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COMMENTS:

By:

Signed

Date

Review Code:

- | | | |
|----------------------|---|--------------------------|
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HSE AUDITING 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.



**RUWAIS REFINERY
EXPANSION PROJECT**

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

AGREEMENT No. 09-5578-E-4

DAEWOO E&C

PROJECT No. 5578

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18/19

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0	27 Oct 2010	Issued For Construction	D. Bhandari	A. Mesquita	D Y Kim	M Heo	
A	16 Aug 10	For Review & Comment	S Wardman	D Y Kim	C Wardman	M Heo	
SIGNED (Initials)			<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	

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. INTRODUCTION

1.1 Purpose

The purpose of this plan is to describe the project HSE audit & inspection program. A successful program that includes pro-active participation from all project organizations will significantly reduce the potential for accidents resulting in injury, property damage and near misses. Emphasis of the program is on continuous improvement. Each audit will be performed considering positive aspects as well as opportunities for improvement.

2. DEFINITIONS

- HSEMS : Health, Safety and Environment Management System
- Company : Takreer
- DEC: Daewoo E & C
- CONTRACTOR : Daewoo E & C
- PDP : Power Distribution Panel
- AFR : Audit Finding Report
- LWC : Lost Workday Case

3. RESPONSIBILITIES

3.1 Project Manager

He is the main responsible person in the implementation of the HSE Audit and Inspection Procedure. He shall create an audit team through HSE Manager that will make sure that all the provision of this procedure is followed. The Project Manager shall make sure that this procedure is reviewed and updated based on the current Regulations set up by the statutory authority

3.2 HSE Manager

Plan the inspection and audit schedule, and determine to inspection and audit scope. Responsible for management and control of this plan.

He will organize, plan and participate to periodical HSE Walk around, inspections and audits on Site, prepare all the relevant reports, action plans; verify the follow up and the timely execution of the corrective action.

He will participate in all auditing processes, along with interaction with subcontractor managers and follow-up action falls within the scope of site HSE procedure. Accountability for HSE performance is measured through results of the auditing program as well as follow-up action.

3.3 Subcontractor Senior Manager / Section Manager

He is responsible to render prompt corrective measures to all audit and inspection items. Pro-active approaches by Subcontractor Senior Manager / Section Manager to identify and correct concerns, as an organization, are expected.

4. INSPECTION AND AUDIT PROGRAM

4.1 HSE Tours

HSE Tour is an unscheduled & unannounced examination of the site random workplaces to assess whether or not acceptable standards are implemented in the site.

This is not normally documented but hazardous observations shall be discussed and verbally signaled to the person concerned (e.g. section managers/supervisors, subcontractor) and corrective action taken by the person.

HSE Tour is conducted jointly by HSE Managers and/or Senior Managers.

4.2 Weekly Management Walkthrough

Management HSE walkthrough is performed at pre-selected areas specified by the CONTRACTOR HSE manager. The Walkthrough is performed by a team consist of:

- Company HSE Representative
- Company Project Manager or his nominee
- CONTRACTOR Project Manager or his nominee
- CONTRACTOR HSE Manager (Team Leader)
- CONTRACTOR Section Manager of the area to be inspected

Notes are taken by the contractor HSE Manager and the subcontractor as observations are made during the walkthrough. Positive items as well as opportunities for improvement are recorded. A discussion of the inspection is performed by the leader of the team at the conclusion of the walkthrough. A formal report should be issued as soon as possible.

4.3 Internal HSE Audit

Following subcontractor's mobilization on site, Health, Safety and Environmental Management System audits will be scheduled and conducted to each subcontractor on a rolling 6 months basis. Audit team shall be organized by CONTRACTOR HSE Manager; a prepared audit checklist will be used.

The Audit is focused on assessment of subcontractor's HSEMS and HSE activities. Recommended corrective actions for non conformances should be submitted with the subcontractor's written report for improvement of HSEMS and audit result will reflect project incentive scheme.

4.4 Corporate HSE Audit

The project is subject to audits that will be conducted by Corporate HSE Audit Team throughout the project HSEMS and activities according to annual Corporate HSE Audit Plan.

The Audit Team shall be organized by Corporate HSE Manager and consist of Overseas HSE Team members are the followings;

- Audit Team leader
- Auditors

A dedicated HSE Audit checklist (Attachment 1) shall be used in the audit. If there's any management system failure, Audit Finding Report (AFR) (Attachment 2) shall be issued to the project. Corrective Action Report should be submitted to Overseas HSE Team within 15 days after issuance of AFR.

4.5 Special Audit

In the occasion where occurrence of fatality or LWC from serious fault, accident which led to social criticism or request of client, special audit team will be organized as soon as possible.

The Special Audit Team shall be composed of the following;

- Corporate HSE Manager and/or Staffs
- Project HSE Manager and/or Staffs

Special Audit Team carries out accident investigation and HSEMS audit at a time.

The purpose of Special Audit is to identify Root causes and management system failures from the accident, preparing and monitoring action plan for the prevention of recurrence of accident and for improvement of management system.

5. ATTACHMENTS

5.1 Attachment 1: HSE Audit Checklist

5.2 Attachment 2: Audit Finding Report

5.1 Attachment 1: HSE Audit Checklist

OVERSEAS HSE TEAM

DAEWOO E&C

C.P.O BOX 8269 SEOUL 100-714, KOREA

TEL : 82 + 2 + 2288 + 3937, FAX : 82 + 2 + 2288 + 5793

□ CHECKLIST NO : PO-ACL(O)-08-

DAEWOO ENGINEERING & CONSTRUCTION Co., LTD.

HEALTH , SAFETY & ENVIRONMENT AUDIT CHECKLIST

PROJECT NAME		Scoring ; Satisfactory - 100% Improvement Required - 70% Immediate Action Required - 40%
PROJECT MANAGER		
DATE		
Persons carrying out the Audit		
LEADER :		Grade ; 86~100% - G(Good) : Satisfactory
MEMBER :		61~85% - F(Fair) : Improvement Required
		0~60% - P(Poor) : Immediate Action Required

AUDIT ELEMENTS	<u>G</u>	<u>F</u>	<u>P</u>	RESULTS
HEALTH & SAFETY				
I. HSE SYSTEM (20)				
1. HSE PLAN & PROCEDURE (8)				
a) Establishment of Site HSE Plan & Procedure(4)				
b) Notice of Site HSE Policy & Target				
c) Risk Assessment & Job Safety Analysis (JSA)				
d) Application of Permit to Work				
e) Filing System (Documentation)				
2. HSE ORGANIZATION (2)				
a) HSE Organization				
b) HSE Allotment & Mob / Demobilization Plan				
3. HSE TRAINING (2)				

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a) HSE Training Plan & Induction

b) Training Course & TBM

4. MEETING & INSPECTION (2)

a) HSE Meeting & Follow up

b) Regular Inspection

5. STATISTICS & REPORTING (2)

a) Analysis of Accident Statistics

b) HSE Record & Reporting

6. INCENTIVES & DISCIPLINARY ACTION (2)

a) Incentives & Disciplinary Action Program

b) Evaluation of Section & Subcontractor

7. EMERGENCY PREPAREDNESS (2)

a) Organization of ERT & Scenario/Drill

b) Fire Fighting Facilities & Status

II. IMPLEMENTATION (30)

1. PERSONAL PROTECTIVE EQUIPMENT (PPE) (3)

a) Standard of PPE Provision

b) Wearing PPE

c) PPE Control Status

2. WORKING AT HEIGHT (3)

a) Harness, Life Lines, Nets

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b) Access & Working Platform

c) Handrails, Toe Boards, Opening Protection

3. SCAFFOLD (3)

a) Scaffolding Structure & Components

b) Access & Egress(Ladder)

c) Tagging System & Inspection

**4. EXCAVATION & CONFINED
SPACE (3)**

a) Safe Slope & Support (Block, Barricade)

b) Access & U/G Services Protection

c) Inspection (Testing & Monitoring)

**5. DRIVING & EQUIPMENT
CONTROL (3)**

a) Driver & Operator Control (License, Certificate)

b) Registration of Heavy Equipment

c) Inspection (Regular, 3rd Party)

6. LIFTING (3)

a) Lifting Equipment Certificate & Load Test

b) Control of Lifting Tool (Lifting Jig, Beam etc.)

c) Rigger & Operator Control

7. COLOR CODING (3)

a) Subject of Color Coding & Register

b) Inspector (Competent Person)

c) Inspection (Cycle, Procedure)

8. GAS CONTROL (3)

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- a) Gas Cylinder Storage (Cover, Ventilation, Signs)
- b) Flashback Arrestor & Fire Blanket/Extinguisher
- c) Handling (Carrier, Regulator, Gauge, Hose etc.)

9. ELECTRICAL SAFETY (3)

- a) PDP Control & Earthing
- b) Safety Device (ELCB, Insulation, Guard etc.)
- c) Cable / Plug / Socket Protection (U/G & O/H)

10. MSDS & COSHH (3)

- a) MSDS/COSHH List
- b) MSDS/COSHH Training
- c) Notice of Precaution

11. RADIOGRAPHY (3)

- a) Storage of Radioactive Sources
- b) Handling of Radioactive Sources
- c) NDT Register & Monitoring

12. HEALTH & MEDICAL (3)

- a) Site Clinic Operation
- b) Medical Examination & Patient Control
- c) Local Disease, Drug & Alcohol Control

13. HYGIENE (3)

- a) Kitchen Hygiene (Test, Cleaning, Storage)
- b) Accommodation Hygiene (Fumigation, Inspection)

c) Drinking Water Control (Test)

HEALTH & SAFETY TOTAL

ENVIRONMENT

I. ASSESSMENT & SYSTEM (25)

1. ENVIRONMENTAL SYSTEM (20)

- a) Environmental Management Plan
- b) Environmental Organization
- c) Environmental Policy & Target
- d) Environmental Improvement Program

2. ENVIRONMENTAL IMPACT ASSESSMENT (5)

- a) Environmental Impact Assessment & Follow up

II. IMPLEMENTATION (65)

1. ENVIRONMENTAL TRAINING (10)

- a) Training Plan & Record
- b) Emergency Preparedness (Scenario, Drill)

2. LEGISLATION & REQUIREMENT (10)

- a) Local Environmental Legislation
- b) Client Environmental Requirement

3. WASTE MANAGEMENT (20)

- a) Classification of Waste
- b) Segregation of Waste (Storage, Sign, Cleaning)
- c) Disposal Record (Agent, Quantity, Costs)

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d) Monitoring & Recycling

**4. WATER QUALITY
CONTROL (10)**

a) Waste Water Disposal

b) Sewage Effluent Measurement

5. AIR & NOISE CONTROL (15)

a) Prevention of Air Pollution (Plant, Access Road)

b) Noise & Vibration Control

c) Housekeeping Operation & Others

III. INSPECTION & MEASURE (10)

**1. OBSERVATION &
MEASUREMENT (5)**

a) Environmental Inspection & Audit

**2. NONCONFORMANCE &
MEASURE (5)**

a) Non-conformance & Corrective Action Taken

ENVIRONMENT TOTAL



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5.2 Attachment 2: Audit Finding Report

HSE AUDIT FINDINGS REPORT	No.	PO-AFR(0)-08-001	Name of Organization Under Audit
	Reply Date		
<u>FINDINGS</u>			
(Audit Team Leader) (Date)			
<u>REPLY</u> (Completion or Completion Expected Date :)			
(Manager of org. under Audit) (Date)			
REPLY REVIEW : () Satisfactory () Additional Action Required () Unsatisfactory () Not Required			
NOTES :			
(Audit Team Leader) (Date)			
CONFIRMATION OF CORRECTIVE ACTION: () Satisfactory, () Further Corrective Action Required (Re-Corrective Action Report Number :)			
NOTES :			
(Audit Team Leader) (Date)			