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COMMENTS:

By:

Signed

Date

Review Code:

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SAFE BLINDING 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	RUWAIS REFINERY EXPANSION PROJECT		DAEWOO E&C	
	EPC-4 TANKAGE AND ASSOCIATED INTERCONNECTING PIPING		AGREEMENT No. 09-5578-E-4	
PROJECT No. 5578	Doc. No. 5578-E4-HSE-HU-00048		Rev. C	Page 2 / 15

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SIGNED (Initials)								

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

The Safe Blinding procedure sets forth a procedure of isolating equipment/pipework to allow safe work and/or vessel entry.

This procedure shall be applicable during tie-in into live pipelines during construction. Hence, commissioning Group cannot be responsible for maintaining this procedure. The activity of draining, de-pressuring, issuing permit for inserting the blind may be done by Takreer and the activity may be performed by DEC. Hence, an interface procedure shall be developed.

1.1 Purpose

This Procedure is to ensure that all equipment/pipe work shall be properly isolated to allow safe work and/or vessel entry.

1.2 Scope

This procedure applies to all involved personnel working at the Ruwais Refinery Expansion Project work areas. Work covers both of hot work and cold work. Isolation of equipment/pipe work by blinding, as part of the preparation for hot work, vessel entry, or other maintenance work, must comply with this procedure. This procedure is to be used in conjunction with established procedures such as “Permit-to-Work” and “Energy Isolation Procedure” and does not replace or reduce the requirements of these other procedures and policies.

2. DEFINITIONS

AGT	Authorized Gas Tester
BL	Blind Location
Blind	A blind is a solid plate designed to withstand the full rated pressure from high pressure side. It prevents the flow of a fluid, and is used to isolate individual pieces of equipment/pipe work. Blinds shall conform to project specifications and appropriate codes. They must also be certified and properly stored. Additionally, blinds must be fitted with a handle and made to TAKREER specifications (HSE-CP40 Process Piping and Pipelines V1Rev. 00 Final), as required, to facilitate lifting.
Battery Limit Blind	Refers to a specific blind to isolate process operation or area within an oil refinery. This is often a physical boundary separating the process units from the supporting equipment.
BTL	Blind Tracking List is a form used to show identification and locations of blinds installed in Ruwais Refinery Expansion EPC-04 Laffan Refinery project areas; it serves as a record of the signatories related to loan approved blind list and the installation removal of blinds.

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Common Blind	Blind specified in more than one BTL or used to isolate more than one piece of equipment. used for isolation in more than one job.
Company	Abu Dhabi Oil Refining Company (TAKREER)
CSE	Confined Space Entry.
DEC	Daewoo Engineering & Construction Co., Ltd.
Hazardous	Hazardous is any product, which poses an immediate threat to personnel.
Installation Tag	A Red Tag installed at the blind location after blind is installed. Refer to Attachment.
Isolation	The separation of plant and equipment from every source of material or/and energy in such a way that the separation is secure.
JHE	Job Hazard Evaluation
Location Tag	A Yellow Tag installed to identify the location to be blinded. Refer to Attachment.
Masking (hanging)	Tape used during blind removal/installation to highlight the status of this blind. Tape Red tape indicates that blind has been installed and white/cream tape indicates the blind has been removed.
OP	Operating Party
P&ID	Piping & Instrumentation Diagram
Plate	Flat, thick, piece or sheet of metal.
PP	Performing Party
RFM	Isolation plate Rated For Maintenance (RFM) work only, and usually not pressure rated,
Spacer Ring (SR)	A ring installed in pipe work to facilitate the Insertion of a blind/plate and shall conform to the pipe specification.
Spectacle Blind (SB)	A combined blind and spacer ring.
Tag	Means of identifying a piece of equipment.

3. PROCEDURE

3.1 Isolation

All equipment / pipe work must be positively isolated by blinding, or by disconnecting all attached piping as part of the preparation for work. For 'Hot Work' or Vessel Entry', blinds must be Installed at the flanges closest to the equipment involved. Install or set blind in the direction of flow. When this isolation is accomplished by disconnecting piping, the disconnection must be at the fitting closest to the equipment. Open-ended lines shall be blinded.

Battery limit blinds do not take the place of blinds used to isolate specific equipment as required for Vessel Entry or Hot Work.

3.2 Preparation of Blind Tracking List

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A typical BTL (refer to appendix) must be prepared for each job, which serves to document that each piece of equipment has been safely isolated. It also serves as a reference when checking the conditions for Hot Work/Vessel Entry Permits, and an aid for checking that blinds have been removed prior to returning equipment into service.

During construction phase, tie-in works with live pipelines or operating facilities of the refinery shall be in coordination with the Company. System or lines that are required to be blinded/de-blinded are to be determined first from P&ID and isometric drawings if necessary (Takreer HSE-CP40 Process Piping & Pipelines V1Rev00 Final). Identified locations of blinds to be installed or removed will be marked on the drawings. Identification of locations shall be verified by a line walk by the Company operations and maintenance personnel jointly (refer to Takreer HSE-CP21 Permit to Work). Log sheets are to be raised to record the installation and removal of blinds. The location of blinds, which are not fully pressure rated (thin blinds) shall be clearly identified both at the blind and on the log sheet. The use of non-standard blinds shall be approved by Company Operations Manager, Maintenance Manager and Safety Manager.

In the commissioning stage of the RRE Project, the Commissioning Superintendent must prepare the BTL identifying the equipment to be isolated, each blind required, whether or not the blind is in hazardous service and its exact location. The blinds should be clearly marked on a P&ID, piping general arrangement or isometric drawing as necessary.

Fully prepared BTL shall be stamped as original, signed by the Commissioning Superintendent and retained in their office. The above signature in the "Approved By" box of the BTL means, "This Blinding List is the required one for the job to achieve the positive Isolation".

Blinds for the isolation of a piece of equipment must all be listed consecutively on the BTL to facilitate a thorough understanding of which blinds are related to the subject piece of equipment. If an individual blind serves to isolate more than one piece of equipment, or is used for isolation for more than one job or specified in more than one BTL, it shall be clearly identified as a common blind in the "Blind Tag No." column of the BTL, indicating each piece of equipment isolated by that blind. The blind will also be referenced in the "HAZARD/REMARKS" column, to prevent it from being removed before all pieces of equipment are ready. The common blind shall be included in the blind tracking list of all connected equipment.

Blinds used to isolate hazardous service lines must be indicated in the "HAZARD/REMARKS" column of the BTL. The purpose for this special designation is to identify any blind location, which has the potential for exposure to a hazard after the equipment has been purged.

Facility release form shall be prepared and signed off in the commissioning stage when the system is in Hydrocarbon service.

3.2.1 Safe Blinding Checklist

The following non-exhaustive list is offered as a guideline for anyone evaluating situations where blinding is necessary.

- Can the blind effectively accomplish its purpose in the location selected?
- Is the blind located at the flange closest to the equipment?

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- Is the gasket correct for the service compatibility and pressure rating and is it installed on the correct side of the blind?
- Is the selected location accessible to personnel and their equipment?
- Can the blind be removed safely?
- Is the blind approved and of the correct size, thickness and material?
- Has the equipment “Isolation, Lockout & Tagging of Energy Sources” procedure been executed prior to the Installation of the blind?
- Have provisions for protective equipment, respiratory protection, standby man, etc., been made?
- Can spills from opening flanges during blinding/re-blinding cause problems (i.e. people working below, sources of ignition, etc.)?
- Is the area cordoned off during blinding/rebinding activities?

3.3 Tagging of a Blind

The Operating Party (OP) must assign the correct blind tags (yellow) and install them on the Blind Locations as per the BTL.

Common blinds shall have more than one Tag as applicable.

Note that for blinding works needed for tie-inactivity in operating areas, the Company will be the Operating Party and DEC will be Performing Party.

3.4 Installation of Blinds

The OP must field check the signed BTL to ensure that the piece of equipment is properly isolated before a PTW can be issued.

3.4.1 Briefing

When blinding, the PTW with the attached marked P&ID is issued. OP must show personnel performing the work; the exact location of the blind, and make them aware of any potential hazard involved with installing the blind, specifying any special PPE to be used.

3.4.2 Draining & Depressurization

Before opening the system where the blind is to be inserted or to be removed, the following should be done:

- Release all pressure:
If a drain is not fitted in the pipeline, pressure and liquids can be released by the careful opening of a flange under the supervision of the Section Head concerned.
- Prepare for the collection and disposal of liquids & drain as much liquid as possible through the drain. Where possible, the drained liquid shall be piped directly to a safe area, or a pit shall be provided to collect it. The liquid shall be removed from the site as soon as possible in accordance with approved waste disposal procedure (DEC Environmental Management Procedure Doc. No. 5578-E4-HSE-HU-005) & Takreer HSE-CP12 Waste Management. Where applicable, place half barrel to collect drain down.

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3.4.3 Purging

If an open vent/drain is not available and it cannot be determined that the line or equipment is completely depressurized/purged, a Job Hazard Evaluation (JHES) must be carried out to identify the potential hazards linked with the breaking of a flange (presence of hazard product, Ring Type Joints, etc).

3.4.4 Installation

Location Tags (yellow) shall be replaced with Installation Tags (red). Refer to attachment.

Common blinds shall have more than one Tag as applicable.

OP may require the blinds to be installed in sequential order. The Performing Party (PP) should check with OP before proceeding.

After the blind(s) have been installed, the PP shall apply the Red Masking tape/Red hanging tape and must sign with the OP the appropriate column on the BTL, then the Area Supervisor must sign the appropriate box 'I verified that blind installation Is complete' of the BTL.

3.5 Removal of Blinds

Blinds may only be removed when all related work is complete, the PTW's with applicable certificates returned, signed off and new PTW's issued for deblinding.

When a blind is removed, the Installation Tag (red) and Red masking tape//Red hanging should be removed by the PP. Then, the PP should apply a White-Cream masking tape immediately after each Blind removal.

If the line is in hazardous service, the Authorized Gas Tester (AGT) must perform a gas test to determine if respiratory equipment or other personal protective equipment is required to remove the blind. Once the blind has been removed, the OP must verify that the Hazard Blind Tag has also been removed.

The OP must verify that the correct blind has been removed and must sign his name in the appropriate column of the BTL, countersigned by PP.

OP may require the blinds to be removed in sequential order. The PP will check with OP before proceeding.

Removal of an individual blind should continue without interruption to completion.

Common blinds shall be removed only when all associated Installation Tags have been removed and with specific authorization as indicated on the PTW. New gaskets shall be used while making a joint after removal of the blind.

4. RESPONSIBILITIES

The construction group shall be responsible for maintaining this procedure during construction stage. During commissioning stage, the Commissioning Group is responsible for maintaining this procedure and periodically assessing its application.

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The HSE Training Department is responsible for organizing and conducting training of all appropriate personnel for this procedure.

All personnel shall observe Company Policy and Procedures at all TAKREER locations. If this Procedure is unclear or not understood, refer to Line Supervisor.

4.1 Operating Party (OP)

OP shall carry out the following:

- Preparation of the Blind Tracking List (BTL).
- Preparation of marked up P&ID's showing blind locations.
- Identification of specific blind location by affixing Blind Location Tags on the flanges or studs where the blinds are to be installed.
- Identification of hazards associated with the Installation of the blind(s) OP must install a Hazard Blind Tag and identify the blind(s) as a hazard blind(s) on the BTL.
- Preparation of the equipment and lines to be blinded.
- Verification of the installation and removal of the blinds.
- Update/sign the appropriate column on the BTL after blinding work is completed.
- Update/sign the master BTL as applicable.
- Verify blinding on all equipment and sign the BTL.

4.2 Performing Party (PP)

PP shall carry out the following:

- Verifying that the blind/gasket conforms to Company specifications (HSE-CP40 Process Piping and Pipelines V1Rev. 00 Final) and to appropriate codes (I.e. that the blind/gasket is correctly rated for the temperature and pressure of the service and the material of construction of the blind and gaskets are compatible with service fluid).
- Barricading the area around or under blind installation point, if needed.
- Installation and removal of blinds.
- Removal of Blind Location Tags/handover to OP.
- Sign the appropriate column on the BTL after blinding/deblinding work is completed.
- Apply a Red Masking tape//Red hanging tape immediately after each Blind installation.
- Apply a White-Cream masking tape immediately after each Blind removal.

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4.3 HSE Department

HSE Department shall carry out the following:

- Routinely audit the safely precautions.
- Assist OP and PP in the evaluation of hazards and JHES, and randomly audit compliance with this procedure. Records of such audits shall be maintained.

5. DEVIATION

During Commissioning, there may be times where it will not be possible to follow this procedure. In such a case a request for deviation shall be made, (refer to appendix) 'Blinding Deviation Request'.

Only Commissioning Manager may authorize each and every deviation in writing only, with the written concurrence of Company Commissioning Representative.

Every time that a deviation request is raised, a team shall be constituted to review all aspects of the request deviation, perform all necessary work to prepare for the required attachments (JSA, Risk Assessments, Method Statements, Engineering Studies Isolation Procedure and others) and then prepare the "Blinding Deviation Request" for submittal. The Team shall consist of:

Commissioning Superintendent

Process Engineer

Maintenance Engineer

Commissioning HSE Superintendent

Company Commissioning Representative

The meeting initiator should be the Commissioning Manager

6. TRAINING

All personnel involved in blinding activities will be suitably trained, ensuring competence and the full understanding of the Safe Blinding Procedure. Records of such training shall be maintained and presented when available.

7. ATTACHMENTS

7.1 Attachment 1: Blind Tracking list

7.2 Attachment 2: Blind Tags

7.3 Attachment 3: Blind Deviation Request

7.4 Attachment 4: Safe Blinding De-blinding Flowchart

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7.2 Attachment 2: Blind Tags

BL-1

Placed By: (Name & Signature) _____

Date: _____

Time: _____

PTW No.: _____

Blind Location Tag (Yellow)

BL-1

Placed By: (Name & Signature) _____

Date: _____

Time: _____

PTW No.: _____

Installation Tag (Red)

Description: Tag Dimension: 2.75"x 6.5"
Tag shall be suitable for outdoor installation as per project environmental conditions.

7.3 Attachment 3: Blind Deviation Request

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BLINDING DEVIATION REQUEST				
	Originator	Name	Position	Date of Request
				Signature
<u>Description of Deviation:</u>				
<u>Justification:</u>				
<u>Attachment:</u>				
<input type="checkbox"/> <u>JSA for the deviation</u> <input type="checkbox"/> <u>Method Statements</u> <input type="checkbox"/> <u>Engineering Studies</u>				
<input type="checkbox"/> <u>Risk Assessment</u> <input type="checkbox"/> <u>Isolation Procedure</u> <input type="checkbox"/> <u>Others</u>				
<u>Reviewed by (as applicable):</u>				
COMMISSIONING			COMPANY	
OP (Name, Signature & Date)	COMM Supt (Name, Signature & Date)	TAKREER (Name, Signature & Date)		
<u>Commissioning Manager Approval</u>				
<u>Signature:</u>			<u>Date and Time:</u>	

7.4 Attachment 4: Safe Blinding De-blinding Flowchart

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