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Contractor Transmittal No.	T-DH-5578-E4-2541	Recd. Date	12 Jan 2011
Document No.	5578-E4-HSE-HU-00039	Rev. Date	11 Jan 2011
Document Title	Forklift Safety Procedure	Rev	0

COMMENTS:

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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-00039

Rev. 0

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FORKLIFT SAFETY PROCEDURE

AGREEMENT NO. : 09-5578-E-4

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



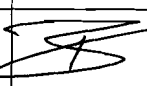
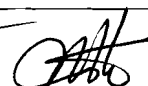
COMPANY : Abu Dhabi Oil Refining Company (TAKREER)

PMC : Mott MacDonald Ltd.

CONTRACTOR : Daewoo Engineering & Construction Co., Ltd.

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						DIST. CODE	18/19
0	11 Jan 2011	Issued for Construction	A Mesquita	D Y Kim	V Bower	J. H. Lee	
B	11 Nov 2010	For Review & Approval	D. Bhandari	A Mesquita	DY Kim	J. H. Lee	
A	16 August 10	For Review and Comment	C Wardman	DY Kim	J Brand	M Heo	
REV	DATE	REASON FOR ISSUE	PREP	CHKD	REVD	APP'D	COMPANY
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

1.1 Purpose

This section outlines minimum guidelines relating to maintenance and use of fork trucks, platform lift trucks and motorized hand trucks. All DEC and their subcontractor employees, who use this equipment, must be trained in the safe use and inspection of the equipment.

2. RESPONSIBILITIES

2.1 Project Manager

- Has the final responsibility to ensuring that all forklift operation works on the project is done without endangering health and safety in accordance with the local legislation, client's requirements and stipulations laid down in the HSE management system document
- Ensure that all forklift related accidents are reported, investigation and that corrective and preventive measures are taken.
- Has the power to stop any work or operation under his authority on health, safety or environmental grounds until effective measures have been taken
- Has the power to remove personnel, including sub-contractor's personnel from the project site if despite repeated warnings (including written warning), they work in a manner which endangers health or safety

2.2 HSE Supervisor

- Shall coordinate with the section managers to ensure that suitable arrangements, including subcontractors, are in place to forklift involving activities safely.
- Shall ensure that the forklift operator has necessary qualification certificates to operate the equipment.
- Shall assign HSE officer for performing internal audits, advising employees on subjects concerning health and safety

2.3 Section Manager

- Ensure that the forklift operation on the project site is carried out without endangering health and safety in accordance with the HSE plan and procedure
- Give his staff members job-related information and instructions on the subject of health and safety and repeats such information and instructions as needed
- Conducts audits checks on plant and equipment prior to commencement of work
- Makes inventory of potential hazards, takes corrective and preventive actions, ensures that Site Safety Officer records these to the Project Manager
- Is authorized, if he is of the opinion that there is a threat of immediate and serious danger, to stop any activity under his authority from being carried out and/or stop the use of plant and equipment, machinery, etc. until effective measures have been taken

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3. GENERAL REQUIREMENTS

Forklift trucks shall bear a label or some other identifying mark indicating approved and tested. Modifications and additions which affect capacity and safe operation shall not be performed without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

If the forklift truck is equipped with front-end attachments other than factory installed, they must be marked to identify the attachments, and show the approximate weight of the forklift truck and attachment combination at maximum elevation with load laterally centered. All nameplates and markings must be maintained in a legible condition.

Seat belts shall be provided on all forklift trucks except as follows:

Equipment designed only for standup operation.

Equipment which does not have rollover protective structure (ROPS) or adequate canopy protection.

Only trained and authorized operators shall be permitted to operate a fork lift truck.

4. DESIGNATIONS

There are eleven different designations of industrial forklift trucks or tractors as follows: D, DS, DY, E, ES, EE, EX, G, GS, LP, and LPS.

1. The D designated units are similar to the G units except they are diesel engine powered instead of gasoline engine powered.
2. The DS designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a D unit may not be considered suitable.
3. The DY designated units are diesel powered units that have all the safeguards of the DS units and, in addition, do not have any electrical equipment, including the ignition, and are equipped with temperature limitation features.
4. The E designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.
5. The ES designated units are electrically powered units that, in addition to all of the requirements for the E units, are provided with additional safeguards to the electrical system to prevent emission of sparks and to limit surface temperatures. They may be used in some locations where the use of an E unit may not be considered suitable.
6. The EE designated units are electrically powered units that have, in addition to all of the requirements for the E and ES units, the electric motors and all other electrical equipment completely enclosed. In certain locations the EE unit may be used where the use of an E and ES unit may not be considered suitable.
7. The EX designated units are electrically powered units that differ from the E, ES, or EE units. The difference is the electrical fittings and equipment on the EX units, are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

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8. The G designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.
9. The GS designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of a G unit may not be considered suitable.
10. The LP designated unit is similar to the G unit except that liquefied petroleum gas is used for fuel instead of gasoline.
11. The LPS designated units are liquefied petroleum gas powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of an LP unit may not be considered suitable.

The atmosphere shall be monitored and classified as hazardous or non-hazardous prior to the consideration of industrial forklift trucks being used.

5. DESIGNATED LOCATIONS

Forklift trucks shall not be used in atmospheres containing hazardous concentrations of acetylene, butadiene, ethylene oxide, hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas), propylene oxide, acetaldehyde, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH).

Only approved power operated industrial forklift trucks designed as EX may be used in such atmospheres containing hazardous concentrations of metal dust or vapors, including aluminum, magnesium, and their commercial alloys, other metals of similarly hazardous characteristics, or in atmospheres containing carbon black, coal or coke dust, acetone, acrylonitrile, alcohol, ammonia, benzene, benzol, butane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylenes in quantities sufficient to produce explosive or ignitable mixtures, and where such concentrations of these gases or vapors exist continuously, intermittently or periodically under normal operating conditions or may exist frequently because of repair, maintenance operations, leakage, breakdown or faulty operation of equipment.

In atmospheres where dust of magnesium, aluminum or aluminum bronze may be present, fuses, switches, motor controllers, and circuit breakers of forklift shall have enclosures specifically approved for such locations.

Forklift trucks designated as DY, EE, or EX may be used in locations where volatile flammable liquids or flammable gases are handled, processed or used, but only if the hazardous liquids, vapors or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of the containers or systems.

In locations used for the storage of hazardous liquids in sealed containers or liquefied or compressed gases in containers, approved power operated industrial forklift trucks designated as DS, ES, GS, or LPS shall be used.

Only approved power forklift trucks designated as EX shall be used in atmospheres in which combustible dust is or may be in suspension continuously, intermittently, or periodically under normal operating

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conditions, in quantities sufficient to produce explosive or ignitable mixtures, or where mechanical failure or abnormal operation of machinery or equipment might cause such mixtures to be produced.

Forklift trucks designated as DY, EE, or EX shall be used in atmospheres in which combustible dust will not normally be in suspension in the air or will not be Likely to be thrown into suspension by the normal operation of equipment or apparatus in quantities sufficient to produce explosive or ignitable mixtures but where deposits or accumulations of such dust may be ignited by arcs or sparks originating in the forklift truck and in locations which are hazardous because of the presence of easily ignitable fibers or flying, but in which such fibers or flying are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures.

Only forklift trucks designated as DS, DY, ES, EE, EX, GS, or LPS are used in locations where easily ignitable fibers are stored or handled, including outside storage, but are not being processed or manufactured. Industrial forklift trucks designated as E, which have been previously used in these locations, may be continued in use.

Forklift trucks that have been originally approved for the use of gasoline for fuel, when converted to the use of liquefied petroleum gas fuel may be used in those locations where G, GS, or LP, and LPS designated forklift trucks have been specified in the preceding paragraphs.

6. CHANGING AND CHARGING STORAGE BATTERIES

Forklift trucks shall be properly positioned and brake applied before attempting to change or charge batteries.

Smoking, open flames, sparks, or electric arcs in battery charging areas shall be prohibited.

A safety shower and or eye wash facility or other acceptable means of quick drenching of the body shall be within a safe distance of the charging facility.

Battery charging installations shall be located in areas designated for that purpose. Facilities shall be provided for flushing and neutralizing spilled electrolyte, fire protection, protecting charging apparatus from damage by forklift trucks, and adequate ventilation for the dispersal of fumes from gassing batteries.

Reinstalled batteries shall be properly positioned and secured in the forklift truck. A carboy tilter or siphon shall be provided for handling electrolyte.

When charging batteries, acid shall be poured into water; water shall not be poured into acid.

Care shall be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) shall be open to dissipate heat.

Tools and other metallic objects shall be kept away from the top of uncovered batteries.

7. LIGHTING FOR OPERATING AREAS

Where general lighting is less than 2 lumens per square foot, auxiliary directional lighting shall be provided on the forklift truck.

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8. FORKLIFT TRUCKS AND RAILROAD CARS

The brakes of highway trucks must be set, wheel chocks placed under the rear wheels to prevent rolling while using forklift trucks inside for loading or unloading.

Wheel stops or other recognized positive protection shall be provided to prevent railroad cars from moving during loading or unloading operations and while dock boards or bridge plates are in position. Derail and/or bumper blocks shall be provided on railroad track spurs while the rail car is being loaded or unloaded.

Fixed jacks may be necessary to support a semi trailer and prevent unending during loading or unloading when the trailer is not coupled to a tractor.

The flooring of highway trucks, trailers and railroad cars shall be checked for breaks and weakness before they are driven onto.

9. FORKLIFT TRUCK OPERATIONS

Forklift trucks shall not be driven up to anyone standing in front of a bench or other fixed object. Persons shall not be allowed to stand or pass under the elevated portion of a forklift truck, whether loaded or empty.

Unauthorized personnel shall not be permitted to ride on powered industrial forklift trucks unless a safe place to ride has been provided.

Arms or legs must not be placed between the uprights of the mast or outside the running lines of the forklift truck.

When a forklift truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be blocked if the forklift truck is parked on an incline. When the operator is dismounted and within 7.5 meter of the forklift truck still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.

A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform or freight car. Forklift trucks shall not be used for opening or closing freight doors.

There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.

An overhead guard shall be used as protection against falling objects.

A load backrest extension must be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

If, at any time, a powered industrial forklift truck is found to be in need of repair or in any way unsafe, it shall be taken out of service until restored to safe operating condition.

Open flames shall not be used for checking electrolyte level storage batteries or gasoline level in fuel tanks.

Whenever a fork lift truck is used for the lifting of personnel, the following additional precautions shall be taken for the protection of personnel being elevated:

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- Use of safety platform firmly secured to the lifting carriage and/or forks.
- Means shall be provided whereby personnel on the platform can shut off power to the fork lift truck
- Such protection from failing objects as needed due to operating conditions shall be provided.

10. TRAVELING

Fire aisles to stairways and fire equipment shall be kept clear.

All traffic regulations shall be observed including authorized plant speed limits. A safe distance shall be maintained approximately three forklift truck lengths from the fork lift truck ahead, and the forklift truck shall be under control at all times.

The right of way shall be yielded to ambulances, fire trucks, or other vehicles in emergency situations.

Do not pass other fork lift trucks traveling in the same direction at intersections, blind spots, or other dangerous locations.

The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver must travel with the load trailing.

Railroad tracks are to be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.

The driver must look in the direction of, and keep a clear view of the path of travel and slowly ascend or descend grades. When ascending or descending grades in excess of 10 percent, loaded fork lift trucks must be driven with the load up grade, and the load and load engaging means will be tilted back if applicable, and raised only as far as necessary to clear road surface.

Under all travel conditions the forklift shall be operated at a speed that will permit it to be brought to a stop in a safe manner.

Stunt driving and horseplay shall not be permitted.

Dock boards or bridge plates shall be properly secured before they are driven over. Dock board or bridge plates shall be driven over carefully and slowly and their capacity never exceeded.

Elevators shall be approached slowly and entered squarely after the elevator car is properly leveled. Once on the elevator, the controls are neutralized, power shut off, and the brakes set. Motorized hand forklift trucks must enter elevators or confined areas with load end forward.

While negotiating turns, reduce the speed to a safe level and turn the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate. Running over loose objects on the roadway surface must be avoided.

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11. LOADING

Only stable or safely arranged loads are to be handled. Caution must be exercised when handling off-center loads, which cannot be centered. The load must be within the rated capacity of the fork lift truck.

Long or high (including multiple-tiered) loads, which may affect capacity, shall be adjusted.

Forklift truck equipped with attachments shall be operated as partially loaded lift trucks when not handling a load.

A load engaging means shall be placed under the load as far as possible and the mast should be carefully tilted backward to stabilize the load.

Use extreme care when tilting the load forward or backward, particularly with high tiering. Tilting forward with load engaging means elevated is prohibited except to pick up a load. An elevated load shall not be tilted forward except when load is in deposit position over a rack of stacks. When stacking or tiering, only enough backward tilt to stabilize the load is to be used.