepatitis B Vaccination and post-exposure evaluation and follow-up.
Occupational Exposure	Reasonably anticipated skin, eye, mucous membrane, or parietal contact with blood or other potentially infectious materials that may result from performance of personnel's duties.
Good Samaritan Acts	Rendering assistance to accident victims, and other exposures that cannot be anticipated do not constitute occupational exposure.

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Other Potential Exposure

The following human body fluids: semen, vaginal secretions cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in materials associated with dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

Parietal

Piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, abrasions and trauma

PPE

Personal specialized clothing or equipment worn by personnel for protection against a hazard. PPE may consist of gloves, masks, goggles, or disposable gowns. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard is not considered to be personal protective equipment.

Reasonably Anticipated

That an exposure is certain, based on tasks assigned to the personnel as a requirement of the job. Examples are job tasks where personnel are required to handle blood or blood products, such as laboratory technicians, physicians, nurses, and emergency medical technicians.

Regulated Waste

Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Sharps

Any contaminated object that can penetrate the skin, including but not limited to needles, scalpels, broken glass, and exposed ends of wires.

Source Individual

Any individual, living or dead, is potentially a source of occupational exposure to personnel as blood may be a source of infection (i.e. trauma victims) (see Universal Precautions).

Sterilize

The use of a physical or chemical procedure to destroy all microbial life including highly resistant bacteria endocrine.

Universal Precautions

An approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body

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fluids and contaminated materials are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens.

Work Practice Controls

Controls that reduce the likelihood of exposure by altering the manner in which a task is performed such as requiring that glass be picked up with tongs or a dust pan and brush.

4. RESPONSIBILITIES

4.1 Project Manager

Shall be responsible for executing this procedure as per the advice by HSE Manager & Client and shall provide all necessary staff, services and materials to ensure that all personnel are prevented from the disease.

4.2 HSE Manager

Shall ensure that all personnel of CONTRACTOR and its subcontractors should undergo a physical examination and receive vaccination and training as per this procedure prior to mobilization to site (where applicable).

4.3 Employees

All CONTRACTOR employees assigned to the RRE Project site are required to successfully pass a full body medical examination, along with vaccinations if required.

CONTRACTOR and Subcontractors are responsible for the health of their employees and disease vector control of their job site as described in this procedure. Subcontractors shall cooperate with the HSE Manager to develop comprehensive and coordinated disease vector control plans for job sites and camps.

CONTRACTOR has oversight of Subcontractors' employee's health and job site disease vector control programs as described in this procedure.

5. GENERAL OVERVIEW

Blood borne pathogenic microorganisms that MAY BE present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV).

Some other infections that can be transmitted through contact with blood and body fluids include: hepatitis A, staphylococcus and strep infections, Gastroenteritis-salmonella, and shingles, Pneumonia, Syphilis, Tuberculosis, malaria, H5N1, HIV, measles, chicken pox, herpes, and urinary tract infections.

However the greatest risks are from HIV and Hepatitis B and C.

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6. PREMISE

The overriding premise of this Disease Prevention Procedure are the premise of **UNIVERSAL PRECAUTIONS**, where the risk of **OCCUPATIONAL EXPOSURE** may be **REASONABLY ANTICIPATED** and in cases of **OTHER POTENTIAL EXPOSURE** such as **GOOD SAMARITAN** acts, a regime of information and education shall be provided to ensure that personnel are aware of the potential risks (see section 2 for description of term)

Daewoo E&C may utilise a tiered exposure identification process whereby Level 1 Exposure is Unlikely, Level 2 Exposure is Possible and Level 3 Exposure is Probable.

6.1 Occupational Exposure

Occupational exposure is defined as any reasonably anticipated expositor to skin, eye, mucous membrane, or Parietal contact with blood or other potentially infectious materials that may result from the performance of personnel's duties. Good Samaritan Acts, such as personnel rendering assistance to accident victims, and other exposures that cannot be anticipated do not constitute occupational exposure and consequently are not covered in prevention exposure.

Clearly it shall be the purpose of this disease prevention procedure to minimise the risk of exposure where reasonably anticipated and to provide treatment where exposure has occurred.

7. IDENTIFYING POTENTIAL FOR OCCUPATIONAL EXPOSURE

7.1 Identify Personnel at Risk

Daewoo E&C requires subcontractors to perform an exposure determination concerning which personnel may incur occupational exposure to blood or other potentially infectious materials. The exposure determination is made without regard to the use of personal protective equipment (i.e. personnel are considered to be exposed even if they wear personal protective equipment). This exposure determination is required to list all job classifications in which all personnel may be expected to incur such occupational exposure, regardless of frequency.

7.2 Identify Tasks of Identified Personnel

If the subcontractor has job classifications in which some personnel may have occupational exposure then a listing of those classifications is required.

Since not all the personnel in these categories would be expected to incur exposure to blood or other potentially infectious materials, tasks or procedures that would or could cause these personnel to have occupational exposure are also required to be listed in order to clearly understand which employees in these categories are considered to have occupational exposure.

For the purpose of this Disease Prevention Procedure the SITE medical facilities and medical staff shall be considered as potential occupational exposure. This shall include all First Aid personnel.

In addition to medical personnel, personnel with potential occupational exposure include.

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- Catering Personnel.
- Laundry Personnel.

8. UNIVERSAL PRECAUTIONS

Universal precautions will be observed on SITE in order to prevent contact with blood or other potentially infectious material. All blood or other potentially infectious material will be considered infectious regardless of the perceived status of the source individual.

9. CONTROL METHODS

Engineering and work practice controls will be utilized to eliminate or minimize exposure to employees at the SITE.

Where occupational exposure remains after institution of these controls, personal protective equipment shall also be utilized.

9.1 Contaminated needles

Contaminated needles and other contaminated sharps will not be bent, recapped, removed, sheared or purposely broken. If such action is required then the recapping or removal of the needle must be done by the use of mechanical device or a one-handed technique. But none should be used on the RRE EPC 4 project

9.2 Contaminated sharps

Contaminated sharps that are reusable are to be placed immediately, or as soon as possible, after use into appropriate sharps containers, the sharps containers are to be puncture resistant, labelled with a biohazard label, and are leak proof.

9.3 Work Areas of Potential Occupational Exposure

In work areas where there is a reasonable likelihood of exposure to blood or other potentially infectious materials, employees are not to eat, drink, apply cosmetics or lip balm, smoke, or handle contact lenses. Food and beverages are not to be kept in refrigerators, freezers, shelves, cabinets, or on counter tops or bench tops where blood or other potentially infectious materials are present.

All activity will be conducted in a manner which will minimize splashing, spraying, splattering, and generation of droplets of blood or other potentially infectious materials.

Any equipment which has become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary unless the contamination of the equipment is not feasible.

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9.4 PPE for Personnel Subject to Potential Occupational Exposure

As an example of the use of this procedure, this section deals with the requirements for personnel engaged in medical support services at the SITE.

All personal protective equipment required to be used by personnel engaged in occupations of potential exposure shall be provided without cost to personnel. PPE shall be selected based on the anticipated exposure to blood or other potentially infectious materials. The protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach the personnel's clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

PPE availability for potential exposure by medical support personnel shall be as a minimum:

Personal Protective Equipment	Task
Gloves:	Standard for daily tasks
Lab Coat	Standard for daily tasks
Face Shield	When involved in exposure case
Single Use Face Masks	When involved in exposure case
Barrier Resuscitation Masks	When involved in exposure case
Clinic Jacket	Standard for daily tasks
Protective Eyewear (with solid side shield)	When involved in exposure case
Surgical Gown	When involved in stabilizing exposure case
Shoe Covers	Clinical shoes
Examination Gloves	When involved in stabilizing exposure case

All personal protective equipment will be cleaned, laundered, and/or disposed of at no cost to personnel. All repairs and replacements will be made by the employer at no cost to employees.

All garments which are penetrated by blood shall be removed immediately or as soon as feasible. All personal protective equipment will be removed prior to leaving the work area.

Laundry contaminated with blood or other potentially infectious materials will be handled as little as possible. Such laundry will be placed in appropriately marked bags at the location where it was used. Such laundry will not be sorted or rinsed in the area of use.

All personnel who handle contaminated laundry will utilize personal protective equipment to prevent contact with blood or other potentially infectious materials.

9.5 Clean up

All contaminated work surfaces will be decontaminated after completion of procedures and immediately or as soon as feasible after any spill of blood or other potentially infectious materials, as well as the end of the work shift if the surface may have become contaminated since the last cleaning

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10. POTENTIALLY EXPOSED PERSONNEL HEPATITIS B VACCINATION PROGRAM

All personnel who have been identified as having potential exposure to blood or other potentially infectious materials will be offered the Hepatitis B vaccine, at no cost to the personnel.

The vaccine will be offered within 10 working days of their initial assignment to work involving the potential for occupational exposure to blood or other potentially infectious materials unless the personnel has previously had the vaccine or who wishes to submit to antibody testing which shows the personnel to have sufficient immunity.

Personnel who decline the hepatitis B vaccine will sign a waiver.

11. POST EXPOSURE EVALUATION AND FOLLOW UP

All personnel who incur an exposure incident will be offered post- exposure evaluation and follow-up.

This follow-up shall include the following:

- Documentation of the route of exposure and the circumstances related to the incident
- If possible, the identification of the source individual and, if possible, the status of the source individual. The blood of the source individual will be tested (after consent is obtained) for HIV/HBV infectivity.
- Results of testing of the source individual will be made available to the exposed personnel with the exposed personnel informed about the applicable laws and regulations concerning disclosure of the identity and infectivity of the source individual.
- The personnel will be offered the option of having their blood collected for testing of their HIV/HBV serological status. The blood sample will be preserved for at least 90 days to allow the employee to decide if the blood should be tested for HIV serological status. However, if the personnel decide prior to that time that testing will be conducted then the appropriate action can be taken and the blood sample discarded.
- The personnel shall be offered post exposure prophylaxis.
- The personnel shall be given appropriate counselling concerning precautions to take during the period after the exposure incident. The personnel will also be given information on what potential illnesses to be alert for and to report any related experiences to appropriate personnel.

12. TRAINING FOR POTENTIAL EXPOSURE PERSONNEL

Personnel identified as at risk of exposure shall be provided with specific training. Training shall be conducted in the following manner. Specific training for personnel with potential for exposure shall include the following an explanation of:

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- Explanation of this Blood borne Pathogens Exposure and Disease Control Procedure.
- Epidemiology and symptomatic of blood borne diseases
- Modes of transmission of blood borne pathogens
- This Exposure Control Plan, i.e. points of the plan, lines of responsibility, how the plan will be implemented.)
- Procedures which might cause exposure to blood or other potentially infectious materials at the SITE and TEMPORARY SITE.
- Control methods which will be used at the SITE and TEMPORARY SITE to control exposure to blood or other potentially infectious materials.
- Personal protective equipment available to potentially exposed personnel.
- Post Exposure evaluation and follow-up
- Signs and labels used at the SITE and TEMPORARY SITE.
- Hepatitis B vaccine program at the SITE and TEMPORARY SITE.

13. RECORD KEEPING

Records of exposure events and personnel concerned shall be maintained through Daewoo E&C incident Injury Illness Investigation and Reporting Procedure.

Records shall be maintained for the length of the project.